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LEARNING STYLE PREFERENCES OF MEDICAL STUDENTS: AN EXPERIENCE FROM PAKISTAN

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Abstract

Background: The learning style is learner's own way of understanding, interpreting and retaining obtained information. Many factors can influence students learning style by knowing the learning preferences. The medical teachers can develop their own strategies to serve this noble purpose.

Objective: The objective of the study was to ascertain the preferred learning style of the students of medical field by using VAK Learning styles self-assessment questionnaire.

Method: It is a Cross sectional study performed at Gujranwala Medical College from January to April 2018. One hundred and eighty (180) 1st year and 2nd year medical students participated in the study. A questionnaire based on VAK Learning style self-assessment was used to evaluate the learning preferences/modes in terms of visual (V), auditory (A) kinesthetic (K) preferences. Data entered and analyzed in Excel and presented as frequency and percentages.

Results: Among first year medical students 42.8% preferred Auditory mode followed by 26.3% Kinesthetic and 23.0% visual mode and in second year 33.5% auditory, 32.5% visual and 13.4% kinesthtic mode of learning. Only 6% of first year and 1% of second year students have selected more than one learning mode in equal percentage.

Conclusion: The Auditory mode is the top most preferred mode followed by visual and kinesthetic among medical students, very few students in our research has multimodal learning preferences.

KEYWORDS: VAK Learning styles, teaching learning strategies, Medical students

Learning style" is the personal preference and definitely the right of every learner. It is a complete, comprehensive and affective indicator of a learner's learning process that shows how he perceives and react to the learning environment.[15] Academic attainment is based on the learner's learning method selection. The learning art can be further classified into externally regulated plans (i.e. books and teachers) and the self-regulated plans. Research over the time proves that different students have different learning styles.[9,13,14]

Different teaching methods used for medical students are; discussions and practical's (hands on) or the lectures and tutorial, etc. On the other hand, students learning preference is a very less explored domain but in fact the most important one. The studies conducted worldwide shows quite variation in the results perhaps due to the various teaching modalities used in different parts of the world.

For the better learning environment it is mandatory to have the recognition of learning styles so that the students can be guided to opt for the appropriate strategy. Bruner[16,17] described how humans assemble information from the environment via these 4 sensory modes; Visual (diagrams or flow charts etc) Auditory (listening or interacting), Visual/Iconic (reading/writing) and Kinesthetic (touch or smell). Medical arena has been loaded with many tools and models of learning over the time like experimental learning, books followed by digital learning and

among models; Fleming's VAK model, VARK model, Kolb Learning Style Model, Honey-Mumford Model[18] etc. VAK (Visual, Auditory and Kinesthetic) is an easy, accessible and commonly used model. VAK learning model was develop by psychologist in 1920s.The simplicity and usefulness of the VAK model made it the most popular in teacher's community but it is equally important to understand that different groups of pupil will have different strengths and preferences.

The best style of learning for individuals is to avoid dependency upon any single style and similarly the best learner is one who is capable of adopting the style according to the learning situation. Aim of this study is to establish the impact, effectiveness and efficacy in terms of VAK model of learning on the medical students and to determine their learning preference among visual, auditory and kinesthetic modes, so that it can help both the students and the teachers to create a better learning environment. Anu et al.[19] studied the student's learning style of different medical colleges in Tamil Nadu and the results were similar, among 430 1st and 2nd year students, they found 70.6% preferred multiple learning styles followed by 6.5%, 12.6% and 10.3% selected visual, aural and kinesthetic mode of learning respectively, by a different inventory of VAK questionnaire.

OBJECTIVE

Determination of the preferred learning style with the help of VAK Learning style self-assessment questionnaire among the medical students.

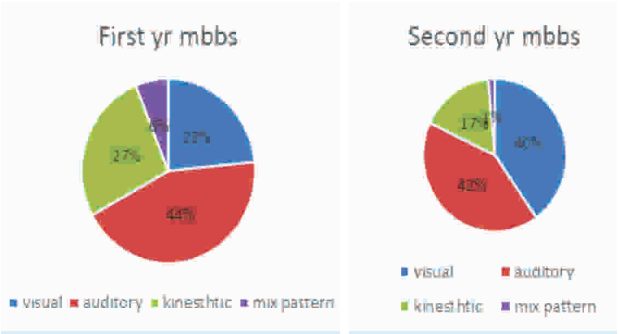
METHODS

It is a cross-sectional study, conducted at Gujranwala Medical Collage, Pakistan on first and second year medical students. After approval from ethical review board (ERB) of the collage, A sample size of 180 was calculated in a stratified sample with confidence level of 95% and acceptable difference = 0.05 and total size of population (first year and second year) of 300 number and proportion in each stratum of 150 Optimal allocation:180 (90 in each strata). Assuming 70.6% preferred multiple learning styles from study of Annu et al.[19]

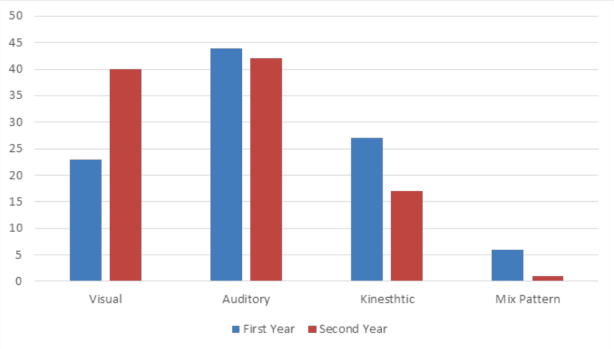
A standardized VAK questionnaire consisting of 30 question was asked from each student. VAK consist of 3 components of Visual (A), Auditory (B) and Kinesthetic (C) options. Candidates were allowed to select more than one options if they found suitable. Pre- set questionnaire of 3 pages was distributed after a concise description of purpose of the study to the volunteer participants. The questionnaire was recollected after 20 minutes and were later evaluated to obtain the results. Data was entered and analyzed in Excel and presented as frequency and percentages.

RESULTS

Out of 180 participants, 91 were from first year MBBS and 89 from second year MBBS. Among the 91 first year students all were multimodal in terms on questions but if we see the percentages 23.0% students preferred the visual mode of study, 42.8% opted the auditory options more and 26.3% selected the kinesthetic mode of learning more while those who selected all three in exactly equal percentage were 3.2% and who selected visual and auditory both in equal percentage 2.1% and those who selected visual and kinesthetic in equal percentage were 1% and auditory and kinesthetic were also 1%, while none of the students left the questionnaire empty.



Comparison of First and Second Year Medical Students in learning preferences



DISCUSSION

Medical students of this era depict a wide scope of not only age, gender, culture, ethnicity, experience but also in learning styles and preferences. This diversity is indeed challenging to meet the exact needs of the fresh minds. Educational world understands and appreciates the usefulness of students awareness of different methodologies available and there role in academic carrier and success.[1,2] The acronym VAK holds three important sensory modalities related to learning and preserving information. In this study; Visual, Auditory and Kinesthtic choices were provided to 1st and 2nd year medical students to ascertain their learning preferences in form of a questionnaire. All students exhibits multimodal preferences, which dynamically indicate that the data presentation should be versatile. Previously conducted many studies worldwide also reported the similar results,[3-5] however in those studies the percentage for multimodal learning preference varies from 59 - 85%.[5-8] This shows that the activities blend in teaching to activate and enhance the visual, aural and kinesthetic sensations lead to learn students more effectively and efficiently. Usage of multimedia in teaching is the best example.

Among uni-model learning style, according to this research the most preferred mode is Auditory (42.8% first year, 33.7% second year) followed by visual and kinesthetic modes. This figure is actually different from most of the work done on this topic and is actually the area of interest, why is this so, what is the reason behind it? Is it the effect of influence on the students, from most of the years of early learning or this is something else like genetic or environmental difference. Indeed this was the first learning style from which our insisters learnt and transmitted that information from generation to generation, or it's the time to transform our learners mind by experiencing the other learning styles as well. Our results are almost comparable to the study done by Nuzhat et.al[5] in which the auditory mode was the most preferred mode among the Saudi medical students. While the studies conducted in Turkey by Baykan and Nacar[9] and Poonam kharb et.al[4] in India reported kinesthetic as the active learning style among students while another study Lujan and DiCarlo[10] reported that Read/Write is the most preferred mode among the students of Indiana, USA. Although, this variation in learning style/ preferences can be explained on the foundation of teaching modalities used at pre medical levels.

In fact, no single learning approach/strategy can work for all students, regardless how good the strategy is and so the mismatched Learning methodologies may adversely affect learning process.[11,12] This comes to the point that the medical educators may also be provided with the appropriate training programs in order to develop a better student teacher learning relationship. This was the concept which gives rise to the new term "integrated learning style" (ILA).

The limitation of the study is its small sample size and this is the reason that its findings cannot be applicable to all the medical students. In future, more vast canvas for research is required. But will this difference of learning style do make a difference in individual performance in medical field or not, still need to be answered…, from the phase of pre-clinical to clinical.

CONCLUSION

The most common uni-modal preference among the medical undergraduates in our setting is Auditory followed by Visual and Kinesthetic among

the medical students.

RECOMMENDATIONS

Single approach teaching is outdated now. Hence, it is vital for the educator's to be aware of various learning styles and should put there all efforts to fill the gap between the teaching style and the learning strategy. So that, an effective learning-teaching environment can flourish. Here, I would like to introduce a new term INTEGRATED LEARNING STYLE (ILS). In my view point it will help the students as well as the educators to get a more targeted approach towards the problematic issues or the difficult areas and also opens a new gateway for the educational researchers.

Although these results are a bit different from most of the studies conducted as students of this part of the world preferred more auditory as the preferred mode. This is still a research able areas that why the preference of these students is different from other students in different parts of the world. Either it is influenced by the ways they have been taught in their early schoolings (cultural/environmental) or it has some genetic influence.

CONFLICT I OF INTEREST: Declared none.

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IMPACT OF OCCUPATIONAL STRESS AND CAREER GROWTH ON ORGANIZATIONAL COMMITMENT AMONG NURSES

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Abstract

Introduction: Organizational commitment is a challenge for the nursing profession. Each organization has own environment for professional, and this impact on employ's organizational commitment. In order to increase job commitment, efficiency, productivity, and effectiveness of employees, each organization must reduce the level of stress and increase career development among employees through providing of the good working atmosphere (Ruzungunde, Murugan, & Hlatywayo, 2016).

Methodology: A descriptive correlational study was carried out in Jinnah hospital Lahore among staff nurses. Total 172 female staff nurses were (Staff nurses and senior staff nurses) participated in the research age group of 21-45 years.

Results: Statistical Analysis showed that professional stress (M=4.0373, SD= .41216), career development (M=4.1536, SD=.84719) and organizational commitment (M = 2.2483, SD= .51568) had moderate level. Professional stress had a statistically significant negative impact on organizational commitment (r= -.058, $p<0.01$) and career growth had a significant positive impact on organizational commitment (r= .488**, $p<0.01, 0.05$).

Conclusion: This study was designed with particular predictions that every organization needs to realize the importance of organizational commitment among employees. So, it is very essential for every organization to provide that environment which reduces the level of professional stress and increase career development. Stress-free working environment in a hospital have tremendous effect for both the organization and its staff nurses.

Health organization have a very complex environment in which different professional accomplish their responsibility. Nursing profession is one of them which have own important professional responsibilities. Each organization have own environment for professionals, and this impact on employ's organizational commitment. Organizational commitment is known as the willingness of workers to work hard on behalf of an organization to get the goals of an organization. There are many factors which affect organizational commitment, the most common factor is occupational stress and career growth. Many scholars described that organizational commitment is influenced by occupational stress and it reduce the level of employer's commitment to their organization (Sow, 2015). Organizational commitment is also affected by career growth. In an organization, the employees who have more opportunities to build up their career growth, the level of organizational commitment is higher among them (Haque, 2014). Organizational commitment enhances the abilities of their employees because if they are engaged and satisfied with their job then they do their best for the development of an organization. They pay their duties with more attention. They complete their all task with responsibility because they thought their value and value of an organization is the same. They feel proud to accomplish the responsibilities of an organization. These characteristics demonstrate the commitment of employees to their organization. In an organization, the commitment of employees drives their all efforts for a better outcome. The commitment of nurses to their organization shows that they are satisfied with their work. The effective engagement of employees to their organization plays a vital role and it provides better opportunities to enhance their characteristics at a workplace (Demp-

sey & Reilly, 2016). Organizational commitment of employees to their organization is very important. It plays a major role to satisfy their subordinates. If they have a high level of commitment then they can stay at an organization for a long time. They can accept all rules and policies of their organization and think about the success of their organization. They may feel relaxed to be a part of an organization. Organizational commitment is the field of organizational behavior. Employees 'loyalty can be defined as workers are being committed to the achievement of their organization and believing that working for this organization is their best option (Iqbal, Tufail, & Lodhi, 2015). Occupational stress is a major problem at workplace. There are many sources which can increase occupational stress. At workplace, heavy workload, manage the work of other people and have poor abilities to fulfill them may cause occupational stress. Hospital staffs usually work beyond the capacity of activity. They face many problems and cannot cope with working policies. The Occupational stress is a destructive physical and emotional reaction which happened when the requirements of work do not organize the abilities (Ruzungunde et al., 2016). Job stress is a result or response to a certain stimuli in the atmosphere. Nowadays, work related stress has become more apparent and leads to low self-esteem of staffs. The causes of job stress can be hospitals rules and regulations, clashes between the employees and organizational views, ineffective communication and low guidance from superiors and senior subordinates (Divakar, 2015). Stress is a negative feeling and effects the physical health of people. There are many problems associated with the health of employees due to occupational stress. The common problem which finds in health care employees may be headaches, indigestion, tiredness, too much eating or drinking, difficulty in sleep and tendency to sweet. These long lasting disorders can promote physically and mentally problems among employees. Which can influence their job performance, job satisfaction and organizational commitment (Antonova, 2016). Career growth is a process which requires many characteristics of employees to observe their career goals and plans for their better development and implementation. Organizational career growth is known as a program which is provided by an organization. The organization may do effective planning to develop the career of their employees. It can enhance the knowledge and skills of their employees through a proper training program and by providing proper feedback. Career counselor and manager may provide support and guide to take a batter decision to increase career growth and may improve working performance. Employees would be able to build up their abilities and skills if the organization arrange a proper training program for them (Yang, Liu, Liu, & Zhang, 2015). As the organizational environment is becoming so advanced and it challenges the employees for better career growth. So, it is noticed that the growth of the career is the responsibility of employees not their organization. But supervisors and senior subordinate can help to develop individual career growth and professional commitment. If employees push their efforts to develop their career, they may achieve their goals. Self-motivation can encourage employees to search out new training programs for better role performance which may enhance personal skills and knowledge. However, hardworking might be increase career growth and professional skills in employees, which may also help to gain reward and fulfill personal goals (Luck, Wilkes, & O'Baugh, 2015; Rehman, 2017).

1.2 PROBLEM STATEMENT

Now a day's organization facing many challenges related to human resources, one of them is employee organizational commitment. It is sound that committed human power moves the organization in the right direction for achieving the organization goal, but non-commitment can lead to poor outcomes of an organization. If employees are not committed to their organization, they cannot achieve their task in their duties. They may be disloyal to their organization and may show aggressive beha-

vior. They may take a wrong decision to leave the job. Non-commitment may cause absenteeism. There are many contributing factors in non-commitment of employ such as: occupational stress and career growth. When occupational stress is increased then commitment can reduced and it would have negative impact on organizational commitment. If career growth increases, the motivation, the self-esteem, and the personal satisfaction also increases and employ are more committed. Occupational stress and career growth have a major role in organizational commitment. There is no study done in our context of university of Lahore that career growth and job stress influence organizational commitment. So, this research work will explore the impact of occupational stress and career growth on organizational commitment among nurses. The presence of work stress has been proven by previous studies to decrease employee's commitment towards the organization (Hashim & dan Perakaunan, 2016). Organizational commitment is influenced by career growth if employees have a high level of career growth, then they have a more effective commitment to their organization (Bai & Liu, 2018) .

1.3 OBJECTIVES OF THE STUDY:

- To determine the impact of occupational stress and career growth on organizational commitment among nurses.
- To identify the level of occupational stress, career growth and organizational commitment among nurses.

1.4 THEORETICAL FRAMEWORK:

According to Mayer and Allen's framework which was first developed in 1991, known as Mayer and Allen three component organizational commitment model that was first time implemented on organizational commitment. The requirements of the study are fulfilled by this framework. According to Mayer and Allen's those variables which identify with the work and setting, impact the administrative commitment. They establish that there is an extraordinary connection between work-related stress and organizational commitment. Organizational commitment is influenced by job related stress and career development.

(Leite, Rodrigues, & Albuquerque, 2014)

Figure 1 show the conceptual model of this study. It described that factors which affect the organizational commitment. It reveals that work-related stress and career development may affect the organizational commitment. Occupational stress is an independent variable and it have further sub domains which are source of work stress and physical health. Career growth also independent variable and it have two sub domains which are organizational career growth and individual career growth. These all factors that affect administrative commitment. Thus the hypothesized theoretical framework shows that:

- Occupation stress may have some impact on organizational commitment among nurses.
- Career growth may have some impact on organizational commitment among nurses.

1.5 SIGNIFICANCE OF THE STUDY:

This study will be significant for the organization, study participants, and professional because the findings of this study give right information about the impact of occupational stress and career growth on organizational commitment among nurses. On behalf of this information policy maker / decision maker and concerning authority can take sufficient measure and use motivation strategies (through seminar, workshop and counselling etc.) for reducing occupational stress and advancing the career growth which can increase the organizational commitment of nurses. By doing this employee can improve their job performance which can ultimately increase organizational performance. Committed employs will provide the quality care which improve the repute and prestige of hospital and in turn reduce costs for the healthcare organizations as well as individuals. The findings of this study will provide information to investigator or researcher about the impact of occupational stress and career growth on organizational commitment among nurses, which can serve as a guide for further research in this area. The study finding will help the Staff nurses of this organization to cope with occupational stress by using strategies like discussion with teachers, mentors and staff which help to develop their career growth and enhance their commitment. This action may improve quality of care and enhance the staff nurses learning, ultimately it will develop the staff nurses 'interest at clinical practices.

2. LITERATURE REVIEW

The main aim of this study is to define the influence of job stress and career development on administrative commitment among nurses. It is clear that work-related stress and career growth significantly affect organizational commitment. On the other hand, this evidence is not fully reinforced that relationship among these variables. To offer more piece of evidence and logic for this relationship, review of literature is very helpful. There are many views and concept for commitment for example integrity, work ethic, propensity, and responsibility. It is also known as an attitude and direction to an organization. Organizational commitment is very helpful to recognize the identification of employees towards an organization (Arbabisarjou, Sarani, Mohammadi, & Robabi). Employees' satisfaction in a well-structured organization is very necessary because it plays a vital role in the establishment of management. There are three unique sorts of commitment, which are affective, normative and continuance. Effective commitment is the worker's connection to their association and remain happy with their work. They have an emotional attachment and accept all assignment related to their work because they thought their place of work is a fantastic place. In Normative commitment, employees realize their responsibilities with an organization. Continuance commitment is related to work and promotion of employees. In a successful organization, job satisfaction and organizational commitment is closely related to each other (Intan et al., 2014). A correlational study was conducted at a therapeutic school clinic, in Bangladesh in 2014 to evaluate the level of administrative commitment. The mean of administrative commitment was 2.59 and this showed the high level of administrative commitment among nurses (Haque, 2014). In 2015, a descriptive correlational study was conducted among managers of different hospital in Australia. The aim of the study was to measure the relationship between provisions of adequate guidance and employee organizational commitment. The result of the study showed that adequate guidance positively influenced the commitment of workers to their administration. Employee organizational commitment's mean score was 6.12 and it lies toward the advanced end of the scale, showing that there is a relatively high level of EOC in the hospital (Baird, Tung, & Yu, 2017). A study was carried out to

identify the association between job-related stress and administrative commitment in Mazandaran Tax Organization of Iran. In the real word, according to employees the relationship between job-related stress and organizational commitment is negative. But the result of this study revealed that there was a significant positive relationship among job-related stress and administrative commitment. Such as the occupational stress of employees was increased, their commitment was also increased (Mojtabazadeh, Samadi Miarkolaei, & Samadi Miarkolaei, 2016). Organizational commitment is influenced by job related stress. In health care departments it is a very necessary to decrease the level of work-related stress between employees. There are many studies which demonstrate that reducing the level of occupational stress may lead to organizational commitment. It is very helpful element for a better succeeding competence of organization (Alipour & Kamaee Monfared, 2015). A study was conducted among nurses of Jimma Zone public hospital, the findings of the study revealed that the mean of the source of work stress is 58.08± 12.62. The ratio of stress due to workload is 56.7% among nurses. Although this study show that there was a level of occupational stress was high among nurses (Dagget, Molla, & Belachew, 2016). A descriptive correlational study was conducted at Aspet A. Company Limited to assess the impact of work related stress on work performance among employees. The results of this study showed that the most common sources of stress was heavy workload and its mean was 3.48, work the level of activity and its mean score was 3.33. However clashes between employees and organization showed fourth source of work stress its mean was 3.30 (Enyonam Peace Amoako, & David, 2017). A study was conducted among Iranian's nurses to assess the level of occupational stress and its sources. The findings of the study show that there was moderate level of occupational among nurses. Generally, 26% respondents of study showed that their occupation was very stressful. The most common source of occupational stress was low salaries and its mean was 3.79 and due to heavy work load and its mean was 3.67 and poor guidance and its mean score was 3.48 (Mohammad Mosadeghrad, 2014). A study findings show that career growth affects the organizational commitment, there was a positive relationship among these variables. When organizations develop the employee career through the implementation of best training and development programs, then employees are more satisfied and relaxed towards their work and in a result, their commitment is also increased towards the organization. Training and career counseling is important for employers and employees. If organizations conduct the proper training sessions for employees, it would help them develop their skills and competencies and in the outcome they increase their commitment (Rehman, 2017). Professional development is personal to individual nurse professional, she needs high level of clinical expertise, education, leadership opportunities, commitment and competency, develops herself through personalized training, researches, evidenced base practice among others. To develop clinical expertise, self-study, skills and knowledge (Modupe O. Oyetunde, 2015). In Iran Universities of Medical Sciences, a study was conducted to assess the importance of personal skills for career development. The results of this study showed that career growth required individual, interpersonal, and useful skills (Sheikhi, Fallahi-Khoshnab, Mohammadi, & Oskouie, 2016). A cross sectional study was conducted among nurses in teaching hospital of China. Organization play an important role in the development of career growth because adequate guideline and support help employees increasing their career growth. The findings of this revealed that nurses had moderate level of organizational career growth and its mean score was 2.40 ± 0.50. The mean score of organizational support and manager guidelines were 4.11 ± 1.12 (Sheikhi et al., 2016).

METHODS

3.1 Study Design: A descriptive correlational study

was used to determine the impact of occupational stress and career growth on organizational commitment among nurses.

3.2 Study Site: The site of the study was nurse's counters of indoor departments Jinnah hospital Lahore.

3.3 Study Setting: The study was conducted at Jinnah hospital, Lahore.

3.4 Target Population: The entire registered nurses of indoor counters were participated in this research. The total size of indoor registered nurses was 300.

3.5 Sample Size: The sample size of this study was 172 Nurses that is calculated by using formula. Formula include was n=N/1+N (0.05)2 (Ellen, 2018; Slovin, 1960)

3.6 Sampling Technique: Convenient sampling techniques was used in this study.

3.7 Duration of the Study: This study was taken approximately 4 months (January 2019, to April 2019).

3.8 Inclusion criteria:

The subjects who was included in the study were: All staff nurses and senior staff nurses, all female nursing staff, age 20-45 year, those nurses who are willing to participate in the study, all indoor department (Medical, surgical, pediatrics, Orthopedic, Obstetric, Nephrology and private wards) nurses.

3.9 Exclusion criteria:

The subjects who was excluded from the study were: All other nursing staff who are not registered, those who are not willing to participate, all male, all nurses from outdoor departments and critical intensive care units.

3.10 Instrument:

Three quantitative instrumental questionnaires on measuring of occupational stress, career growth, and organizational commitment was used on Likert scale which is adopted by the cited of Akramul Haque "relationship between occupational stress and career growth with organizational commitment among nurses" (2014).

3.11 Data Collection Plan: After taking informed consent, data was collected by the researcher the helped of pre-tested data collection tool (questionnaire/ performed). Data was collected according to the variables of the questionnaire which were as follows. Demographics data was taken from the participants. The question was asked according to variables of the study.

3.12 Data Analysis: Data was analyzed by using SPSS version 21.0 statistical software for data analysis. This study was descriptive and all the descriptive study was obtained through SPSS.

3.13 Ethical Consideration: The rules and regulations set by the ethical committee of Lahore School of Nursing was followed while conducting the research and the rights of the research participants was respected.

- Written informed consent attached was take from all the participants.
- All information and data collection was kept confidential.
- Participants was remained anonymous throughout the study.
- The subjects was informed that there were no disadvantages or risk on the procedure of the study.
- They was also informed that they was free to withdraw at any time during the process of the study.
- Data was kept in under key and lock while keeping keys in hand. In laptop it was kept under password.

RESULTS

This chapter has three sections such as Section I and Section II. Section I deals with demographic characteristics of participants and section II deals with the hypothesis and objectives of the study.

Section- 1

Descriptive Analysis of Demographic Characteristics of Participants

Table 1: *Table 4.1 Demographic Characteristic of Participants*

Statement	Valid	Frequency	Percent =%
Gender	Female	172	100.0
Age Group	21-25 yrs.	95	55.2
	26-30yrs	49	28.0
	31-35 yrs.	18	10.5
	36-40yrs	10	5.8
Qualification	Diploma in nursing	150	87.2
	BS Nursing (Generic)	-	-
	BS Nursing (Post RN)	22	12.8
Marital status	Married	51	29.7
	Unmarried	121	70.3
			100.0
Current Position	Staff nurse	140	81.4
	Senior staff nurse	32	18.6
Work Experience	1-5years	72	41.9
	6-10years	53	30.8
	11-15years	22	12.8
	16-20years	25	14.5

The above table shows that 100% of the participants are female. Highest percentage of participants 55.2% belongs to the age group of 21-25, 28.0% belongs to the age group 26-30 years, 10.5% belongs to the age group 31-35 and 5.8% belongs to age group 36-45 years. According to qualification 87.2% of the participants are diploma nursing, 12.8% are BS Nursing (Post-RN). Regarding the marital status of the participants 29.7% of the participants are married and 12.8% are unmarried. As regard to the designation of participants 81.4% are staff nurses and 18.6% are senior staff nurses. Work experience of the participants 41.9% has 1-5 years of work experience, 30.8% has 6-10 years of work experience has 11-15 years of work experience and 14.5% has 16-20 years of work experience.

Table 2: *Level of Organizational Commitment, Occupational Stress and Career Growth*

Variables	Mean	SD	Level
Organizational commitment	2.2483	.51568	Moderate
Occupational stress	4.0373	.41216	Moderate
Source of Occupational Stress	.37495	.37945	Moderate
Physical health	3.8988	.64500	Moderate
Career growth	4.1536	.84719	Moderate
Organizational career growth	3.1846	.57908	Moderate
Individual career growth	4.2504	.85500	Moderate

The above table shows the mean of organizational commitment is 2.2483, according to score transformation it indicates moderate level of organizational commitment among nurses. The mean of professional stress is 4.0373, it represent moderate level of professional stress. Here the value of career development is 4.2504, it shows moderate level of career development.

Impact of Professional Stress on Organizational Commitment

In this section the hypothesis formulated to find out impact of professional stress on organizational commitment among nurses.

Table 3: *Results of Pearson's Correlation test for Professional Stress and Organizational Commitment*

Correlations					
		Organizational Commitment	Professional Stress	Source of Work Stress	Physical Health
Organizational Commitment	Pearson Correlation	1	-.058	-.008	-.120
	Sig. (2-tailed)		.000	.000	.000
	N	172	172	172	172

**. Correlation is significant at the 0.01 level (2-tailed).

In the above table the results of Pearson's Correlation test shows the value of Pearson's correlation for professional stress is -.058, for source of professional stress is -.008 and for physical health is -.120 and p value for two tailed test of significance is 0.01. This is significance at the level of 1%. It shows that professional stress, source of professional stress and physical health have impact on organizational commitment and there is negative relation among these variables.

Table 4: *Results of Pearson's Correlation test for Career Development and Organizational Commitment*

Correlations					
		Organizational Commitment	Career Development	Organizational Career Development	Individual Career Development
Organizational Commitment	Pearson Correlation	1	.488**	.046	.490**
	Sig. (2-tailed)		.000	.000	.000
	N	172	172	172	172

**. Correlation is significant at the 0.01 level (2-tailed).

The above table shows the results of Pearson's Correlation test. The value of Pearson's correlation for career development is .488**, for organizational career growth is .046 and for individual career growth is .490** and the p value for two tailed test of significance is 0.000. This is significant at the level of 1%. It shows that professional stress, source of professional stress and physical health have impact on organizational commitment. It suggests that there is positive correlation between career development and organizational commitment.

DISCUSSION

This study is examined the level of professional stress, career development and organizational commitment and finding the impact of professional stress and career development on organizational commitment among nurses. The current study conducted at Jinnah hospital Lahore among 172 staff nurses. Convenient sampling was used to select the sample. The nurses of Jinnah hospital was all female and age between 21-45 years. Most of the staff nurses contributed in this study have a diploma in nursing. The majority of the staff nurses who participated in this study was unmarried 70.3%. The total work experience ranging from 1-20 years. The findings of this showed that staff nurses of Jinnah hospital working in different department had a moderate level of organizational commitment. Azizollah et al. also found that nurses had a moderate level of organizational commitment. Similarly, another study found a moderate level of organizational commitment among nurses (Botswana, 2015). Moreover, another research showed reverse findings that nurses had a high level of organizational commitment (Haque, 2014). The results of the current study showed that nurses had a moderate level of professional stress. Professional stress decreases the commitment of employees to their organization. Another study findings also showed a moderate level of occupational stress among nurses (Vijayan, 2017). The findings of the study also supported by (Haque, 2014). The findings of this research indicated that nurses had a moderate level of career development. The main two components of career development, organizational career development represented that nurses had a moderate level and individual career development also showed that nurses had a moderate level. These findings also supported by (Haque, 2014).According to Pearson's correlation, professional stress have some relationship with organizational commitment and professional stress has a statistically significant negative impact on organizational commitment (Pearson correlation coefficient for professional stress -.058, P value < 0.000). Similarly, another study found that a statistically significant negative relationship between occupational stress and organizational commitment r is -.236, which was significant and p value is less than 0.05 (Alipour & Kamaee Monfared, 2015). The findings of this study were also consistent with the findings of (Zhuwao, Setati, P. Rachidi, & Ukpere, 2015). The findings of this revealed that career development has some impact on organizational commitment. There was a significant positive association between organizational commitment and career development. Pearson correlation coefficient value is .488 and p-value is less than 0.05. Likewise, another study found the same results that career development had a positive relation with organizational commitment Pearson correlation coefficient value was 327 and p-value is less than 0.01(Haque, 2014). The findings of the current study support the hypothesis. A similar study findings also showed that organizational commitment had a positive relationship with career development. It also indicated that organizational commitment is increased when employees have a high level of career development (Rehman, 2017). Moreover, another study findings also supported the findings of the present study. Jing Bai and Jinping Liu were supposed that organizational commitment had a positive relationship with organizational commitment (Jing Bai, 2018).

CONCLUSION

This study identifies the impact of professional stress and career development on organizational commitment among nurses. It is concluded that professional stress has a negative impact on organizational commitment and ultimately it reduces the organization commitment of employees. So, each organization needs to reduce the level of stress. Career development has a positive relationship and it enhances the commitment of employees to their organization. Employee's commitment is a function of how actual management is capable to plan and implement good career development program in the organization.

STRENGTH AND LIMITATIONS

There are some strength of the present study. Firstly, this study give awareness to organization and participants about the impact of professional stress and career development on organizational commitment. Secondly, there is no any study was found in the context of University of Lahore. Thirdly, this study will serve as a basis in future studies. There are some limitations of this study. As the data was collected from only one setting, it has limited generalizability. A convenient sample was applied in the data collection process whereas the probability sampling method can enhance the induction of different strata of the participants. Another limitation was to collect data by convenient sampling that could give biasness on results. The study was limited to assess the impact of professional stress and career growth on organizational commitment among nurses.

RECOMMENDATIONS

For future study, it is suggested that data should be collected from more hospital rather than one hospital. Because a hospital is a place where everybody suffers from professional stress. So, it suggested that to minimize the level of professional stress and advancing career growth can enhance the level of organizational commitment among nurses. The findings of the study significant for managers because if they try to control the sources of work-related stress then employees are more committed and provide quality care which increases the repute and prestige of an organization.

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ACADEMIC PERFORMANCE OF BOARDERS AND DAY SCHOLARS DURING FIRST THREE YEARS OF MBBS IN AIMC

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Abstract

Background: The study was designed to find out if there is any significant difference between scores of boarders and day scholars in the professional exams of MBBS conducted by University of Health Sciences.

Material and Methods: The study was conducted in Allama Iqbal Medical College and included the students of 2014 – 2019 batch. Scores of only the first three professional exams were considered in the study. A Performa was distributed to acquire demographic information and scores in all three professional exams. They were also asked to list any difficulties they faced during this time and the solutions they think would rectify the problems. Duration of the study was two weeks and the sample size were 170.

Results: Day scholars scored significantly more than boarders in all three professional exams ($P < 0.05$). Even though there was improvement in 2nd and 3rd years in terms of absolute scores but relative gap between the two groups was not abridged. Boarders listed homesickness, inability to maintain a schedule, limited guidance, and distractions as the main problems. Designated vacation days and better guidance were listed as solutions by most boarders.

Conclusions: The main findings of our study are that there is a significant difference between academic performance of boarders and day scholars. To help minimize the difference, the students think designated vacation days and better guidance can be the answer.

Key Words: Boarders, Day scholars, Academic performance.

Students in AIMC come from different backgrounds to get a degree of Bachelor of Medicine and Bachelor of Surgery (MBBS). Students belonging to regions other than Lahore are provided accommodation in government hostels on the college premises while the residents of Lahore commute to the college every day. Some of them do O and A levels while others go through Matric and FSc. Some are schooled till matriculation in Urdu-medium while the rest are taught in English throughout their school lives. All of these factors affect students in different ways and the purpose of this research is to find out if these factors have any significant impact on the academic performance in the professional exams conducted by the UHS.

Many researches have been published on the differences in boarders and day scholars. Although boarders mature and become responsible quickly but some of them can find the new environment hard and are unable to adjust[1]. Home, health, social, emotional and overall adjustability levels of boarders are lower than day scholars.[2] Boarders are also found to be temperamentally weaker than day scholars in the area of effortful control.[3] A study conducted on Madrassah boarding student proved that they show significantly more emotional unsteadiness, hostility, depression, and nervousness due to their residence in the tough atmosphere of hostels.[1]

All these factors suggest that academic performance of boarders should be negatively affected, but there are conflicting researches in which some suggest that boarders are better in academics[4] on the basis of not being disturbed by unnecessary family gatherings and while others suggest that day scholars perform better[5] suggesting that they are given positive encouragement and home care. Furthermore, it has also been proved by a research that there is no significant difference in the performance at al.[16]

As can be expected, boarders face the most severe test during their first years in terms of adjust-

ability, but no research has been conducted during this time period when the students are at their most vulnerable. So, this study was conducted to find out if there is any significant difference between academic performance of boarders and day scholars during the first year of their MBBS. The results of this research might be able to help the administration guide the first-year medical students better, boarders more so than day scholars.

METHODS

This comparative study was conducted at Allama Iqbal Medical College, Lahore, Pakistan 07th to 21st of January, 2019 comprising medical students of the 2014 – 2019 batch selected by simple stratified sampling. Most of the students were belonging to different regions of Punjab, and all were Muslims. The age was between 17 to 22 years.

A Performa was distributed among the students which asked them their gender, premedical education status, residential status, scores in the first three professional exams conducted by the UHS, the problems they think they faced in the first year and the possible solutions that they think would alleviate the problems.

The first two professional exams had three subjects (Anatomy, Physiology, and Biochemistry) of 200 marks each in which 100 marks were for the written part and 100 were for the viva voce and practical demonstrations, making the total score 600. The third professional exam had four subjects in which General Pathology and Pharmacology had 300 marks each out of which 150 were for the written part and 150 for the viva and practical. Behavioral Sciences and Forensic Medicine had 200 marks each, 100 for the written and 100 for the viva voce, taking the total to 1000.

SPSS 23 was used for data analysis. The marks for all three years were described by mean, standard deviation (S.D), and percentages. Independent samples t-tests were used to see if there are any significant difference among the marks in different categories. P≤0.05 was used as significant.

RESULTS

Of the 170 students, 76 (44.7%) were males and 94 (55.3%). 97 (57.1%) were boarders while 73 (42.9%) were day scholars. 6 (3.5%) had done O and A levels, 154 (90.6%) had done Matric and FSc. while 10 (5.9%) had gone through O levels and FSc. 28 (16.5%) students had their schooling up to 10th grade in Urdu-medium, while 142 (83.5%) were schooled in English-medium. 131 (77.1%) of the students needed just 1 attempt to get into AIMC, while 39 (22.9%) needed 2 attempts to get into the

Table 1: *Demographics of the Subjects*

		Residential Status		
		Boarder	**Day Scholar**	**Total**
Gender	Male	52 (30.6%)	24 (14.1%)	76 (44.7%)
	Female	45 (26.5%)	49 (28.8%)	94 (55.3%)
Premedical Education	O an A levels	4 (2.4%)	2 (1.2%)	6 (3.5%)
	Matric and FSc	89 (52.4%)	65 (38.2%)	135 (90.6%)
	O levels and FSc	4 (2.4%)	6 (3.5%)	10 (5.9%)
Medium of study	Urdu Medium	19 (11.2%)	9 (5.3%)	28 (16.5%)
	English Medium	78 (45.9%)	64 (37.6%)	142 (83.5%)
Attempts to get into AIMC	1st attempt	69 (40.6%)	62 (36.5%)	131 (77.1%)
	2nd attempt	28 (16.5%)	11 (6.5%)	33 (22.9%)
Total		97 (57.1%)	73 (42.9%)	151

Table 2: *Comparison of Scores of Boarders and Day Scholars*

Residential Status		**Score in first professional exam**	**Score in second professional exam**	**Score in third professional exam**	**F**	**.Sig**
Boarders	Mean	408.87	422.37	719.55	15.723	.000
	N	97	97	96		
	Std. Deviation	29.417	36.332	60.867		
Day Scholar	Mean	425.62	444.03	753.04	17.422	.000
	N	73	73	73		
	Std. Deviation	24.095	29.263	40.932		
Total	Mean	416.06	431.67	734.02	16.434	.000
	N	170	170	169		
	Std. Deviation	28.426	35.075	55.586		

Table 3: Problems Faced by Students

Residential Status	Homesickness	Fear of exams	Tough curriculum	Distractions	Difficulty in maintaining a schedule	Stress or anxiety	Health issues	Limited guidance
Boarders	44 (25.88%)	39(22.94%)	17(10%)	38(22.35%)	38(22.35%)	29(17.05%)	16(9.41%)	41(24.11%)
Day Scholar	11(6.47%)	40(23.52%)	31(18.23%)	25(14.70%)	31(18.23%)	45(26.47%)	18(10.58%)	44 (25.882%)
Total	55 (28.23%)	79(40.58%)	48(25.88%)	63(32.94%)	69(37.05%)	74(38.82%)	34(18.23%)	85(41.76%)

Table 4: Possible Solutions according to Students

Residential Status	Better Guidance	Better System of Examination	Better Time Management	Better Social Support	Designated Vacation Days for Boarders	More Focus on Studies	Easier Curriculum for First Year
Boarders	41	27	33	26	38	16	18
Day Scholar	45	25	34	29	16	19	15
Total	86	52	67	55	54	35	33

college. The mean score in first year was 416.06 (69.343%) with S.D of 28.426, in second year, it was 431.67 (72.048%) with S.D of 35.075, while in third year it was 734.02 (73.402%) with S.D of 55.586.

One-way ANOVA for day scholars and boarders against the scores of three exams is presented in Table 1. The value of P>0.05 in all the years.

The responses to the question of problems faced by boarders and day scholars during MBBS are tabulated in Table 3.

The solutions to the above-mentioned problems according to the students are tabulated in Table 4.

DISCUSSION

This research was conducted in Allama Iqbal Medical College to find out if being a boarder or day scholars significantly affects performance of students who got admission with almost similar merits. It has been established by research that many factors including gender, age, father/guardian social economic status and daily study hours significantly contribute the academic performance of students.[7]

The results of this study show that academic performance of day scholars is significantly better in all the three professional exams of MBBS conducted by UHS. The greatest difference was observed in 2nd year. Although, no studies have been conducted on academic performance of medical students, but consistent results have been found in studies conducted on non-medical students.[5,8] Improvement was observed in all the three years in both boarders and day scholars, but the gap between the two categories did not decrease over the years.

According to boarders, homesickness,[38] inability to maintain a schedule,[35] limited guidance,[34] and distractions[34] were the main reasons for the problems they faced in these years. On the other hand, general stress/anxiety,[41] limited guidance[(37)] and fear of exams[36]were the leading problems for day scholars. Different patterns can be observed and adjustability issues are evident from these numbers in boarding students.

When asked about solutions to the problems they faced, designated vacations days[38] and better guidance[36] was suggested by the majority of boarders. Day scholars also wanted better guidance[39] along with better time management[28] from the college administration. Once again, clear differences are observed between the thinking of boarders and day scholars.

Secondarily, it was observed that males scored less than females in all three years, but none of the significance tests had P<0.05. Similarly, Urdu or English-medium study did not affect the performance significantly. However, students who got admitted into the college on their first attempt had a significantly better performance than those who took 2 attempts to get into MBBS. All of these results should be researched further as there is a lack of studies on these topics.

CONCLUSIONS

It is evident from the findings that boarders are at a disadvantage in terms of academic performance when compared to day scholars as boarders consistently scored significantly less than day scholars in every professional exam. The problems perceived by the two groups of students and the possible solutions also point to the fact that boarders have adjustability issues. Further research should be done on the difficulties faced by out of city students and proper plan should be put in place to alleviate them.

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ASSOCIATION OF SHORT INTERPREGNANCY INTERVAL WITH SCAR DEHISCENCE

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Abstract

There is a worldwide increase in the rates of cesarean delivery over last two decades. Uterine scar dehiscence is the most serious complication for women undergoing trial of labor after prior cesarean delivery. Short Inter pregnancy interval (IPI) leads to altered wound healing and increased risk of uterine rupture.

Objective:

- To determine the frequency of short IPI in pregnant women with one previous cesarean section
- To determine the association of uterine scar dehiscence in short IPI.

Material and methods: Study Design: Cross sectional study. **Setting:** Department of Gynecology, Services Hospital, Lahore. **Duration of Study:** October 2015 to March 2016. **Subjects and methods:** A total of 150pregnant women with singleton pregnancy for >37weeks with only one previous low, transverse cesarean delivery were included. History was taken to determine the outcome variable (short IPI).Ultrasonography examination was performed on all patients to ascertain the presence of uterine scar dehiscence. All data was collected on predesigned performa.

Results: The mean age of patients was 31.946±4.48 years. There were 42% females who had short IPI while 58% had normal IPI(>8months).Uterine scar dehiscence was seen in 5.3% patients. Uterine scar dehiscence was significantly association of short IPI with uterine scar dehiscence (relative risk =1.868 (95% CI; 1.194-2.923, P-values < 0.05)

Conclusion: A short IPI of <8months may be a risk factor for uterine scar dehiscence. Although these findings are insignificant but need further trials to confirm the significance. Our findings suggest that doctors should consider IPI during preconception counseling.

Keywords: Short interpregnancy interval, uterine scar dehiscence, Cesarean section

One in 14 births to young mothers in Bangladesh, India, Nepal, and Pakistan ends with the death of a child within the first year.[1,2] In a systematic review, significant impacts of short inter pregnancy interval (IPI) were found for extreme preterm and moderate preterm birth along with low birth weight, stillbirth and early neonatal death outcomes largely in high- and moderate-income countries.[3] It is likely these effects would be greater in settings with poorer maternal health and nutrition. Recent analysis of nationally representative data from Pakistan states that young maternal age at birth and short IPI are significant drivers of infant death among births to young mothers.[2,4-6]

There is a worldwide increase in the rates of cesarean delivery over last two decades.[7] The cesarean rate worldwide is 15% of births. Mean cesarean delivery rate is 21-32% in developed countries. The maternal mortality rate is increased two fold with cesarean delivery compared with vaginal delivery.[8]

Uterine scar dehiscence / rupture is the most serious complication for women undergoing trial of labor (TOL) after prior cesarean delivery, the absolute risk for this complication ranges between 0.5& 4%. Previous vaginal delivery and prior successful vaginal birth after cesarean delivery confer the lowest risk of rupture on women attempting (TOL).[2,6]

The effect of birth interval as independent risk factor on the safety of VBAC is less well characterized due to study design constraints and limited publications.[9] Short IPI leads to altered wound healing and increased risk of uterine rupture because myometrial tissue regenerates slowly by prolife-

ration of fibroblast and replacement of myometrium with connective tissue. Importantly, there is radiographic and hysteroscopic evidence that caesarean wound development is incomplete as long as 6-12 months postoperatively.[9] Poorly healed uterine scar affects the regeneration of isthmus of uterus and results in much thinner lower uterine segment scar in subsequent pregnancy and this segment is likely to rupture during labor.[8]

In a study, a total of 1,768 women were included: 1,323 (74.8%) were 24 months or longer IPI, 257 (14.5%) were 18–23 months, and 188 (10.6 %) were fewer than 18 months. The rates of uterine rupture were 1.3%, 1.9%, and 4.8%, respectively (P=.003). After adjustment of confounding factors, an IPI shorter than 18 months was associated with a significant increase of uterine rupture (odds ratio [OR], 3.0; 95% confidence interval [CI], 1.3–7.2).[7]

Sonographic evaluation of lower uterine segment can be used effectively to assess its integrity to predict the risk of intra partum rupture. Rationale of current study is that the population dynamics are changing over time regarding prevalence of factors associated with maternal morbidity and mortality. Current study was proposed to cater two issues, one is to determine the frequency of short IPI in pregnant women with one previous cesarean section and second is whether to give her a trial of normal vaginal delivery or not. The most fatal complication associated with trial is uterine scar dehiscence or rupture. This decision can be facilitated if we know the frequency of uterine scar dehiscence in patients with and without short IPI. A new program for immediate postpartum contraception technique may be installed if there comes out significant evidence from our study.

OBJECTIVE

- To determine the frequency of short IPI in pregnant women with one previous cesarean section
- To compare the frequency of uterine scar dehiscence in women with and without short IPI.

METHODS

STUDY DESIGN: Cross sectional Study

SETTING: Department of Gynecology, Services Hospital, Lahore.

DURATION OF STUDY: October 2015 to March 2016.

SAMPLE SIZE: Using 95% confidence interval and 80% power of study, taking expected percentage of short IPI 10.6%,7 estimated sample size was150 at 5% margin of error

SAMPLING TECHNIQUE: Consecutive Non Probability Sampling

SAMPLE SELECTION:

INCLUSION CRITERIA:

1. Age 18-45 years
2. Pregnant women with singleton pregnancy for >37weeks determined by last menstrual period and ultrasonography
3. Patients with only one previous low, transverse cesarean delivery determined by medical record.

EXCLUSION CRITERIA:

1. Women with a prior, classical, J-shaped, T-inverted incision or prior transmural myomectomy determined by medical record
2. Women with vaginal delivery or mid-trimester fetal delivery (including spontaneous abortion or voluntary abortion after 14 weeks of gestation) between the previous cesarean delivery and the current pregnancy determined by medical record
3. History of anti-phospholipid syndrome or systemic lupus erythematosus
4. Estimated fetal weight >4kg
5. Polyhydroamnios on AFI
6. Multiple pregnancy on USG

DATA COLLECTION PROCEDURE: After approval of synopsis, 150 pregnant women according to selection criterion visiting labor room were enrolled in the study. Informed consent was taken.

All patients were evaluated for inclusion and exclusion criterion. History was taken to determine short IPI (defined as interval between prior delivery & conception <8 months). Ultrasonography examination was performed on all patients to ascertain the presence of uterine scar dehiscence (showing scar thickness < 3.5mm) at 36 to 38 weeks of gestation. All data was collected on predesigned performa containing background information like name, age, and hospital registration of patient.

DATA ANALYSIS

Data collected was entered and analyzed in the SPSS version 17. Mean with SDwas calculated for quantitative variables like age. Frequency and percentages in case of categorical variables like short IPI and uterine scar dehiscence. Relative risk was calculated to measure association of Short with uterine dehiscence. RR>1 was considered as risk of association. P-value ≤ 0.05 was considered as significant.

RESULTS

The mean age of patients was 31.946± 4.48 years. The mean gestational age at presentation was 37.2 ± 2.89weeks. There were 22 (15%) nulliparous, 50 (33%) primiparous, 41 (27%) were multiparous while 37 (25%) were grand multiparous. The mean BMI was 23.56±12.37kg/m2. Table 1There were 63 (42%) females who had short IPI (<8months) while 87 (58%) had normal IPI (>8months). Fig 1

In females with short IPI, 6(9.5%) patients had uterine scar dehiscence while in females with normal IPI, 2(2.3%) females had uterine scar dehiscence. Relative risk was 1.868 (95% confidence level 1.194-2.923, p-value <0.05), showing significant impact of short IPI on uterine scar dehiscence. Table 2.

Table 1: *Characteristics of Patients (n=150)*

Age(years)	**31.946±4.48**
Gestational age (weeks)	37.2±2.89
Parity	
Nulliparous	22 (15%)
Primiparous	50 (33%)
Multiparous	41 (27%)
Grand multiparous	37 (25%)
BMI (kg/m2)	23.56±12.37

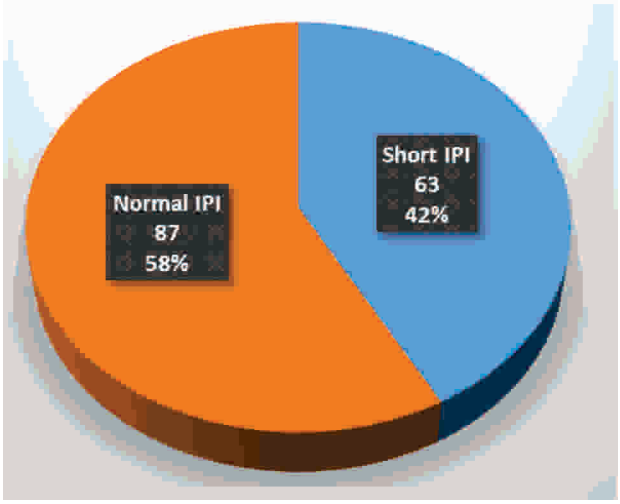

Fig 1: *Distribution of Short and Normal IPI*

Table 2: *Association of Uterine Scar Dehiscence in Short IPI*

		Group	
		Short IPI	**Normal IPI**
Uterine Scar Dehiscence	**Yes**	6(9.5%)	2(2.3%)
	No	57(90.5%)	85(97.7%)

Relative risk = 1.868 (95% confidence level 1.194-2.923, p-value <0.05)

DISCUSSION

In this study it is demonstrated that a short IPI of <8 months is an independent risk factor for uterine scar dehiscence in patients. Patients with a short IPI have an increased risk for other delivery-related major maternal morbid events, such as operative injury and the need for a blood transfusion. Our results confirm the finding of some prior studies that short birth interval is associated with a twofold to fourfold increase in uterine scar dehiscence risk.[10-12]

The existing body of literature regarding short IPI is difficult to interpret because of conflicting results, inconsistent exposure and outcome definitions, and study design limitations. Of the five studies that we identified of publications on the topic of birth interval, three reported an increase in risk of uterine scar dehiscence associated with short IPI,[10-12]

one detected no difference in uterine dehiscencerate,[13] and one reported increased risk with short IPI only among a subgroup of patients with prior preterm cesarean deliveries.[14] All of these studies were restricted by sample size, each containing between three and 29 cases of symptomatic uterine rupture.[10-14]

Two research groups used a case–control design, which did not allow them to estimate incidence rates of uterine scar dehiscenceor compare relative risks across various IPI lengths.[11, 14] One of the case–control studies included symptomatic uterine rupture (n=23) and dehiscence (n=43) in the primary outcome definition, making it difficult to gauge the clinical significance of the outcome, and the other study did not control for confounders in multivariable analysis.[11,14]

In the three cohort studies, the investigators restricted their inclusion criteria to allow only patients with one prior cesarean delivery,[10, 12, 13] term delivery,[12,13] and no prior vaginal delivery,[10,12] limiting the generalizability of the results. These cohort studies defined short birth interval using interdelivery interval (time between delivery dates) instead of IPI.[10, 12, 13] This definition is subject to confounding by variable gestational lengths, and although the investigators controlled for the occurrence of postterm delivery or birth weight in a multivariable analysis, there is potential for residual confounding by other gestational age differences.[12]

There are several reasons why short preceding IPIs may be associated with adverse pregnancy outcomes and why these effects might differ by the type of outcome that begins the interval. The maternal depletion hypothesis posits that women who become pregnant after a short interval are less able to provide nourishment during the second pregnancy because their bodies have had less time to recuperate from the previous pregnancy, and this might lead to reduced gestational duration, adverse pregnancy outcomes, and/or increased infant and child mortalities. For example, if women become pregnant again before folate restoration is complete, their subsequent offspring may be at a higher risk of folate insufficiency at the time of conception and throughout the pregnancy, leading to increased risks of neural tube defects, intrauterine growth restriction, and preterm birth.[15]

Also, the uterus needs time to recover after a pregnancy. Full-term pregnancies are more depleting than those that are of shorter gestation, and hence, short intervals that begin with a live birth or stillbirth should have a more detrimental effect than those that began with a miscarriage or induced abortion. Also, if the pregnancy that begins the interval results in a live birth and the child is breastfed, lactation will further deplete the mother nutritionally.[16]

Sibling competition for parental time and resources is another explanation offered for the relationship between short intervals and higher rates of infant and child mortalities. With regard to pregnancy outcomes, 'competition' might occur if the previous pregnancy resulted in a live birth and the child from that preceding pregnancy introduces additional postpartum stressors on the mother.

Another possibility is that if the woman did not want to become pregnant soon after a previous birth, she may take less good care of herself and may engage in activities to try to end the pregnancy.

Disease transmission among closely spaced siblings is another explanation offered for the effect of short intervals or infant and child mortalities, but it should not apply to the case of pregnancy outcomes unless the infection of a previous live born (and still living) child is passed on to the fetus.

A different set of reasons may be at play in the case of long intervals between pregnancies. One possibility is that the physiology of a mother who becomes pregnant after a long interval is similar to that of a woman who is pregnant for the first time. This may explain why maternal mortality, preeclampsia, and eclampsia are more likely following IPIs longer than 59 months and are similar to the levels for first pregnancies.[17] In addition, some women may have health problems that both make it

difficult for them to become pregnant (and hence they have long intervals) and increase the chance of fetal loss, raising some questions about whether the relationship between long IPIs and unintentional fetal loss is causal.

CONCLUSION

It is concluded that a short IPI <8 months is an independent risk factor for uterine scar dehiscence. Findings suggest that doctors should consider IPI during preconception counseling.

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TRANS-VAGINAL ULTRASOUND; AN ADJUNCT TO TRANS-ABDOMINAL ULTRASOUND IN ECTOPIC PREGNANCY

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Abstract

INTRODUCTION: Historically, ectopic pregnancies were diagnosed on the classical triad of symptoms: pain, vaginal bleeding and a history of amenorrhea. Advances in diagnostic radiology brought Trans-abdominal Scan (TAS) as an important diagnostic tool in such patients. Recently Transvaginal scan (TVS) has been claimed to be more sensitive and accurate although data is limited. OBJECTIVES: The objective of this study was to determine the diagnostic accuracy of trans-abdominal and trans-vaginal ultrasound in the diagnosis of ectopic pregnancy by taking histopathology as gold standard.

STUDY DESIGN: Cross-sectional survey.

SETTING: Department of Diagnostic Radiology, Sir Ganga Ram Hospital, Lahore

DURATION: Six months (25/06/2014 to 24/12/2014).

SUBJECT AND METHODS: This study involved 195 women who presented in the emergency department with suspicion of ectopic pregnancy.

RESULTS: The mean age of the patients was 29.64±4.75 years while the mean gestational age was 7.26±2.28 weeks. Most of the patients were para 2 (38.5%), followed by para 3 in 23.6% cases. Out of 195 patients who presented with suspicion of ectopic pregnancy only 35(17.9%) were actually diagnosed to have ectopic pregnancy on histopathology (gold standard). TVS labeled ectopic pregnancy in 42 (21.5%) cases. There were 32 True Positive cases, 10 False Positive cases, 3 False Negative cases and 150 true negative cases. It yielded sensitivity (91.43%), specificity (93.75%), accuracy (93.33%), positive predictive value (76.19%) and negative predictive value (98.04%) of TVS for ectopic pregnancy taking histopathology as gold standard. TAS labeled ectopic pregnancy in 39 (20%) cases. There were 29 True Positive cases, 10 False Positive cases, 6 False Negative cases and 150 true negative cases. TAS yielded 82.86% sensitivity, 93.75% specificity, 91.79% accuracy, 74.36% positive predictive value and 96.15% negative predictive value of for ectopic pregnancy taking histopathology as gold standard.

CONCLUSION: TAS and TVS are both specific for diagnosis of ectopic pregnamncy, however TVS is more sensitive and accurate than TAS in the diagnosis of ectopic pregnancy. It can b used to complement the TAS to improve overall diagnostic accuracy of ectopic pregnancy.

KEY WORDS: Trans-abdominal Scan, Trans-Vaginal Scan, Ectopic Pregnancy

Ectopic pregnancy is the implantation of a fertilized ovum outside the endometrial lining of the uterus. First described in the 11th century, ectopic pregnancy is a major health problem for women of childbearing age and a leading cause of pregnancy-related deaths (4-10%) in the first trimester.[1] The overall incidence of ectopic pregnancy is 1.2 – 1.4% of all the reported pregnancies.

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Untreated, ectopic pregnancy can result in massive and fatal hemorrhage, infertility and maternal death.[2]

Historically, ectopic pregnancies were diagnosed on the classical triad of symptoms: abdominal pain, vaginal bleeding and a history of amenorrhea. However, advances in diagnostic ultrasound and the rapid immunoassay of serum human chorionic gonadotropin, has enabled the diagnosis at an earlier stage.[3] Findings which strongly suggest ectopic pregnancy on ultrasound include absence of gestational sac in uterus, presence of extra uterine mass, thickening of endometrial lining (pseudo gestational sac) and presence of fluid in the pouch of Douglas.[4]

Trans-abdominal Scan (TAS) is most commonly employed in such patients. However, in the past decade there has been increased advocacy for the use of trans-vaginal Scan (TVS) in suspected patients instead of trans-abdominal scan.[4] Kirk et al. in 2007 showed that trans-vaginal scan had a sensitivity and specificity of 98.3% and 99.9% respectively in the detection of ectopic pregnancy.[5] Malik et al. in 2010 showed that uterine gestational sac was absent in 94% cases along with the presence of extra uterine mass, pseudo gestational sac and fluid in the pouch of Douglas in 91%, 35% and 67% cases respectively in patients with ectopic pregnancy on ultrasound scan. They also observed that TVS had better sensitivity (92.94 % vs. 82.35 %) while both TAS and TVS were equally specific 93.33%.[6]

Trans-vaginal scan is thus better than trans-abdominal scan in establishing the accurate diagnosis of ectopic pregnancy.[5,6] The evidence is however limited; only 1 local research paper is available.[6] Also, this obvious benefit is doubtful because Mahmoud et al. in 2012 showed that trans-vaginal scan was only better in revealing the presence or absence of gestational sac in the uterine cavity and had limited significance for lesions outside pelvis and that a preliminary trans-abdominal scan aided in the better interpretation of trans-vaginal scan.[7]

The current trend in the emergency department of tertiary care units in Pakistan is transabdominal scan in patients suspected of ectopic pregnancy. The purpose of this study is to evaluate the accuracy of trans-vaginal scan and trans-abdominal scan to establish early and accurate diagnosis of ectopic pregnancy. This will in turn enable early and timely management of such patients, reducing the morbidity and mortality associated with this condition.

OBJECTIVE

The objective of this study was to determine the accuracy of trans-abdominal and trans-vaginal ultrasound in the diagnosis of ectopic pregnancy by taking histopathology as gold standard.

METHODS

This cross-sectional survey was conducted at Department of Diagnostic Radiology, Sir Ganga Ram Hospital Lahore over a period of 6 months from 25/06/2014 to 24/12/2014. A total of 195 female patients of reproductive age group (16-40 years) were selected by Non-probability Consecutive Sampling. Patients selected were those presented in emergency department with clinical suspicion of ectopic pregnancy i.e. history of conception/ amenorrhea, lower pelvic pain, vaginal bleeding and collapse and with raised serum β HCG level (1500 to 2000 mIU/mL) as per routine investigations. Written informed consent and detailed history was taken from each patient. All the patients underwent TAS and TVS. TAS was performed with full bladder and 3.5 MHZ convex probe. The bladder was then emptied and TVS was performed using standard technique with 7 MHZ probe. Ectopic Pregnancy was diagnosed when any 3 of the following 4 ultrasound criteria were met.

a. Absence of gestational sac in uterus
b. Presence of extra uterine mass
c. Presence of pseudo gestational sac
d. Presence of fluid in the pouch of Douglas

The diagnosis was finally confirmed by the presence of embryonic and placental tissue on histopathology of the specimen taken during surgery from uterine/ extra uterine gestational sac.

Ultrasound findings along with ultrasono-

graphic diagnosis were recorded. The final diagnosis after histopathology was also noted. All the data was entered into the attached proforma. All the scans were performed by the same consultant over the same machine to eliminate bias. Confounding variables were controlled by exclusion. All the collected data was analyzed with SPSS version.[10]

RESULTS

The age of the patients ranged from 20 years to 38 years with a mean of 29.64±4.75 years as shown in Table 1. The gestational age of the patients ranged from 3 weeks to 11 weeks with a mean gestational age of 7.26±2.28 weeks as shown in Table 2. Most of the patients were para 2 (38.5%), followed by para 3 in 23.6% cases as shown in Table 3.

The frequency of ectopic pregnancy diagnosed on histopathology (gold standard) was 17.9% as shown in Table 84. TVS labeled ectopic pregnancy in 42 (21.5%) cases as shown in Table 5. A 2×2 contingency table was generated for TVS and histopathology which revealed there were 32 True Positive cases, 10 False Positive cases, 3 False Negative cases and 150 true negative cases as shown in Table 6. It yielded sensitivity (91.43%), specificity (93.75%), accuracy (93.33%), positive predictive value (76.19%) and negative predictive value (98.04%) of TVS for ectopic pregnancy taking histopathology as gold standard.

TAS labeled ectopic pregnancy in 39 (20%) cases as shown in Table 7. A 2×2 contingency table was generated for TAS and histopathology which revealed there were 29 True Positive cases, 10 False Positive cases, 6 False Negative cases and 150 true negative cases as shown in Table 8. It yielded sensitivity (82.86%), specificity (93.75%), accuracy (91.79%), positive predictive value (74.36%) and negative predictive value (96.15%) of TAS for ectopic pregnancy taking histopathology as gold standard.

DISCUSSION

Historically, ectopic pregnancies were diagnosed on the classical triad of symptoms: pain, vaginal bleeding and a history of amenorrhea.

Table 1: *Descriptive Statistics for Age*

	N	Minimum	Maximum	Mean	Std. Deviation
Age	195	20	38	29.64	4.749
Valid N (listwise)	195				

Table 2: *Descriptive Statistics for Gestational Age*

	N	Minimum	Maximum	Mean	Std. Deviation
Age	195	3	11	7.26	2.279
Valid N (listwise)	195				

Table 3: *Frequency Table for Parity*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	37	19.0	19.0	19.0
	2	75	38.5	38.5	57.4
	3	46	23.6	23.6	81.0
	4	37	19.0	19.0	100.0
	Total	195	100.0	100.0	

Table 4: *Frequency Table for Histopathological Diagnosis*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	35	17.9	17.9	17.9
	No	160	82.1	82.1	100.0
	Total	195	100.0	100.0	

Table 5: *Frequency Table for TVS Diagnosis*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	42	21.5	21.5	21.5
	No	153	78.5	78.5	100.0
	Total	195	100.0	100.0	

Table 6: *TVS * Histopathology Crosstabulation*

		Histopathology		
		Yes	No	Total
TVS	Yes	32	10	42
	No	3	150	153
Total		35	160	195

Table 7: *Frequency Table for TAS Diagnosis*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	39	20.0	20.0	20.0
	No	156	80.0	80.0	100.0
	Total	195	100.0	100.0	

	TP(a) = 32 FN(c) = 3 FP(b) = 10 TN(d) = 150	
Sensitivity	$\frac{a}{a+c}$	= 91.43 %
Specificity	$\frac{d}{b+d}$	= 93.75 %
Accuracy	$\frac{a+d}{a+b+c+d}$	= 93.33 %
Positive Likelihood Ratio	$\frac{\text{Sensitivity}}{100 - \text{Specificity}}$	= 14.63
Negative Likelihood Ratio	$\frac{100 - \text{Sensitivity}}{\text{Specificity}}$	= 0.09
Disease prevalence	$\frac{a+c}{a+b+c+d}$	= 17.95 %
Positive Predictive Value	$\frac{a}{a+b}$	= 76.19 %
Negative Predictive Value	$\frac{d}{c+d}$	= 98.04 %

Table 8: *TAS * Histopathology Crosstabulation*

		Histopathology		
		Yes	No	Total
TAS	Yes	29	10	39
	No	6	150	156
Total		35	160	195

	TP(a) = 29 FN(c) = 6 FP(b) = 10 TN(d) = 150	
Sensitivity	$\frac{a}{a+c}$	= 82.86 %
Specificity	$\frac{d}{b+d}$	= 93.75 %
Accuracy	$\frac{a+d}{a+b+c+d}$	= 91.79 %
Positive Likelihood Ratio	$\frac{\text{Sensitivity}}{100 - \text{Specificity}}$	= 13.26
Negative Likelihood Ratio	$\frac{100 - \text{Sensitivity}}{\text{Specificity}}$	= 0.18
Disease prevalence	$\frac{a+c}{a+b+c+d}$	= 17.95 % (*)
Positive Predictive Value	$\frac{a}{a+b}$	= 74.36 % (*)
Negative Predictive Value	$\frac{d}{c+d}$	= 96.15 % (*)

Advances in diagnostic radiology brought Trans-abdominal Scan (TAS) as an important diagnostic tool in such patients.[3] However, in the past decade there has been increased advocacy for the use of trans-vaginal Scan (TVS) in suspected patients instead of trans-abdominal scan. There are studies which show TVS to be more sensitive and specific than TAS in the diagnosis of EP.[5,6,8-12] The findings of these studies have been summarized in Table 9.

However, Mahmoud et al. in 2012 showed that trans-vaginal scan was only better in revealing the presence or absence of gestational sac in the uterine cavity and had limited significance for lesions outside pelvis and that a preliminary trans-abdominal scan aided in the better interpretation of trans-vaginal scan.[7]

Due to conflicting and limited local data on TAS and TVS, the purpose of the current study was to determine the diagnostic accuracy of these two ultrasound modalities in ectopic pregnancy. In the current study, the sensitivity and specificity of TVS was found to be 91.43% and 93.75% respectively. Our results match closely with those of Malik et al.6; sensitivity (92.94%) and specificity (93.33%). Our results also agree with those of Hopp et al.[10] and Condous et al.[11]. Timor-Tritsch8 and Kirk et al.[5] documented relatively higher sensitivity and specificity as compared to our study. Valenzano et al.[9] documented a very low sensitivity (88.4%) while Nahar et al.[12] documented a very low specificity (75%). These differences can be attributed to inter-operator bias (observer's skills) and hardware differences (probes used).

We observed a comparatively low sensitivity of TAS (82.86%) as compared to TVS (91.43%) while both of them were equally specific (93.75%). Our results match with those of Malik et al.[6] who observed sensitivity and specificity of TAS to be 82.35% and 93.33% respectively. Valenzano et al.[9] and Nahar et al.[12] observed very low sensitivity and

Table 5: *Summary of Existing Literature on TAS and TVS*

Author	Year	TVS		TAS	
		Sensitivity	Specificity	Sensitivity	Specificity
Timor-Tritsch[69]	1989	100%	98.2%		
Valenzano et al.[70]	1991	88.4%		76.9%	
Hopp et al.[71]	1997	96%	88%		
Condous et al.[72]	2005	90.9	99.9%		
Kirk et al.[5]	2007	98.3%	99.9%		
Malik et al.[6]	2010	92.94%	93.33%	82.35%	93.33%
Nahar et al.[73]	2013	92.3%	75%	73.1%	75%
Current Study	**2014**	**91.43%**	**93.75%**	**82.86%**	**93.75%**

specificity of TAS as shown in Table 9.

Thus trans-vaginal scan (TVS) is more sensitive (91.43% vs. 82.86%) and accurate (93.33% vs. 91.79%) than trans-abdominal scan (TAS). In the light of current evidence, it is recommended that patients who present with lower abdominal pain, amenorrhea and first trimester vaginal bleed should be evaluated by trans-vaginal scan along with other investigations to confirm ectopic pregnancy.

However, a critical limitation observed in the present study was limited field of view of TVS; therefore it is recommended that trans-abdominal scan should be performed in addition to trans-vaginal scan.

CONCLUSION

Trans-vaginal scan is more sensitive and accurate than trans-abdominal scan in the diagnosis of ectopic pregnancy.

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COMPARISON OF ANALGESIC EFFECTS OF TRAMADOL AND LIGNOCAINE IN REDUCTION OF PROPOFOL INDUCED PAIN

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Abstract

Background: Propofolis anintravenous anesthetic agent, normally utilized for induction of general anaesthesia. Propofol possesses distinctiveness of aprinciple induction agent because of flatinitiation and quick resurgence but substantial effect of pain on injection site causes discomfort and adds to anxiety and fear resulting in unpleasant experience by the patient.

Objective: To compare the analgesic effect of Tramadol and Lignocaine to decrease pain at the site of Propofol injection.

Material & Methods: The study was conducted at Department of Anesthesia, Mayo Hospital, Lahore from February 2011 to July 2011. It was Randomized ControlledTrial. Cases were randomly divided in two groups by using lottery method. Group-A received 50mg of Tramadol, while group-B received 50 mg of Lignocaine. Pain response of the patient was assessed according to the pain scoring scale. Data were entered and analyzed on SPSS v25.0.

Results: The incidence of propofol-induced pain was significantly reduced when administered in both groups. The pain was observed as 14% in Tramadol group and in 26% Lignocaine group.

Conclusion: Tramadol with propofolis as effective as Lidocainein reducing pain.

Keywords: Propofol, Lignocaine, Tramadol.

Propofolaintravenous anesthetic agent, normally utilized for induction of general anaesthesia. Propofol possesses distinctiveness of an principle induction agent because of flat initiation and quick resurgence.[1-2] Its use is increased day by day for day case surgery in short surgical procedures, at the point when laryngeal cover airway to utilized, and also for sedation in ICU. It has also been used for the prevention of emesis, treatment of pruritis. Propofol has been used for treatment of intractable migraine.[3]

Propofol is a chemically inert Phenolic compound. The phenol ring is attached to two isopropyl groups altering the side chain's length of this alkyl phenol influences the potency, induction and recovery characteristics of the compound. The original preparation contained the solubilsing agent Cremophor – EL, which was associated with severe anaphylactoid reaction, so it was reformulated in soya bean oil.[4]

The preparation is compatible with 5% D/w, 0.18% and 0.9% normal saline. It is preservative free. Respiratory depression is common and apnea is of longer duration than barbiturates. There have been reports anaphylaxis and occasional convulsions and myocolonus during recovery from anaesthesia.[5]

Propofol like all phenols has a property of irritating skin and mucous membrane; so bolus iv injection can cause severe pain. However it has a substantial property of causing burning pain at injection site. The incidence of pain ranges from 28-90%. The discomfort and pain caused by it can be recalled as an unpleasant experience by the patient. Frequency of pain also increases when Propofol is injected into a small vein, particularly the dorsum of hand or wrist.[6] It has been found that propofol given through central venous line can prevent injection pain.[7]

Several mechanisms have been proposed for this pain, but exact mechanism is obsecure.[8] It is suggested that torment on infusion of Propofol could be prompt or deferred. The prompt torment can be the aftereffect of an immediate aggravation impact,

yet kinin course is most likely the reason for deferred torment. The lipid dissolvable of Propofol initiates the plasma Kallikrein-Kinin Framework which results in bradykinin generation that expands neighborhood vein porousness and dilation.[9]

The fluid stage Propofol diffuses into all the more free nerve endings outside the endothelial layer of the vessel which is progressively porous and widened as a result of bradykinin impact, in this way heightening pain on infusion. Hindrance of bradykinin age by Nafamostatmesylate is appeared to diminish Propofol actuated pain.[10]

Additionally cold seems to reduce Propofol infusion torment through smothering enactment of plasma Kallikrein-Kinin framework that initiates enzymatic course.[11-12] It is also suggested that pain on injection is related to concentration of Propofol and is not related to formulation as Propofol has an almost physiological Osmolarity (303mosmol/kg).[13]

Several methods have been described to lessen the incidence of pain. The most commonly used method is to use Lignocaine before administration of Propofol or premixed with Propofol. Lignocaine in concentration ranging from 0.5-2% may have same effective action for preventing pain on injection of Propofol. The addition does not affect the stability of emulsion. The incidence of pain is 40% when pretreatment with intravenous Lignocaine (0.5mg/ kg) with a rubber tourniquet is done, 30-120 seconds before Propofol injection.[14-15]

Other methods have also been tried with varying success like the use of Ketamine, Ephedrine, Ketorolac, Tramadol, Metoclopramide, Thiopentone, Ondansetron and Remifentanyl prior to Propofol injection for treatment of pain.[16-18] Similarly venous occlusion and preparing skin with nitroglycerine have been tried.[19]

Tramadol is similar in structure to opioid derivative such as codeine. It is a centrally acting weak mu and kappa receptor agonist and inhibits nor–adrenaline reuptake as well as promotes Serotonin release.[20] It may have also have a peripheral analgesic effect similar to Lignocaine. When Tramadol was retained in the venous system for one minute it was found to be as effective as Lignocaine in reducing Propofol injection pain.[21-22]

Pre-treatment with Tramadol is effective for Propofol induced pain and incidence of pain 13.34%. It has been observed that Tramadol is effective in not only reducing Propofol induced pain, it is also effective for intra and postoperative analgesia as compared to Lignocaine which has no post op analgesic effect.

Local anesthetics as Lignocaine, in 2% concentrationcan reduce growth of bacteria in propofol solution.[23] This study was conducted with the purpose to compare the analgesic effects of Tramadol and Lignocaine for Propofol induced pain. As Propofol is an ideal induction agent because of its unique properties but the problem of injection pain can add to anxiety and tension of patient leading to increase in heart rate and blood pressure so newer methods should be sought to make Propofol more acceptable towards patients.[24]

METHODS

The study was conducted at Department of Anesthesia, Mayo Hospital, Lahore from February to July 2009. It was Randomized Controlled Trial. The inclusion criteria was All male and female patients of ASA I and II aged between 18-60 years, undergoing general anesthesia for their elective surgical procedures.

The exclusion criteria was; Based on history, clinical examination and investigation (Patients with ischemic heart disease, Patients with history of epilepsy, Pregnant and lactating mothers, Patients taking analgesics for medical problems preoperatively).

Patient's detailed history and physical examination was done. Lab investigations were reviewed for evaluation and a study proforma was filled for each patient. In this proforma, the patients age, sex, ASA physical status, diagnosis and type of surgery were noticed.

On the day of surgery, patients were divided

into two equal groups of A and B based on receiving Tramadol and Lignocaine respectively by method of randomization. Intravenous line was established with 18G branula. No pre-medication was done. Monitoring equipments such as ECG, pulse oximetry and non invasive blood pressure monitor (NIBP) were applied.

Before induction of anesthesia, patients were informed of the possibility of a burning sensation in the forearm and were requested to grade the severity of pain as none (pain score 0), mild, moderate to severe (pain score 1&2) at 10 seconds interval form start of injection of Propofol according to pain scoring scale.

Following venous occlusion by a pneumatic tourniquet placed on the arm and inflated to 50mm of Hg above the baseline systolic pressure, group A received 5ml (50mg) Tramadol and Group B received 5ml (50mg) of Lignocaine. The tourniquet pressure was released after 1 minute. After that one of my colleagues administered a dose of 2-2.5 mg/kg of Propofol over 30 seconds.

Patients response towards pain of injection was noted by me at 10, 20 and 30 seconds till loss of consciousness and anaesthesia continued as planned. Vitals were recorded with addition of ETCO2 after intubation and surgical procedures carried out according to plan.

Data were analysed by SPSS v23.0. Both groups were compared according to age, sex, ASA status and for the response of pain on injection of Propofol. Whether analgesic effect achieved or not was compared. To detect significant difference between the two groups, chi-square test was used as the data was qualitative in nature. The statistical difference was considered significant when p-value was ≤0.05. Relative descriptive statistics were also presented in the tables.

RESULTS

The average age of all patients was 33.80 ± 12.20 years with the minimum and maximum ages 18-60 years respectively. The average age in Tramadol group (Group A) was 34.26 ± 11.76 years and in Lignocaine group (Group B) it was 33.34 ± 12.73 years.

In Group A there were 22(44.0%) male and 28(56.0%) females while in Group-B the number of male patients was 24(48.0%) and female patients were 26(52.0%).

In Group-A 30(60.0%) patients were having ASA-I status and 20(40.0%) patients were having ASA-II status while in Group B 43(86.0%) patients were having ASA-I status and 7(14.0%) were having ASA-II status.

In Group-A,43(86.0%) patients were not suffered from pain, 4(8.0%) suffered from mild pain and 3(6.0%) suffered from moderate to severe pain. In Group-B 37(74.0%) patients were not suffered from pain, 11(22.0%) suffered from mild and 2(4.0%) suffered from moderate to severe pain. Both treatment A and B showing significant decrease in pain but p-value is insignificant i.e. p-value = 0.141 suggesting comparable efficiencies of both drugs.

Table 1: *Comparison of ASA Classification between Groups*

ASA Classification	Treatment Groups		Total
	A (Tramadol)	B (Lignocaine)	
ASA1	30(60.0%)	43(86.0%)	73(73.0%)
ASA2	20(40.0%)	7(14.0%)	27(27.0%)
Total	50(100.0%)	50(100.0%)	100(100%)

Table 2: *Comparison of Pain Statusbetween Groups*

Treatment Groups	Pain Status of Patient			Total
	No Pain	Mild Pain	Moderate To Severe Pain	
A (Tramadol)	43(86.0%)	4(8.0%)	3(6.0%)	50(100.0%)
B (Lignocaine)	37(74.0%)	11(22.0%)	2(4.0%)	50(100.0%)
Total	80(80.0%)	15(15.0%)	5(5.0%)	100(100.0%)

p-value = 0.141

Table 3: *Comparison of Pain Status between Groups*

Treatment Groups	Pain Status of Patient		Total
	Analgesia achieved		
	Yes	No	
A (Tramadol)	7(14.0%)	43(86.0%)	50(50.0%)
B (Lignocaine)	13(26.0%)	37(74.0%)	50(50.0%)
Total	20(20.0%)	80(80.0%)	100(100.0%)

p-value = 0.133

DISCUSSION

Despite the fact that torment on infusion of IV medications is typically not considered as a genuine entanglement of anesthesia but rather it might trouble the patients and can lessen the adequacy of a generally valuable agent. Torment amid infusion is a constraining variable in the utilization of some soporific medications like propofol, intimidate and diazepam. In thirty three scientific issues, Propofol instigated torment positioned 7th, as together clinically significant and recurrence being measured.[25]

In 1977, in anesthetic practice, Propofol was brought in as a 1% solution in Cremphor-El. Formulation of Tjis was linked to raised prevalence of pain. Reformulation in soyabean oil to replace the solvent had revealed having marginal outcome by Propofol.[9,13] As a famous induction agent, Propofol specially for small cases, it is a chosen drug for outpatient anesthesia.[26] It frequently has dis-advantage of reasoning pain on injection.[8]

Frequency of pain fluctuates in 28 to 90 percent in adults while it is between 25-80% in younger children.[18] The reason for this pain on infusion is hypothesized to be expected to either an immediate aggravation impact of medication offering ascend to a prompt vibe of pain or a backhanded impact through releasing of intermediaries.[10]

Other factors reported of Propofol injection pain including its physiological pH and osmolality differences.[4,13] In our study, pre-treatment with Tramadol and Lignocaine were chosen to let alone combination of therapies and interface pharmaceutically, thinning the added therapies. The process of tourniquet elevation was chosen prior to administration of test drugs. The tourniquet pressure was raised upto 50mm Hg above systolic pressure for one minute. So that study drugs may have sufficient time to have their local action.

Tramadol, a synthetic opioid is similar to opioid derivatives such as codeine. It is a centrally acting weak mu and kappa agonist and inhibits nor adrenaline reuptake and promotes serotonine release.[28] It's centrally mediated analgesia is only partially reduced by Nalaxone, suggesting an important non opioid mechanism of action.[27] It may have a peripheral analgesic action on the free nerve endings of blood vessel.[22]

In an experimental study, it is hypothesized, it has a local anaesthetic effect familiar of Lignocaine next to intra-dermal injections or wound infiltration.[29-30] when conduction blocks produced by Tramadol compared with Lignocaine it was found that Tramadol has a local anaesthetic property, but weaker than Lignocaine.[31] The local anesthetic property of Tramadol may related to its pain-relieving effect in lowering propofol injection pain.[22,29]

In our study 50mg Tramadol before propofol injection produced pain in 14% of patients as compared to Lignocaine which produced pain in 26% patients. Wong et al[21] and Gole et.al[32] observed, 50mg of Tramadol with application of tourniquet was as effective as Lignocaine in reducing pain of injection.

This study noted lower pain score with Tramadol. These results are comparable with another similar study by Abdolhameed Chohderi and colleagues which showed, the incidence of pain 13.34% with Tramadol (50mg) compared to 16.66% with Lignocaine.[20] Patients had no difference of frequency of pain who received Tramadol and Lignocaine (p=0.717).

Lignocaine administration, whether earlier or pre-mixed with injection of Propofol remain as mainly consumed method. Lai et al showed that Lignocaine at low concentrations, follows up on the tangible nerve endings and small nerves, while at high focuses, it follows up on both nerve trunks and tactile nerve ending.[33]

In another study Picard et al, given (0.5mg/kg) Lignocaine IV, with a rubber tourniquet on the forearm, 30-120 seconds before the injection of Propofol, 60% of the patients treated in this manner were pain free.[14]

However no difference as statistically significant between groups (P value) was observed in minimizing the frequency of pain on Propofol injection suggests comparable efficacy of two drugs. Frequency of adverse effects as redness, erythema was more with Tramadol as compared to Lignocaine.[21]

CONCLUSION

Tramadol is as effective as Lidocaine with propofol in reducing pain.

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KNOWLEDGE, ATTITUDE AND PRACTICE OF BREAST SELF EXAMINATION (BSE) AMONG FEMALE MEDICAL STUDENTS OF ALLAMA IQBAL MEDICAL COLLEGE, LAHORE, PAKISTAN

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Research conducted under the Department of Community Medicine, Allama Iqbal Medical College Lahore

Abstract

Objective: To assess the knowledge, attitude and practice of BSE among female medical students of AIMC.

Materials and Methods:

Study Design: Observational, cross-sectional study.

Study Setting: Allama Iqbal Medical College Lahore, a government medical institution, affiliated with Jinnah Hospital Lahore (a tertiary-care setup)

Study period: April 2018- May 2018.

Sampling technique: Non-probability convenience sampling

Study sample: 285 female students, 57 students from each academic year (First-Final year)

Results: Although, a significant correlation was seen between the academic year of participants and their knowledge and practice of BSE , overall knowledge and practice of BSE remained low, with only 25.96% of the participants having 'good' knowledge and just 20.37% claiming to perform BSE. In contrast, attitude towards BSE was strongly positive. Surprisingly, health care providers were the least common source of information regarding BSE. Additionally, 22.02% of the participants either disagreed or were neutral about practicing BSE regularly even if they had proper knowledge, indicating a lack of motivation. Another peculiar barrier to BSE practice reported by a small percentage of participants (4.40%) was 'fear of discovering a lump'.

Conclusion: The various factors that hinder the translation of a 'positive attitude' into 'regular practice' of BSE need to be identified and addressed.

Key words: knowledge, attitude, practice, Breast Self Examination (BSE), female medical students

Breast Cancer ranks as the top most frequent malignancy among women worldwide, being responsible for 15% of all cancer related deaths among women in 2015.[1] Once confined mainly to the West, incidence of breast cancer has been on a steady increase in Asia since 1990s, with 'westernization' of lifestyles being cited as a major culprit for this rise.[2] Unfortunately, Pakistan has the highest rate of breast cancer in Asia, with every 1 in 9 Pakistani women being affected at some stage of their life.[3]

To reduce mortality and improve prognosis, early detection of Breast Cancer is critical.[1] Various methods that have been evaluated for breast cancer screening include mammography, clinical breast examination (CBE) and breast self-examination (BSE).[1] However, in a developing country like Pakistan, mammography and CBE facilities are neither readily available nor are they cost effective at a mass scale.[5] Therefore, even though evidence supporting BSE as an effective screening tool may not be substantial,[4] it is still recommended as a means of early breast cancer detection in a low-resource setting like ours.[5,6]

BSE is a simple, non-invasive and inexpensive

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method of examination, which takes 5-10 minutes to perform and involves step-wise inspection and palpation of breasts and axillae. It is aimed at making women familiar with the look and feel of their breasts so that any deviation from usual can be picked up by them. It is recommended that all women above 20 years of age should perform it on a monthly basis, preferably 2-3 days after the menstrual bleeding ends.[6]

Previous studies have shown that even though most medical and nursing students have a positive attitude towards BSE, knowledge and practice of BSE remains low and inadequate.[7,8,9] A significant correlation appears to exist between knowledge of BSE and the academic year of students.[8,10] Social/ mass media was seen to be the most common source of information about BSE.[7,8,9,11,12] The correlation between knowledge and practice of BSE remains variable.

Medical students can serve as effective disseminators of health education to the general public, therefore their own knowledge and practice of screening methods like BSE is of paramount importance. The aim of this study is to assess the knowledge, attitude and practice of BSE among female medical students of Allama Iqbal Medical College Lahore (AIMC) and hence collect a baseline data for future breast cancer awareness campaigns.

METHODOLOGY

An observational, cross- sectional study was carried out at Allama Iqbal Medical College Lahore, between April-May 2018. Non-probability convenience sampling was employed and 285 female students (57 from each academic year) were included in the study after taking an informed consent. Data was collected through a self-administered questionnaire and was subjected to descriptive and inferential statistical analysis using SPSS version 21.

Ethical considerations:

The research was conducted under supervision of the Department of Community Medicine, AIMC. Written, informed consent was taken from each participant. They were assured that their participation is voluntary and complete anonymity was maintained.

Tool of study:

A self-administered, close-ended questionnaire was developed for data collection, consisting of four sections: Personal Information (age, academic year, family and personal history of breast cancer), Knowledge (about breast cancer and BSE), Attitude towards BSE and Practice of BSE.

Scoring system for knowledge consisted of: 2 marks for 'yes', 1 mark for 'had some idea but was no sure' and 0 marks for 'no' response. The total knowledge scores for Breast cancer and BSE were calculated by summing up the scores of individual knowledge questions. These knowledge scores were divided into three categories as follows:

Good knowledge: 75% or more, average knowledge: 50% to 'less than 75%', Poor knowledge: <50% Scoring system for attitude consisted of 5, 4, 3, 2, 1 marks (for 'strongly agree', 'agree', 'neutral', 'disagree' and 'strongly disagree' responses respectively) for positive attitude items. This scoring was reversed for negative attitude item. The total score was divided into three categories:

Positive attitude: 75% or more, neutral: 50 to 'less than 75%', negative attitude: <50%

A pilot study was conducted to determine the clarity of questions, effectiveness of instructions and the time required to complete the questionnaire. The ambiguities pointed out were clarified in the final questionnaire.

DATA ANALYSIS

The data was analysed using SPSS (Statistical Package for Social Sciences) version 21. Descriptive and inferential statistical tests were applied. p value of 0.05 or less was considered to be statistically significant.

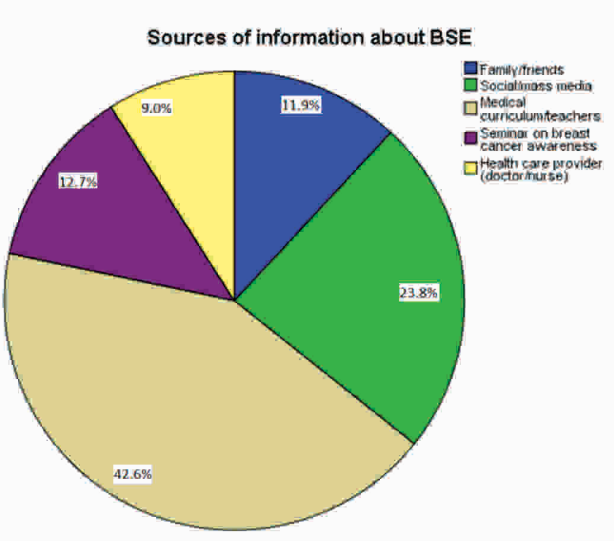

Figure 1

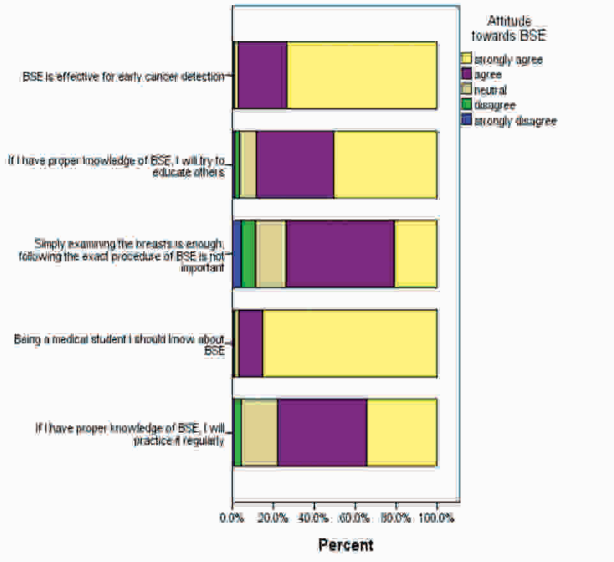

Figure 2

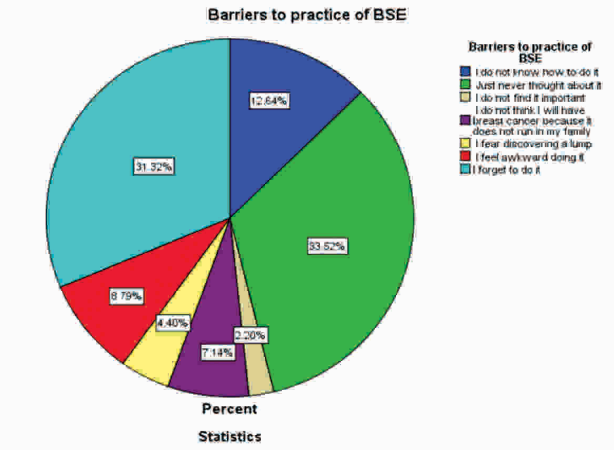

Figure 3

RESULTS:

285 students were included in the study, out of which 79 (27.7%) were less than 20 years, while 206 (72.3%) were 20 years or older; hence a majority fell in the age frame wherein monthly BSE is recommended.

In regards to family history, 40(14.03%) students had 'one near relative' who had breast cancer, while 7 (2.46%) students had 'two or more relatives' with diagnosed breast malignancy. It was seen that students with a strong family history (two or more relatives affected) had slightly better overall knowledge of Breast cancer and BSE than those with none or weaker family history, however the difference remained statistically insignificant (p=0.096).

Personal history of lump or abnormal nipple discharge was reported by 18 participants, however the association of personal history with overall knowledge score was statistically insignificant (p=0.582).

Regarding knowledge about breast cancer, 26.06% of the participants had good, 35.92% had average and 38.03% had poor knowledge respectively. Most participants knew that early diagnosis improves outcome of breast cancer (94.41%). Family history and advancing age were the well-known risk factors (82.27% and 70.98% respectively). The fact that breast feeding reduces chances of breast cancer development was also known by a majority of participants (76.92%). On the other hand, early menstruation, late menopause, first child at older age, nulliparity, and sedentary lifestyle were the less known risk factors (69.23%, 59.09%, 53.50%, 49.65% and 42.66% of the participants respectively, did not know about them).

Knowledge of BSE, was found to be 'good' in 25.96%, 'average' in 35.44% and 'poor' in 38.60% of the participants, respectively. Most participants knew that findings like nipple retraction and abnormal skin texture are to be noted during inspection (90.21% and 86.36% respectively). 83.92% of the participants understood the purpose of BSE, but 32.52% were unaware that proper BSE takes 5-10

minutes to perform and about 27.62% did not know that BSE should be performed monthly.

(Pearson correlation between the knowledge of breast cancer and knowledge of BSE was significant at p=0.00).

Sources of information about Breast cancer and BSE, (see figure 1), were quite similar, with medical curriculum/teachers being the major source of information in either case, followed by social/mass media. Health care providers were consistently the least common source.

Academic year of study was also seen to have a significant association with the level of knowledge about BSE (p=0.00).

Attitude towards BSE, was over-whelmingly positive (91.58%). 85.31% of the participants strongly agreed that being medical students, they should have knowledge of BSE and 88% of the participants expressed willingness to educate others. While 73.43% strongly agreed that BSE is an effective tool for early cancer detection, 73.78% thought that simply examining the breasts is enough, following the exact procedure of BSE is not important. 22.02% participants either disagreed or were neutral about practicing BSE regularly even if they had proper knowledge (see figure 2).

Regarding practice of BSE, 25.19% of the participants said that they never examine their breasts; 54.44% admitted examining their breasts but not according to the proper BSE procedure; 20.37% said that they examine their breasts according to the proper BSE procedure but regularity of practice could not be ascertained.

The relationship between practice of BSE and academic year of study was found to be statistically significant (chi-square value= 22.003, p=0.005)

The most common barriers to regular performance of BSE (see figure 3) were 'never having thought about it' (33.52%) and forgetting to do it (31.32%). A small percentage (4.40%) stated 'fear of discovering a lump' as the reason for not performing BSE.

DISCUSSION

Breast cancer has emerged as a looming danger to women's health worldwide, and therefore screening methods like BSE have been subject to much research around the globe.

In our study, knowledge level of participants who had a family history of breast cancer did not differ significantly from those who did not have a positive family history. This finding was similar to that obtained in Jenin[8], despite the fact that a positive family history was amongst the well-known risk factors.[9,13,14] It was expected that individuals at greater risk would endeavour to be better informed. One explanation for this apparent contradiction could be incomplete understanding of what a 'positive family history' implies and how strongly it correlates to breast cancer development.

26% of our participants had 'good' knowledge of BSE, which was similar to the figure obtained in Taif9, and rather greater than the knowledge level of participants in Jenin (15.5%)8, perhaps because a majority of their study sample belonged to the preclinical years.

The protective role of breast feeding was known by 76.92% of our participants, a finding similar to those obtained in Abbottabad (93.8%)[14] and Libya (88.5%)[15]. This adds to the merits of breast feeding and may contribute to its promotion.

35.3% of our respondents did not know that obesity was a risk factor for breast cancer. This was almost identical to the results obtained in Aga Khan (37%)[13]. This shows that knowledge regarding such modifiable risk factors needs to be improved as it can serve as a valuable adjunct to primary prevention of breast cancer.

67.8% of our students and 84% of the medical students in Taif [9] knew that palpation of axilla was part of BSE. This fact was known by much fewer nursing and non-medical students in Hyderabad (55%)[10] and Nigeria (55%)[16], respectively, perhaps because medical students study the anatomy and lymphatic drainage of the breast in much greater

detail.

In our study, the major source of information about BSE was the medical curriculum/teachers. This was in contrast to the researches conducted in Ethopia[7], Jenin[8] and Taif [9] where media was cited as the most common source of information. The fact that medical students in our research are learning about breast cancer and BSE mainly from the medical college (54% said that they learnt about BSE after starting medical education), implies that the non-medical population has less exposure to this information, highlighting the role media needs to play in educating the common masses.

30.1% and 28.8% of the participants in Taif [9] and Ethopia[7] (respectively) stated 'health care providers' to be their source of information about BSE. Whereas in our case, only 9.17% of the participants gave this response. This reflects that health education, a major responsibility of all health care providers, needs to be reinforced.

In all the researches reviewed, the attitude of participants towards BSE was seen to be positive, with little, if any negative attitudes reported. Our findings were no different. However, in our study, 73.78% of the respondents said that simply examining the breasts (for any abnormality) was enough, the exact protocol of BSE need not be followed. There was also some inconsistency seen in the participants' responses, who claimed to perform BSE, and yet were unaware of some of the necessary prerequisites and/or steps of BSE. This brought us to the realization that the term 'Breast Self-Examination' needs better definition and the importance of following the specified procedure needs to be emphasized. This was supported by the findings of Holtzman and Celentano[17] that 67% of the women claiming to perform 'BSE' were not spending the recommended amount of time on it and so whether or not their performance can be labelled as BSE becomes debatable.

In a research conducted in Maharashtra India[18], level of knowledge, attitude and practice of BSE was evaluated before and after an educational intervention and a significant improvement was observed in all three areas. A similar relationship was seen in our research, wherein academic year of study correlated positively with knowledge and practice of BSE. However, when specifically asked whether the participant would practice BSE regularly if they had proper knowledge, 22.02% respondents either disagreed or remained neutral. This reflects that while knowledge has the power to drive action, sometimes lack of motivation rather than lack of knowledge is the reason behind poor practice, and so this is another area where health care workers need to play their part.

In a research conducted in Turkey[19], 32% physicians and 27% nurses said that they never performed BSE. This percentage was unexpectedly higher than what was seen in our research (wherein 25.19% participants never examined their breasts). This difference maybe due to better screening modalities available at a wider scale in Turkey, obviating the need for BSE.

Among the barriers to regular practice of BSE, a small percentage of 'fear factor' was consistently seen. 4.40% participants in our research and 1.8% in Ethopia[7], 5.1% in Taif [9], 4.4% in Malaysia[11], and 1% in Sagamu Nigeria[20] cited 'fear of discovering breast cancer' as the reason for not practicing BSE. This finding shows that awareness campaigns based on 'fear instillation' as the means for motivating action can prove to be counterproductive. In contrast to this, 70% of the nurses in a research conducted in UAE21 actually stated that they practice BSE because of the fear of breast cancer. The two statements can be reconciled if we realise that the fear of 'discovery of cancer' and fear of 'suffering from cancer morbidity' are two different kinds of fear, with the latter being a healthy kind of fear compared to the former, as it endorses early cancer detection.

In our study 7.14% of the participants mentioned 'not having a family history of breast cancer' as the reason for not practicing BSE. This was similar to the findings of the research conducted

in UAE[21] wherein 4.2% respondents gave this reason. This reflects the need for disarming the masses of the mistaken belief that breast cancer can only develop if a family history is present.

CONCLUSION

In conclusion, the need of the hour is to harness the 'positive attitude' towards BSE to its 'regular practice'. This requires impartation of clear, evidence-based knowledge coupled with motivational reminders, in which media must play a responsible part. It is also important to apprise medical students of their pivotal role as educators and promoters of health in their community. Finally, periodic researches to evaluate the effectiveness of any interventions applied are important to ensure that we are headed in the right direction.

Limitations:

Since the data was collected by self-report, it may be a source of bias. Furthermore, due to time limitations, non-probability sampling was utilized for sample selection, which introduces a degree of selection bias.

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AN ANALYSIS OF THE ELECTROCARDIOGRAPHIC CHANGES IN PATIENTS PRESENTING WITH ACUTE ISCHEMIC STROKE

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Abstract

Stroke is a major cause of morbidity and mortality. ECG changes are frequently noted in these patients but their etiology and prognostic significance is not known. This study was conducted to observe the ECG changes in patients with ischemic stroke and their evolution over the short term.

Methods: one hundred and twenty patients with acute ischemic stroke presenting within twenty four hours of symptom onset were enrolled in the study. All patients underwent ECG on admission and after three days of admission. Various ECG changes were observed in these ECGs.

Results: Mean age of the patients was 53 ±11.2 years and 77(64%) were males while 43 (36%) females. 48 of these patients (29 male and 19 females) were diabetic while 59 patients (35 male and 24 females) were hypertensive. The baseline ECG changes at presentation with stroke showed prolonged QTc in 96 (80%) and increased QTcD in 86 (72%) patients. ST-T changes were found in 29 (24%) while right bundle block was found in two patients. The average QT, QTc, and QTcD returned to within normal values in the next ECG done on the third day of admission.

Conclusion: The changes observed in QT interval of the ECG of these patients are most likely to be directly related to neurologic insult itself and rapidly return to normal. These may be responsible for early mortality due to arrhythmias. The ST and T changes seen in these patients are most probably related to preexisting ischemic heart disease.

Key words; stroke, ECG changes, cardiovascular disease.

Stroke is a rapidly developing neurologic deficit due to vascular cause that lasts for more than 24 hours. It is quite common and a major cause of disability world over. It is estimated that in many western countries it is the third cause of death in adults.[1] ECG changes in stroke are well recognized and were first reported in 1947.[2] Several studies have been done to understand the mechanism of ECG changes in stroke and their significance but there is no consensus about the possible mechanism of the development of these changes. Some studies suggest that these changes reflect preexisting cardiac ischemic disease. Of course generalized cardiovascular atheromatous disease can affect the cerebral as well as coronary arteries. But there is strong evidence that there are changes specific to the stroke and they may have significance in predicting short term mortality in stroke patients. This is shown by the fact that the incidence of ECG changes is highest among stroke patients within 48 hours of the onset and this is followed by rapid recovery in some patients.[3]

The ECG changes in stroke can be divided into ischemic, that is ST depression and T wave flattening or inversion. Other changes include Q-T interval changes, P wave changes and various arrhythmias. While ischemic like changes may be the result of existing asymptomatic underlying cardiac disease, other changes may be new and related to the effect of ischemic brain insult on heart. These changes are thought to originate from autonomic dysregulation and massive sympathetic output in stroke.[4,5,6]

There is increasing interest in studying CNS associated cardiac injury and special focus has been shown in studying Q-T prolongation and increased QT dispersion, which is defined by difference between longest and shortest QT intervals in the ECG. QT represents ventricular action potential and is a measure of ventricular repolarization process[5]. While prolonged QT interval is associated with arrhythmias and sudden cardiac death, a more sensitive and simple parameter is QT dispersion (QT_D) and has been found to be an independent indicator of arrhythmias and mortality.[7] Both these parameters become more specific when they are corrected for heart rate (QT_c and QT_{cD}). Dawood-Darbar et al in their study of cardiac risk in patients with peripheral vascular disease concluded that increased QT_{cD} was strongly associated with cardiac death in these patients.[8] Current study was conducted to observe the new ECG changes especially QT_c and QT_{cD} occurring in patients presenting with acute ischemic stroke and their behavior over the short term.

METHODS

This study was conducted in Akhter Saeed trust hospital and Farooq hospital Lahore from 2016-2018. One hundred and twenty patients presenting in emergency room with acute neurologic deficit within 24 hours of symptom onset were admitted and evaluated with CT brain or MRI. Complete physical and neurologic examination was performed. The diagnosis of ischemic stroke was made on the basis of standard physical findings plus absence of hemorrhage/presence of hypodense area with surrounding edema on brain imaging. A good quality resting ECG was obtained on admission and evaluated by a cardiologist. Routine investigations including serum electrolytes and calcium levels were also obtained. The ECG was repeated on the third day of admission and again evaluated by a cardiologist. The QT interval was measured from start of Q wave to the end of T wave where it joined the isoelectric line. Where U wave was present, the deepest point between T and U wave was taken as the isoelectric. The leads in which T waves were not clear were omitted because it is better to omit a lead with uncertainty rather than to make a falsely prolonged or short QT interval.[8] Maximum and minimum QT intervals were recorded in each lead.

Qt_c was calculated by the Bazett's formula: $QT_c = QT/\sqrt{R\text{-}R}$, and QT_{cD} was calculated by recoding the longest and shortest QT_c in each lead and then calculating the difference between maximum and minimum QT_c recorded. A QT value of >440 ms was taken as prolonged while a QT_{cD} value >80 ms was taken as increased QT dispersion.

Inclusion criteria

All patients presenting to the hospital with acute ischemic stroke within first 24 hours of symptom onset, without previous history of ischemic heart disease or other atherosclerotic cardiovascular disease.

Exclusion Criteria

Patients with hemorrhagic stroke were excluded from the study. The patients with evidence of previous atherosclerotic cardiovascular disease as shown by previous medical records physical examination or those taking medicines for ischemic heart disease were also excluded. Other conditions like intake of drugs known to prolong QT interval and electrolyte disturbances, arrhythmias, heart blocks, cardiac pacing were also excluded.

Hypertension was diagnosed by previous history of hypertension or on anti-hypertensive treatment or the previous recording of blood pressure ≥140/90 during hospital/clinic visits.

RESULTS

Total of one hundred and twenty patients with ischemic stroke were enrolled in this study. Basic characteristics of patients are shown in table 1. Mean age of the patients was 53 ±11.2 years and 77 (64%) were males while 48 (36%) females. Forty eight of these patients (29 male and 19 females) were diabetic while 59 patients (35 male and 24 females) were hypertensive. The baseline ECG changes at

presentation with stroke showed prolonged QT_c in 96 (80%) and increased QT_{cD} in 86(72%) patients. ST-T changes were found in 29 (24%) while right bundle block was found in two patients. None of the patients had a previous (before the onset of stroke) ECG available.

Table 1: *Patient Characteristics*

Characteristics	Findings (n= 25)
Age (years)	53 ±11.2
Male/Female	77 (64%)/43 (36%)
Diabetes	48 (40%)
Hypertension	59 (49%)

Table 2: *Frequency of ECG Changes*

ECG changes	Number (percentage)
Prolonged QTc	96 (80)
Increased QTcD	86 (72)
ST-T changes	29 (24)
RAD	2 (2)
LAD	0

The most prominent changes found in the ECGs of these patients included ischemic like ST-T wave changes and prolongation of Qt_c as well as increased QT_{cD} especially on the first day of presentation. While the ischemic like changes remained more or less similar in both the ECGs of the first and third day of admission, it can easily be seen in table 3 that the QT changes improved markedly in the third day ECGs of these patients.

Table 3: *QT interval Measurements (mean±SD) on the First and Third Day of Admission*

Parameter	First day	Third day
QT max	440±38	391±41
QT min	375±32	371±35
QT_D	61±23	48±22
QT_cmax	446±32	438±22
QT_cmin	388±28	390±22
QT_{cD}	66±22	51±18

DISCUSSION

ECG changes in stroke patients are well recognized since long time. These changes are thought to occur from abnormal autonomic activity during an acute neurologic insult. In 1947 Edwin-Byer and colleagues described T wave changes and long QT intervals in six patients with various neurologic conditions like hypertensive encephalopathy, intracerebral hemorrhage and ischemic brainstem stroke.[9] Since that time several studies have been done to prove this brain heart effect but the results have been very variable. Moreover not much research has focused into the prognostic significance of these ECG changes.[2]

The purpose of the current study was to demonstrate ECG changes that occur in patients with acute ischemic stroke and their evolution during the ensuing days. It is clear from the results that the predominant changes observed in ECG of these patients are prolongation of QT/QT_c interval and increased QT/QT_{cD}. It is also obvious from the results that these changes were very prominent at presentation but tend to improve rapidly over the next few days. The ST-T changes observed in these patients remained more or less the same in both the ECGs. Similar results were found by Ali A Alabd et al. In this study the authors clearly demonstrated that the QT changes within first 24 hours of ischemic stroke returned to normal values on the third day. They also found that these changes were more prominent in patients who presented with insular involvement in ischemic stroke.[5] Eckardt Malso found that patients with insular involvement in stroke have peculiarly high incidence of increased QT dispersion on ECG.[10]

A prolonged QT interval and increased QT dispersion are well known to be associated with ventricular arrhythmias and sudden death, especially when corrected for the heart rate.[8,11] As mentioned above, the presence of these changes in various acute neurologic events is well known but their significance is not well understood and should be further evaluated.[12]

In 2007 Martin A. Samuels compiled a comprehensive review of all the work done on this subject and concluded that sympathetic over activity

is the link to most of the cardiac manifestations in patients with acute neurological insults and are major contributors to the mortality rates in many of the primarily neurological conditions like cerebral infarction, subarachnoid hemorrhage and head trauma.As ST-T changes similar to ischemic heart disease can represent accompanying coronary artery disease, further workup should be done once patient is stabilized.[13]

Fure B et al studied ECG changes in ischemic stroke and found that ischemic cardiac changes like ST depression and pathologic Q waves were frequently associated with increased troponin T levels and poor outcome. However the most common ECG changes in these patients were a prolonged QTc interval but did not correlate these changes with mortality risk.[14] Bozluolcay M et al also showed that ischemic changes in patients with stroke had higher mortality in the first six months compared with patients who did not show such changes. They suggested that cardiac evaluation of patients with acute ischemic stroke is of prognostic significance.[15] On the other handDavis TP and colleagues showed that ECG changes in acute stroke did not have any prognostic significance and even echocardiography in these patients also had no significant impact upon outcome and screening in these patients did not improve mortality.[16]

K Y K Wong et al. observed the correlation between ECG changes and long term outcome in patients with ischemic stroke. They found that prolonged QT was associated with increased cardiac and all-cause mortality. Another observation made in this study was QT interval measured from any lead except aVR predicted total mortality and especially QT value in lead V6 most closely predicted death[17]. This is important because as mentioned above, it is not always possible to accurately measure QT in all leads especially where T wave is not clearly visible.

A study done on ninety-seven patients with ischemic and hemorrhagic strokes showed high incidence of ECG changes compared to similar group of control patients and QT_{cD} was found to be associated with increased short term mortality during hospital stay.[6] Similar findings were observed by investigators.[2, 3,4, 18, 19,20] who recommended further workup for cardiac disease in these patients. Goldstein DS and colleagues suggested that increased incidence of ECG changes in stroke patient is due to interaction of underlying hypertensive or atherosclerotic cardiovascular disease, sympathetic hyperactivity, and possibly myocardial necrosis.[21] While these studies reported similar results to our study, other studies suggest that the ECG changes in strokes are not due to the neurologic insult and are the reflection of pre-existing asymptomatic cardiac illness.[7,22]

In conclusion our study confirms previous findings that repolarization changes in ECG are frequent in patients with acute ischemic stroke and these patients should receive special care as they are at risk for development of ventricular arrhythmias. However these changes are transient and return rapidly to baseline during the ensuing days. The ST and T changes observed in these patients are most likely represent preexisting ischemic heart and disease and require further work up.

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FREQUENTLY ISOLATED PATHOGENS FROM BURN WOUND PATIENTS AND THEIR SUSCEPTIBILITY PATTERNS

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Abstract

Antimicrobial resistance in burn wound pathogens is a rapidly increasing dilemma which delays recovery and increases mortality in burn patients. There are regional variations within the same country not only in terms of the pathogens responsible for infection but also their susceptibility patterns. Hence taking the opportunity of having a state of the art burn care center, a study was conducted focusing on finding out the infecting organisms and their current susceptibility profiles.

Objectives:

1. To isolate bacterial pathogens from pus samples of infected burn sites.
2. To find out the current in vitro antimicrobial susceptibility patterns of isolated strains

Materials & Methods: It is a prospective, non-randomized, descriptive study conducted at Microbiology laboratory, Pathology department and burn care center (BCC), Pakistan Institute of Medical Sciences Islamabad for 4 months, from 2nd April to 3rd August 2012. One hundred and ten clinical isolates from sixty eight patients were collected. Pus samples from infected burn wounds were submitted for Culture and sensitivity. Identified isolates were subjected to antimicrobial susceptibility testing using Agar disc diffusion methods. Zone of inhibitions in millimeter were measured and reported according to Clinical Laboratory Standard Institutes Criteria (CLSI 2012). MIC was determined with E-strips of selected antimicrobial agents against predominant pathogens i.e. Psedomonas aeruginosa, Klebsiella pneumoniae and Staphylococcus aureus.

Results: Out of pus samples from 68 patients, males were 36.8% and females were 63.2 %. Female to male ratio was 1.72:1. 110 burn wound pathogens were isolated. Gram negatives were in majority 81.82% and Gram positives were 18.18%. 65 % of Staph aureus isolated were MRSA and were found 100% sensitive to fusidic acid, linezolid, teicoplanin and vancomycin. 100% resistance was found against, co-trimoxazole and erythromycin. When comparing all the Gram negatives it was found that amoxicillin/ clavulanic acid, ceftazidime, ceftriaxone showed more than 80% and 100% resistance to all of them. MICs of the selected Gram negatives were determined for imipenem, amikacin, polymyxin and tigecycline.

Conclusion: It is concluded that females were the predominant burn victims almost twice in number. Age between 2-40 years was the most affected population. More than 80% of bacterial isolates were Gram negative and less than 20% were Gram positive. The study outcome will hopefully contribute to the development of appropriate empirical guidelines for the treating clinicians.

Key words: Psedomonas aeruginosa, Minimum Inhibitory Concentration.

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Antimicrobial resistance in burn wound pathogens is a rapidly increasing dilemma which delays recovery and increases mortality in burnt patients. Although newer topical drugs and early empirical antimicrobial therapy has to some extent improved burn care but at the same time emerging resistances in bacterial pathogens have pulled the tug of war towards their favor leaving the clinician in a state of helplessness. Development of infection is inevitable in burn patients as they are immunocompromised.[1]

The burn wounds are protein rich, full of moisture allowing bacteria to reside and multiply and cause infection freely[2]. Burn patients are at an increase risk of developing local and systemic infections which is the most common cause of death after burn Injury.[3] Members of the ESKAPE (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa and Enterobacter spp) group of pathogens recognized by the Infectious Disease Society of America as the most challenging bacteria facing clinicians treating burn infections today.[4] Due to gravity of the outcomes in burn patients studies have been carried out around the world in an attempt to isolate offending bacterial pathogens and to outline their susceptibility profiles and the various mechanism of their resistances against antibiotics. The pattern of resistance differs from country to country, within different areas of same country. There are quite a few handfuls of studies in Pakistan targeting resistance mechanisms in burn wound pathogens.[5]

As it is a well known fact that there are regional variations within the same country not only in terms of the pathogens responsible for infection but also their susceptibility patterns. Hence taking the opportunity of having a state of the art burn care center with a well equipped set up, a large catchment area and management strategies quite in accordance with International standards a study was conducted focusing on finding out the infecting organisms, their current susceptibility profiles, and further identifying their resistance mechanisms. The study outcome will hopefully contribute to the development of appropriate empirical and treatment antibiotic guidelines for the treating clinicians and obviously the burn patients.

Objectives:

1. To isolate bacterial pathogens from pus samples of infected burn sites
2. To find out the current in vitro antimicrobial susceptibility patterns of isolated strains
3. Determine the number and nature of Multidrug resistant isolates.

METHODS

This research was a prospective, non- randomized, descriptive study in a clinical setting. A Performa was used as a tool for data collection. The study was conducted at Microbiology laboratory, Pathology department and burn care center (BCC), Pakistan Institute of Medical Sciences Islamabad. Study was conducted for four months, from 2nd April 2012 to 3rd August 2012.One hundred and ten (110) clinical isolates from sixty eight (68) patients in 4 months time period were collected. Pus samples from infected burn wounds, received from burn care center PIMS. Only one sample from each patient was included and any duplicate sample from the same patient was excluded from the study. The pus samples brought from burn care center were submitted for Culture and sensitivity testing in microbiology laboratory. They were immediately inoculated on Blood agar and MacConkey agar (Oxoid USA).The plates were incubated aerobically at 35+ 2 0C for 18 -48 hours. After incubation the pathogens were identified with the help of colonial morphology, gram stain reaction, motility test, Catalase, coagulase, Dnase test and Oxidase test. Biochemical Identification for gram negative bacteria was done by API 20E and API NE (Biomeriuex, USA). Fresh culture of identified isolate after overnight incubation was subjected to antimicrobial susceptibility testing using Agar disc diffusion methods. Quality control was done by using E.coli ATCC 25922, P

aeruginosa ATCC 27853, S aureus ATCC 2592 as control strains. Zone of inhibitions in millimeter were measured, recorded and the isolates were classified as resistant, intermediate, and sensitive according to Clinical Laboratory Standard Institutes Criteria (CLSI 2012). MIC was determined with Epsilometer strips (E-strips) of selected antimicrobial agents against predominant pathogens Psedomonas aeruginosa, Klebsiella pneumoniae and Staphylococcus aureus.

RESULTS

Burn wound pus samples from 68(sixty eight) patients were collected and enrolled in the study. Males were 25(36.8%) and females were 43(63.2 %). Female to male ratio was 1.72:1. Age ranged from 3month to 44 years with a mean of 14.5 years. Most of burnt patients were in the group of middle age adults between 19-40 years (30.8%), followed closely by teen agers and young children (29.4%), children 2-5 years were (27.5%). Infants were 5 (7.3%) while older patients, 40-44 years old were only 3(4.4%).

Out of 68 samples 110 burn wound pathogens were isolated. 47% of the samples yielded single etiological agent whereas the rest of 53 % had polymicrobial etiology. Gram negatives were in majority 81.82% and Gram positives were18.18 %. Fig 2.

Susceptibility profiles of Gram positive isolates: 65 % of Staph aureus isolated were MRSA and were found 100% sensitive to fusidic acid, linezolid, teicoplanin, and vancomycin. 100% resistance was found against, co-trimoxazole and erythromycin. Resistance to levofloxacin and Chloramphenicol was also high i.e 85% and 100%. Majority of Staph aureus were MRSA and were 100 % sensitive to fusidic acid, linezolid, teicoplanin and vancomycin only. Methicillin sensitive Staph aureus had better susceptibility and was 100 % susceptible to most of the antimicrobials except cotrimoxazole, erythromycin, penicillins and chloramphenicol.

As expected MRSA are found comparatively more resistant to most of the non β-lactam antibiotics in contrast to MSSA. (Fig : 2)

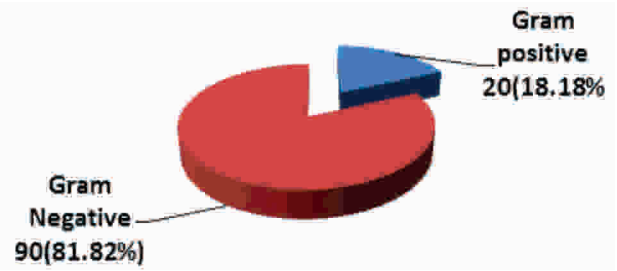

Fig 1: *Distribution of Gram Positive and Gram Negative Clinical Isolates from Burn Wounds, n =110.*

Susceptibility profiles and detection of mechanisms of resistance in Gram negative isolates:

When comparing all the Gram negatives it was found that amoxicillin/clavulanic acid, ceftazidime, ceftriaxone showed more than 80% and 100% resistance to all of them. Cefipime showed the least resistance to P.mirabilis (33.4%) followed by P. aeruginosa (35.4%). For lactam and β-lactam combination drugs cefoperazone/sulbactam had the least resistance to P.mirabilis (22.2%) followed by E. coli (37.5%) and Pseudomonas (45.8%). In case of piperacillin /tazobactam least resistance was seen against E.coli (50%) followed by K. pneumoniae (60.9%) and Pseudomonas (62.5%) showing that out of these combination drugs cefoperazon/sulbactam had the better sensitivity to all these isolates piperacillin tested alone against Pseudomonas showed (70.8%) that in these isolates only (8.3%) were β-lactam producers and the remaining resistance was due to chromosomal mutation of the binding sites. Levofloxacin was found to have least resistance against K.pneumoniae (30.4%) followed by E.coli (37.5%) and in the rest of the Gram negative isolates the resistance was more than 50 %. Towards imipenem highest resistance was shown by Pseudomonas which was (31%). The rest of the isolates showed almost equal resistance of around 26%. No isolate showed resistance against tigycyclin except the four isolates of Klebsiella pneumoniae. No resistance was seen against polymyxin. (Fig: 3)

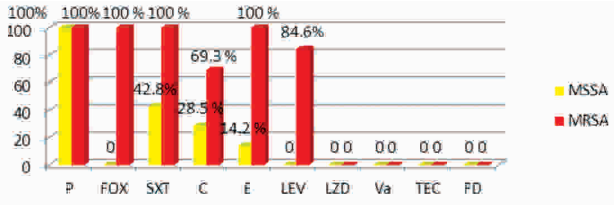

Fig 2: *Comparison of Percentage Resistance of Methicillin sensitive and resistant staph aureus against antimicrobials (n=20)*

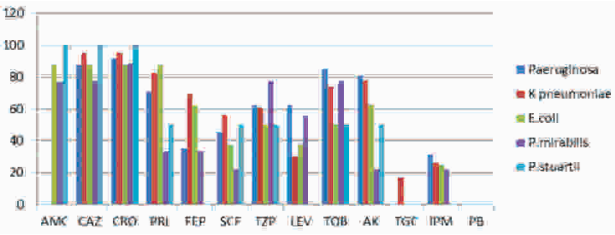

Fig 3: *Comparative Percentage Resistance of all Gram Negative Isolates n=90*

Minimum Inhibitory concentrations (MICs):

MICs of the selected Gram negatives were determined for imipenem, amikacin, polymyxin and tigecycline (except for Pseudomonas). MICs of selected Staph aureus both MRSA and MSSA were determined for vancomycin only. MIC of Gram negatives were performed against antimicrobials, to which they were from both sensitive and resistant category, based on their disc diffusion results in most of the isolates. (Table 1) shows the details of all the criteria and the details of MIC results of individual isolates. MIC 50, MIC 90 and Modal MIC determined based on the individual results is shown in the (Table 2). Reference CLSI Zone diameter and MICs interpretive criteria for tested antimicrobial against bacterial isolates tested was charted out for calculating results (Table 3, 4). Quality control strains were used for control of the MIC determination and the results obtained were within assigned recommended value. (Table 5)

Staphlococci aureus MICs results:

Vancomycin MIC was performed for few isolates of both MSSA and MRSA. Vancomycin cut off was 4 µg/ml and the highest MIC found was Methicillin sensitive staph aureus i.e. 1.5 µg/ml. and

Table 1: *Results of Minimum inhibitory concentration of Clinical isolates of burn wound infections*

Drugs (MIC range)	Isolates= no with susceptibility	MIC range µg/ml																													
		0.008	0.012	0.016	0.023	0.032	0.047	0.054	0.067	0.094	0.125	0.19	0.25	0.38	0.5	0.75	1	1.5	2	3	4	6	8	12	16	24	32	64	128	256	
Imipenem 0.002-32 g/ml	*P aeruginosa=10*										5				1					1				1			2				
	P aeruginosa ,S=7										5				1					1											
	P aeruginosa, R=3																							1			2				
	K pneumoniae=6		1								1		1	1				1									1				
	K pneumonia, S=5		1								1		1	1				1													
	K pneumonia R=1																										1				
	P mirabilis=2																		1	1											
	Pmirabilis S=1																		1												
	P mirabilisR= 1																				1										
Amikacin (0.016-256)	*P aeruginosa=10*														1	1	2				1				1	1	2			1	
	Paeruginosa S=7														1	1	2				1				1	1					
	P aeruginosa R=3																										2			1	
	K pneumonia =6															3			1								1			1	
	K pneumonia S=5															3			1								1				
	K pneumonia R =1																													1	
	P mirabils =2																								2						
Polymyxin (0.064-021)	*P aeruginosa =10*														2	4	3		1												
	K pneumonia = 5										1				1		1	1	1												
Tigecyclin (0.016-256)	*Kpneumoniae =4*						1						1		1	2															
	P mirabilis .=1											1																			

Table 2: *MIC 50,MIC 90of Gram Negative Isolates*

Drugs (MIC range)	Isolates= no with susceptibility µg/ml	MIC 50 µg/ml	MIC 90 g/ml	MIC Modal µg/ml	MIC range	CLSI interpretive criteria (µg/ml)					
						Enterobactreriaceae			Pseudomonas aeruginosa		
Imipenem (0.002-32 g/ml)	Paeruginosa=10	0.125	32	0.125	0.125-32	S	I	R	S	I	R
	P aeruginosa ,S=7	0.125	0.5	0.125	0.125-3						
	P aeruginosa, R=3	32	32	32	12—32						
	K pneumoniae=6	0.25	1.5	--	0.012--32						
	K pneumonia, S=5	0.25	1.5	----	0.012 -1.5	≤1	2	≥4	≤2	4	≥8
	K pneumonia R=1	32	32	---	32						
	P mirabilis=2	2	3	---	2-3						
	Pmirabilis S=1	-----	2	----	------						
	P mirabilisR= 1	------	3	----	------						
Amikacin (0.016-256)	P aeruginosa=10	4	32	32	0.5-256						
	Paeruginosa S=7	1	16	1	0.5-24						
	P aeruginosaR=3	32	256	32	32-256						
	K pneumonia =6	0.75	256	0.75	0.75-256	≤16	32	≥64	≤16	32	≥64
	K pneumonia S=5	0.75	32	0.75	0.75-32						
	K pneumonia R =1	256	256	256	------						
	P mirabilis =2	16	16	16	16						
Polymyxin 0.064-1021	P aeruginosa=10	0.75	1	0.75	0.5-2						
	K pneumonia =5	0.5	1	0.75	0.125--2	≤2	4	≥8	≤2	4	≥8
Tigecyclin 0.016-256	K pneumoniae S= 5	0.5	0.75	-----	0.047-.75	≤2	4	>8	------	——	-----
	P mirabilis .S=1	0.19	0.19	-----	0.19						

Table 3: *Zone Diameter & MIC Interpretive Criteria for Enterobacteriaceae & Pseudomonas Aeruginosa*

Antimicrobial agent	Disk content µg	Zone Diameter Interpretive criteria nearest whole mm						Strip potency (µg/ml	MIC interpretive criteria(µg/ml)					
		Enterobacteriaceae			*P aeruginosa*				*Enterobacteriaceae*			*P aeruginosa*		
		S	I	R	S	I	R		S	I	R	S	I	R
Imipenem	10	≥23	20-22	≤19	≥19	16-18	≤15	0.002-32	≤1	2	≥4	≤2	4	≥8
Amikacin	30	≥17	15-16	≤14	≥17	15-16	≤14	0.016-256	≤16	32	≥64	≤16	32	≥64
Polymyxin	300 units	---	---	-----	≥2	---	≤ 1	0.064-1021	≤2	4	≥8	≤2	4	≥8
Tigecyclin	15	----	-----	-----	----	----	---	0.016-256	≤2	4	>8	-----	-----	----

Table 4: *Zone Diameter and MIC Interpretive Criteria for Staphylococcus Aureus*

		Zone Diameter interpretive criteria nearest whole mm				MIC interpretive criteria (µg/ml)		
Antimicrobial agent	Disk content µg	**S**	**I**	**R**	Strip potency µg/ml	S	I	R
Vancomycin		------	------	-------	0.016-256	<4	8-16	>32

Table 5: *MIC Values Obtained for Control Strains*

Antimicrobials (abbreviation)	*E coli* ATCC 25922 MIC in µg/ml		*Pseudomonas aeruginosa* ATCC 27853, MIC in µg/ml		*Staphylococcus aureus ATCC* 29213, MIC in µg/ml	
	Recommended value	Obtained value	Recommended value	Obtained value	Recommended value	Obtained value
Amikacin (AK)	0.5-4	0.75	1-4	1.5	-----	------
Imepenem(IPM)	0.06-0.25	0.064	1-4	0.125	------	------
Tigecyclin TGC)	0.03-0.25	0.03	NA	NA	-----	------
Poltmyxin (PB)	0.25-2	0.38	1-4	0.5	-----	-----
Vancomycin (Va)					0.5-2	0.50

Table 6: *Overview of MIC results obtained in S. aureus & their relative comparison with Disc diffusion*

MRSA	Disc Diffusion in mm (Interpretation)	MIC result in µg/ml	MIC range in µg/ml	MIC Interpretive criteria 0.016-256 µg/ml		
1	24 (S)	0.38 (S)				
2	22 (S)	0.75 (S)	0.19----1			
3	20 (S)	1.0 (S)				
4	23 (S)	0.19 (S)		<4	8-16	>32
MSSA						
6	20 (S)	0.50 (S)				
7	18 (S)	1.5 (S)	0.5-1.5			
8	25 (S)	0.75 (S)				

hence in these isolates impending threat of VISA was not felt. (Table 6)

DISCUSSION

The grave situation of high level of antimicrobial resistance in burn wound bacterial pathogens and its effect on patient outcome makes it necessary to identify the pathogens, their susceptibility profiles and identify the mechanisms of resistance to formulate appropriate empiric therapy. In this study with a sample size of 68, the female burn patients outnumbered the males by forming two third of the study group 63% vs. 36% It was not an unexpected finding as WHO has stated as a fact that women of south east Asia are predominant burn victims as compared to males of the region[6] mainly because of their involvement in cooking activities and because they are burnt as a part of domestic violence. Similar female: male ratio (60%:40%) was documented by Shahzad, M.N. et al .[7]

The burn victims were mostly between 2-40 years of age in present study, with slight predominance in 19 -40 years age group. (Alebachew et al 2012)[8] reported similar patient predominance. This age group is by and large most vulnerable because of increased social and domestic responsibilities, and there are more chances of indulging into homicidal and suicidal incidents. In our study polymicrobial growth occurred in 52.7 % of total samples while 47.3% had single isolates. In a similar study from Nishtar hospital Multan, polymicrobial growth occurred in 34.64% of cases in the second to third week mainly[9] similarly 37.5% polymicrobial was reported b (Rajput, A et al .2008)[10]. Poly microbial growth was slightly more in our study probably because most of the samples received were from patients in second to third weeks and more, advancing burn age is associated with more polymicrobial growth. [10]

In the present study predominant isolates were Gram negative (81.82%) versus Gram positive organisms (18.18%). It was consistent with findings of another study in India where Gram negatives were 80.71% and Gram positives were 19.29 % .[10] The predominant isolate in the present study was Pseudomonas aeruginosa constituting 43 % of the total isolates and 53% of Gram negative isolates it was followed by Klebsiella pneumoniae which was (21%) and Staphylococcus aureus which was (18.18 %), within the Staphylococci MRSA was predominant (65% of Staphylococci and 11.8% of the total). Numerous studies have reported that P.aeruginosa is a predominant isolate from infected burn wounds mainly because protein rich granulation tissue in burn wound helps the organism to flourish. Shahzad, N et al reported 54% P.aeruginosa out of the total burn isolates[8] and Rajput A et al in 2006 reported Pseudomonas as 55% of the total burn isolates . Sabzghabee A et al 2012 [11] reported 47.3% Pseudomonas, 23% Klebsiella and Staph aureus 19% respectively. Rani et al[12] who studied burn wound bacterial isolate in India reported Staphylococcus aureus as the most frequently isolated burn wound pathogen (24%), followed by Klebsiella pneumoniae (20.8%) and Pseudomonas aeruginosa only (19.8%). Ahmad M et al in 2006 reported 23%

Klebsiella and 11.8% Methicillin resistant Staph aureus. Sirinivas et al from India reported Klebsiella as most frequently isolated pathogen.[13] In contrast to various studies from India, Turkey and Singapore[14] which report Acinetobacter isolated from burn wounds, no Acinetobacter spp was isolated from the present study. In addition to major pathogens in the present study 7.2% E.coli 8% Proteus mirabilis were also isolated. Consistently Rajput et al reported 2.85% E coli and 4.29 % Proteus mirabilis.[15] When the present study turned towards antimicrobial susceptibility profiles, it was found that all Gram negative isolates had exhibited extreme degree of resistance to cephalosporins and amoxicillin/ clavulanic acid (88-93% resistance). These findings were consistent with Rajput A et al[15] and in contrast to Arsalan et al 1999, whose study concluded ceftazidime as a treatment option for burn wound Pseudomonas infection [16].

All isolates in present study exhibited 71 -77% resistance to Piperacillin. This was consistent with Goudarzi S M et al 2013.[17] Amongst the cephalosporins. cefipime had a better susceptibility profile (45.5% resistance) This was probably due to the fact that cefipime is not hydrolyzed by ESBL enzymes and Amp C enzymes. Due to this escape from enzymes cefipime presented itself as a better antimicrobial in ESBL producing and Amp C producing isolates. This was consistent with Baryam et al 2013, comparable susceptibility was reported against all pathogens isolated in their study.[14] In contrast Kalantar et al found out 87% resistance[18]. It is a speculation that probably resistance was due to MBL producing isolated in Kalantars study.

Cefoperazone/sulbactam and Piperacillin/ tazobactam showed (56.5%vs 60.9% R) in Klebsiella and (45.5% vs 62,5% R) in Pseudomonas these findings were consistent with Sirinivas et al i.e. (82.8% vs 77.4% susceptibility)[19]. It was an observation that cefoperazone /sulbactam showed less resistance to all burn wound isolates when compared to piperacillin/ tazobactam. Consistent findings were observed from Sirinivas et al results[19]. Reason could not be found for this observation. Perhaps the high resistance of burn isolates in present study to piperacillin alone can provide a logical explanation. Both aminoglycosides, amikacin and tobramycin showed high degree of resistance to all Gram negative isolates of the present study. (70%-85%). This was consistent with Kalantar et al 2012, Goudarzi et al 2013.[18,20] The results were in contrast to Shahzad et al 2012 , Baryam et al 2013 who reported 40 -45% resistance only. [7,14]

Klebsiella pneumonia showed less resistance 30.4% against levofloxacin which was consistent with the findings of Sirinivas et al 2012.[19] Pseudomonas in the present study showed much higher resistance to Levofloxacin. It cannot be considered a promising drug for treatment of serious infections, as chances of having Pseudomonas aeruginosa in burn wounds are more than having Klebsiella pneumoniae. Imipenem showed 35.5% resistance to all bacterial isolates in the present study. It was consistent with Kalantar et al 2012, Rajput et al 2012, Sirinivas et al 2012.[15,18,19] None of the gram negative bacterial isolate in the present study exhibited resistance to Polymyxin. Consistent findings were seen in Kalantar et al 2012 and Baryam et al 2013.[14,18] The resistance to carbapenems is attributed to carbapenemase production, which not only confers resistance to carbapenems but all other B-lactam antimicrobials. Pseudomonas aeruginosa was not tested against Tigecycline as it is inherently resistant to it. Klebsiella pneumoniae showed 17.39 % Resistance to tigecycline. Other Gram negative isolates were sensitive to tigecycline and resistance offered by Klebsiella pneumoniae was also negligible. Staph aureus formed an important position in bacterial isolates of burn wounds (18%), and a reasonable proportion out of these was Methicillin resistant Staph aureus (11.8% 65% of gram positives MRSA is sometimes isolated as the predominant pathogen in various studies Rani et al reported 24% Staphylococci in the burn wound isolates quite closely consistent with our study but consistently 81 % of these was Methicillin resistant Staph aureus.[13]

All isolates of Staphylococcus were sensitive to Vancomycin, this finding was consistent with Sabzghabee et al, Kalantar et al 2012, Ekram et al 2009.[11,18,20] MRSA showed 100 % resistance to Cotrimoxazole, Erythromycin, and high resistance to chloramphenicol, these findings were consistent with Kehinde A O et al 2003.[21] MIC 90 in imipenem resistant isolates was very high ie 32 ug/ml, but in imiprnrm sensitive isolates MIC 90 was more than the cut off 1 ug/ml. The MIC 90 was very high for Amikacin > 16 ug/ml which was resistant, MIC 90 of polymyxin was 1 and cutoff is 2. MIC 90 of tigecycline was 0.75 and cutoff is 2. The MIC 90 of Pseudomonas against Imipenem in our study was 32ug/ml which was consistent with Kalantar et al who also reported MIC 90 of 16 ug/ml compared to sensitive isolates.[18] In the present study Minimum inhibitory concentration of vancomycin was well below the cut of point and threat of Vancomycin resistance in staphylococci was not felt. Abhay D et al reviewed many reports from all over the world which emphasized that we must all be vigilant in reporting Vancomycin as its MIC is slowly creeping up from one year to next and there may arise a chaotic state of extreme drug resistance pushing us into an era quite similar to pre antimicrobial age.[22]

CONCLUSIONS

It is concluded at the end of this study that females were the predominant burn victims almost twice in number. All ages between 2-40 years were the most affected population and sub age groups in this range and had no difference amongst them. More than 80 % of bacterial isolates of burn wound infections were Gram negative and less than 20% were Gram positive i-e Staphylococcus aureus. Pseudomonas aeruginosa is the predominant bacterial isolate from the burn wound, followed by Klebsiella pneumonia was the next most frequently isolated pathogen (21%). Gram positive were the next common isolate (18.18%) all of which were Staph aureus. Majority of Staph aureus were MRSA and none of them were found resistant or intermediate to vancomycin on MIC testing. Best drugs found in vitro were cefipime with (45.5%) resistance, with least resistance shown by Pseudomonas 37.5%. Out of B- lactam /B-lactamase inhibitor combination was better with 45.5% resistance. Levofloxacin had 50 % resistance with best activity in Klebsiella pneumonia (30.4%) resistance. 58.8% isolates had resistance against tigecycline, because towards, the pathogen in majority ie Pseudomonas (48 isolates) it is not active, in addition four isolates of Klebsiella were resistant to it. Majority of cephalosporins had more than 90% resistance. 100% isolates were sensitive to polymyxin. MIC 90 in imipenem resistant isolates was very high ie 32 ug/ml, but in imiprnrm sensitive isolates MIC 90 was more than the cut off 1 ug/ml. High MIC 90 for Amikacin > 16 ug/ml which was resistant . MIC 90 of polymyxin was 1 and cutoff is 2. MIC 90 of tigecycline was 0.75 and cutoff is 2. The 35.5% imipenem resistant isolates were the major cause of apprehension as far as the treatment options were concerned. In imipenem sensitive isolates carbapenem was the treatment of choice. In imipenem resistant isolates which were > 1/3 rd, polymyxin was the only option for treatment.

RECOMMENDATIONS

Chances of having Pseudomonas as an infective organism either alone or in combination with other pathogens is more than 53%. Empiric treatment should cover Pseudomonas and for that we have only polymyxin in imipenem sensitive (65%) and resistant isolates. Imipenem can be used as first line antimicrobial but in case of clinical treatment failure immediately polymyxin should be started Tigecycline should be used in only culture proven Klebsiella pneumoniae infection because Pseudomonas is the predominant pathogen and tigecycline is not effective in it. Vancomycin, linezolid, teicoplanin, and fusidic acid should be added as the first line empiric therapy along with imipenem and polymyxin.

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CORRELATION BETWEEN CALCIUM PHOSPHORUS PRODUCT AND HYPERTENSION IN PATIENTS UNDERGOING HEMODIALYSIS

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Abstract

Background:. Hypertension is a common co-morbidity in patients with renal disease. Disorders of calcium and phosphorus metabolism have been linked to vascular calcification and hypertension.

Objective: To determine the correlation between pre-dialysis and post-dialysis mean arterial blood pressure with serum calcium-phosphorous product in patients on maintenance hemodialysis.

Subjects and Methods: Two hundred and fourty one hemodialysis patients were included in a cross-sectional study in a dialysis unit during a 6-month period. Mean arterial pressure was recorded before and after dialysis session and Pearson's correlation was used to evaluate correlation between pre and post dialysis mean arterial pressure and calcium-phosphorus product; which was calculated by simple multiplication of calcium and phosphorus values.

Results: 58.5% of the participants were males and 41.5% were females. The mean serum calcium was 8.30 + 1.16 mg/dl. The mean serum phosphorus was calculated as 5.59 + 1.98 mg/dl. The mean serum calcium phosphorus product was 47.21 + 19.37. Pre dialysis MAP was 96.97 + 16.88 mmHg and the post dialysis MAP was 94.15 + 20.06 mmHg. Calcium and phosphorus product was not significantly correlated with pre dialysis mean arterial pressure r= 0.074 p= 0.254 but significant positive correlation was found between post dialysis mean arterial pressure with serum calcium-phosphorous product r= 0.192 p= 0.003.

Conclusion: Calcium and phosphorus product was significantly correlated with post dialysis mean arterial pressure which highlights the importance of optimum control of mineral balance in hemodialysis patients for better cardiovascular outcome.

Key words: Calcium and Phosphorus Product, Hemodialysis, End Stage Renal Disease.

Hypertension is a well known public health issue and is considered a major risk factor for cardiovascular disease.[1] After diabetes mellitus, hypertension has been found as the second most common etiology for end-stage renal disease (ESRD).[2] Incidence of hypertension grows with the aging population and it is expected to occur in more than half of the population older than 65 years.[3] Hemodialysis (HD) patients are commonly affected by hypertension with a reported prevalence from 60% to 86%.[4,5] Development of hypertension in HD patients is usually multifactorial. Contributory factors may include volume overload, increased sympathetic activity and activation of the rennin-angiotensin system.[6] Administration of erythropoietin for anemia has also been linked to hypertension.[7] Parathyroid hormone (PTH) and plasma calcium levels have also been associated with blood pressure (BP) in dialysis.[8] phosphorus (P) load is also considered a factor involved in decreased nitric oxide production causing endothelial dysfunction resulting in high blood pressure.[8] The leading cause of mortality in dialysis patients is cardiovascular disease 2 and a major contributor to the high cardiovascular morbidity and mortality in ESRD is the damage to large arteries. One study showed that increase in stiffness raises systolic blood pressure (SBP) and decreases diastolic blood pressure (DBP), thus increasing pulse pressure (PP). In this study, arterial medial calcification was found to be a strong prognostic marker of cardiovascular mortality with the principal mechanism of increased arterial stiff-

ness.[9] Dialysis patients have stiffer arteries than age- and hypertensive-matched non-uremic patients.[10] Vascular and coronary calcifications are also more common and progressive in end-stage renal dialysis patients.[11] A few of previous studies have shown a link between a higher serum P and calcium phosphorus product (Ca-P) with the risk of vascular calcification.[12,13] However a few other studies did not show significant differences in blood pressures with or without calcification.[14,15] As the data related to Ca-P and hypertension are scarce and due to variability of previous reports linking BPs with the disorders of mineral metabolism, we decided to study the relationship of hypertension with calcium and phosphorus (elements related to vascular stiffness and calcification) metabolism in dialysis patients.

OBJECTIVE

To determine the correlation of pre-dialysis and post-dialysis mean arterial blood pressures (MAPs) with serum Ca-P in ESRD patients.

METHODS

This cross sectional survey was conducted from 14-03-2015 to 14-09-2015 at the Department of Nephrology Jinnah hospital, Lahore after approval from Ethical Committee of Hospital. Two hundred and forty one patients undergoing hemodialysis were included in the study after informed consent. After enrollment, Serum calcium and phosphorous concentrations were measured through standard laboratory technique of ion selective electrode method at Jinnah Hospital pathology laboratory. Ca-P was obtained by simple multiplication of calcium and phosphorus values. MAP (DBP+1/3rd of the difference between SBP and DBP) was calculated before and after dialysis. All data were collected on a predesigned proforma. SPSS version 23 was used for data analysis.

RESULTS

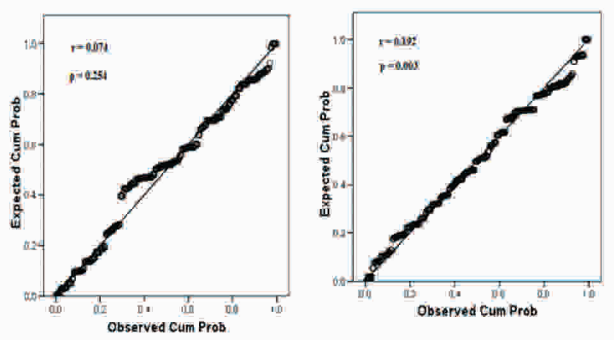
In the present research, mean age was calculated as 42.92 + 15.42 years. The mean serum calcium was recorded as 8.30 + 1.16 mg/dl. There were 58.5% males and 41.5% female patients. The mean serum phosphorus was 5.59 + 1.98 mg/dl and the mean serum calcium phosphorus product was recorded as 47.21 + 19.37. It was observed that the pre dialysis MAP was 96.97 + 16.88 and the post dialysis MAP was 94.15 + 20.06. Mean duration of dialysis was 26.15 + 25.06 months and mean of number of dialysis sessions per month was calculated as 9.41+ 2.08.

Pearson's correlation coefficient was calculated, Gender was not significantly correlated with post dialysis MAP with r= -0.068 and p-value 0.294. There was no significant correlation between age and post dialysis MAP with correlation coefficient 0.067 and p-value 0.301. Number of dialysis sessions per month was not significantly correlated with post dialysis MAP with correlation coefficient -0.090 and p-value 0.163. Duration of dialysis was not significantly correlated with post dialysis MAP with correlation coefficient 0.087 and p-value 0.178.

It was noted that calcium and phosphorus product was not significantly correlated with pre dialysis mean arterial pressure having correlation coefficient and p-value as 0.074 and 0.254 respectively. On the other hand, calcium and phosphorus product was significantly correlated with post dialysis mean arterial pressure having correlation coefficient as 0.192 and p-value as 0.003.

Table 1: *Descriptive Statistics for Age, Serum Calcium, Phosphorus, MAP, and Duration of Dialysis*

	Min.	Max.	Mean	Std. Deviation
Age (years)	18	73	42.92	15.42
Serum calcium (mg/dl)	5.50	10.50	8.30	1.16
Serum phosphorus (mg/dl)	1.10	11.60	5.59	1.98
Calcium phosphorus product	7.37	103.20	47.21	19.37
Pre-dialysis, mean arterial pressure (mmHg)	57	149	96.97	16.88
Post-dialysis, mean arterial pressure mmHg)	57	169	94.15	20.01
Duration of dialysis in months	3	127	26.15	25.06
Number of dialysis sessions per month	4	12	9.41	2.08



Graph 1: *Correlation between Calcium Phosphorus Product and Pre and Post Dialysis MAP*

DISCUSSION

The present study was conducted to determine the correlation between pre-dialysis and post-dialysis MAPs and serum Ca-P in ESRD patients. We found a strong correlation between post dialysis MAP and Ca-P while no significant correlation was detected between pre dialysis MAP and Ca-P. There are only a few studies evaluating the relationship or correlation between Ca-P and BP in dialysis patients.[16,17,18] Ashkar ZM et al found that there was significantly positive correlation between pre dialysis MAP and Ca-P as (r= 0.36; p-value =0.02), however insignificant correlation was detected with post-dialysis MAP and calcium phosphorus product as (r=0.16; p-value= 0.157).[19] This observation was just opposite to ours in which post dialysis MAP was found to be significantly correlated with Ca-P.

Age can impact blood pressure though its effect on vascular stiffness and elastic recoil.[20] A negative association between age and diastolic pressure has been shown in other studies.[21] Decrease in diastolic blood pressure with advancing age can increase pulse pressure which can alter MAP. Our study, however, did not demonstrate any impact of age on post dialysis MAP. There are reports of mean BP variations between males and females showing females having higher readings[22] and similarly frequency of dialysis has also been linked with better BP controls in previous studies.[23] Our study could find no such links. To study the correlation of Ca-P with hyperten-sion in dialysis patients is difficult and complicated because of many confounding factors associated with Ca-P as well as hypertension including noncompliance to dialysis treatments, diet, and medications (phosphate binders and antihyperten-sives).[24] Noncompliant dialysis patients are the ones who are the most fluid gainers which predisposes them to have high blood BP. These patients are also not adherent to phosphorus restriction and medica-tion intake including antihypertensive medicines.[25] We did not study the impact of these factors on Ca-P and BP control. However there are some other studies which highlighted the importance of these factors. Iseki K et al showed that the prevalence of systolic or diastolic hypertension was significantly correlated with volume excess and serum levels of albumin, ca, and phosphorous in chronic hemodia-lysis patients.[26] Chow KM et al analyzed significant correlation between volume excess and serum levels of albumin, calcium, and phosphorus in chronic hemodialysis patients with systolic or diastolic hypertension.[27] Marchais SJ et al established an association between serum phosphorus alone and higher mean and diastolic BP in dialysis.[28] Huang CX et al demonstrated that there was a statistically significant correlation between calcium-phosphate product and mean arterial pressure at baseline and longitudinally, but the magnitude of the association was one-tenth of the association between serum phosphate and blood pressure.[29]There are only a few studies evaluating the relationship between serum ph and BP in dialysis. Only one study has detected an association between ca-ph product and BP in dialysis.[19] A study reported a direct association between phosphorus concentra-tion and pulse pressure which was a strong predictor of mortality.[30]

This study has a few limitations. It is an observational cross-sectional study. No direct causality could be established. In addition, no interdialytic BP readings were included in the analysis which may be more accurate hemodynamic determinants in dialysis.[31] The role of Ca-P product and P in hypertension, arterial stiffness, and vascular compliance requires more investigation.

CONCLUSION

This study shows that there is a significant correlation between Ca-P and post dialysis mean arterial pressure which underscores the importance of appropriate mineral balance in hemodialysis patients in order to reduce cardiovascular morbidity and mortality.

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DELAYED PRESENTATION OF OSTEOSARCOMA PATIENTS: AN IMPORTANT CAUSATIVE FACTOR IN LIMB AMPUTATIONS — A CASE SERIES

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Abstract

Background: Osteosarcoma is the most common primary osseous malignancy excluding intraosseous tumors of hematopoietic origin. It has a bimodal age incidence with the highest number of cases seen around growth spurts of puberty. Like all malignant tumors, prognosis for the patient largely depends upon the stage of tumor at detection. Patients in Pakistan are known to seek healthcare after long delays since the first manifestations of the disease.

Case Reports: Three limb amputations due to osteosarcoma were received in our laboratory in quick succession. All were young individuals and presented after a delay of several months since the onset of symptoms, unfortunately all had large tumors necessitating amputations. The microscopic diagnoses were giant cell rich osteosarcoma, chondroblastic osteosarcoma and classic osteosarcoma, respectively.

Discussion: The last few decades have witnessed a paradigm shift in the management and prognosis of osteosarcoma. More and more limbs are being salvaged and more and more patients are surviving for longer and longer. In this context it is distressing that our patients continue to present with advanced diseases which critically limits chances of saving their limbs or prolonging their lives. An awareness campaign needs to be launched to highlight the need for early seeking of healthcare. We also need to gear up our services in rural areas. These are the key messages in this case series.

Keywords: osteosarcoma, amputation, limb salvage.

Osteosarcoma is the most common primary osseous malignancy excluding intraosseous tumors of hematopoietic origin. It is defined as a malignant mesenchymal tumor where the malignant tumor cells directly form osteoid, bone or both. Within this strict histologic definition, osteosarcoma comprises a group of lesions with a remarkable diversity in sites affected, histologic features, grades and response to therapy.[1,2] The dominant features of the matrix are used to classify osteosarcomas as osteoblastic, chondroblastic or fibroblastic. Presence of a large number of giant cells is seen in the variant called giant cell rich osteosarcoma. Telengiectatic osteosarcomas have large dilated blood channels. Small cell osteosarcomas contain small cells with central rounded nuclei and little pleomorphism, similar to Ewing tumors. Parosteal, periosteal and high-grade surface osteosarcomas are seen on the surface of bones.[3]

While patients of any age may be affected, the peak incidence of osteosarcoma is in the second and third decades, a second smaller peak is seen in older individuals. The larger peak, seen in adolescence, corresponds to the period of maximum bone growth spurts.[4,5] It has been hypothesized that rapid bone growth creates a vulnerable period when cells are more likely to become malignant. Lending support to this concept are reports of osteosarcoma being more common in taller individuals than in shorter ones.[6] The frequent location of osteosarcomas at the ends of long bones has also been cited as evidence to the theory.[5,7] Other predisposing factors include

Paget disease, fibrous dysplasia and exposure to radiation. Several chemical agents such as beryllium and viruses such as FBJ virus (a virus named after its discoverers, Finkel, Biskis, and Jinkins) have been shown to be potent inducers of osteosarcoma. Defects of tumor suppressor genes like p53 and retinoblastoma genes are also known to increase the risk of development of osteosarcoma. Li Fraumeni syndrome is linked to germline mutations of p53 gene which predisposes the affected individuals to increased risk of development of multiple tumors like sarcomas, breast tumors, leukemia and adrenal gland tumors.[8,9]

For a long time, osteosarcomas were associated with a dismal prognosis and amputation was accepted as the only treatment modality. There was a paradigm shift in the management of osteosarcomas in 1970s when encouraging results of neoadjuvant chemotherapy were reported. This not only improved the five-year survival rates from below 20% to over 80% but as a consequence, limb salvage surgery also appeared as an option.[10,11]

Several long-term studies, aimed at limb salvage, were conducted in Pakistan as far back as 1990s with encouraging results.[12] The techniques have been refined further with time,[13] but unfortunately access to healthcare remains poor for a vast section of the society. One sad consequence of this deprivation is late presentation of patients to healthcare facilities. Delay in seeking help directly translates into denial of limb salvaging opportunities.[14,15] Theoretically, limb salvage would increase the risk of local recurrence, but in experienced hands there is little to no increase in this risk. In a report of 560 patients from Rizzoli Institute, there was no difference in risk of local recurrence between groups treated with limb amputation or limb salvage. In fact, patients in limb salvage group had a higher 5-year survival.[16,17,18]

This series describes three lower limb resections due to osteosarcoma received in our lab within a few days. All patients were young and presented with grossly advanced disease.

Case 1:

A 22-year-old male presented with 8 months history of left leg pain and swelling. The pain had aggravated the day before admission following a fall. X-ray showed a large lytic lesion as well as fracture (Fig 1). Biopsy report was of a giant cell tumor. In view of the large size of the lesion and fracture, amputation was done. The gross pathological examination revealed a 13x12x6cm necrotic and hemorrhagic mass. On microscopic examination there were numerous multinucleated giant cells in a background of osteosarcoma (Figs 2-4). A giant cell rich osteosarcoma was diagnosed.

Fig 1: *A Large Lytic Lesion is Seen at the Lower end of the Femur. A Fracture too is Evident.*

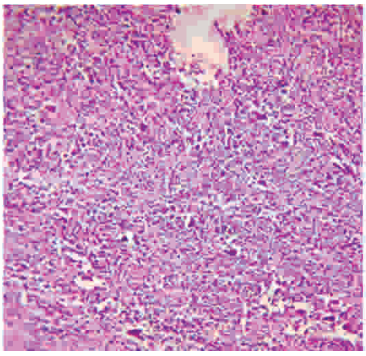

Fig 2: *A Malignant Spindle Cell Neoplasm with Numerous Giant Cells is Seen.*

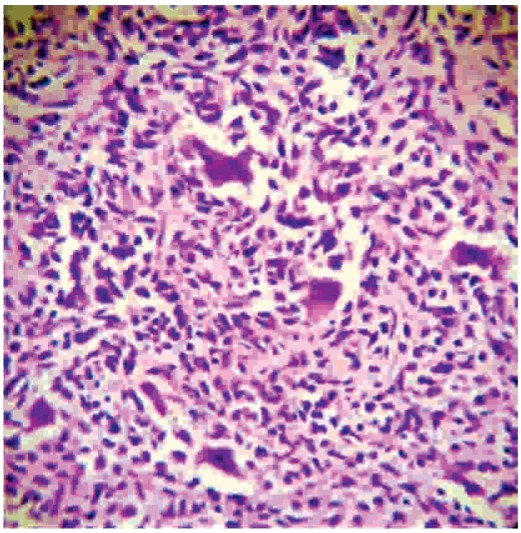

Fig 3: *Higher Magnification Reveals Hyperchromatic, Pleomorphic Cells with Interspersed Giant Cells.*

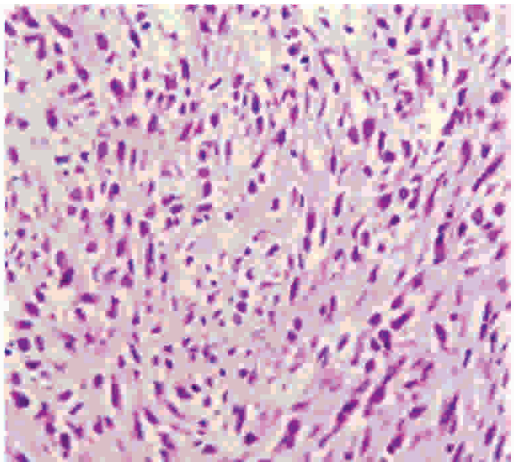

Fig 4: *Numerous Sections had to be Submitted before Osteoid Formation by Tumor Cells was Detected, and a Conclusion of Giant Cell Rich Osteosarcoma was Reached.*

Case 2

An 18-year-old female had been suffering from left knee joint pain for several months. A swelling had appeared 2 months ago. She had been going from one quack to another during this period. It was only when the pain became excruciating that she was brought to our hospital. X-ray revealed a large mass at the lower end of femur. In addition, on CT scan multiple pulmonary metastases were discovered (Fig 5). On gross examination a grey white irregular mass measuring 20x20 cm at widest area is seen. The mass extended to the lower end of the femur. It was invading the surrounding muscle as well (Fig 6).

Microscopic examination revealed a malignant mesenchymal neoplasm with prominent areas of chondroblastic matrix. The tumor cells exhibited anaplasia and atypical mitosis (Fig 7 a, b). Some areas also had lacy osteoid formed directly from malignant cells without intervening cartilage (Fig 8). Feature favored the diagnosis of chondroblastic osteosarcoma.

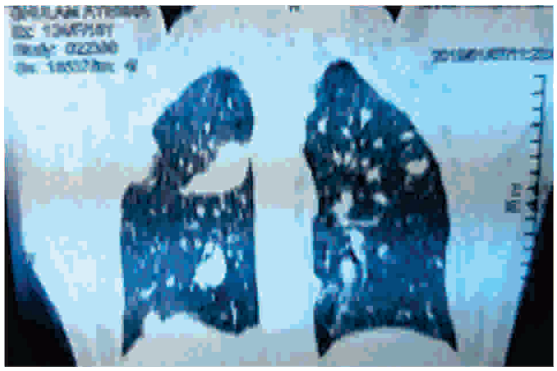

Fig 5: *Multiple Metastatic Deposits are Seen in the Lung.*

Fig 6: *A Large Mass is Seen at the Lower end of femur. A few Vaguely Glistening Areas Hint to the Cartilaginous Nature of the Matrix.*

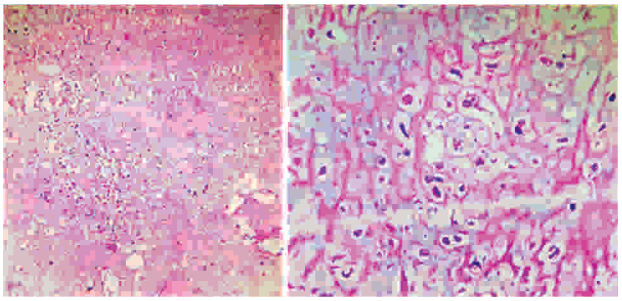

Fig 7 a, b: *There are Large Areas of Chondroblastic Matrix. The Anaplasia of Ttumor Cells is Obvious*

even at Low Power (a).

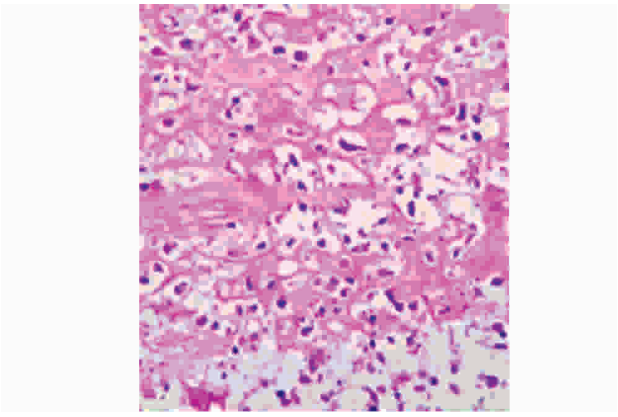

Fig 8: *Other Areas had Lacy Malignant Osteoid formed Directly from Tumor Cells.*

Case 3

A 21-year-old male presented with a large mass at the right knee joint. It had grown slowly over the last six months. During this time, he had consulted a number of GPs and faith healers. He presented to our hospital when the pain and swelling became totally incapacitating. X ray revealed a large mass at lower femoral end. There was a classic sunburst appearance surrounding the central mass (Fig 9). An incisional biopsy revealed an osteosarcoma. In view of the massive tumor, an amputation was performed and received in our laboratory. The tumor measured 22×20 cm. There were large areas of hemorrhage and necrosis (Fig 10). The surrounding muscles were involved. Microscopic examination revealed a classical osteosarcoma (Fig 11,12).

Fig 9: *There is a Large Mass at the Mower end of Femur which Involves the Epiphyseal Plate as Well. The sunburst appearance is produced because the lesion has grown fast and the periosteum does not have enough time to lay down a new layer. Instead the Sharpey's fibers have stretched out perpendicular to the bone.*

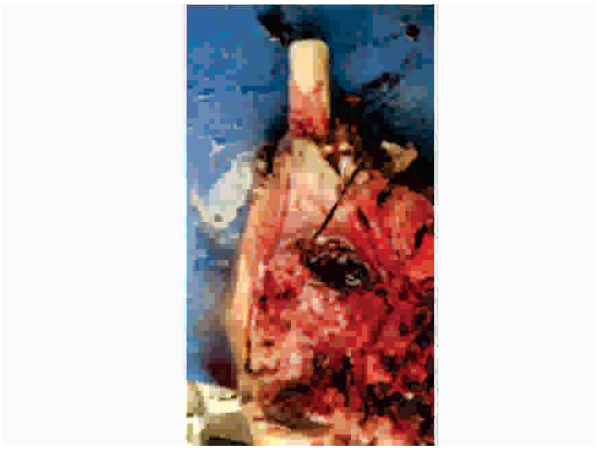

Fig 10: *The Cross Section of the Tumor had Lytic, Hemorrhagic and Necrotic Areas.*

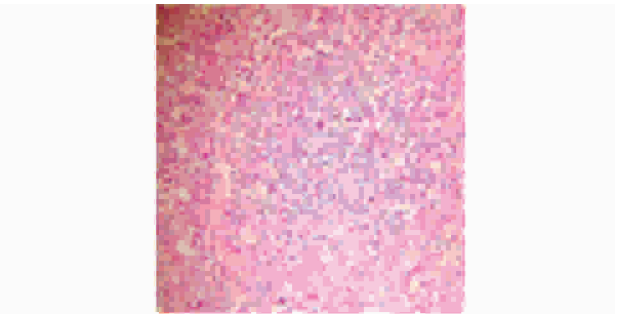

Fig 11: *There is Malignant Lacy Osteoid Surrounding the Obviously Malignant tumor Cells.*

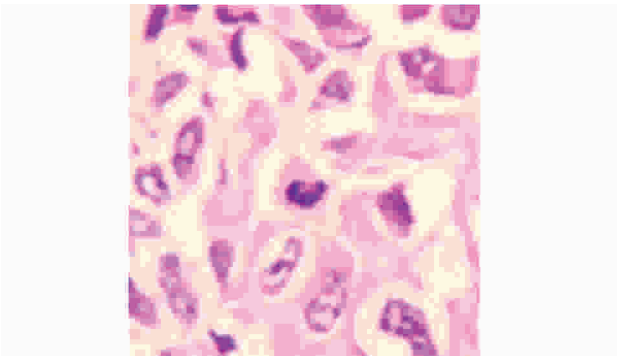

Fig 12: *An Atypical Mitotic Figure is Seen.*

DISCUSSION

Osteosarcoma is an aggressive malignant mesenchymal tumor.[5,16] Its prognosis depends upon several factors, the most important of which is the

stage of disease at the time of detection. The vital decision of whether to go for limb salvage or amputation, is also critically dependent upon size amongst other considerations. In one study, the mean size of tumors in patients offered limb salvage was 10.2 compared with 12.1 cm for those cases where amputation had to be resorted to.[14] All our cases presented with advanced disease. The largest dimensions of tumors in our cases were 22, 20 and 13 cm respectively (Cases 1-3). The smallest tumor had caused a pathological fracture (Fig 1) and that had prompted the family to seek help in our hospital, otherwise this presentation could probably have been delayed as well.

Unfortunately, since most osteosarcomas originate within the bone they must grow to a certain size before they break through the bony compartment and begin to lift the periosteum. The swelling may still be undetectable, and pain may be the first and only manifestation for quite some time.[10,20] This explains why the average size of osteosarcoma at detection remains a formidable 11.3 cm in the best of healthcare settings. This is in sharp contrast to tumors of breast which average at 2.1 cm at detection in advanced countries. This may be due to the relatively higher frequency of breast tumors and the ensuing awareness campaigns.[14]

The size of the primary tumor has a significant association with chances of metastases as well (Case 2). Hence, there is an increased risk of death as the size of tumor increases. A patient presenting with a tumor measuring >25 cm in greatest dimension has an 8.5fold higher risk of dying from it than a patient who presents with a tumor <5 cm.[15,21]

Though factors affecting survival after diagnosis of an osteosarcoma are numerous, size is perhaps the most important. This has prompted the UK Department of Health to issue the following warning: Any lump that is larger than 5 cm, shows an increase in size, or is painful must be considered to be malignant until proven otherwise.[14] The fact that the vast majority of our patients presents with far larger masses is alarming. Highlighting the need of imparting a greater awareness to the general public and practicing physicians is the purpose of this report.

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RELATIVE QUANTIFICATION OF INTERCELLULAR ADHESION MOLECULE-1 (ICAM-1) AND VASCULAR ENDOTHELIAL GROWTH FACTOR-C (VEGF-C) IN COLORECTAL CARCINOMA ASSOCIATED WITH AGE

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Abstract

Background: Colorectal carcinoma (CRC) is most frequently diagnosed carcinoma worldwide and leading cause of death in approximately 50% of CRC patients. It is generally acknowledged that colorectal carcinoma occur among men aged 50 years and above. The older age is considered like a possible risk factor. In Pakistan, CRC ranked 6th carcinoma among the ten most prevailing carcinomas in men with an incidence rate of 5.7%.

Objective: The objective of study is to find the relationship between adhesion molecule ICAM-1 and angiogenic factor VEGF-c in CRC and its association with age.

Method: This study is prospective in nature and 55 fresh clinically diagnosed colorectal tissues were taken in which 45 cases were diagnosed histopathologically as colorectal carcinoma having different stages. Reverse Transcriptase Polymerized Chain Reaction was done with LUX Primers and ICAM-1 and VEGF-c gene expression was observed.

Results: Among 45 histopathologically diagnosed patients, 51.1% were upto 50 years old and 48.9% were more than 50 years old. The mean age of patients was 48.31+15.60 years. Among 21 patients who had grade-II adenocarcinoma, 12 (26.6%) were upto 50 years old and 9 (20.0%) were more than 50 years old. Among 32 patients who had Ct value of ICAM-1 27-29, 16 (35.6%) were upto 50 years old and 16 (35.5%) were more than 50 years old. Among 32 patients who had Ct value of VEFG-c 27-29, 16 (35.6%) were upto 50 years old and 16 (35.5%) were more than 50 years old.

Conclusion: Study concluded that colorectal carcinoma was more prevalent among elderly patients. Increased age was associated with Ct values of ICAM-1 and VEFG-c among CRC patients.

Colorectal carcinoma is most frequently diagnosed carcinoma (Navarro et al., 2017). Worldwide burden is almost 1.4 million new cases seen in 2012 (Pietrzyk, 2016). It is a leading cause of mortality in half of patients with CRC (Ferlay et al., 2013). At present, very limited number of national cancer registry centres/program exists in Pakistan. Only retrospective analysis of these reported cancer patient is being done since 2000 to 2008. In a study, 6.9% GIT tumours in males and 4.9% in females were collected (Hanif et al., 2009). The older age is considered like a possible risk factor. During a 5 year study within Pakistan showed in contrast indicating that CRC incidence mostly among male patients less than aged 60 years is more with elevated expression in the left side lesions (tumors in the distal sites are greater than tumors in the proximal subsites) (Bano et al., 2013).

The carcinoma related molecular and cellular markers could be categorized into 4 groups: 1) Diagnostic markers which are utilized for early recognition and risk stratification. 2) Investigative markers, provide a symptom of the possible disease progression. 3) Prognostic markers, envisage therapy response. 4) Surveillance markers, utilized to observe reappearance of disease (Aghagolzadeh & Radpour, 2016).

The adhesion and later in communication between host and carcinoma cells engage a dynamic partaking of CAM (cell adhesion molecules) which

give shared adherence and contact of these cells with one another and with, for example, extracellular cell matrix (ECM) (Tung et al., 2012). The cell adhesion molecules family comprises immunoglobulin-like molecules ICAM-1 (intercellular adhesion molecule-1) and VCAM-1 (vascular cell adhesion molecule-1) (Tao et al., 2012). Also the ICAM-1 referred to CD45, is 80-114 kDa inducible surface glycoprotein being a member of immunoglobulin super family (Huang et al., 2004). ICAM-1 is located on surface of the leukocytes or on endothelial cells and its manifestation is controlled by numerous cytokines, for example TNF-α (Tumor Necrosis Factor-α), INF-γ (Interferon- γ), IL–2 (Interleukin-2) and IL-6 (Interleukin-6), which may be valuable for anticancer response (Schwaeble et al., 1993).

Intercellular adhesion molecule-1 is explained in various tumors (Reina & Espel, 2017), and like a main Lymphocyte function-associated-antigen-1 ligand, it could assist in immuno-surveillance method (Schellhorn et al., 2015). Beside this line, ICAM-1 presence in CRC has been related to better diagnosis (Maeda et al., 2002). Furthermore, ICAM-1 transfection in CRC cell lines restricts tumor development and metastasis (Tachimori et al., 2005). Same observations were acquired from the colon epithelium cell lines taken from rats presenting transforming changes in the gene of adenomatous polyposis coli, the gene transformed among patients affected by family adenomatous polyposis. While these colonic cell lines were incubated with intraepithelial T lymphocytes, they expressed ICAM-1 that mediated the interface with T cells (Forest et al., 2003).

It is also believed that ICAM-1 plays a significant role in various malignancies. In gastric, breast and colorectal carcinomas, raised expression of ICAM-1 in carcinoma cells has been associated with further helpful diagnosis, suggesting ICAM-1 role in the enhancement of resistant surveillance (Usami et al., 2013). Colorectal carcinoma progression is significantly related to inflammation and several other desmoplastic outcomes in tumor cell-adjoining tissue (Schellerer et al., 2014).

VEGF is an important angiogenic growth factor and its expression level is a significant marker to detect of angiogenic diseases (Costache et al., 2015). The rise or fall of angiogenesis is associated with numerous diseases in various stages of the life. Therefore, VEGF expression high levels are observed during diseases which demonstrate a rise in the angiogenesis like carcinomas (Delghanian et al., 2014).

In colorectal carcinoma, the expression of VEGF considerably associated with higher stage, unfavorable endurance and a rise in the distant metastases and invasion rate (Wang et al., 2014). VEGFA over expression has been related to an elevated TNM stage, the extent of cell demarcation and patient mortality due to disease being a predictive molecular biomarker for the patients of resected colorectal carcinoma liver metastasis (Goos et al., 2016). Also the VEGF-C expression works like an important index for assessing extent of the malignancy, lymph nodes, clinical stages, and colorectal adenocarcinoma distant metastasis (Costache et al., 2015).

The aims and objectives of this research is to assess the relationship between the adhesion molecules ICAM-1 and the main proangiogenic factor VEGF-c; involvement of ICAM-1 and VEGF-c in colorectal cancer staging; and use of ICAM-1 and VEGF-c as prognostic markers in colorectal carcinoma and its association with age.

METHODS

Fifty Five specimens were collected in which forty five specimens were pathological and ten specimens were having normal histology. The cases were collected from Surgical Departments of Lahore General Hospital Lahore, Mayo Hospital Lahore, Ittefaq Hospital Lahore and Nishtar Hospital Multan. Reverse Transcriptase Polymerized Chain Reaction (RT. PCR) was done with LUX Primers and ICAM-1 and VEGF-c gene expression was observed. Results were analyzed on SPSS (Version

23.0) on the amplification profile for significance by ANOVA and correlations with other variants.

RESULTS

This study included 55 clinically diagnosed cases of colorectal carcinoma. The study was prospective in nature. Out of 55 cases, 45 cases were histopathologically confirmed as colorectal carcinoma whereas remaining 10 had no carcinoma. All 55 cases were processed for polymerized chain reaction in which 10 cases which had no carcinoma were used as control.

Figure-1 describes that among 45 histopathologically diagnosed patients, 51.1% were upto 50 years old and 48.9% were more than 50 years old. The mean age of patients was 48.31+15.60 years. The minimum and maximum ages were 19 – 92 years.

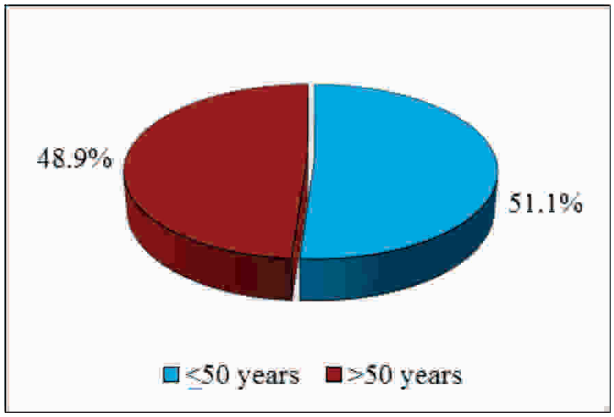

Figure-1: *Distribution of age*

Table-1 demonstrates that among 21 patients who had grade-II adenocarcinoma, 12 (26.6%) were upto 50 years old and 9 (20.0%) were more than 50 years old. Among 17 patients who had grade-II adenocarcinoma, 6 (13.4%) were upto 50 years old and 11 (24.0%) were more than 50 years old. Among 7 patients who had grade-III adenocarcinoma, 5 (11.1%) were upto 50 years old and 2 (4.5%) were more than 50 years old. The result was found statistically insignificant as the p-value was 0.20.

Table-2 depicts the tumor size and found that among 2 patients who had T1 carcinoma, 1(2.2%) was upto 50 years old and 1 (2.2%) was more than 50 years old. Among 8 patients who had T2 carcinoma, 5 (11.1%) were upto 50 years old and 3 (6.7%) were more than 50 years old. Among 32 patients who had T3 carcinoma, 16 (35.6%) were upto 50 years old and 16 (35.5%) were more than 50 years old. Among 3 patients who had T4 carcinoma, 1 (2.2%) was upto 50 years old and 2 (4.5%) were more than 50 years old. The result was found statistically insignificant as the p-value was 0.84.

Table-3 indicates that out of 2 patients who had Cycle threshold (Ct) value of ICAM-1 34-35, all were upto 50 years old. Among 8 patients who had Ct value of ICAM-1 32-33, 4(8.9%) were upto 50 years old and 4 (8.9%) were more than 50 years old. Among 32 patients who had Ct value of ICAM-1 27-29, 16 (35.6%) were upto 50 years old and 16 (35.5%) were more than 50 years old. Among 3 patients who had Ct value of ICAM-1 23-25, 1(2.2%) was upto 50 years old and 2 (4.5%) were more than 50 years old. The result was found statistically significant as the p-value was 0.04.

Table-4 exhibits that out of 2 patients who had Cycle threshold (Ct) value of VEFG-c 34-35, all were upto 50 years old. Among 8 patients who had Ct value of VEFG-c 32-33, 4(8.9%) were upto 50 years old and 4(8.9%) were more than 50 years old. Among 32 patients who had Ct value of VEFG-c 27-29, 16(35.6%) were upto 50 years old and 16(35.5 %) were more than 50 years old. Among 3 patients who had Ct value of VEFG-c 23-25, 1(2.2%) was upto 50 years old and 2 (4.5%) were more than 50 years old. The result was found statistically significant as the p-value was 0.03.

Table-5 asserts that among patients who were upto 50 years old, the mean grade of carcinoma was 1.70 + 0.82 and among patients who were more than 50 years of mean grade of carcinoma was 1.68 + 0.64. Likewise among patients who were upto 50 years old, the mean tumor size was 2.74 + 0.61 and among patients who were more than 50 years of mean tumor size was 2.86 + 0.64. Similarly among patients who were upto 50 years old, the mean Ct value of ICAM-1 was 30.14 + 2.35 and among

patients who were more than 50 years of mean Ct value of ICAM-1 was 29.48 + 2.21. Result shows that among patients who were upto 50 years old, the mean Ct value of VEFG-c was 29.82 + 2.28 and among patients who were more than 50 years of mean Ct value of VEFG-c was 29.08 + 2.50.

Table 1: *Association of Age and Histopathological Grades of Patients with Colorectal Carcinoma*

Grade	Age (years)		Total
	≤50 years	>50 years	
GI	12 (26.6%)	9 (20.0%)	21 (46.6%)
GII	6 (13.4%)	11 (24.4%)	17 (37.8%)
GIII	5 (11.1%)	2 (4.5%)	7 (15.6%)
Total	23 (51.1%)	22 (48.9%)	45(100.0%)

Chi square: 3.16
P-value: 0.20

Table 2: *Association of Age and Tumour Size of Patients with Colorectal Carcinoma according to AJCC*

AJCC Stage	Age (years)		Total
	≤ 50 years	> 50 years	
T1	1 (2.2%)	1 (2.2%)	2 (4.4%)
T2	5 (11.1%)	3 (6.7%)	8 (17.8%)
T3	16 (35.6%)	16 (35.5%)	32 (71.1%)
T4	1 (2.2%)	2 (4.5%)	3 (6.7%)
Total	23 (51.1%)	22 (48.9%)	45(100.0%)

Chi square: 0.81
P-value: 0.84

Table 3: *Association of Age and Ct Values of ICAM-1 in Colorectal Carcinoma*

Range of Ct Values	Age (years)		Total
	≤50 years	>50 years	
34-35	2 (4.4%)	0 (0.0%)	2 (4.4%)
32-33	4 (8.9%)	4 (8.9%)	8 (17.8%)
27-29	16 (35.6%)	16 (35.5%)	32 (71.1%)
23-25	1 (2.2%)	2 (4.5%)	3 (6.7%)
Total	23 (51.1%)	22 (48.9%)	45(100.0%)

Chi square: 33.99
P-value: 0.04

Table 4: *Association of Age and Ct Values of VEFG-c in Colorectal Carcinoma*

Range of Ct Values	Age (years)		Total
	≤50 years	>50 years	
34-35	2 (4.4%)	0 (0.0%)	2 (4.4%)
32-33	4 (8.9%)	4 (8.9%)	8 (17.8%)
27-29	16 (35.6%)	16 (35.5%)	32 (71.1%)
23-25	1 (2.2%)	2 (4.5%)	3 (6.7%)
Total	23 (51.1%)	22 (48.9%)	45(100.0%)

Chi square: 40.33
P-value: 0.03

Table 5: *Mean and Standard Deviation*

	≤50 years	>50 years
Grade	1.70 ± 0.82	1.68 ± 0.64
Tumour size	2.74 ± 0.61	2.86 ± 0.64
ICAM-1	30.14 ± 2.35	29.48 ± 2.21
VEFG-c	29.82 ± 2.28	29.08 ± 2.50

Chi square: 40.33
P-value: 0.03

DISCUSSION

This study consisted of 45 cases of colorectal carcinoma which were diagnosed histopathologically. These samples were taken fresh and RT-PCR was applied to see ICAM-1 and VEGF-c gene expression along with 10 samples which had no carcinoma.

It is generally acknowledged that colorectal carcinoma occurs among aged people. Study revealed that most of the patients were elderly people with mean age 48.31+15.60 years. The results of our study are comparable with a study undertaken by Vahedi and teammates (2015) who also reported that colorectal carcinoma was prevalent among elderly people as the mean age of the patients was 58.27 ± 12 years. Another study carried out by Touvier and fellows (2014) also confirmed that mean age of the patients was 51.8+5.6 years.

Study disclosed that mainstream of patients had grade-I carcinoma, followed by Grad-II and III. Grade-I and III carcinoma was more prevalent among patients aged upto 50 years while Grade-II was prevalent among patients aged more than 50 years. A similar study carried out by Ionescu and coworkers (2014) highlighted that patients with Grade-II colorectal carcrinoma were in majority. Another study carried out by Bendardaf and collages (2017) reported that most of the patients had Grade-II carcinoma.

As far as tumor size is concerned, study demonstrated that most of the patients (71.1%) had T3 carcinoma, followed by T2 (17.8%), T4 (6.7%) and T1 (4.4%). Study further disclosed that T1 and T3 were equally prevalent while T2 was more prevalent among patients aged upto 50 years and T4 among

patients aged more than 50 years. Virtually the findings of a study conducted by Bendardaf and colleagues (2017) exhibited similar scenario who reported that majority of the patients (66.3%) had T3 carcinoma, followed by T4 (17.4%), T2 (7.0%) and T1 (1.2%).

When the association between age and Ct values of ICAM-1 in Colorectal Carcinoma was evaluated, study showed significant results with p value 0.04. The results of our study are better than the study performed by Schellerer and partners (2019) that remained unable to provide significant results regarding age and ICAM as the p value was 0.873.

During study association between age and Ct values of VEFG-c in Colorectal Carcinoma was also assessed and found significant results with p value 0.03. The findings of our study exhibited better scenario than the study done by Vahedi and teammates (2015) who reported that results were insignificant as the p value as 0.287. Another recent study carried out by Pan et al. (2018) also showed insignificant results with p value 1.000.

CONCLUSION

Colorectal carcinoma is becoming disease of middle age in Pakistan. Study concluded that CRC was more prevalent among elderly patients. Increased age was associated with Ct values of ICAM-1 and VEFG-c among CRC patients. Further studies are needed on large scale to know the association between age and relative quantification of ICAM-1) and VEGF-C in colorectal carcinoma.

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THE CORRELATION OF PROLACTIN LEVELS WITH INFERTILITY- A TERTIARY SETUP STUDY

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Abstract

Aims and Objectives: To determine the frequency of hyperprolactinemia causing female infertility in patients.

Methods & Materials: A cross sectional study of 06months duration from 01st March 2018 to 31st August 2018 in Ch. Rehmat Ali Memorial hospital, Lahore.

Results: Out of 200 cases 29.5%(n=59) were between 16-25 years, 30.5%(n=61) between 26-30 years, 22.5%(n=45) between 31-35 years, 13.5%(n=27) between 36-40 years and only 4%(n=08) were between 40-45 years of age, Duration of infertility was recorded as 69.5% (n=139) between 1-05 years, 22.5% (n=45) between 05-10 years and only 08% (n=16) had >10 years of duration, frequency of type of was recorded 61.5%(n=123) as primary and 38.5%(n=77) as secondary infertility, frequency of hyperprolactinemia in infertility revealed in 43.5%(n=87) while 56.5%(n=113) had no hyperprolactinemia, out of 87 cases of hyperprlactinemia, galactorrhea was recorded in 30.53%(n=29) and 69.47%(n=66) had no galactorrhea. Majority of cases 62.06% (n=54) of hyperprolactinemia were having serum prolactin level between 5-25ng/ml, 26.43% (n=23) being in between 25-50ng/ml, 9.19% (n=08) falling in the range of 50-75ng/ml, while only 01 (0.11%) patient each for levels both >5ng/ml and <5ng/ml each.

Conclusion: Frequency of hyperprolactinemia is high among women with infertility.

Key Words: Hyperprolactinemia, prolactin, Infertility, Galactorrhea

Infertility is defined as inability to conceive after one to two years of regular and unprotected intercourse.

Infertility is a global health issue, affecting 12 to 14% of the couples worldwide and remains stable in recent years.[1] The World Health Organization (WHO) estimates that 60 to 80 million couples worldwide currently suffer from infertility.[2] It may be due to either male factors or female factors. It has very important medical, economic and psychological implications.[3] The literature illustrates that among fertile women, 60% had primary infertility and 40% had secondary infertility.[4]

It is a source of great social stress, hence, it needs to be evaluated and thoroughly investigated to prevent delay in proper management. In female infertility, untreated infections, anovulation and endometriosis are major causes in our social setup.

Hyperprolactinemia is one of the most common endocrine disorder of the hypothalamic-pituitary ovarian axis affecting the reproductive functions.[(5)] It is present in as high as 9 to 17% in women with reproductive disorders.[6]

Hyperprolactinemia which is raised serum prolactin level has important implications in female reproductive functions. It causes amenorrhea, oligomenorrhea, anovulation, luteal phase insufficiency and galactorrhea leading to infertility. According to one international study, prevalence of hyperprolactinemia was 43% and 21% in primary and secondary infertility respectively.[3]

In both sexes, severe hyperprolactinemia directly depresses the gonadal activity causing infertility. There is ovulatory dysfunction with hyperprolactinemia with or without space occupying lesion leading to infertility.[7]

The prevalence of hyperprolactinemia is 0.4–5%, being about 9% in women with amenorrhea, 25% with galactorrhea.[8] Dopamine agonists are prescribed for management of hyperprolac-tinemia and to restore normal menses with the objective of collecting bio-chemical consequences of hormonal excess. There are studies available showing their beneficial effects in the infertility treatment. A recent international study showed pregnancy rate of 81.7% in patients with increased prolactin levels who were treated.[9]

The proportion of females coming to our hospital with infertility is quite high and it is a very important social problem in our set up leading to family breakage as well. Majority of these have menstrual disturbances due to anovulation, some have galactorrhea and some with unexplained infertility. The usual practice is to investigate them for hyperprolactinemia only if they have galactorrhea and not otherwise and even then done only after all workup for other causes is negative.

There is no local study available regarding frequency of hyperprolactinemia in female infertility, so, further studies and long follow up are necessary to validate variables prevalence of hyperprolactinemia among population of our different areas. So, this study was done in a reasonable population size to determine the relationship of hyperprolactinemia and infertility and its prevalence in our population.

METHODS

A total of 200 women with history of primary and secondary infertility were included in the study while Polycystic ovarian disease (it is endocrinological disorder having two out of three criteria: 1) Amenorrhoea / Oligomenorrhea, 2) Hyperandrogenisn, 3) Ultrasound evidence of polycystic ovary, Ovarian stroma > 10 mm^3 12 or more follicles of < 10 mm size) (by history, clinical examination, bio-chemical test and ultrasound), Tubal factors (by tubal testing through Hysterosalpingography and Laparoscopy) were excluded from the study. Detailed history of the females was taken regarding age, parity, duration of infertility, menstrual irregularities and galactorrhea, after excluding tubal factors and polycystic ovarian disease, the serum prolactin level of women were checked from Hospital Laboratory and recorded in pre-designed proforma to determine frequency of hyperprolactinemia in infertile females.

The collected data was entered in SPSS version 22 for analysis. The qualitative variables including hyperprolactinemia in primary and secondary infertility were presented as frequency and percentage.

RESULTS

Age distribution of the pateitns was done which shows 29.5%(n=59) between 16-25 years, 30.5% (n=61) between 26-30 years, 22.5%(n=45) between 31-35 years, 13.5%(n=27) between 36-40 years and only 4%(n=08) were between 41-45 years of age, mean and sd was calculated as 27.21+4.23 years. (Table No. 1)

Duration of infertility was recorded as 69.5% (n=139) between 1-05 years, 22.5% (n=45) between 05-10 years and only 08% (n=16) had >10 years of duration. (Table No. 2)

Frequency of type of infertility was recorded 61.5% (n=123) as primary and 38.5% (n=77) as secondary infertility. (Table No. 3)

Frequency of hyperprolactinemia in infertility revealed in 43.5% (n=87) while 56.5% (n=113) had no hyperprolactinemia. (Table No. 4)

Out of 87 cases of hyperprlactinemia, galactorrhea was recorded in 30.53% (n=29) and 69.47% (n=66) had no galactorreha. (Table No. 5)

Majority of cases 62.06% (n=54) of hyperprolactenemia were having serum prolactin level between 5-25ng/ml, 26.43% (n=23) being in between 25-50ng/ml, 9.19% (n=08) falling in the range of 50-75ng/ml, while only 01 (0.11%) patient each for levels both >5ng/ml and <5ng/ml each. (Table No. 6)

Table 1: Age Distribution

Age (in years)	No. of cases	Percentage
16-25	59	29.5
26-30	61	30.5
31-35	45	22.5
36-40	27	13.5
41-45	08	04
Total	200	100

Mean ± SD: 27.21±4.23

Table 2: Duration of Infertility

Duration (in years)	No. of cases	Percentage
1-05	139	69.5
05-10	45	22.5
>10	16	08
Total	200	100

Table 3: Types of Infertility

Type of infertility	No. of cases	Percentage
Primary	123	61.5
Secondary	77	38.5
Total	200	100

Table 4: Frequency of Hyperprolactinemia in Infertility

Hyperprolactineamia	No. of Cases	Percentage
Yes	87	43.5
No	113	56.5
Total	200	100

Table 5: Frequency of Galactorrhea in Hyperprolactinemia

Galactorrhea	No. of Cases	Percentage
Yes	29	30.53
No	66	69.47
Total	95	100

Table 6: Distribution of Cases According to Level of Serum Prolactin.

Levels of Serum Prolactin (ng/ml)	No. of Cases	Percentage
<5	01	0.011
5-25	54	62.06
25-50	23	26.43
50-75	08	9.19
>75	01	0.011
Total	87	100

DISCUSSION

In our population, primary infertility (56%) was more prevalent as compared to the secondary infertility (44%), consistent with the result of the investigations done by JI et al,[10] Avasthi Kumkum et al[4] and Sharma N et al.[11]

Hyperprolactinemia is one of the most common endocrinological disorders of female infertility. The results of the study reveal that hyperprolactinemia in infertility revealed in 43.5% (n=200) while 56.5% (n=113) had no hyperprolactinemia. Our findings regarding frequency of hyperprolactinemia are in agreement with Prathibha D who recorded 41% of the patients having hyperprolactinemia in infertile patients,[12] Avasti et al study showing 46,[4] Goswami et al study with a result of 41%,[13] Akhter & Hassan et al study mentioning 37.5%,[3] Salah et al study showing 33.3%,[14] Nallusamay S study showing prevalence of 24.67%,[5] Indu Verma et al study with 13.7%[16] and with Konrad Szosland study[17] while these findings are in contrast with Razzak AH[18] who recorded this frequency in 60% of the infertile women which is more higher than our study.

In Akhter & Hassan et al study,[3] 43% females had primary infertility and 22% had secondary infertility. In Muhammad et al study primary infertility was 55.7% and secondary infertility was 44.3%.[19] In Avasti et al study,[4] 60% of the females showed primary infertility while 40% were secondary infertile. Similar results were shown by Sharma et al study.[(11)] In our study, there were 61.5% (123) women with primary infertility and 38.5% (77) women with secondary infertility. One reason for less prevalence of secondary infertility could be less consultation of such couples as they have already conceived once.

The current study showed that maximum serum prolactin values ranged between 05-75 ng/ml amongst the hyperprolactinemic cases. Only 01 case had serum prolactin value more than 75 ng/ml (Table 6). Pituitary adenoma is suspected when the serum prolactin level exceeds 100ng/ml as reported by Verhelst J.[20] and Schlechte JA.[21], so it can safely be stated that possibility of adenoma is most probably

ruled out. Mean serum prolactin in primary and secondary infertility group did not show any significant difference in our study in consistent with the finding of the study done by N. Sharma et al[11]

Topalski-Fistes N et al[22] showed a linear correlation of severity and duration of symptoms with the rise of prolactin levels. The patients with higher prolactin levels report early to the clinicians to get their problem diagnosed and relief of symptoms. The majority of infertile patients in our study having infertility falling less than 5 years duration were having higher prolactin levels as compared to other study population favoring the observation by the above study.

A majority of 139 (69.5%) cases having primary infertility, were of duration between 1-5 years, 45(22.5%) cases were of ranging between 5-10 years while only 08% (n = 16) were having duration of more than 10years which is in consistent with the studies done by seyedeh Zahra,[23] a study done in Nijeria,[24] and in Mangolia[25] but in contrast to a study done in developing countries.[26]

So, with the practice of routinely ordering serum levels of prolactin in infertility patients, we may be able to establish a relationship between hyperprolactinemia and infertility without wasting time which can easily be treated with medically. This will not only decrease the anxiety of the family but also financial and social stress on this very much distressed group of our community helping in improving this very important social problem.

We conclude that the frequency of hyperprolactinemia is high among women with infertility. Hence by, it is recommended that every women who present with infertility, should be sorted out for hyperprolactinemia. However, it is also required that every setup should have their surveillance in order to know the frequency of the problem.

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COMPARISON OF THREE DIFFERENT DOSES OF 0.75%HYPERBARIC BUPIVACAINE IN SPINAL ANAESTHESIA FOR PERINEAL SURGERY

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Abstract

Introduction; Spinal anaesthesia has been associated with motor, sensory and sympathetic block leading to frequent hemodynamic changes (blood pressure, heart rate) and prolonged stay in hospital.

Objective: To find minimum effective dose of 0.75% hyperbaric bupivacaine by comparing 4.5mg, 6.0mg and 7.5mg dose in spinal anaesthesia for adult anorectal surgery with minimum hemodynamic changes, and minimum motor block.

Settings: Department of Anaesthesia, Lahore General Hospital Lahore.

Patients and Methods: This study included 90 patients admitted for perineal surgery, divided into three groups. In all patients ASA I&II dural puncture was made in sitting position, under aseptic measure at L3-L4 or L4-L5 with 25G spinal needle, 0.75% hyperbaric bupivacaine was injected and kept in this position for 10 minutes then surgery in lithotomy position was started. Group I (n=30) received 4.5mg (0.6ml), group II (n=30) received 6.0mg (0.8ml), and group III (n=30) received 7.5mg (1.0ml). Following variables were assessed: heart rate, mean blood pressure every 3min, sensory and degree of motor block after 10minutes.

Result: No case of failure was registered. No pain was observed in any patient. Extent of motor block was assessed, using bromage scale. All patients in group I and 28 in group II developed grade I block (Nil 0%), 2 in group II and 28 in group III developed grade II block (partial 33%), only 2 patients in group III developed grade III block(almost complete 66%) and none of them developed grade IV block. Hemodynamically all patients remained stable few patients developed hypertension and tachycardia due to anxiety.

Conclusion: Minimal recommended dose of 0.75% hyperbaric bupivacaine for perineal surgery is 4.5 mg; a dose of 7.5 mg is excessive due to prolonged sensory, sympathetic and motor block.

Key Words: Spinal Anaesthesia, Hyperbaric Bupivacaine, Perineal Surgery

Spinal anaesthesia involves administration of local anaesthetic in the subarachnoid space below the termination of spinal cord at level of L2. It is gaining popularity because of its simplicity, ease of performance, avoidance of risks of general anaesthesia and adequate postoperative analgesia.[1] Spinal anaesthesia is associated with various complications like hypotension, postdural puncture headache and few rare sequelae like tinnitus, vertigo and diplopia.[2] Attempts have been done to limit effect of local anaesthetics in subarachnoid space thus providing benefit to patients regarding hemodynamic changes and early ambulation. This can be achieved by administering low dose of local anaesthetics in spinal anaesthesia for perineal surgery for patients with medical problems, low SAB may be the anaesthetic technique of choice in any surgical procedure on lower limb or perineum[3].

Gudaityte J, Marchertiene I studied that minimal dose of spinal Hyperbaric Bupivacaine for anorectal surgery is 4-5mg; a dose 7.5mg is excessive due to prolonged sensory and motor block.[4] In a prospective, randomized, double-blind study, Wassef MR, et al evaluated whether a very low dose of spinal bupivacaine could be sufficient for safe performance of short perianal surgery. The use of 1.5 mg spinal bupivacaine can be successful for short perianal surgery[5]. Labbene I, et al did a study with

aim to compare the efficiency of low dose vs. varying doses of Hyperbaric bupivacaine in spinal anaesthesia for endoscopic urological procedures and found that the use of a low dose of bupivacaine (5 mg) added to fentanyl (25 microgram) for endoscopic urological surgery, resulted in short-acting sensory block, without motor block and a lower incidence of cardiovascular side effects, as compared to either of 7.5 or 10 mg bupivacaine with 25 microgram fentanyl.[6]

Luiz Eduardo Imbelloni, Eneida Maria Vieira, and associates worked to study low dose hypobaric 0.15% bupivacaine and Hyperbaric 0.5% bupivacaine in outpatient anorectal surgical procedures. There were no hemodynamic changes, nausea or vomiting, urine retention, or post-puncture headache and concluded that anorectal surgical procedures under spinal block with low dose bupivacaine, hyperbaric or hypobaric, can be safely done.[7] It has been observed in our department that dose of more than7.5mg (1.0ml) of 0.75% hyperbaric bupivacaine in perineal surgery leads to undesirable sensory and motor block, frequent incidences of hemodynamic changes as compared to dose of less than 7.5mg (1.0ml) of 0.75% hyperbaric bupivacaine. This prospective study was done to compare three different doses of hyperbaric bupivacaine to know which dose keeps patient pain free with minimum sensory and motor block, minimum hemodynamic changes in our population.

OBJECTIVE

To compare three different doses of 0.75% Hyperbaric Bupivacaine in spinal anaesthesia for perineal surgery

METHODS

Study design: Quasi Experimental study

Setting: Department of anaesthesia, Lahore General Hospital/ PGMI Lahore.

Duration of Study: One year i.e. starting from January 01, 2018 to December 31, 2018.

Sample Size: Ninety (90) patients for perineal surgery, thirty (30) patients in each group

Sampling technique:

Non-probability: Purposive sampling

Sample selection:

Inclusion Criteria: Age between30-50 years and both sexes and ASA I, II Patients admitted for elective perineal surgery.

Exclusion criteria: Coagulopathy, infection at site of injection, patients not willing for spinal anaesthesia, spine pathology (on medical record)

Data collection: All patients were selected on the basis of inclusion and exclusion criteria through indoor. Informed consent (explaining risks and benefits ratio, purpose and procedure of study to patient informing the patient that his or her confidentiality will remain intact.) was taken. Patient's bio data was noted. Preoperative assessment with special attention to airway and spine was done. Brief review of history, current and past medication and required investigations was done. Patients were divided in to three equal groups by random number table method as: 30 patients in each group. It was made sure that anaesthetic instruments like sucker, laryngoscope, anaesthesia machine, oxygen, monitors, manual resuscitator, endotracheal tube and stylet are available and in working condition. All emergency and anaesthetic drugs are available properly prepared and labeled. Monitors like electrocardiogram, pulseoximeter and NIBP were attached. Patients were preloaded with 500ml ringer lactate solution after securing wide bore intravenous line. 4.5mg(0.6ml), 6mg(0.8ml), and 7.5mg(1.0ml) of 0.75% hyperbaric bupivacaine was injected with 25G spinal needle using 1ml syringe respectively intrathecally in sitting position under antiseptic measures below L2 according to their allotted group and were kept in sitting position for 10 minutes then lithotomy position for surgery was made. During this period all vital signs were noted every 3-minute interval and subsequently every 5 minutes throughout surgery. Sensory block by pinprick method and Motor Block by Bromage scale were assessed after

10 minutes prior to surgery. Then surgery was started if the patient was pain free. Sensory block in which the patient does not perceive pain due to surgical stimulus using pinprick method. Motor block was assessed as degree of motor weakness was assessed using Bromage scale. This is described as:

- Free movement of leg and feet is taken as Nil block (0%)[Grade I]
- Just able to flex knees with free movement of feet is taken as Partial block (33%)[Grade II]
- Unable to flex knees, but with free movement of feet is taken as Almost complete block (66%)[Grade III]
- Unable to move legs or feet is taken as Complete block (100%)[Grade IV]

Data Analysis: Statistical analysis was performed using SPSS Version11. Study variables were hemodynamic changes (mean blood pressure, heart rate), sensory block and motor block. Numerical variables like age were expressed as mean and standard deviation. Qualitative variables like gender, pain, motor block were expressed as frequency and percentage. Outcome variables were pain, nausea, vomiting and motor block. The three groups were compared for outcome variables. Pain and nausea were subjective variables, vomiting was objective variable and motor block (Bromage scale) was qualitative variable and were compared by using Chi-square test.

RESULTS

In group I, mean age of patients was 45.23± 10.38 years, in group II, mean age of patients was 43.22±9.54years and in group III, mean age of patients was 44.19±11.02 years. There were 28 (93.3%) males and 2 (6.7%) females in all groups. In group I, 3 (10%) had associated medical problems, in group II,4 (13.3%) had associated medical problems and in group III, 4 (13.3%) had associated medical problems. Table 1

In any group there was no patients who developed nausea or vomiting or pain (sensory block) during trial. Table 2

Regarding motor block, in group I, 30 (100%) had Bromage scale I, In group II, 28 (93.3%) had grade I while 2 (6.7%) had grade II while in group III, 0 (0.0%) had grade I, 28 (93.3%) had grade II and 2 (6.7%) had grade III of motor block. Table 3

Table 1: *Baseline Characteristics of Patients*

Characteristic	I	II	III
Age (years)	45.23±10.38	43.22±9.54	44.19±11.02
Male	28 (93.3%)	28 (93.3%)	28 (93.3%)
Female	2 (6.7%)	2 (6.7%)	2 (6.7%)
Associated medical problems	3 (10%)	4 (13.3%)	4 (13.3%)

Table 2: *Comparison of Nausea, Vomiting and Pain in all Groups*

Group	Nausea		Vomiting		Pain	
	Yes	No	Yes	No	Yes	No
I	0 (0.0%)	30 (100%)	0 (0.0%)	30 (100%)	0 (0.0%)	30 (100%)
II	0 (0.0%)	30 (100%)	0 (0.0%)	30 (100%)	0 (0.0%)	30 (100%)
III	0 (0.0%)	30 (100%)	0 (0.0%)	30 (100%)	0 (0.0%)	30 (100%)
Total	0 (0.0%)	90 (100%)	0 (0.0%)	90 (100%)	0 (0.0%)	90 (100%)

Table 3: *Comparison of Motor Block in all Groups*

Motor block (Bromage scale)	Group			Total
	4.5mg (0.6ml)	6.0mg (0.8ml)	7.5mg (1.0ml)	
I/nil (0%)	30(100%)	28(93.3%)	0(0.0%)	58(64.4%)
II/partial (33%)	0(0.0%)	2(6.7%)	28(93.3%)	30(33.3%)
III/almost complete (66%)	0 (0.0%)	0 (0.0%)	2 (6.7%)	2(2.2%)
IV/ complete (100%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0%)
Total	30(100%)	30 (100%)	30 (100%)	90 (100%)

DISCUSSION

Spinal anaesthesia like other interventions is associated with complications along with its benefits. This list is not small, yet most of them are benign and often settle with simple treatment and passage of time. Hypotension, variation in heart rate, motor block, nausea and vomiting are some of them.[8] In our study for finding minimum dose of 0.75% Hyperbaric Bupivacaine, carried out on ninety patients, all patients remained hemodynamically stable and pain free showing that 4.5mg was best dose for perineal surgery. The doses of 6mg and 7.5mg were associated with side effects and were

comparable with results of study conducted by Gudaityte J, et al which showed that minimal dose of spinal Hyperbaric Bupivacaine for anorectal surgery is 4-5mg: a dose of 7.5mg is excessive due to prolonged sensory and motor block.[4]

Extent of motor block in study carried by Gudaityte J, et al was 2-3 scores according to bromage scale in 70.5% of group 1cases, compared to 0-1 score in 97.3% of group 2 and 92.1% of group 3 cases, while in our study regarding motor blockade 31(33.3%) patients in group I and 28(31.1%) patients developed grade I block, whereas 2(2.2%) patients in group II and 28(31.1%) patients in group III showed grade II block, only 2(2.2%) patients belonging to group 3 developed grade III block and none developed grade IV block. Results are comparable and dose related. In a study done by Kiran S the 7.5mg of 0.5%hyperbaric bupivacaine was observed to provide acceptable analgesia without any significant incidence of adverse effects such as maternal hypotension or bradycardia.[9]

Casati A, etal., carried out a Randomized, Double-Blind Comparison study by limiting the block to the operative side by just using small doses of local anaesthetic, injected slowly through pencil-point, directional needles in patients maintaining the lateral decubitus position for 10–15 minutes after the injection is a very simple and effective way to optimize the efficiency of spinal block when small doses of local anaesthetic are used and has also been demonstrated to be very effective and useful for outpatients[10]. Similarly in our study we did our best to limit the effect of local anaesthetic to perineal area by keeping patient in sitting position for 10 minutes thus limiting the block to operative site.

Lower doses are always associated with few incidences of hypotension same we tried to find in our study.Valanne JV used a low dose (4mg), low volume (0.8ml), low flow (2min) technique with Hyperbaric bupivacaine toward the dependent side oriented injection and maintenance of lateral decubitus position for 10 minutes produced selective spinal anaesthesia with rapid recession of motor block and early discharge home.[11]

Our study also show minimum motor block by keeping patient in sitting position which limited block to perineal area and resulted in early discharge from recovery room due to minimum hemodynamic changes. Postoperative nausea and vomiting (PONV) is a common problem with no simple solution. In the last few years, hundreds of studies exploring the issue of PONV have been published. It has been estimated that the overall incidence of PONV for all surgeries & patient populations is between 25% & 30% with severe intractable PONV estimated to occur in approximately 0.18% of all patients. PONV is thought to be multifactorial in origin, involving anaesthetic, surgical and individual risk factors. It has been reported that patients receiving general anaesthesia were 11 times more likely to experience PONV than those who received monitored anaesthetic care, regional anaesthesia or a chronic pain block.[12]

In our study no case of nausea and vomiting was noted. This was due to minimum sympathetic block by use of low doses and limiting block to perineal area by keeping patient in sitting position. In the study by JaishriBogra on comparing the hemodynamic stability of equipotent doses of bupivacaine and bupivacaine – fentanyl for spinal anaesthesia, the group with bupivacaine 8mg and fentanyl 12.5µg was stable than other groups, and they proved that by adding fentanyl adequate depth of spinal anaesthesia can be achieved at much lower doses of bupivacaine. Incidence of hypotension as well as fall in the systolic BP increases with the dose of bupivacaine.[13]

Similarly we tried to achieve same effects using lower possible dose, although no dose was associated with hemodynamic changes. Mini dose of 8mg hyperbaric bupivacaine in combination with 10µg fentanyl provides completely satisfactory spinal anaesthesia for cesarean section. The small dose combination, in comparison with a 12mg dose of hyperbaric bupivacaine causes dramatically less hypotension and less ephedrine support of blood pressure, and decreases the incidence of nausea and

vomiting. The goal of Seyedhejazi M, Madarek E was to compare the hemodynamic, nausea and vomiting with small dose bupivacaine-fentanyl spinal anaesthetic versus a conventional dose of spinal bupivacaine in parturients undergoing cesarean section.[14]

The safety, effectiveness and long lasting postoperative analgesia make spinal anaesthesia in saddle block technique an "ideal" method for transanal surgery. To improve patient satisfaction and offer reliable operation conditions to surgeons, this study quantifies practicability and patients' subjective experiences with this technique. Both from reasons of practicability and from patients' view, spinal anaesthesia in saddle block technique can be thoroughly recommended for transanal surgery. Patients undergoing a stapler haemorrhoidectomy should receive additional opioids.[15]

Spinal anesthesia provided by hyperbaric bupivacaine is adequate for distal hypospadias repair in children, but adding 2 μg•kg−1intrathecal morphine provides better postoperative pain control when compared to placebo in this children.[16] A low spinal "saddle" block frequently is adequate if the procedure only involves the perineal area.[17] So it is safe to use low dose of local anaesthetic for perineal surgery.

Reyes M and Pan PH reported about a successful cesarean section requiring a very low total dose of 5mg hyperbaric spinal bupivacaine without any spinal or intravenous supplements in a morbidly obese (BMI=66 kg/m^2) preeclamptic parturient. This parturient appeared to be more sensitive than the average to spinal anesthesia for cesarean section. This report does not suggest the routine use of low-dose spinal anesthesia without supplements, but illustrates the wide variability in dosage and sensitivity to spinal anesthetics, and suggests that further research is needed in this area, particularly in morbidly obese parturients. Same we did using low dose of hyperbaric bupicaine for perineal surgery which needs fewer dermatomes to be blocked.[18]

All the above cited studies were performed to provide benefit to patients or in other sense to make anaesthesia safer making life of anesthetist comfortable. All of the patients had satisfactory anaesthesia. In our study all patients remained hemodynamically stable and pain free. The incidence of anaesthesia related complications like.

CONCLUSION

In conclusion 4.5 mg 0f 0.75% Hyperbaric Bupivacaine is the sufficient dose for perineal surgery as this dose provided maximum analgesia but no motor block and kept vital parameters close to base line.Doses of 6.0mg and 7.5mg of 0.75% Hyperbaric Bupicaine are excessive due to prolonged motor block.

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PERINATAL OUTCOME IN PROLONGED PREGNANCY

Lubna Jawad , Sobia Zafar, Aaliya Tayaba, Maryam Hussain and Khaula Khatoon

Abstract

Objective: The aim of this study was to evaluate the perinatal outcome among the pregnant women who delivered after prolonged pregnancy.

Design: A descriptive cross sectional. Place & duration of study: The study was conducted at Department of Obstetrics & gynaecology Unit-II Lahore General Hospital, Postgraduate medical institute Lahore for duration of 6 months.

Material & methods: The study comprised of 60 patients at 42 weeks of gestation or beyond. Variables like age, parity, gestational age, fetal movement, past prolonged pregnancy, ultrasound & admission CTG findings and mode of delivery were studied. Parameters of poor neonatal outcome were identified Patients with intrauterine demise, medical disorders, or pregnancy complications were not included in the study.

Results: 80% (n=48) of the patients were between 18 – 27 years of age and the rest (20%) were between 28 and 37 years of age. In the study group primigravida and multigravida were found in 50% (n=30) and 50% (n=30) in each group. Gestational age for the patients included in the study was more than 42 weeks, the mean clinical gestational age was 42.2 ±.05week. The history of previous prolonged pregnancy as a presenting complaint was seen only 16.3% (n=10) cases. Decreased fetal movements were recorded in 48.3% (n=29). The mode of delivery was spontaneous vaginal in 70% (n=42), caesarean section in 30% (n=18) to deliver the fetus . Male babies born were 58.3% (n= 35) and female babies were 41.7% (n=25).

The ultrasonographic findings of the respondents revealed the minimum estimated fetal weight was 2.5 kg and maximum was 4.0 kg with a mean value of 3.1±0.24 kg. The amount of liquor was adequate in 95%(n=57) and reduced in only 5%(n=3) respondents .The Bio-physical profile was calculated and it was found that 95% were within the score of 8 and 10, and 1.7% respondents were within the score 6 to 8. Score 4 or less than 4 contained only 3.3% respondents. The admission cardio-tocography (CTG) was found abnormal in 6.7% (n=4) respondents and normal in the rest. 21.6% (n=13) babies were admitted to the neonatal ICU. Among the fetal complications meconium aspiration syndrome was most common which was found in 13.3% (n=8), followed by respiratory distress syndrome in 5% (n=3), asphyxia neonatorum in 3.3% (n=2) and 5% (n=3) neonates expired. Conclusion: Exact and careful assessment of gestational age will help to reduce the overall incidence of ongoing pregnancies beyond 42 weeks.

Keywords: Prolonged pregnancy, perinatal outcome.

Postdate, post-term, post-maturity, and prolonged pregnancy is accepted terms by WHO and the International Federation of Gynecology and Obstetrics (FIGO) to describe pregnancy beyond dates (expected date of delivery). As per WHO, post-term pregnancy (PTP) is defined as a pregnancy that persists beyond 294 days or 42 weeks of gestation.[1-iv]

A post-term or prolonged pregnancy is the one which extends to or beyond 42 weeks[vi-3] or 294 days from the first day of the L.M.P and has an incidence of 5% to 10%.[2] A post dated pregnancy is the one which extends to or beyond 40 weeks or 280 days from the first day of the L.M.P and has an incidence of 4% to 14%.3[10-vi]

Post dated and post term pregnancies always carry a high risk, as there is a possibility of fetal distress and fetal death due to progressive fetal hypoxia following placental insufficiency.

Post-term pregnancy has been associated with an increased risk of perinatal mortality and morbidity including meconium stained liquor, meconium aspiration syndrome, oligohydramnios, macrosomia, fetal birth injury, fetal septicemia, non- reassuring fetal heart rate(NST) or fetal distress in labor and

maternal complications including increased rate of cesarean delivery, cephalopelvic disproportion, cervical tear, dystocia and postpartum hemorrhage.[2-vi] Post-term pregnancy is associated with increased incidence of prolonged labour and operative delivery (forceps or vacuum-assisted birth). Patients are at increased risk for vaginal birth trauma due to a large baby.[fn-7(4)] Patients are also at increased risk for infection and wound complications, and postpartum hemorrhage.[fn-8(5)] Toward the end of pregnancy, the placental function decreases, amniotic fluid volume may decrease and the fetus may stop gaining weight.

Approximately 3% to 10% of all pregnancies continue till 42 weeks gestation. The perinatal mortality (i.e., stillbirths plus neonatal deaths) of 2 to 3 deaths per 1,000 deliveries at 40 weeks gestation approximately doubles by 42 weeks and is 4 to 6 times greater at 44 weeks6.[vi-1]

iv- Postdated pregnancies may be the result of, 9 error of the last menstrual period (most common), more common in primigravida, previous history of prolonged pregnancy,maternal obesity, placental sulfatase deficiency (an X-linked recessive disorder) which results in reduced placental estrogen synthesis. This leads to poor expression of oxytocin and prostaglandins receptors in myometrium. The amniotic fluid volume reaches its peak at around 38 weeks after which there is a gentle decline by approximately 125 ml/week. An average volume of 800 ml at 40 weeks and this can be picked up sonography. Placenta starts showing infarcts and calcifications as the pregnancy goes into 38 week[9]

iv)The most cases of PTP result from a prolongation of gestation. Other cases result from an inability to accurately define estimated date of delivery. Prolonged pregnancy has always been regarded as a high-risk condition because perinatal morbidity and mortality is known to rise. The interest in postdatism (just beyond expected date of delivery) has been recent and the management is controversial, more so with the advent of sonography providing information about placental aging and amount of amniotic fluid.[8]

ii)E002-The management of pregnancy beyond 40 weeks gestation relies on an accurate assessment of the gestational age. A Cochrane review. Neilson JP study[10] found that compared with selective ultrasonography, ultrasound dating during the estimated gestational age range of 13 to 24 weeks gave a more accurate prediction of the delivery date than estimates based on the last menstrual period alone or in combination with ultrasonography. Early ultrasound dating also resulted in a 70 percent reduction in the number of pregnancies that considered postterm.(fn) Management of prolonged pregnancy in the absence of other complications is controversial. The Royal College of Obstetricians and Gynaecologists/ NICE guidelines recommend that women should be offered induction after 41 weeks[10]. Women who decline induction should be offered increased antenatal monitoring from 42 weeks, consisting of twice-weekly cardiotocography (CTG) and ultrasound estimation of single deepest amniotic pool. A pool depth of < 8 cm indicates increased intrapartum risk to the fetus.11 If expectant management is used, some sources recommend labour should be induced at the beginning of the 43rd week.[12] However, in a recent randomized trial there were no differences between induced (at 289 days) and monitored groups (every 3 days) in neonatal morbidity, mode of delivery, and general outcome.[13]fn

METHODS

It is hospital based study of six months duration, on 60 patients with prolonged pregnancy. Department of Obstetrics & gynaecology Unit-II Lahore General Hospital, Postgraduate medical institute Lahore.

Inclusion Criteria: Pregnant women who are sure of dates about their LMP or have 1st trimester dating scan, pregnant women with any parity, duration of pregnancy > 42weeks, with cephalic presentation.

Exclusion Criteria: Pregnant women with intrauterine demise, multiple pregnancies, medical disorders or pregnancy complications.

Data Collection Procedure: After taking informed

consent, data is collected from history, examination, investigations and relevant details of selected cases using performa. It included age, parity, gestational age (calculated from 1st day of LMP or 1st trimester dating ultrasound scan), history of current pregnancy, abdominal and vaginal examination, admission cardio-tocography, biophysical profile, and specific ultrasonographic findings. The details of neonates, born by vaginal or abdominal route, their APGAR scores at birth and 5 minutes after birth, birth weight in terms of grams, head circumference, and any birth trauma will be specifically be noted. If neonate is admitted in neonatal care unit, its cause of admission and duration of stay was recorded. Any complication occurring in postnatal/postpartum period during the hospital stay was noted.

Data Analysis: Data analysis is computer based. All the collected information was entered in soft ware, SPSS version 13.0 and analyzed through statistical pages. The variables assessed were age, parity, gestational age, decreased fetal movements, past prolonged pregnancy, fundal height, lie, presenting part, liquor, estimated birth weight, ultrasonogaraphic and admission, cardio-tocographic findings were presented as frequency distribution and percentages. Age, gestational age, fundal height was calculated as mean ±SD while Chi-Square test was used where data has been presented as percentages 6.P<0.05 was considered as significant.

RESULTS

In our study, we have selected respondents who met the inclusion criteria. The minimum age was 18 years and maximum age was 37 years. The majority of the respondents, 80% (n=48) were between 18 and 27 years of age and the rest 20% (n=12) were between 28 and 37 years The parity status of the respondents has shown that 50% were primigravida and 50% were multigravida.

Table 1: *Demographic Distribution*

Age Group	18-27years	48	80
	28-37years	12	20
Parity	Primigravida	30	50
	Multigravida	30	50

The history of previous prolonged pregnancy was seen that only (n=10) 16.7% were with a positive history. The decreased fetal movements were present in(n=29)48.3% respondents.

Table 2: *Frequency of Presenting Complaints of Respondents*

	Decreased Fetal Movements	H/O Previous Prolonged Pregnancy
Present	29(48.3%)	10(16.7%)
Absent	31(51.7%)	50(83.3%)
Total	60(100%)	60(100%)

The ultrasonographic findings of the respondents were recorded and analyzed. The minimum estimated fetal weight was 2.5 kg and maximum was 4.0 kg with a mean value of 3.1±0.24 kg. (The mean biparietal diameter was 9.2±0.28 cm.) The mean femur length was 7.4±0.17 cm and the mean USG gestational age was 38.1±0.35 weeks.

Table 3: *Distribution of Respondents According to Bio-Physical Profile (BPP)*

	Frequency	Percent
Score 8 to 10	57	95.0
Score 6 to 8	1	1.7
Score 4 or less	2	3.3
Total	60	100.0

The admission cardio-tocography (CTG) was found abnormal in 6.7% respondents and normal in the rest. The mode of delivery was vaginal in 70.0% respondents and caesarian section was done in 30.0% to deliver the fetus.

There were 58.3% baby boys delivered and 41.7% were baby girls among the newborns.

The minimum birth weight of the newborn was 2.5 kg and maximum was 4.5kg with a mean value of 3.1±0.43 kg. The minimum head circumference of the newborn was 33.0cm and maximum was 40.0 cm with a mean head circumference 34.3±0.91 cm.

The Apgar score was calculated at 1 minute and it was found critical i.e. 3 or less than ≤ 3 in 3.3%, fairly low i.e. between 4 to 6 in 10% and it was normal i.e. 7 or more ≥ in 86.7% respondents. The Apgar score was also calculated at 5 minutes and it was found critical in 5% and normal in 95% respondents.

There was 13.3% respondents admitted to neonatal intensive care unit for resuscitation and expertise management. Among all the newborns 5% respondents expired and 95% were discharged healthy from the hospital.

Among the neonatal complications meconium aspiration syndrome was seen in[8] 13.3% respondents followed by respiratory distress syndrome in[3] 5% respondents. Asphyxia neonatorum was found in only[2] 3.3% respondents. None of the newborns developed jaundice neonatorum and sepsis neonatorum.

The respondents between 18 to 27 years included 62.5% primigravida and 37.5% multigravida. In 28 to 37 years old respondents, all were multigravida.

The relation of mode of delivery with Apgar score at 1 minute was analyzed and it was observed that were only 3.3% newborns delivered vaginally with a critical score of 3≤ and 3.3% newborns with a fairly low score i.e. 4 to 6.

Among the newborns delivered with caesarian section none was with a critical score and 6.6% were with a fairly low score i.e. 4 to 6.

Among the newborns who were admitted to neonatal intensive care unit, 10.0 %[6] were discharged healthy and 3.3 %[2] expired. There was an expiry without admission to the neonatal intensive care unit as a result of still birth.

The newborns that developed complications were admitted in neonatal intensive care unit for expert management. Meconium aspiration syndrome was seen in 13.3 %[8] newborns and all of them were admitted in neonatal intensive care unit.

Respiratory distress syndrome developed in 5%[3] respondents and all of them needed admission in neonatal intensive care unit for resuscitation and management. Asphyxia neonatarum was developed in 3.3%[2] respondents and they were admitted in neonatal intensive care unit. Table-4

Table 4: *Frequency of Complications & Perinatal Outcome*

Outcome variable	Total Number of Patient (n)	%
Apgar score < 6	2	3.3%
Meconium aspiration syndrome	8	13.3
RDS	3	5
Asphyxia Neonatorum	2	3.3
NICU Admission	8	13.3

DISCUSSION

Prolonged pregnancy has always been regarded as a high-risk condition because perinatal morbidity and mortality is known to rise. Prolonged pregnancy therefore remains an obstetric problem. In our study the minimum age of respondents was 18 years and maximum age was 37 years. A post-term or prolonged pregnancy is one that is prolonged beyond 42 weeks (294 days).[1] Such pregnancies are associated with an increased incidence of fetal distress, oligohydramnios, fetal macrosomia, fetal dysmaturity, and perinatal mortality. Many fetuses born after 294 days, however, appear to be completely normal.[55] Prolonged pregnancy therefore remains an obstetric problem.

In our study the minimum age of respondents was 18 years and maximum age was 37 years. The majority of the respondents, 48(80%) were between 18 and 27 years of age and the rest 12(20%) were between 28 and 37 years. Most of the patients belonged to age group18-27years(48)80% which is comparable with another study showing effect of age on prolonged pregnancy[56] HemalathKR In our study, the mean maternal age was 25.00±3.7 years with a range between 20 and 35 years. In our study results are comparable with another study showing the effect of age on prolonged pregnancy.[5]

The review shows that multiparous women have shorter gestations than primiparous women but there was no effect of parity of the respondents on prolonged pregnancy in this study, making parity an insignificant variable that can predict the length of gestation. The parity status of the respondent has shown that 50% were primigravida and 50% were multigravida.No significant differences were noted

in the parity by Alexander JM a study conducted on prolonged pregnancy. In our study, (n=10) 16.7% of the respondents had a positive history of previous prolonged pregnancy as a presenting complaint. A previous prolonged pregnancy increases the risk of prolonged pregnancy in a subsequent birth.[57]

Maternal perception of decreased fetal activity is a common complaint and one of the most frequent causes of the unplanned visits during pregnancy.[57] No proposed definitions of decreased fetal movements have ever been proven to be superior to a subjective maternal perception in terms of identifying a population at risk. Women presenting with decreased fetal movements; do have higher risk of stillbirth, fetal distress and other associated outcomes.[57] In a prolonged pregnancy, before delivery, there may be reduced fetal movements reflecting fetal distress. In our study, 29(48.3%) respondents, presented with the complaint of decreased fetal movements, were intervened on emergency basis accordingly. The accurate sonographic estimate of fetal weight is helpful in those instances when the fetal weight estimate might alter clinical management.[58] In our study the mean sonographic estimated fetal weight was 3.1± 0.24 kg and the mean birth weight of newborns was 3.1± 0.4 kg with a difference of ±0.19kg. It shows the accuracy of ultrasound in estimating the fetal weight. The parameters used in fetal weight estimation were biparietal diameter, femur length and sonographic gestational age. Ben-Haroush A et.al[59] stated that the methods which gave reasonably accurate results and the simplest to apply are those based on the use of two parameters, namely, abdominal circumference(AC) and biparietal diameter (BPD) or femur length (FL). In our study, the mean biparietal diameter was 9.2+ 0.28 cm and the mean femur length was 7.4+0.17 cm, comparable to the results of an international study showing the biparietal diameter 9.7± 0.1 cm and femur length 7.5± 0.1 cm.[60] The use of multiple parameters gives the most accurate prediction of fetal weight.[60] The amount of amniotic fluid was reduced in 3(5%) respondents which in turn is associated with fetal distress due to umbilical cord compression. These respondents were managed by intervention. If women with prolonged pregnancy has adequate amount of liquor and there is no fetal compromise she could be managed expectantly. However evidence of decreasing liquor or nonassuring fetal condition as detected on ultrasonography and, or Non-stress (NST), makes intervention imperative.[61]

The value of the biophysical profile scoring to predict accurate perinatal outcome in prolonged pregnancy, was also assessed. There were 57(95%) respondents with normal profile scoring,8.3%(5) showed a feature of perinatal morbidity. In contrast, out of5%(3) cases with abnormal profile scores, all had abnormal perinatal findings (sensitivity 100%). In another study, it was suggested that normal biophysical profile scores (greater than or equal to 8) may be an accurate test in the evaluation of the fetal condition in this obstetrical complication.[62]

In a study by Chhabra S et. al.[61], 30% respondents underwent Caesarian Section and 68.6% delivered vaginally which is comparable with our study. Fetal distress was a major indication for the operative delivery. In our study, 58.3% baby boys were delivered and 41.7% were baby girls among the newborns. A study[64] has shown that male gender significantly predisposes to the prolongation of pregnancy to the extent that, by 43 weeks of gestation, there are 3 male deliveries for every 2 female deliveries.[64] These results are comparable with our study.

The Apgar score describes the condition of the newborn infant immediately after birth[66] and, when properly applied, is a tool for standardized assessment. It also provides a mechanism to record fetal-to-neonatal transition. In our study, 13.3%(8) neonates were found with low Apgar scores at 1 min. All of them were resuscitated and admitted in neonatal intensive care unit (N-ICU). The Apgar score at 5 minutes was low in 5% (3)neonates whereas improved in 8.3% neonates.

Among those5%(3) who were below the normal

Apgar scores after 5 minutes, 2 expired. So The Apgar score system helps in general assessment of the infant's condition at birth and to evaluate the response to resuscitation and prediction of likely outcome.[67]

In our study, the most common neonatal complication was meconium aspiration syndrome which was seen in 13.3%[8] neonates. Meconium aspiration occurs in upto 35% live births with meconium stained liquor with a range from 21% to 58%.[68] Meconium aspiration syndrome contributes to neonatal death in approximately 10% babies who aspirate it.[69] This is comparable to our study in which meconium aspiration was found in 13.3% neonates. 2(3.3%) expired and 1 was a still birth. It makes 5% of all neonates who aspirated.

Respiratory distress syndrome developed in 5%[(3)] respondents and all of them needed admission in neonatal intensive care unit for resuscitation and management. The proportion of infants studied over the last 30 years, hospitalized with respiratory distress, increased from 1.9% to 3.8% of the whole neonatal population and from 30% to 53% of all infants admitted to a neonatal unit.70Another study concludes that respiratory distress occurs in approximately 7 percent of infants.[71] These results are comparable with our study, in which 5% neonates suffered from respiratory distress syndrome.[71]. Asphyxia neonatarum was developed in 3.3%[2] respondents and they were admitted in neonatal intensive care unit. Birth asphyxia is a serious clinical problem worldwide which can be as high as 8.5%.[72] Park et.al. quote 6.9% neonates admitted in neonatal intensive care unit due to asphyxia neonatorum in their study.[73] These results are comparable with our study where 3.3%[2] neonates suffered from asphyxia and were admitted in neonatal intensive care unit.

CONCLUSION

Prolonged pregnancy is an associated risk factor. Exact and careful assessment of gestational age help to reduce the overall incidence of ongoing pregnancies beyond 42 weeks. The methods of fetal surveillance have not been perfected so the baby should be delivered by 42 weeks.

Prolonged pregnancy has always been regarded as a high risk condition as it is associated with increase perinatal morbidity and mortality, this risk increases in pregnancies that last two or more weeks after the expected date of delivery.

RECOMMENDATION

Considering the maternal and neonatal morbidity associated with prolonged pregnancy, pregnancy should not be allowed to go postterm. The patient should be counseled about risk of increasing gestational age. These women should be offered induction of labor before 42 weeks of gestation to avoid adverse neonatal consequences.

Dating by Ultrasonography (USG) in early pregnancy improves the reliability of expected date of delivery (EDD). The incidence of post term pregnancy depends on whether the calculation is based on the history or early pregnancy ultrasonography is also used to find the EDD[3,4] Most serious complication, post term pregnancy is meconium aspiration syndrome which had mortality upto 60% but now it reduced due to nasopharyngeal aspiration of newborn before 1st breath[(11)]. Royal College of Obstetricians and Gynecologists. Induction of labour. Evidence based clinical G

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EFFECTIVENESS OF INPATIENT REHABILITATION ON FUNCTIONAL OUTCOME AND PAIN IN BURN PATIENTS

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Abstract

Background: Burn causes severe injuries that can lead to devastating effect on human health and life that ultimately affects the functional outcomes and quality of life in burn survivors

Objective: To evaluate the effectiveness of inpatients rehabilitation in term of functional outcome and pain in burn patients.

Design : This was a cross sectional study conducted in Jinnah Burn and Reconstructive Surgery Center, Lahore from November 2017 to January 2018.

Methodology: Patients with more than 20 % Total body surface area (TBSA) burn, with the mean age of 18-55 years of both male and female were included in the study. The outcomes measures included activity of daily living and functional measures are assessed by a modified barthal index scale (MBI) and pain was assessed by visual analogue scale (VAS) measured before and after the intervention. Collected data are coded numerically and analyzed into SPSS version 21. The demographic data is analyzed in descriptive statistics in terms of tables and graphs. Pre and post intervention results were analyzed with paired sample t test.

Results: There were 55 subjects with mean age of 31.85 ±12.5 (range 17-55), the percentage of burn mean was 30.58 ± 9.09 (range 17-50) and hospital stay mean is 30.12 ± 15.17 (range 10-67). Paired sample t test is used which showed significant improvements in functional independence and pain from admission to discharge i.e. $P < 0.05$.

Conclusion: The patients with inpatient rehabilitation showed marked functional improvements in mobility, activity of daily living and pain. Inpatient rehabilitation is effective in prevention of post burn contracture and deformities which are the most devastating problems in burn survivors.

Key Words: Burn, modified barthal index scale, rehabilitation, visual analogue score, pain, outcome.

Burn injury has a devastating effect that can cause pronounced physical functional impairments that can lead to severe disabilities and affects the activity of daily living along with other co morbidities.[1] Burn injuries are ranked as the fourth commonly occurring trauma injuries. Early physical rehabilitation has an integral role in prevention and improvement of functional and structural changes in burn victims.[2] According to WHO the incidence of burn patients in Pakistan has been recorded 1388/ 100000 per year that is very high as compared to other countries.[3]

Burns victim encounters many structural disabilities that can hinder their functional abilities. The most common encountered problems are the scar and joints contracture that limits the normal range of motion resultantly activity of daily living is affected.[4]

It is necessary to measure the functional outcomes of burn patients after inpatient rehabilitation that can guide the effectiveness and usefulness of our intervention. Previous studies have shown that inpatients rehabilitation of burn patients is effective in term of functional outcome, but the limited evidence is found about the inpatient rehabilitation of burn patients in Pakistan.[5] Pakistan is a

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resource limited county and the center is the largest Burn Center of the country with no defined catchment area. The rationale of this study was to evaluate the functional outcomes of burn survivors with inpatient rehabilitation in terms of self-care performance so that the quality of rehabilitation is further improved and beneficial.

METHODS

Study design and sampling of patients:

After approval from Institutional Ethical Review Board, a cross sectional study with non-probability / purposive sampling was conducted with patients (n=55) from November 2017 to January 2018 admitted in Jinnah Burn and Reconstructive Surgery Center, who fulfilled the inclusion criteria were included in the study by convenience sampling technique.

Inclusion criteria:

I. Patients with second burn injuries were included
II. Patients with TBSA more than 20% with age between 18-55 were included
III. Burn injury occurred in last 3 months

Exclusion criteria

I. Patients with TBSA more than 60% were excluded.
II. Patients with other severe complications i.e. brain or spinal cord injury, severe infection and primary amputation were excluded.
III. Patients with old burns were excluded.

Rehabilitation Program

The rehabilitation of inpatient included edema management, range of motion (ROM), mobilization of joints, active and passive stretching, positioning and splinting, balance and gait training, muscle strengthening and endurance exercises and chest physiotherapy that includes percussion, postural drainage done by physiotherapist.

Measuring tool

The functional outcomes are measured in term of self-care performance; modified barthal index scale (MBI) is considered as the standardized tool[6]. MBI is the new version of the barthal index scale which is extensively used to assess the functional independence and activity of daily living. It includes 10 items with the ordinal scale from one item to the other. The sum up value showed the patient status of functional independence, 0-20 indicates complete dependence and 100 is the highest value which shows complete independence of the patients[7-8]. Reliability and the validity of MBI was compared with the BI which showed greater reliability (internal consistency and inter rater reliability) and validity[9-10]. Both questionnaires were filled at the second day of admission in the hospital and at discharge. During that period extensive rehabilitation program is done to the patient at each stage along with medical and surgical management of burn patients. The variables include age, sex, degree of burn, hospital stay and self-care questionnaire (MBI) and pain scale (VAS).

RESULTS

Fifty-five patients were included. Demographic data are shown in the table 1 with mean age of 31.85, S.D + 12.50 (range 17-55). Most of the patients (67.3%, n= 37) were less than 35 years of age. Almost equal male 27 (49.1%) and females 28 (50.9%) were enrolled with superficial partial thickness and deep partial thickness burns. The mean total body surface area mean was 30.58%, S.D. + 9.09 (range 17-50). MBI scale was used to assess the functional independence of the burn patients at the time of admission and discharge from hospital and visual analogue scale is used to quantify its pain characters. Most of the patients were in severe and total dependence at the second day of admission as shown in table 2. The Paired sample t test showed the increase score of MBI and decrease score of VAS from admission to discharge, significant improvement in functional independence(p=.001) and (p=.000) respectively in the table 3.

DISCUSSION

Table 1: Demography

Variables n= 55	Frequency	Percent
Age mean = 31.85, SD 12.50 min = 17 Max = 55		
< 35 years	37	67.3
> 35 years	18	32.7
gender		
male	27	49.1
female	28	50.9
percentage of burn mean = 30.58, SD 9.09 min = 17 Max = 50		
21 - 40 %	39	79.1
41 - 60 %	16	20.9
degree of burn		
partial thickness	21	38.2
full thickness	34	61.8
Hospital stay mean = 30.1.2, SD 15.17 min = 10 Max = 67		
< 30 days	32	58.2
> 30 days	23	41.8

Table 2.1: Barthal index scale at second day of admission

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Total Dependence	18	32.7	32.7	32.7
	Severe Dependence	37	67.3	67.3	100.0
	Total	55	100.0	100.0	

Table 2.2: Barthal index scale at discharge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Total Dependence	2	3.6	3.6	3.6
	Severe Dependence	10	18.2	18.2	21.8
	Moderate Dependence	20	36.4	36.4	58.2
	Slight Dependence	9	16.4	16.4	74.5
	Independence	14	25.5	25.5	100.0
	Total	55	100.0	100.0	

The physical disability and the deteriorating quality of life ensue after burn injuries because of the pain and associated movement restriction, thereby decreasing the score of self-care performance in the concerned patients. Physical Therapy and rehabilitation not only improve the functional outcome of such patients but also improved their quality of life to a good status, which ultimately affects their routine life in the future.

Table 3: Paired Samples Statistics

		Mean	N	Std. Deviation	T test p value
Pair 1	visual analogue scale at second day	8.3091	55	1.35909	T=20.947 P=.000
	visual analogue scale at discharge	3.5636	55	2.08845	
Pair 2	barthal index scale at second day	26.60	55	12.625	-21.465 P=.001
	barthal index scale at discharge	79.6182	55	22.56800	

The improvement and betterment can be measured in terms of scores of the Barthal Index Scale and Visual Analogue Scale for their functional outcome and pain.[11] This study aims to find out the impact of inpatient rehabilitation in burn survivors, our patients showed increase scoring of MBI at the time of discharge and decreased the trend of pain, these findings indicate the positive effect of rehabilitation that ultimately improved activity of daily living. Inpatient rehabilitation provides burn patients an opportunity to be motivated when they find the positive impacts of measures taken in the process of rehabilitation. The edema reduction of the damaged area by means of elevation, proper positioning and effleurage reduces the consequential movement restriction that finally eases the pain presented with the movement of that area.[12] Additionally, ROM exercises and stretching techniques induce relaxation, maintain the muscle tension-length balance and prevent contractures which are intensely associated with burn injuries in terms of pain-apprehension and positioning, furthermore it induces obvious relaxation locally as well as generally in the body that further soothes the pain.[13-15] The concern is to abate the physical pain that stresses patients adding to further pain and movement inhibition. Reduced functional capacity is the succinct description of the functional impairment associated with burn injuries.

Effective rehabilitation augments functional

capacity and improves functional outcome. Dan teng et al., showed improvement in the rehabilitation group by using MBI and other standardized tool.[16] Another study conducted by James A. Sliwa et al., about the burn survivors and inpatient rehabilitation that evidently proved that hospital stay is decreased with proper inpatient rehabilitation and improved functional outcome as well.[17] There are a number of publications which showed evidently that inpatient rehabilitation improves functional outcome and reduces hospital-stay.[16-18]

The limitation of this study is that the patients of the single burn unit are included and they were not followed up after discharged from the hospital either they improved, maintained or loss their range of motion and functional activities. There is a need of outpatient rehabilitation and follow-up plans: long term goals, for them to maintain and further improve their functional outcome. Furthermore, further adjunctive therapies and strategies should be addressed in evidence for the betterment of self-care performances of the patients.

CONCLUSION

Early rehabilitation in burn Patients showed improvement in physical health and performance of activity of daily living, resultantly improves the quality of life. So, early inpatient rehabilitation is essential for better physical and functional outcomes in burn patients.

Limitation:

1. The study is single center study with no control group.
2. The long-term follow-up was difficult because there is not set catchment area and people often could not come for long term follow-up.
3. On approval form Ethical board we are planning to run a Randomised control trial.

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SPECTRUM OF CORONARY ARTERY DISEASE AMONG ETT POSITIVE PATIENTS UNDERGOING CORONARY ANGIOGRAPHY

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Abstract

Background: Coronary artery disease is the most common cause of death worldwide. The incidence is increasing despite recent advances in knowledge of prevention and early diagnosis. Exercise tolerance test (ETT) is the most economical non-invasive test to predict coronary artery disease in suspected individuals having normal ECG and echocardiographic reports. The objective of this study was to assess the pattern of coronary artery disease on coronary angiography in patients having a positive exercise tolerance test.

Method: This cross sectional study was conducted at Rehmat-ul-lil-Alameen institute of cardiology (RAIC), Lahore from July 2016 to June 2018 (24 Months). Two hundred and sixteen patients with positive ETT were included keeping in view the inclusion and exclusion criteria. Coronary angiography of all the patients was done at RAIC as per guidelines.

Results: Out of 216 patients 190 (87.96%) were males and 26 (12.04%) were females. Mean age was 50.86. Out of 216 patients 201 (93.06%) had coronary artery disease while 15 (6.94%) had normal coronary angiograms. Out of 201 true positive patients 37 (17.12%) had single vessel disease, 60 (27.77%) two vessel disease, 67 (31.01%) three vessel disease and 37 (17.12 %) had Left main stem disease.

Conclusion: Positive ETT reliably predicts presence of coronary artery disease with very little chance of false positive result especially in males.

Key words: Coronary artery disease, exercise tolerance test, coronary angiography

Coronary artery disease (CAD) is the most common cause of death and disability all over the globe.[1] Despite encouraging advances in knowledge of the prevention, diagnosis and treatment still the deaths from cardiovascular and circulatory diseases are on the rise.[2] Screening and detection of high risk coronary lesion with a non-invasive test has always been an attractive goal. Exercise tolerance test (ETT) is one of the most common non-invasive test used to detect CAD, in spite of the limitations including low sensitivity and specificity.[3] The conventional ST-segment depression criteria during ETT has sensitivity of 81± 12% and specificity of 66± 16%.[4] ETT was invented by Dr. Robert Bruce and Wayne Quinton at the University of Washington in 1952, initially it was designed to diagnose heart and lung disease, it became "the criteria" in diagnosing CAD till coronary angiography (CAG) was invented.

Among currently available non-invasive tests ETT is still the least expensive of all. Substantial diagnostic and prognostic information can be obtained by ETT.[5] The risk of having CAD among individuals with no characteristic symptoms of CAD, but with an abnormal ECG response during ETT is substantially higher than the individuals with a normal ECG response. Similarly, among patients with chest pain and a normal resting ECG, an

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abnormal ECG response during ETT correlates with anatomically significant disease on subsequent CAG. With normal ECG response during ETT there is a substantially lower probability of significant coronary artery obstructionin individuals having characteristic symptoms of CAD.[5] CAG is the gold standard test to detect the CAD.[8] By the addition of CAG to the data base of clinical evaluation, physical examination, and standard electrocardiography more clear-cut identification of "True positives" and "false positive" cases can be diagnosed and the relationship of the ETT changes with severity of CAD can be established. The purpose of this research was to see the pattern of CAD on CAG at our cardiac catheterization laboratory in a series of consecutive patients having positive ETT.

METHODS

Coronary angiography (CAG) was performed on 216 consecutive patients having a positive exercise test (ETT) at Rehmat-ul-lil-Alameen Institute of Cardiology between July 2016 and June 2018. The study was performed primarily for diagnostic reasons, to confirm the clinical impression of coronary artery disease, in patients having chest pain with a normal resting Electrocardiogram (ECG) and Echocardiography (ECHO) but a positive ETT. Patients having previous known CAD, cardiac surgery, congenital heart disease, rheumatic / valvular heart disease, hypertrophic subaortic stenosis, ballooning mitral valve syndromes, cardiomyopathy, etc., were eliminated from this study. All clinical data and results of standard ECG and ETT were collected prospectively before CAG. A structured history and medical review were obtained to document symptoms, medical history, medication use, cardiac risk factors, and previous cardiac events and procedures. A proforma was designed to record patient's biodata, history of hypertension, diabetes, dyslipidemia, smoking, and family history of CAD.

Exercise Stress Tests

ETT was performed in the fasting state and all medications were discontinued at least twelve hours before testing. A standard 12 leads ECG was obtained prior to exercise in every patient. The patients were exercised according to the Bruce protocol on X-scribe Mortara machine. A positive test was defined as horizontal and segmental ST depression or elevation of 0.1 mV (0.08 seconds duration or greater) in any of 12 continually monitored standard electrocardiographic leads. Exercise tests were interpreted as negative only if the patient achieved 85% of the predicted maximal heart rate at peak exercise ("target heart rate") in the absence of significant ST segment changes. After test completion, test results were assessed by the cardiologist. According to ETT interpretation, patients were categorized into negative or positive for stress induced ischemia. For this study we included only those patients who had positive ETT results.

Coronary angiography

Arterial access established using modified Seldinger technique through the femoral or radial artery after written informed consent under strict aseptic measures and local anaesthesia. Non iodinated, iso-osmolar contrast (ultravist) was used. Multiple views were obtained for each coronary artery using Toshiba (Infinix/VFI) angiography machine. A significant lesion was defined as 70% or greater stenosis in a major coronary artery or branch and a 50% stenosis in case of left main stem as agreed upon by at least two cardiologists. Lesions of lesser degree were considered "moderate" for the purpose of this paper. Significant stenosis of the main left coronary was considered equivalent to combined stenosis of the left anterior descending and circumflex coronary arteries. Results of angiographic findings were entered in SPSS version 20 for windows statistical software and analysed.

RESULTS

During the study period a total of 216 patients presenting with chest pain or dyspnea had positive ETT. All patients were advised to undergo coronary

angiography. Out of 216 patients 190 (87.96%) were males and 26 (12.03%) were females. The mean age of study population was 50.86±9.4 years. Mean age of males was 51.37±9.7 years and females was 47.14±8.4 years. Out of 216 patients, 201 (93.06%) patients had significant coronary artery disease on CAG, i.e. true positive, while 15(6.94%) patients had normal angiographic findings i.e. false positive. In the true positive group there were 185(92.04%) males and 16(7.96%) females, whereas 5(2.63%) male patients and 10 (38.46%) female patients were in false positive group (Table 1). Coronary angiography revealed that 37(17.12%) patients had single vessel disease, 60 (27.77%) patients had double vessel disease, 67 (31.02%) had triple vessel disease and 37 (17.12 %) had Left main stem disease (Table 2). The individual vessels involved included Left main stem 37 (18.41%), Left anterior descending (LAD) 140 (69.65%), Left circumflex (LCX) 97 (48.25%), Right coronary artery(RCA) 82 (40.80%) and Ramus intermedius 7(3.48%) (Table 2). Out of 201 true positive patients 63 (31.34%) had recommended for PCI, 97 (48.25%) had recommended for CABG, 33(16.42%) had recommended for medical management while 8 (3.98%) were advised risk factor modification (Table 2). There was no major complication in any patient.

DISCUSSION

Ischemic heart disease (IHD) is the most common cause of death and disability in the world. The number of deaths from cardiovascular disease (CVD) is highest in subcontinent.[9] Though not based on any official national mortality data, cardiovascular disease is estimated to contribute 19% to total deaths in Pakistan.[10] ETT has played a central role in early diagnostic workup of CAD for decades. But because of the limited sensitivity and specificity of the ETT, other expensive investigations are being increasingly used. The ETT is still the cheapest of all non-invasive tests currently available.

Previous studies have demonstrated the clinical importance and reliability of the data that is provided by ETT for the diagnosis of suspected CAD.[11] In this study two years' data of coronary angiographic results of patients having positive ETT have been studied. Nayak K C et al performed ETT in one hundred clinically asymptomatic individuals having no ECG manifestation of ischemic heart disease-50 chronic smokers vs 50 non-smokers. The test was positive in 18% chronic smokers and 4% in non-smokers concluding that the chances of positivity of stress test was 4-5 times greater in chronic smokers than in non-smokers.[12] In our study we too found that smokers had higher chance of having CAD.

Miller TD et al directly compared ETT testing in 3,213 women vs. 5,458 men using myocardial perfusion as the reference standard. The false-positive rate was higher in women (13% vs. 7%, p= 0.003).[13] The study also showed that ETT has proved to be important to detect early CAD especially in male gender, smoker & hypertensive or combination of two or more CAD risk factors. This finding is also observed in other studies which showed low specificity of positive ETT and CAD in females. [14,15]

Hypertension may interfere with the sub endocardial perfusion and may lead to ST-segment depression even in the absence of atherosclerosis, thus resulting in false positive test results. But in this study we found that there is higher frequency of CAD in patients having positive ETT and hypertension. Strongly positive ETT was more commonly noted in the true positive group, this has been reported by other studies as well.[16-19]

Fletcher et al. have reported that the patients who have strongly positive ETT show multi vessel coronary artery disease and adverse prognosis.[17-20.] The sensitivity of ETT in detecting single vessel disease in patients is 25-71% whereas in patients with multivessel CAD the sensitivity is more than 81%.18. In our study we found SVCAD are 17.12%, 2VCAD are 27.77%, 3VCAD are 31.01%, LMS 17.12% and 15 (6.94%) cases are normal.

It was also observed that the most frequent coronary artery involved was LAD followed by LCXand then RCA. These findings are consistent

with other studies and have been reported previously by other investigators as well.[21]

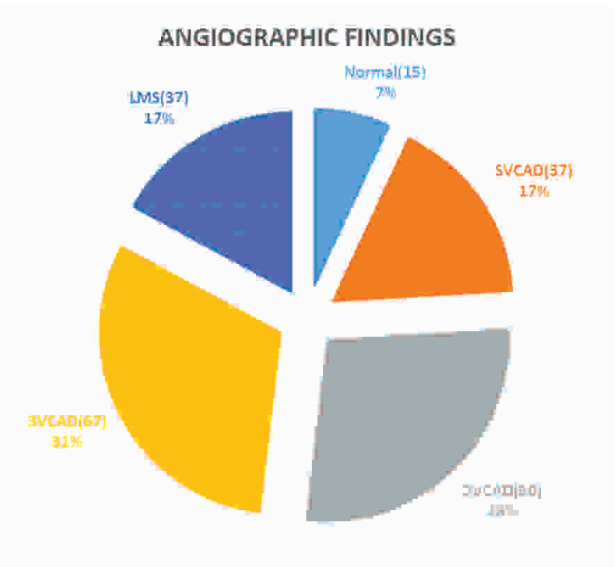
CONCLUSIONS

Table 1: Positive Exercise Tolerance Test & Cad Results

	True positive	False positive	Total
Male Female	185 (92.04%) 16 (7.96%)	5(2.63%) 10(38.46%)	190 (87.96%) 26 (12.04%)
Total	**201 (93.06%)**	**15 (6.94%)**	**216**

Table 2: ANGIOGRAPHIC FINDINGS

No. Of vessels involved	**Number**	**Percentage**
NIL	15	6.94%
SVCAD	37	17.12%
2VCAD	60	27.77%
3VCAD	67	31.01%
LMS	37	17.12%
Individual artery involved		
LMS	37	18.40%
LAD	140	69.65%
Ramus	7	3.48%
LCX	97	48.25%
RCA	82	40.79%
Management Decision	**Number**	**Percentage**
PCI	63	31.34%
CABG	97	48.26%
Medical management	33	16.42%
Risk factor modification	08	3.98%
Risk factors	**True positive**	**False positive**
Diabetes (56)	45	11
Hypertension (78)	74	04
Smoking (67)	65	02
Positive family history (45)	36	09



It can be concluded from present study that ETT is still a valid test in predicting coronary artery disease especially in males. Benefit of ETT is highest in smokers and hypertensives. Strongly positive ETT show adverse prognosis and a multi vessel coronary artery disease.

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AGREEMENT BETWEEN FINDINGS OF FINE NEEDLE ASPIRATION CYTOLOGY AND CELL BLOCK PREPARATION IN MALIGNANT FOCAL LIVER LESIONS

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Abstract

Background: The differentiation between primary malignant liver neoplasm and metastatic deposits is very important for the management of patients presenting with focal malignant liver neoplasms. Ultrasound guided Fine needle aspiration cytology (FNAC) provides cytology smears and material for the cell block for histological examination. Limited studied have been conducted to evaluate the agreement between these two important diagnostic modalities. The objective of the present study was to evaluate the extent of agreement between findings of ultrasound guided FNAC smears and simultaneous cell block preparations for differentiating between primary malignant liver neoplasm and metastatic deposit presenting as focal liver masses.

Methods: The study was descriptive cross-sectional survey, carried out in the Department of Pathology, Allama Iqbal Medical College and Radiology department Jinnah Hospital, over a period of six months. A total of 60 patients between ages 45 to 70 years were enrolled, who had malignant liver lesions. After taking informed consent targeted ultrasound guided Fine needle aspiration cytology was performed in all subjects. Cytology smears were prepared immediately. Cell block were prepared. After cyto histological evaluation , the cases were categorized as primary hepatic malignancy or metastatic deposits and the agreement inferred using kappa statistics.

Results: The agreement between the architectural pattern , cellularity and the final diagnosis based on the findings of cell block and conventional cytology smears was found to be fair, moderate and substantial, respectively.

Conclusion: The results of the study showed significant agreement between the FNAC findings and the histological diagnosis rendered on cell blocks.

Key Words: Fine-Needle Aspiration, Hepatic Neoplasms, Hepatocellular Carcinoma, metastatic deposits,

The liver is a common site for benign and malignant neoplastic lesions, often presenting as focal liver masses.[1] With improvements in imaging modalities, such lesions are increasingly being detected as incidental findings even in asymptomatic persons.[2] Both primary and secondary neoplasms appear as well defined focal liver masses on radiological examination. Commonly seen malignant lesions include the primary hepatocellular carcinoma, intrahepatic cholangiocarcinoma, hepatoblastoma and metastatic deposits from distant organs.[3] Diagnosis and categorization of malignant neoplastic lesions is of particular importance as the choice between medical and surgical management rests on the final histopathological diagnosis.[4,5,6]

Various imaging techniques serve to identify these liver lesions including ultrasound, Computerised Tomography (CT) scan and Medical Reso-

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nance Imaging (MRI). Once identified, a cytohistological diagnosis becomes mandatory. Histopathological examination of biopsy tissue is a gold standard for diagnosis. Fine needle aspiration cytology under ultrasound guidance is highly recommended as a first line diagnostic technique as it is cost effective, carries a low complication rate, and spares the patient from unnecessary radiation exposure.[8] This is conventionally performed percutaneously under ultrasound guidance.[8] The procedure has sensitivity and specificity ranging from 80% to 95% and 87% to 100% respectively and the diagnostic accuracy from 73% to 94%.[7,9,10]

Fine needle aspiration has the advantage of procuring diagnostic materials in the form of aspirated cells from target lesion for cytological examination and cell blocks for tissue architecture/ histopathological examination can be prepared from the aspirated material. Cell smears and cell blocks are complementary to each other, offering material for a better diagnostic yield. Ancillary techniques required to confirm the diagnosis can be applied to the cell blocks conveniently.[10]

Despite its widespread utility, literature search reveals a limited number of studies in Pakistan that look for the agreement between the findings on cell block and cytological smears. So the present study is designed to determine the agreement between conventional cytology smears and cell block preparations for diagnosing primary malignant hepatocellular malignancy from metastatic liver deposits .

OBJECTIVES

To find out the extent of agreement between findings of ultrasound guided fine needle aspiration cytological smears and simultaneous cell block preparations, to differentiate between primary hepatic malignancy from metastatic deposits presenting as focal liver masses.

METHOD

The study was Descriptive cross-sectional study was carried out in the Department of Pathology, Allama Iqbal Medical College and Department of Radiology Jinnah Hospital, Lahore, between February 2013 and July, 2013. The study included patients of both sexes, between 45 to 70 years of age, who had ultrasound evidence of a focal liver lesion suspected to be malignant (>0.5 cm size). Patients with ascites, deranged clotting profiles, radiological suspicion of haemangiomas and lesions less then 0.5cm, were excluded from the study.

DATA COLLECTION

The Fine needle aspiration was performed at the radiology department; Jinnah Hospital by a senior consultant radiologist. After taking informed consent from the patient and using strict aseptic measures, a 20-gauge needle was directed into the focal liver lesion under ultrasound guidance. Cytology smears were prepared immediately on site. Two slides prepared for Giemsa staining were air dried. Two slides made for Haematoxylin and Eosin are fixed in alcohol immediately. The remaining aspirated material was used for cell block preparation. Cell blocks were prepared using residual clotted material remaining in the syringe and needle hub at the Pathology department. The material submerged in 10% formalin for fixation and subsequently embedded and processed as a routine paraffin tissue block. Slides prepared, stained with Haematoxylin and Eosin stain and submitted for microscopic examination.

The smears prepared were stained with Giemsa and Haematoxylin and Eosin stain and examined microscopically. The slides made both from cytology smears and cell blocks were examined microscopically using Olympus binocular microscope-CX-21.

On microscopic examination of smears quality of staining and cellularity were recorded by two independent observers. In our study, cellularity was assessed based on the observer's subjective assessment. The cytology smears and cell blocks were assessed and categorized as good, moderate or low cellularity based on the number of cells seen

under low power. The architecture was determined by observing the spatial arrangement of the neoplastic cells with each other. The architecture was categorized as being well preserved or poorly preserved on both conventional cytology smears and cell blocks

Data Analysis:

The data collected was entered in SPSS version 21.0. Mean and standard deviation (SD) was calculated for quantitative variables like, age. Frequency / percentages were calculated for qualitative variables like gender. Kappa statistics were used to determine the strength of agreement between fine needle aspiration cytology and cell block in the diagnosis of malignant liver masses.

RESULTS

A total of 60 patients with radiological diagnosis of focal malignant hepatic lesions were included in the present study. The ages of the patients ranged between 45-70 years with a mean age 56.066 + 8.22 years. 35(58.3%) were male and 25 (41.7%) were females with the male to female ratio being 1.4:1. On the basis of Fine Needle aspiration cytology out of the total 60 patients, 22(36.7%) were diagnosed as Primary hepatocellular carcinoma and 1 case(1.7%) as of primary intrahepatic cholangiocarcinoma. Twenty four (40%) cases were labelled as secondary deposits from metastatic adenocarcinoma, one as metastatic deposit from a lymphoma (1.7%) and one of the cases was diagnosed as a carcinoid tumour, a metastatic deposit from a distant site (1.7%). Eleven (18.3%) cases showed atypical cell only. The diagnosis based on cell block findings and the conventional cytology smears are given in Table 1. The cellularity on smears was graded by the number of cell groups per low power field. The observed agreement between the cellularity on cell block and conventional cytology smears was seen in 38 out of 60 cases (63.33 %). Based on the results, the kappa value was determined to be 0.412., taking the confidence interval from 0.231 to0.592. (Table 2). The architectural preservation was graded as + or- (well preserved and poorly preserved). The smears and cell blocks were qualitatively assessed using the criteria such as presence or absence of trabeculae in HCC and acini in metastatic adenocarcinoma. The agreement was assessed as having been

Table 1: *Diagnoses Based On Cell Block Findings And Conventional Cytology Smear*

		Diagnosis on conventional cytology smear		Total
		Primary malignancy	Metastatic deposit	
Diagnosis on cell block	Primary malignancy	24 82.8% 88.9%	5 17.2% 15.2%	29 100.0% 48.3%
	Metastatic deposit	3 9.7% 11.1%	28 90.3% 84.8%	31 100.0% 51.7%
Total		27 45.0% 100.0%	33 55.0% 100.0%	60 100.0% 100.0%

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.732	.088	5.686	.000
N of Valid Cases		60			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Table 2: *Cellularity On Cell Block And Conventional Cytology Smears:*

		Cellularity on conventional cytology smear			Total
		Good	Moderate	Poor	
Cellularity on cell block	Good	3 50.0% 27.3%	0 .0% .0%	3 50.0% 10.0%	6 100.0% 10.0%
	Moderate	4 13.3% 36.4%	17 56.7% 89.5%	9 30.0% 30.0%	30 100.0% 50.0%
	Poor	4 16.7% 36.4%	2 8.3% 10.5%	18 75.0% 60.0%	24 100.0% 40.0%
Total		11 18.3% 100.0%	19 31.7% 100.0%	30 50.0% 100.0%	60 100.0% 100.0%

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.412	.092	4.401	.000
N of Valid Cases		60			

observed (+) or not observed (-) in both the cytology smear and cell block. The number of observed agreements between the architectural preservation on cell block and conventional cytology smears were seen in 44 out of 60 cases, amounting to 73.33% based on the results, the kappa value was determined to be 0.407., taking the confidence interval from 0.169 to 0.644. Table 3.

Table 3: *Architectural Preservation On Cell Block And On Conventional Cytology Smear:*

		Architectural preservation on Conventional cytology smear		Total
		Yes	No	
Architectural preservation on cell block	Yes	32 74.4% 86.5%	11 25.6% 47.8%	43 100.0% 71.7%
	No	5 29.4% 13.5%	12 70.6% 52.2%	17 100.0% 28.3%
Total		37 61.7% 100.0%	23 38.3% 100.0%	60 100.0% 100.0%

		Value	Asymp. Std. Error [a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.407	.121	3.231	.001
N of Valid Cases		60			

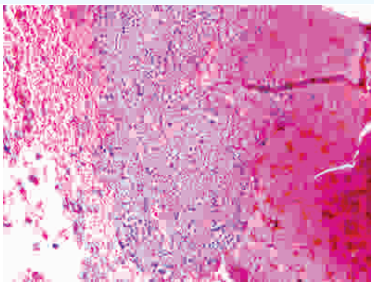

Figure 5A-A: *Cell Block Showing Normal Histology*

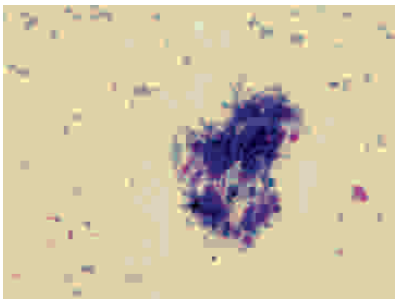

FIGURE -5B *A Conventional Cytology Smear Showing Benign Hepatocytes*

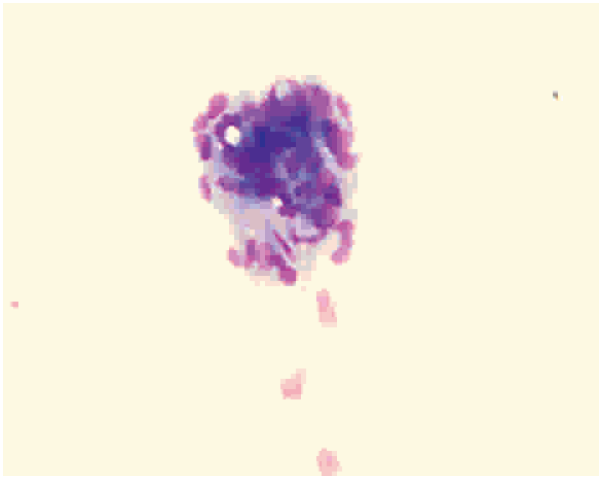

Figure: 6A *Metastatic Deposit From An Adenocarcinoma On A Conventional Cytology Smear At 40x Magnification*

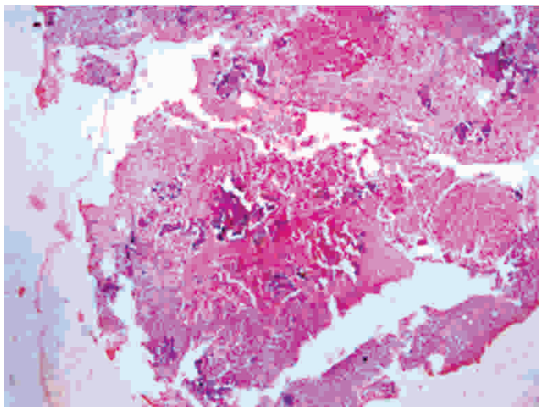

Figure 6B- *Metastatic Deposit From An Adenocarcinoma On Corresponding Cell Block X10*

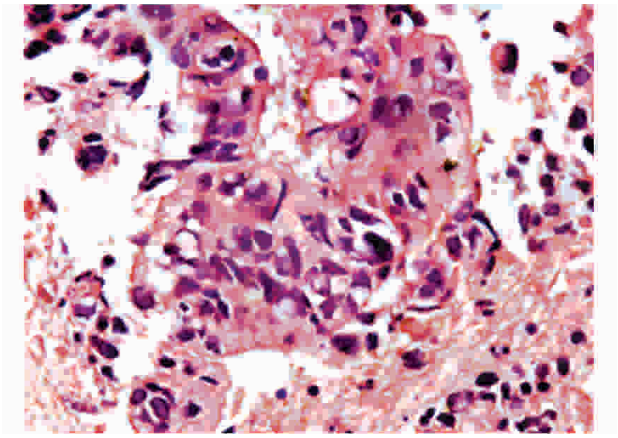

Figure 6C- *Metastatic Deposit From An Adenocarcinoma On Corresponding Cell Block X40*

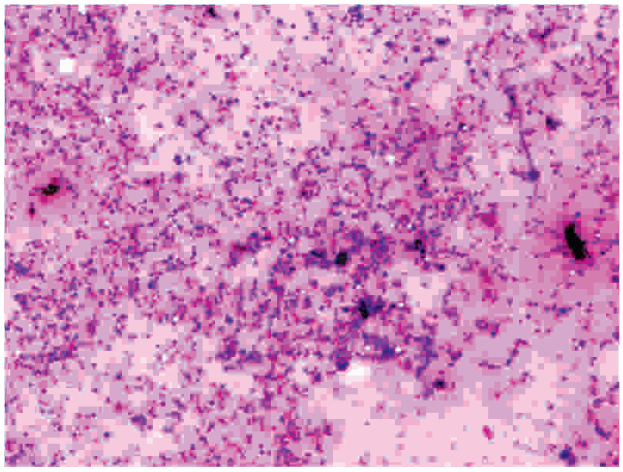

Figure 7A- *A Case Of Moderately Differentiated Hepatocellular Carcinoma As Seen On Conventional Cytology Smear At Low Magnification*

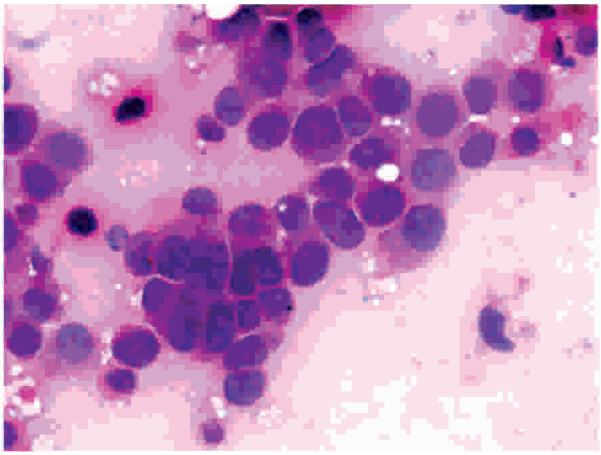

Figure 7B- *A Case Of Moderately Differentiated Hepatocellular Carcinoma On Conventional Cytology Smear At 40x Magnification*

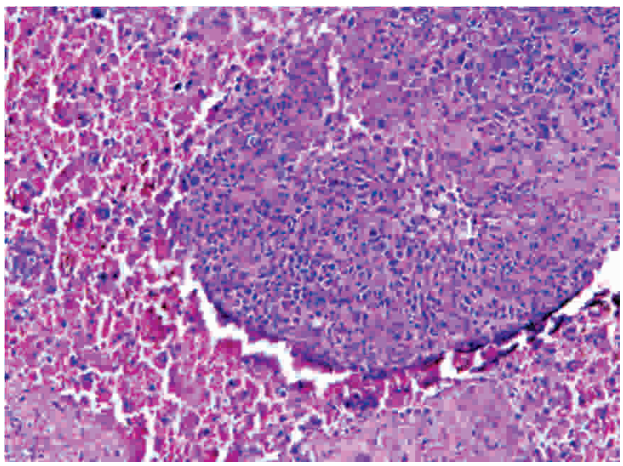

Figure 7C- *A Case Of Moderately Differentiated Hepatocellular Carcinoma On Cell Block*

DISCUSSION

The maximum number of cases recorded in our study fell between the age range of 50-64 years This is similar to the age range reported by Tariq et al.18 Out of the 60 patients, 35(58.3%) were male and 25 (41.7%) were females with the male to female ratio being 1.4:1. Our results are in accordance with the gender ratio reported by several other authors.[11,12,13]

The incidence of metastatic deposit in our study is higher compared to the primary hepatocellular carcinoma and cholangiocarcinoma combined. (Table 1). Such findings have been reported in previous studies by Nasit et al, Singh at al, and Banerjee et al[11,15] On the contrary, Nazir et al and Balani et el reported a higher percentage of HCC compared to metastatic deposits in their FNAC analysis. These discrepancies may be explained by the sample collection / referral bias, institutional expertise for HCC, an endemic catchment area and prevailing etiological factors for primary hepatic tumours in the study zone.

In his study Balani et al diagnosed 15 (30%) cases as hepatocellular carcinoma and 29(58%) as metastatic lesions out of the total 50 cases of focal liver masses. The rest of the lesions identified included cholangiocarcinomas and hepatoblastomas.[14] In our study agreement between the two diagnostic modalities was determined using two other parameters: architectural pattern preservation and cellularity. Our results were in sharp contrast to those reported by khan et al using agreement as a separate parameter.[16] This may be due to limitations during the procedure, including the pre-fixation lag time and processing schedule. In our study the cellularity was graded good, moderate or poor. In cell blocks, this was determined using the number of cells by percentage in the section. The numbers of agreements expected by chance were 22.6 (37.67% of the observations). Khan et al on the reported low levels of agreement owing to the fact that the priority at the time of aspiration was to get adequate material for the cytology smears.[16] The overall agreement was based on the final diagnosis rendered with the use of cell block and conventional cytology smears. The numbers of observed agreements in diagnosis were seen in 52 out of 60 cases amounting to 86.67%. Based on the results, the kappa value was determined to be 0.732, taking 95% as the confidence interval from 0.56 to 0.905. The number of agreements expected by chance were 30.1(50.17% of the observations). Ahmed at al reported similar results between findings of conventional cytology smears and cell blocks.[16] However, Khan et al in their series report a poor agreement between the two

modalities.[16]

CONCLUSION

The conclusion of the present study are:

1. There is a substantial strength of agreement between cell block and conventional cytology for diagnoses of primary hepatic malignancy and metastatic deposit.
2. There is moderate strength of agreement in grading of cellularity between cell block and conventional cytology.
3. There is moderate strength of agreement in architectural preservation between cell block and conventional cytology.

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PREVELANCE OF VITAMIN D DEFICIENCY IN WORKING PAKISTANI FEMALES AT LAHORE

Muhammad Zafar Iqbal, Sobia Zafar, Humna Mian Faiz Rasul, Sajid Mumtaz Khan, Mehran Khan

Abstract

Background: Adequate vitamin D is essential to maintain health status of individuals in our community. Unfortunately vitamin D deficiency and insufficiency are endemic in Pakistani females. Vitamin D deficiency and insufficiency can be corrected by way of early diagnosis, prevention and treatment of this disease by supplementation.

Objectives: To assess the vitamin D deficiency in working ladies at Lahore.

Subject and methods:

Study design: Descriptive case series study.

Study duration: From November 2017 to May 2018.

Settings: Department of Orthopedic Services institute of Medical Sciences Lahore Pakistan.

Data collection and analysis: 120 working female who had symptoms of musculoskeletal pain were assessed for vitamin D deficiency after detailed history and clinical examination. All data collected at time of clinical examination of the patients presented with vitamin D deficiency after written consent. The proposal for this research work was approved by the hospital ethical committee. Primary aim of this research was to determine the prevalence of vitamin D deficiency in working females at Lahore. We assessed that expected prevalence of vitamin D deficiency in this territory of Pakistan is 95%.All data was analyzed by using SPSS version 20.We consider the vitamin D sensitivity and specificity less than 20 ng/ml in the study participants.

Results: The age range was 25-60 years. Out of 120 patients,60 were female doctors and among theses 57 female doctors were vitamin D deficient (<20ng/dl). 35 patients were female teachers out of these 25 were vitamin D deficient while 10 had normal vitamin D levels. In the remaining 15 patients who were bankers, 13 were vitamin D deficient while 2 had normal vitamin D levels. Rest of 10 were female engineers, 5 were vitamin D deficient and 5 had normal vitamin D levels

Conclusion: Our 85-90 % of working females were vitamin D deficient. This is because of dietary deficiency, our social and cultural characteristics and under exposure of sunlight.

Key words: Pakistani ladies, Vitamin D deficiency, Female's health.

Vitamin D is a fat soluble vitamin. It is cost effective micronutrient supplement that improves our health[2,3,4]. It is required for the absorption of calcium from gut and maintains phosphate levels in blood required for bone growth and its remodeling[1]. Without vitamin D bones become deformed. When vitamin D is deficient; its results in Alzheimer's disease, Multiple sclerosis and cancer.[5,6,8] It is also used as a part of treatment in various gynecological diseases like eclampsia, gestational diabetes[7] and complications regarding the pregnancy[9]. It has got its role in the treatment of Asthma, fractures, osteoporosis and in various auto immune diseases like SLE and Atopic dermatitis. Its role in infectious diseases like influenza and tuberculosis, as a part of treatment cannot be negated.

It plays an important role in cell growth modulation in bones and neuromuscular function in neonates[13]. It reduces the inflammation, regulates the cell proliferation and apoptosis.[12,13]

Its primary source is in skin where DHC follow two step reaction involving UV-B (ultraviolet-B) irradiations to form pre-Vitamin D3 by thermal isomerization to vitamin D3. When vitamin D enters

the circulation it is converted into 25-Hydroxy vitamin D in liver then subsequently 1,25-Dihydroxy vitamin D in the kidney. In blood vitamin D circulates with vitamin D binding protein. After release from vitamin D binding protein to tissues 1,25(OH)2D3 triggers its action through intracellular vitamin D receptors and exerts its metabolic functions in the body[10,11].

In Human body the active vitamin D metabolite, 1, 25 $(OH)_2$ D3 has been established to exert direct and indirect effects particularly the positive effects on the bone mineralization and metabolism .Serum vitamin D is a good indicator of vitamin D deficiency. It reflects vitamin D which is present in circulation and that taken from the food and supplements. The sources of vitamin D are flesh of fatty fish and fish liver oil. It is also present in beef liver, cheese, egg yolks, some mushrooms, UV light and fortified food. There is a little consensus about the ideal level of vitamin D3. However the expert opinion suggest that 20 ng/ml represents the lower limit of normal.

OBJECTIVES

To assess the vitamin D deficiency in working ladies at Lahore.

METHODS

A Descriptive case series study was conducted at Department of Orthopedic Services institute of Medical Sciences Lahore Pakistan from November 2017 to May 2018. Working females who had symptoms of musculoskeletal pain were assessed for vitamin D deficiency after detailed history and clinical examination were included in the study. A sample size of 120 working females was calculated with 5 percent error margin at confidence interval of 90 percent with use of algorithm for sample size L wange and lemishow. All data collected at time of clinical examination of the patients presented with vitamin D deficiency after written consent. The proposal for this research work was approved by the hospital ethical committee. Primary aim of this research was to determine the prevalence of vitamin D deficiency in working females at Lahore. We assessed that expected prevalence of vitamin D deficiency in this territory of Pakistan is 95%.All data was analyzed by using SPSS version 20.We consider the vitamin D sensitivity and specificity less than 20 ng/ml in the study participants.

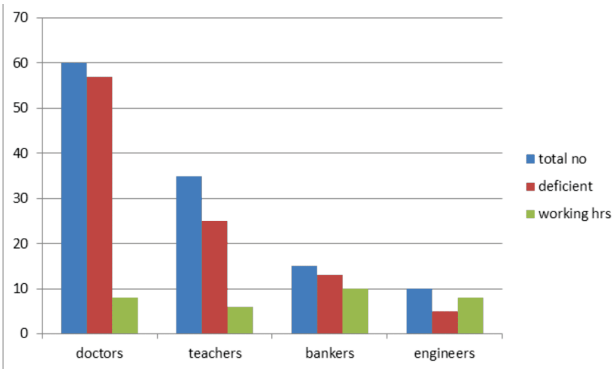
RESULTS

In our study 120 females with symptoms of vitamin D deficiency were assessed for vitamin D deficiency. 100 (83.3%) were having Vitamin D deficiency / Insufficiency. Out of 120 patients 60 were female doctors. Among doctors, 57 (95.0%) were vitamin D deficient (<20 ng/ml) and 3 (05.0%) had the normal vitamin D levels (>30 ng/ml).The age range was 28 – 60 years with a mean of 39.21 years. In 35 (71.4%) teachers, 25 were vitamin D deficient while 10 28.6%) had normal vitamin D levels. The age range for teachers was 25 – 55 years with a mean of 39.4 years. Out of 15 bank executives, 13 (86.6%) were vitamin D deficient and 2 (13.4%) had adequate vitamin D levels. The age range for bank executives was 24 – 50 years with a mean of 38.6 years. In rest of 10 female engineers, 5 (50.0%) were vitamin D deficient and 5(50.0%) had normal vitamin D levels. The age range was 24 – 50 years for engineers with a mean of 36.3 years. (Table no:1).

Table 1: *Age and profession distribution regarding the vitamin D deficiency*

Age	Profession	Duty hours	Total number of patients with Vit. D deficiency/insufficiency (<20ng/ml)	Total number of patients with Normal Vit. D levels
25-60 years	Doctors (n=60)	8 hours	57 (57.0%)	3 (15.0%)
	Teachers (n=35)	6 hours	25 (25.0%)	10 (50.0%)
	Bankers (n=15)	10 hours	13 (13.0%)	2 (10.0%)
	Engineers (n=10)	8 hours	5 (5.0%)	5 (25.0%)
Total no. of patient			100 (100.0%)	20 (100.0%)

Average duty hours for doctors were 8 hours/day while the female teachers had 6 hours/day duty hours. Out of all the female patients, the bankers had longest duty hours i.e.; 10 hours (on average). The female engineers had their duty hours up to 8 hours/day.



DISCUSSION

Vitamin D has got very important role to maintain the health status of females. It is known to exert multiple actions in bone biology, cell physiology and musculoskeletal system[2,3,4]. According to literature adequate levels of vitamin D i.e; > 30 ng/ml is required to prevent various musculoskeletal, cellular, autoimmune and biological dysfunctions[5,6,8]. The present study has shown prevalence of vitamin D deficiency in young literate working ladies in Pakistan. Vitamin D level was less than 10 ng/ml in 70%(80) of ladies out of which 60 were doctors. This mostly because of our cultural, social and personal norms. Pakistan is a sunlight rich country. These town dwellers are also subjected to vitamin D deficiency because of air pollution particularly in the capital of Punjab. In our study 83.3% females were vitamin-D deficient. Moreover the period for which a person devoid of sunlight exposure is also important .The similar factors were noted among doctors and in the bankers in this study as shown by their long duty hours.

In a study conducted by Hashemipour at Tehran showed high prevalence of vit D deficiency among young and middle aged females[1].

In a study conducted at Ballab garh district in which deficiency of vitamin D was found in 90.8% cases. Only 1 individual was having a vitamin D sufficiency out of 381 individuals[14].

In asimilar study conducted by Sachan et.al, at Queen Merry hospital, king George Medical University, Lukhnow showed that 42.5% females have vitamin D3 levels less than10ng/ml. The study of Goswami et. al, showed that despite of abundant sunlight at Dehli, healthy persons[15]. Causes of vit D deficiency can be skin pigmentation, low calcium levels, inadequate direct exposure of sunlight, high phytate diet, pregnancy and winter related under exposure of sunlight. In a study conducted by Shu Jun Song et.al, showed high prevalence of vitamin D deficiency in urban areas .In his study 90% of females were having vitamin D deficiency[9].

According to report of international osteoporosis foundation, in North India 84% of pregnant females have hypovitaminosis D while in South India prevalence of vitamin D deficiency among the females was 70%.[12]

Our study had certain limitations we did not included the skin pigmentation association with vitamin D deficiency. neither any association with the parathyroid hormone and others metabolic disorders were assessed with vitamin D deficiency. Likewise genetic predisposition was not included to have an association with vit D deficiency.

In Pakistani community sun light exposure is limited by life style in our ladies according to our social and religious circumstances, negative effects of lattitude16 make it difficult to fulfill the vitamin D requirements. Sun Screen also limit the Vit D absorption.[10,11] More over the dietary habitats like high fiber and phytate intake has been used to decrease vitamin D level. So these ladies need long term vitamin D supplements.

CONCLUSION:

Vitamin D status is determined by a combination of factors that influence its synthesis in skin such as latitude and skin pigmentation, dietry intake such as food fortification and use of vitamin D supplements. Vitamin D deficiency is a global health

problem which is not only limited to high risk group but also the working ladies like doctors, bankers and teachers who have high prevalence of vitamin D deficiency.

Vitamin D deficiency has an epidemic proportion all over Pakistan with prevalence of 70-90%. In our ladies dietary deficiency, inadequate exposure to sun light must be corrected[16]. All daily physical activities in sunny season should be included in the social curriculum. These females should take the vitamin D supplements in affordable prices. Food Act asking for food fortification with vitamin D like orange juice, oily fish, milk and cereals. We need further studies to fulfill the knowledge gaps in providing the full picture of these global burdens regarding vitamin D deficiency.

For good bone health it is recommended that guidelines concerning the dietary intake should be followed. Screening for vitamin D deficiency should be done and appropriate treatment is recommend

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PSYCHOLOGICAL EFFECTS OF SCAR AMONG PATIENTS IN BURN CENTRE, JINNAH HOSPITAL, LAHORE

Hamza Saeed, Habib Sultan, Hafiza Sadia Saqib, Hooria Asif, Huma Arif, Zaka Ullah Khan

Abstract

Objective: To evaluate the psychological effects of scar among burn patients admitted in burn center Jinnah hospital Lahore.

Material and Methods:

Study Design: Cross sectional study

Study Setting: Burn Centre Jinnah hospital

Stud Duration: April to June in 2016 .

Collection and Analysis of Data: 150 subjects conforming to the insertion criteria were included in our research. After an informed consent and approval from ethical committee AIMC Lahore detailed demographic information like age, gender, marital status and employment status was collected. Cause of burn injury was evaluated and patients were asked about effect of scar on their life through structured questionnaire regarding their psychological symptoms inventory and DLQI questionnaire. Complete information was entered in a designed questionnaire. SPSS was used to analyze data: Mean was 17.0 and SD (Standard Deviation) was measured for numerical variables like BDI and DLQI Score. Frequencies and percentages were measured for qualitative variables like gender.

Results: Mean age was 2.21(17 years), standard deviation was 0.678. Graph no 1 showed the gender of patients and the number of female patients was 50(33.33%) and male was 100(66.67%). 39(26%) patients had scar on head and neck region, 65(43%) had scar on upper limb ,32(21.3%) had scar on lower limb and those having scar on their thorax,abdomen and back were 14(9.3%).(Mean was 2.15 and Standard deviation was 0.911).100 patients (66.67%) had painful scar , 108 patients (72%) had their daily routines affected by that scar,70 patients (46.7%) were depressed by that scar, 109(72.7%) patients accepted that scar as irony of faith, 82 patients (54.7%) have become irritable due to that scar,14% males and 12%females have small effects of scar, 28%males and 20% females are moderately affected, 52% males and 54% females are largely affected , 3%males and 4%females have extremely large effects of scar on their lives.

Conclusions: The conclusion of our study was that there is considerable psychological impact of scar on patients. Majority of patients had extremely large effect on Quality of life and psychological affect is equally affecting both genders in our study

Key words: Scar, Psychological effects, DLQI.

Burn scars are cosmetically disfiguring and force the scared person to deal with an alteration in appearance and may induce psychopathological responses.[1]

Burn injury is a devastating event with long term physical and psychological effects. Depression and PTSD are the most common outcomes due to scar in burn patients.[1,2] Burn injury is an injury to health functioning and appearance which makes integration in the society difficult.[3] Burn trauma ranges from minor burns to a devastating injury influencing all aspects of persons life including social physical and psychological functioning.[4,5] 5 domains of assessment in burn patients in burn patients are skin, sensory and pain, neuromuscular functions, psychological functions, physical role functions.[6] Many psychological disturbances take years to recover. Profile of patients includes preinjury factors, pre traumatic factors and post traumatic factors.[7,8] Hypertrophied scarring is devastating and

seems to have major negative outcomes after survival from burn injury. It lead to social isolation, prejudicial social reactions and job discriminations.[9,10,18] Facial scars can cause high level of anxiety and self-consciousness.[11,19] Body location variable and psychological functioning variable have greatest impact on psychological adjustment after burn injury in different age groups.[12,13] Burn scar visibility and severity did affect the quality of life of victims.[14] Patients need burn specific multidisciplinary after care to alleviate physical and psychosocial problems.[6] Different psychological phases of recovery are admission phase, critical care phase, in hospital recuperation phase and rehabilitative post discharge phase.[15,18,20] Female are more prone to depression and their lifestyle is severely influenced by scar. So rehabilitation centers should be established.[21]

METHODS

This cross sectional study was conducted at burn center Jinnah hospital from April to June in 2016. 150 subjects those fulfilling the inclusion criteria were included in our study. Old scare and poly trauma patients were excluded. After an informed consent and approval from ethical committee AIMC Lahore detailed demographic information like age, gender, marital status and employment status was collected. Cause of burn injury was evaluated and patients were asked about effect of scar on their life through structured questionnaire regarding their psychological symptoms inventory and DLQI questionnaire. Complete information was entered in a designed questionnaire. SPSS was used to analyze data: Mean was 17.0 and SD (Standard Deviation) was measured for numerical variables like BDI and DLQI Score. Frequencies and percentages were measured for qualitative variables like gender.

RESULTS

The total number of patients was 150. The number of patients having age ranging from 5-10 years was 22(14.7%), from 15-25 years were 75(50%) and those having age greater than 25 were 53(35.3%). Mean age was 2.21(17 years), standard deviation was 0.678. Graph no 1 showed the gender of patients and the number of female patients was 50(33.33%) and male was 100(66.67%). Unmarried patients were 96(64%) and married was 54(36%). The number of unemployed patients was 87(58%) and employed patients were 63(42%). This means that most of the patients were unemployed.

The patients who suffered from burn injury were 71(47%), with traumatic injury were 66(44%), with surgical injuries were 5(3.3%) and those who suffered from other injuries were 8(5.3%). 39(26%) patients had scar on head and neck region, 65(43%) had scar on upper limb, 32(21.3%) had scar on lower limb and those having scar on their thorax, abdomen and back were 14(9.3%). Psychological effects multiple response yes frequencies and it showed that the 100 patients (66.67%) had painful scar, 108

Table 1: *Socio-Demographic Profile of Subjects*

Variable n = 150	Frequency	Percent
Age		
5-15	22	14.7
15-25	75	50.0
>25	53	35.3
Gender		
Male	100	66.7
Female	50	33.3
Marital status		
Unmarried	96	64.0
Married	54	36.0
Employment status		
unemployed	87	58.0
employed	63	42.0
Cause of injury		
burn injury	71	47.3
traumatic injury	66	44.0
surgical complication	5	3.3
Other	8	5.3
Scar location		
head and neck	39	26.0
upper limb	65	43.3
lower limb	32	21.3
thorax, abdomen and back	14	9.3

patients (72%) had their daily routines affected by that scar, 70 patients (46.7%) were depressed by that scar, 109(72.7%) patients accepted that scar as irony of faith, 82 patients (54.7%) have become irritable due to that scar, 66 patients (44%) employed patient thought that it had threatened their jobs, 72 patients (48%) are not at the same confidence level as they were before that scar, 131 patients (87.3%) had psychological support from their family members. 109(65.3%) patients said that they looked at their scar in loneliness and wanted to hide it cosmetically. Very few (23 patients 15.3% had their psychotherapy.

Table 2: *Psychological Effect Multiple response Yes Frequencies*

Psychological Effects	Responses		Percent of Cases
	N	Percent	
Is your scar painful	100	8.2%	66.7%
Has that scar affected you daily routines?	108	8.9%	72.0%
Do you feel depressed when someone looks at you?	70	5.7%	46.7%
Do you think people make fun of you for having the scar?	46	3.8%	30.7%
Do you attend the social gathering by your choice	67	5.5%	44.7%
Do you think people should sympathize you?	58	4.8%	38.7%
Do you think your family relations are disturbed?	45	3.7%	30.0%
Have you become irritable after this injury?	82	6.7%	54.7%
Have you accepted it as irony of fate with you?	109	8.9%	72.7%
Do you think scar will threaten your job?	66	5.4%	44.0%
Do you think people avoid to talk to you because of the scar?	34	2.8%	22.7%
Are you still at the same confidence level as you were before	72	5.9%	48.0%
Do you think about your scar in loneliness	98	8.0%	65.3%
Do you want to hide your scar cosmetically or any other possible way?	109	8.9%	72.7%
Is there anyone who is your support at this stage of life?	131	10.8%	87.3%
Are you having any psychotherapy for psychological resolution of your scar in addition to the medical treatment?	23	1.9%	15.3%
Total	1218	100.0%	812.0%

Table 3: *DLQI Score*

	Frequency	Percent	Valid Percent	Cumulative Percent
No effect at all on patient's life (Score 0 - 1)	9	6.0	6.0	6.0
Small effect on patient's life (Score 2 -5)	19	12.7	12.7	18.7
Moderate effect on patient's life (Score 6 -10)	38	25.3	25.3	44.0
Very large effect on patient's life (Score 11 -20)	79	52.7	52.7	96.7
Extremely large effect on patient's life (Score 21 -30)	5	3.3	3.3	100.0
Total	150	100.0	100.0	

DISCUSSION

The consequence of severe burns have improved remarkably due to an impressive improvement in the discipline of burns treatment. Improvement in this discipline has increased the probability of surviving but it has also raised the worry of possible psychological distress for the survivors. The quality of life is affected by Hypertrophic scarring which is distressing and can lead to the disfigurement.

The Burn injury is sometimes a destructive event with durable physical and psychosocial effects. After severe dermal injury, burn scars are cosmetically mutilating and the scarred person is forced to deal with a variation in body appearance. Burn accidents are of distressing nature and the results of painful treatment can lead to psychopathological responses. Post-traumatic stress disorder (PTSD) and depression are common in 13-23% and 13-45% of cases respectively, and are considered to be the most popular areas of research in burn

patients. Risk factors which are related to depression involves pre-burn depression and facial disfigurement, especially in case of female gender. Pre-burn depression, anxiety associated with pain, severity of trauma and visibility of burn injury are risk factors, which are associated with PTSD. Neuropsychological problems are usually related with electrical injuries. Sexual life and social interactions difficulties are among the social problems. Standard of life in burn patients initially seems to be lower as compared to the normal population. The problems in the mental area are tougher as compared to physical problems. Standard of life was reported to be comparatively good over passage of many years. Recovery after burn injury is negatively affected by the mediating variables such as avoidant coping styles, low social support and emotion. Personality traits like low extraversion and neuroticism also negatively affects the recovery. Some research is also available for studying the psychological treatments of burn patients. By studying specific trauma literature, we deduce that mediations like cognitive (behavioral) and pharmacological (selective serotonin reuptake inhibitors) affects depression positively. By referencing to PTSD, eye movement reprocessing and desensitization and exposure therapy are favorable. Some techniques like Psychological interrogations intending to avoid chronic post-trauma reactions till have not shown a positive effect in burn patients. Social area issues can be treated by cognitive-behavioral therapy, community interventions and social skills training. Sexual life issues can be lessen by sexual health counseling and promotion. Conclusively, psychopathology and psychological problems are classified as critical minorities of burn patients. During the post-burn phase, the concern of investigation must be symptoms of mood and anxiety disorders including PTSD. They must also be treated if symptoms are found. A patient who is at risk, his profile must be presented based on pre-injury aspects such as personality characteristics, pre-morbid psychiatric disorder, pre-traumatic factors and post-burn factors. Conclusively, objective distinctions of disfigurement looks to play a slight role but some factors like susceptible to shame, lack of self-esteem and body image problems may be of significant importance.[22]

The connection between visible scars and psychosocial problem is evident. There was a national study on support group (2500 members) of burn survivor in United States which statistically proves the convincing relationship between visible scarring and different characteristics of body esteem. In other words, how much are you comfortable with your appearance or how others will react by seeing your physical appearance? Visible scarring was not associated with depression but had a minor but notable relationship with assessed stigmatization.[23]

CONCLUSION

The conclusion of our study was there is considerable psychological impact of scar on patients. Majority of patients had extremely large effect on Quality of life. Psychological affect is equally affecting both genders in our study

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KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING ZOONOTIC DISEASES SPREAD THROUGH PETS AND BIRDS AMONG THE FAMILIES OF MEDICAL STUDENTS OF ALLAMA IQBAL MEDICAL COLLEGE

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Abstract

Background: Diseases can be spread through pets as most of the infections are transmitted by bites and scratches including cat-scratch disease, various aerobic and anaerobic infections, and infections of gastrointestinal tract, dermatologic, respiratory and multisystem involvement can occur.

Objectives: To evaluate owner ship of pets among medical students and their knowledge attitude and prevention regarding zoonotic diseases spread through pets and birds.

Material and Methods:

Study Setting: Allama Iqbal Medical College

Study Duration: April – June 2018.

Study Design: Cross sectional study

Inclusion criteria: 150 medical students were included through non probability sampling.

Data Collection and analysis: Students who were having a pet or bird were included in the study. Self-designed questionnaires consisting of closed ended questions were filled by surveyors themselves. Aim of study was explained to each subject. Data was entered and analyzed in SPSS version 17. Results were recorded as frequencies and percentages.

Results: The percentages of different types of pets are 20.7% dogs, 28.7% cats, 46% birds and 4.7% other pets including snakes, turtle and rabbits.70% medical students and their families are having enough knowledge regarding zoonotic disease. And 75.3% are taking hygienic measures in respect of pet keeping.

Conclusions: The main findings of our study are there is a strong correlation between education status of parents, students and their level of knowledge regarding zoonotic diseases. The level of awareness affects their attitude towards pet and personal hygiene and is also affecting the rate of preventive measures being taken by them.

Key Words: Medical student, Zoonotic diseases, Pets, Prevention.

Keeping pets is a trend nowadays and medical students are not an exception to it. Galton noted that the habit of capturing and nurturing tame wild animals as pets was very common among 'primitive' people.[1] In Brazilian Indian community, observers have specified dogs, cats, deer, tapir, peccaries, monkeys, sloths, opossums, foxes, coatis, margay, ocelot, jaguar, chickens, ducks, parrots and extraordinary variety of small birds as tamed animals.[2] Around 67 million pets are owned by UK households in which 23% own a dog and 19% own a cat.[3] As per American Society for Prevention of Cruelty against Animals, about 78.2 million dogs and 86.4 million cats are owned in US.[4] These pets can also be a source of certain diseases. The World Health Organization listed 86 zoonoses, 40 0f which involve the dog or cat or both.[5] According to a study conducted on diseases spread through pets has shown that most of the infections are transmitted by bites and scratches including cat-scratch disease, various aerobic and anaerobic infections, infections of gastrointestinal tract, dermatologic, respiratory and multisystemic.[6] Very few published studies conducted among dog owners of USA, documenting

their level of awareness with respect to zoonotic diseases, were found.[7] Another study conducted in a state of USA reported that only 63% of pet owners believed that diseases of their pets can be transmitted to humans.[8] When asked further, other than rabies, this proportion of pet owners could not name a single zoonotic disease.[9] We have selected this topic to know the impact of medical knowledge on lives of medical students and their families as well and how this knowledge especially regarding zoonoses is affecting their desire to keep pets and birds. And also because we believe the researches being carried out in the past were not enough to explain this.

OBJECTIVES:

To evaluate owner ship of pets among medical students and their knowledge attitude and prevention regarding zoonotic diseases spread through pets and birds.

METHODS

A Cross sectional study was conducted at Allama Iqbal Medical College from April – June 2018. 150 medical students were included through non probability sampling. Students who were having a pet or bird were included in the study. Self-designed questionnaires consisting of closed ended questions to assess knowledge attitude and prevention were filled by surveyors themselves. Aim of study was explained to each subject. Data was entered and analyzed in SPSS version 17. Results were recorded as frequencies and percentages.

RESULTS

This study included 150 medical students and their families from all five years of MBB who were keeping pets. Among these 150 students 31(20.7%) are keeping dog, 43 (28.7%) are keeping cats, 69 (46.0%) are keeping birds and 7(4.7%) are keeping snakes, turtles and rabbits (Pie Chart 1). According to survey 44(29.3%) students are keeping their pets outdoor, 65(43.3%) in pet house and 41(27.3%) keeping them indoor open. When asked 17 (11.3%) students reported that they spend the whole day with their pet and 83 (55.3%) spend a few hours. While 88 (58.7%) informed that their family spend more time with the pet than them. When asked about their knowledge regarding zoonotic diseases 105(70.0%) informed that they and their families have enough knowledge, 34(22.7%) informed that they have little knowledge and 11(7.3%) accepted that they don't have any knowledge (Bar Graph1). While 124 (82%) accepted that they need to improve their knowledge regarding zoonotic diseases and 17(11.3%) were confident about their level of knowledge. Only 24(16%) medical students out of 150 noticed a specific symptom among their family members which they can surely associate to their pet and 31(20.7%) never noticed any symptom(Table1). Out of 150 only 34(22.7%) reported the development of allergy from their pet(Table4).Out of 150

Table 1: *Pets distribution and knowledge, attitude and prevention of disease transmitted by pets*

Variables n= 150	Frequency	Percentage
Type of animal kept		
Dog	31	20.7
Cat	43	28.7
Birds	69	46.0
Others	7	4.7
Vaccination status of animal		
Yes	84	56.0
No	66	44.0
Symptoms noticed by medical students among their family members		
Yes	24	16.0
No	95	63.3
Never noticed	31	20.7
Observation of hygienic measures		
Yes	84	56.0
No	66	44.0
Allergy developed from Pet		
Yes	34	22.7
No	116	77.3
Want to get rid of Pet		
Yes	34	22.7
No	105	70.0
Can't	11	7.3
Knowledge regarding disease transmission		
Yes	105	70.0
No	11	7.3
A little	34	22.7

only 74(49.3%) informed that they or their family member has ever been bitten or scratched by their pet. Out of this proportion only 52(34.7%) reported that they will go for immediate checkup as a measure if such incidence happens. 123 (82%) informed that they are aware of vaccination of pet while 27(18%) accepted that they don't know about it. Out of 123 only 115 (76.7%) believed in the importance of vaccination. While out of this proportion of medical students only 84(56%) have gotten themselves and their pets vaccinated(Table2). Among these 150 only 67(44.7%) have visited veterinary hospital. Out of these 135 only 113(75.3%) reported that they are observing hygienic measures in respect of pet keeping (Table3). Among these only 30 (20%) are using flea or tick prevention and 10(6.7%) admitted that they don't know about it. 34(22.7%) out of 150 reported that they want to get rid of their pets because of problems they are facing (Table4).

DISCUSSION

The current study was a cross sectional descriptive study. The result of our study showed 48(32%) of pet owners are below or equal to 20 years of age, 96 (64%) are above 20 and below 23 years and 6 (4%) are above 23 years as compared to a study conducted in U.S in the year 2013 showing that 23% pet owners were under age 25.The same study showed that 20.6 million birds are being owned by U.S natives while our study showed that 46.0% birds are being kept by medical students of Allama Iqbal Medical College. Our results showed that 70% of the medical students and their families have enough knowledge regarding zoonotic diseases while 22.7% have knowledge below satisfactory as compared to a study conducted in Western state of USA showing lack of exposure to information regarding zoonotic diseases among teenagers. The same study showed out of total 100 participants interviewed, 55% admitted that they did not vaccinate their dog.[9] As compared to our study results that showed 44% students didn't vaccinate their pets. A study conducted in USA showed that 85% of respondents stated that they would seek emergency treatment if they believe that they may have been exposed to dog bite.[9] As compared to our study which showed that only 34.7% respondents would go for immediate checkup after such incident. A research from University of West Virginia showed simple, day to day hygiene and pet care can reduce allergic reaction upto95%.[10] While our study showed that out of 150 participants only 113(75.3%) reported that they are observing hygienic measures in respect of keeping pet and only 22.7% reported the development of allergy from their pet. Our study result showed that only 20% are using flea or tick prevention, 6.7% admitted that they don't know about it while 73.3% knew about it but are not using it as compared to a study conducted in USA which showed only 55% participants admitted putting their dog on flea control.[11] The reason of such small percentage was lack of awareness about zoonotic diseases.[12] Animal welfare organization cite allergies and the fear of zoonosis as common reasons for people giving up their pets.[11] While our study showed 22.7% of students reported that they want to get rid of their pets because of problems they are facing while 7.3% reported that they want to but cannot due to undefined reasons.

CONCLUSIONS

The main findings of our study are there is a strong correlation between education status of parents, students and their level of knowledge regarding zoonotic diseases. The level of awareness affects their attitude towards pet and personal hygiene and is also affecting the rate of preventive measures including vaccination and flea or tick prevention. There is enough evidence to find a correlation between zoonotic knowledge of a medical student and change in their attitude towards pet keeping in a society.

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ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING VITAMIN D DEFICIENCY AMONG THE FEMALE MEDICAL STUDENTS OF AIMC

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Abstract

Abstract: Vitamin D deficiency and its associations are of particular interest in case of females as they are more prone to develop Vitamin D deficiency. These associations and their varying factors are included in this study to ascertain the knowledge, attitude and practices regarding Vitamin D deficiency in this particular gender.

Objectives: To assess knowledge, of vitamin D deficiency and attitude and practices for prevention of vitamin D deficiency among the female medical students of Allama Iqbal Medical College.

Material and Methods:

Study design: Cross sectional study

Study Setting: Allama Iqbal Medical Lahore.

Study duration: April-May 2018

Sample size: 200 Female Medical Students selected through a non-probability / purposive sampling

Data collection and analysis: A briefing was given regarding the aims and objectives of this study. Informed consent was obtained from 200 female medical students, fulfilling the inclusion criteria. A preformed questionnaire containing 26 questions was given to each of the students and they were asked to give their response. Data was analyzed and descriptive charts and graphs were made using SPSS version 23.0. Frequency tabulation and percentages were calculated for nominal variables

Results: Among 200 female medical students,71(36%) participants had sufficient knowledge regarding Vitamin D deficiency and they had positive attitude in this regard. There was room for improvement in case of practice.

Key words: Knowledge; Attitude; Practice; Vitamin D Deficiency; Sunlight Exposure

Vitamin D is a fat-soluble vitamin which plays an essential role in maintaining a healthy-skeleton as it forms an integral part of bone metabolism, calcium and phosphorushomeostasis.[1] It influences calcium level in the body and long-term effects of vitaminD inadequacy have been known to increase the risk of some musculoskeletal disorders such as osteoporosis and rickets. Common symptoms of vitamin D deficiency are muscle and bone aches, most of the patients present with these symptoms.[2,3] Furthermore, a positive association also exists between vitamin D deficiency and many chronic diseases such as certain cancers, diabetes, multiple sclerosis and cardiovascular diseases.[4-7] It is obtained both through nutritional means (10-20%) and by cutaneous synthesis under the action of sunlight (80-90%).[8] However, vitamin D supplements can also serve animportant source and few foods which are naturally rich in vitamin D include milk, oilyfish, cod liver oil and egg yolk.[8,9]

Previous studies done in Saudi Arabia and Oman have shown that vitamin D deficiency is a worldwide epidemic, yet it is a problem largely unknown by majority of population.[10-12] Even in a country like Pakistan where there is enough sun it is pretty unbelievable that this deficiency is highly prevalent.[13-14]

Important factors which contribute in high prevalence of vitamin D deficiency include inadequate dietary intake and exposure to sunlight. Other

barriers include, photo protection strategies like complete protective clothing as well as use of sun screen products(SPF>8).[15,16] Studies done in Saudi Arabia, Lebanon and Pakistan have indicated high rate of vitamin D deficiency among females than males. Females have considerably lesser mean vitamin D levels (56.2%) than males (15.3%).[1,8,14] Till now, very few studies in Pakistan explain the basic knowledge, attitude and behaviors towards vitamin D deficiency. To bridge this gap the present study was conducted to find the basic knowledge, attitude and practice of female medical students about vitamin D deficiency.

OBJECTIVES

To assess knowledge, of vitamin D deficiency and attitude and practices for prevention of vitamin D deficiency among the female medical students of Allama Iqbal Medical College.

METHODS

A Cross sectional study was conducted at Allama Iqbal Medical Lahore from April-May 2018. Female medical students of Allama Iqbal Medical College (First year-Final year) who were cooperative were included in this study. 200 Female Medical Students selected through a non-probability/ purposive sampling. A briefing was given regarding the aims and objectives of this study. Informed consent was obtained from 200 female medical students, fulfilling the inclusion criteria. A preformed questionnaire containing 26 questions was given to each of the students and they were asked to give their response. Data was analyzed and descriptive charts and graphs were made using SPSS version 23.0. Frequency tabulation and percentages were calculated for nominal variables

RESULTS AND MAIN FINDINGS

A total of 200 female medical students of first year to final year were sought out in the premises of Allama Iqbal Medical College Lahore. They ranged in age between 18 to 25 years and the mean age was 21.2 years. Each of them was requested to fill in a questionnaire aiming to assess their knowledge, attitude and practice towards vitamin D deficiency. Statistical Analysis of data showed that 72 (36%) participants out of 200 have sufficient knowledge about vitamin D while 34(17%) who answered negatively have insufficient knowledge. Moreover, many of the respondents 161(85%) believed that muscle and bone ache could be related to vitamin D deficiency as illustrated in Table no (1).When asked about minimum time of sun exposure needed to get enough vitamin D, two-third of participants 134(61 %) were aware of it, verses 12(8%) who were unaware of it, followed by 54(27%) who had some idea this is shown in Graph no:1 .

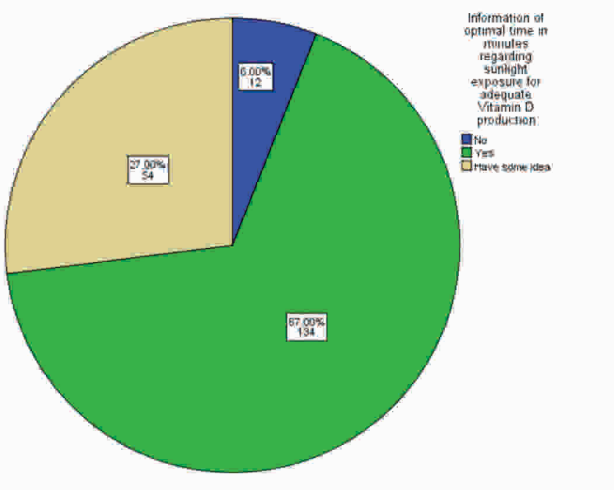
About 145(74%) participants were aware of dietary rich sources of vitamin D while 15(7.5%) were unaware of them as evident in Table no (1).

Almost equal no of participants 80(40%) responded positively and negatively 82(41%) regarding knowledge that sunscreen products decreases vitamin D production up to 95%, as shown in Bar chart. It was found that majority of participants were willing to go for vitamin D test if ever symptoms of

Table 1:

Variables n=200	Frequency	Percent
Information regarding muscle and bone aches that could be related to Vitamin D deficiency		
Yes	161	80.5
No	14	7.0
Have some idea	25	12.5
Knowledge of dietary sources of Vitamin D		
Don't know	15	7.5
I know	148	74.0
Have some idea	37	18.5
Deliberating avoiding sunlight exposure		
Yes	92	46.0
No	18	9.0
Occasionally	90	45.0
Sunscreen products causing decrease in Vitamin D		
Yes	80	40.0
No	82	41.0
Have some idea	38	19.0
Willingness for vitamin D test		
Yes	112	56.0
No	16	16.0
Have some idea	72	36.0

vitamin D deficiency appears in future as explained in Bar chart. In practice, it was revealed that significant proportion of participants 142(71%) were taking vitamin D rich dietary sources. Data for cross tabulation between intake of vitamin D supplements and diagnosed with vitamin D deficiency is shown in Table no (2).It was also revealed that 92(46%) out of 200 students were deliberately avoiding sunlight due to certain reasons like fair complexion 112(56%), risk of developing skin cancer 24(12%) sun allergy 25(11.5%) or some other reasons 24(12%).



Graph no:1 *Information of Optimal Time in Minutes Regarding Sunlight Exposure for Adequate Vitamin D Production*

DISCUSSION

In the present study,74% of students were aware of vitamin D rich dietary sources while in another study conducted in Saudi Arabia this ratio was up to 60%.[10] About two third (62%) of students were aware of minimum time of sun exposure that is 15-20 minutes needed for adequate levels of vitamin D. A finding consistent to a survey conducted in Benghazi Libya.[17] Photoprotection strategies like sunscreen products and complete body coverings are very commonly used by population. Knowledge that sunscreen products decreases vitamin D synthesis up to 95% was found in 80 (40%) of participants. Similar, trend was also observed in other study conducted in Virginia a southeastern state of America.[18] About 112(56%) of the students out of 200 showed positive attitude, they were willing to go for vitamin D test in future, if ever symptoms of vitamin D deficiency appear. These results were in correspondence to a cross sectional study done in Saudi Arabia.[10] Vitamin D deficiency is also related to muscle and bone aches. Most of the patients with vitamin D deficiency present with these symptoms. It was found that 161(80%) of the students knew this fact, a finding similar to national survey conducted in Karachi.[15] It was also revealed that very less proportion 53(26%) of students were ever diagnosed with vitamin D deficiency and out of them only 40 were taking vitamin D supplements. Vitamin D deficiency can be related to multiple systemic and organ related diseases such as diabetes, multiple sclerosis, certain cancers and cardiovascular problems. A fact largely known by majority 130(65%) of participants.[19,20] Exposure to sunlight is a key determinant that affects vitamin D status in the body. It provides (80-90%) of vitamin D to body while dietary sources provide (10-20%).[8] The effectiveness of sun exposure depends upon different factors including season, time of the day, duration of exposure and parts of body that are exposed to sunlight. In the current study it was found that 180(90%) of students were deliberately avoiding sunlight due to certain reasons. Most of them 112(56%) were avoiding it due skin complexion problems followed by skin cancer risk (12%), skin allergy to sunlight (12.5%) and due to some other reasons (12%).

CONCLUSION

Our results indicated that the majority of the study participants had sufficient knowledge and positive attitude regarding Vitamin d deficiency but there is still some room available for improvement when it comes to practice. Health promotion efforts should target females particularly as they are more prone to develop Vitamin D deficiency

Health education programs should highlight the importance of consumption of Vitamin D supplements/ dietary sources as an affordable way to improve vitamin D status and should also indicate

the required amount of time of sunlight exposure in order to have sufficient Vit D status. The government sector may take an important role in providing suitable areas for outdoor activities and sunlight exposure for this gender that would be culturally acceptable.

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PREVALENCE OF ANXIETY AND DEPRESSION IN MALE AND FEMALE DOCTORS WORKING IN VARIOUS UNITS OF JINNAH HOSPITAL LAHORE

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Abstract

Background: Anxiety and depression has great impact not only on the persons personal but also professional life as well. Pressure from heavy clinical workload, long duty hours has greatly affected mental health of doctors. Psychological distress is significantly greater leading to job dissatisfaction among house officers

Objectives: To evaluate frequency of anxiety and depression among doctors working in tertiary care hospital in Lahore.

Subjects and Methods:

Study Design: Cross sectional study

Study Setting: Jinnah Hospital, Lahore

Study Duration: January to March 2019.

Inclusion criteria: Doctors with designation of Medical officers, registrars and senior registrars of either gender graduated for more than 5 years and serving in Jinnah hospital for at one year.

Data Collection and analysis: Hospital Anxiety Depression Scale (HADS) was administered as screening instrument. Formal approval was taken from the ethical committee of Jinnah hospital and written informed consent from the participants. Data analysis was entered and analyzed in SPSS version 21.0 qualitative data like anxiety and depression was expressed as frequencies and percentages; quantitative like age, HADS score was presented as mean ± SD.

Results: The mean score for anxiety was 8.37, standard deviation was 3.805 and range was 18. 58 doctors had a normal anxiety score (0-7). The mean score for depression was 6.31, standard deviation was 3.644, and range was 18. 58(40.8%) doctors had a normal anxiety score, 45 (31.7%) doctors had a borderline anxiety score (8-10). 12(30.8%) doctors of medicine and allied had anxiety(score≥11). 94 (66.2.0%) doctors had normal depression score (0-7). 32 (22.5%) doctors had borderline depression score (8-10). 16 (11.3%) doctors had depression (score≥11)

Conclusion: The doctors working in tertiary care hospital have tendency for borderline Anxiety and depression especially at younger age group male gender and medicine and allied profession.

Key words: Anxiety, depression, health care professionals, doctors.

Anxiety and depression have occultly manipulated our society, often being the major cause of occupational dissatisfaction especially among doctors. Despite recent advances in understanding of human psychology and development of various screening test, these disorders often are misdiagnosed and mistreated. Anxiety and depression have great impact not only on the persons personal but also professional life as well. Pressure from heavy clinical workload, long duty hours has greatly affected mental health of doctors as compared to any other profession.

Psychological distress is significantly greater leading to job dissatisfaction among house officers.[1] Female house officers were affected more than male house officers.[1] A heavy Patient inflow (emergency department) leads to greater anxiety and depression in doctors and nursing staff [2]. There was greater

workload, distress, lower job autonomy among junior doctors[3]. More burnout was observed in psychiatric Senior house officers, registrars as compared to senior registrars and consultants[4]. Overall doctors showed high grade of anxiety and depression[5], a study conducted in combined military hospital, Lahore. The development of depression has been linked to a higher risk of future depressive episodes and greater long-term morbidity[6]. These findings may affect the long-term health of resident doctors.

Proper studies in Pakistan about mental health are limited. Unfortunately, studies were not focused on comparing mental health of doctors in various departments. Although studies were done in doctors working in emergency department[3] and Psychiatrists[4], there should be screening in other departments/ fields.

It is expected that this study will help to identify problems in working environment of doctors. In addition, it will help to overcome the problems. By comparing Mental health status in different units, this study might help to identify which unit is more stressful. This study will also be the base of further research about mental health care of doctors in tertiary care hospital.

The study is aimed at yielding results in order to assess anxiety and depression in male and female doctors who are working in different units of Jinnah hospital. Hospital Anxiety and Depression Scale (HADS) is selected as a screening test in order to grade the level of anxiety and depression.

METHODS

A cross sectional study was conducted at Jinnah Hospital, Lahore, from January to March 2019. Sample size of 142 was calculated with 95% confidence interval and 8% margin of error assuming 20% of doctors are having mild anxiety and depression. (Atif et al). Respondents were doctors with designation of Medical officers, registrars and senior registrars of either gender graduated for more than 5 years and serving in Jinnah hospital for at one year. Doctors diagnosed for depressing or anxiety and taking antidepressant or anxiolytic with history of recent stress or past mental health ailment, and those with co-morbid conditions (e.g. diabetes, hypertension, tuberculosis, and chronic pain in anybody part) were excluded from the study. Sampling was done using simple random sampling technique. Standardized Hospital Anxiety Depression Scale (HADS) was administered as screening instrument. Formal approval was taken from the ethical committee of Jinnah hospital and written informed consent from the participants. Data analysis was entered and analysed in SPSS version 21.0 qualitative data like anxiety and depression was expressed as frequencies and percentages; quantitative like age, HADS score was presented as mean±SD. Main outcome variables, anxiety and depression, were cross tabulated with independent variables (age, marital status, speciality, service years, working hour per week and chi-square test was used to assess statistical significance with $p < 0.05$ as statistical significance.

RESULT

Total of 142 doctors were screened in all units of Jinnah Hospital Lahore. Out of the 142 doctors, 129(90.8 %) were in age group (20-30), while 13(9.2

Table 1: *Demographic and Professional Details of Respondents*

Variables n= 142	Frequency	Percent
Age		
20-30	129	90.8
31-40	13	9.2
Gender		
Male	54	38.0
Female	88	62.0
Speciality		
Medicine and Allied	53	37.3
Surgery and Allied	89	62.7
Experience		
≤3 years	126	88.7
>3 years	16	11.3

Table 2: *Statistics Mean Score for Anxiety and Depression*

Statistics Mean Score for Anxiety and Depression	Anxiety score	Depression score
Mean	8.37	6.31
Std. Deviation	3.805	3.644
Range	18	18

Table 3: *Anxiety on HADS Scale and Demographic and Clinical Details Cross Tabulation*

Variables		Anxiety			Total	Chi-square p value
		Normal (Score 0-7)	Borderline (Score 8-10)	Anxiety (Score≥11)		
Age	20-30	55	37	37	129	X^2=5.889 P=.050
		94.8%	82.2%	94.9%	90.8%	
	31-40	3	8	2	13	
		5.2%	17.8%	5.1%	9.2%	
Gender	male	24	17	13	54	X^2=.642 P=.725
		41.4%	37.8%	33.3%	38.0%	
	female	34	28	26	88	
		58.6%	62.2%	66.7%	62.0%	
Specialty	Medicine and Allied	20	21	12	53	X^2=2.595 P=.273
		34.5%	46.7%	30.8%	37.3%	
	Surgery and Allied	38	24	27	89	
		65.5%	53.3%	69.2%	62.7%	
Total		58	45	39	142	
		40.8%	31.7%	27.5%	100.0%	

Table 4: *Depression on HADS Scale and Demographic and Clinical Details Crosstabulation*

Variables		Depression			Total	Chi-square p value
		Normal (Score 0-7)	Borderline (Score 8-10)	Depression (Score≥11)		
Age	20-30	88	27	14	129	X^2=2.694 P=.260
		93.6%	84.4%	87.5%	90.8%	
	31-40	6	5	2	13	
		6.4%	15.6%	12.5%	9.2%	
Gender	male	35	10	9	54	X^2=2.903 P=.234
		37.2%	31.3%	56.3%	38.0%	
	female	59	22	7	88	
		62.8%	68.8%	43.8%	62.0%	
Specialty	Medicine and Allied	37	7	9	53	X^2=5.882 P=.050
		39.4%	21.9%	56.3%	37.3%	
	Surgery and Allied	57	25	7	89	
		60.6%	78.1%	43.8%	62.7%	
Total		94	32	16	142	
		66.2.0%	22.5%	11.3%	100.0%	

%) were in age group (31-40) (Table1). 54(38.0%) were males and 88(62.0%) were females in our study. Regarding the speciality, 53(37.3%) belonged to medicine and allied group while 89(62.7%) were in surgery and allied group. 126(88.7%) had experience ≤3 years, and 16(11.3%) had experience ≥3 years (Table1).

The mean score for anxiety was 8.37, standard deviation was 3.805 and range was 18. 58(40.8%) doctors had a normal anxiety score (0-7). Out of 58 doctors, 55(94.8%) belonged to age group (20-30), while 3(5.2%) belonged to age group (31-40). 45 (31.7%) doctors had a borderline anxiety score (8-10). Out of the 45 doctors, 37(82.2%) belonged to age group (20-30), while 8(17.8%) belonged to age group (31-40). 39(17.5%) doctors had Anxiety (score≥11). Among them 37(94.9%) were from age group (20-30), while 2(5.1%) were from age group (31-40). (p=0.05). 24(41.4%) males and 34(58.6%) had a normal anxiety score (0-7). 17(37.8%) males and 28(62.2%) females had a borderline anxiety score (8-10). 13(33.3%) males had anxiety (score ≥

11) and 26(66.7%) females had anxiety (score≥11). (p = 0.725). Comparing the speciality, 20(34.5%) doctors of medicine and allied had a normal score (0-7) while 38(65.5%) doctors of surgery and allied had a normal anxiety score (0-7). 21(46.7%) doctors of medicine and allied had a borderline score (8-10) while 24(53.3%) doctors of surgery and allied had a borderline score (8-10). 12(30.8%) doctors of medicine and allied had anxiety (score ≥ 11) while 27(69.2%) doctors of surgery and allied had anxiety (score≥11). (p=0.273). 94 (66.2.0%) doctors had normal depression score (0-7). Out of the 94 doctors, 88(93.6%) were from age group (20-30) while 6(6.4%) were from age group (30-40). 32(22.5%) doctors had borderline depression score (8-10). Out of the 32 (22.5%) doctors, 27(84.4%) were from age group (20-30) while 5(15.6%) were from age group (30-40). 16(11.3%) doctors had depression (score ≥ 11). Among them 14(87.5%) were from age group (20-30) while 2(12.5%) were from age group (30-40). (p=0.260). 35(37.2%) males and 59(62.8%) had normal score (0-7). 10(31.3%) males and 22(68.8%) females had borderline depression score (8-10). 9(56.3%) males and 7(43.8%) females had depression (score≥11). (p=0.234). Comparing the speciality, 37(39.4%) doctors of medicine and allied had normal score (0-7) while 57(60.6%) had normal score (0-7). 7(21.9%) doctors of medicine and allied had borderline score (8-10), while 25(78.1%) doctors of surgery and allied had a borderline score (8-10). 9(56.3%) doctors of medicine and allied had depression (≥11) while 7(43.8%) doctors of surgery and allied had depression (≥11). (p=0.05).

DISCUSSION

In this era, of growing modernization with every second prevalence of anxiety and depression is also growing in the society. Every person experiences some degree of anxiety or depression in his life but very few of them undergo any formal screening test. This is due to social stigma regarding mental health issues in our society and generally in whole world.

Doctors a very much prone to anxiety and depression due to tough nature of their duty, these mental health issues can affect their sensitive job to a much great extent that is why it is needed to screen out anxiety and depression in doctors.

This study is a screening study for hospital anxiety and depression in doctors in Jinnah hospital Lahore. HADS was used as an assessment tool. Our study showed that 41.4% males and 58.6% females had a normal score (0-7). 37.8% males and 62.2% females had a borderline anxiety score (8-10). 33.3% males and 66.7% females had anxiety (score≥11).

37.2%males and 62.8% females had normal score (0-7). 31.3% males and 68.8% females had borderline depression score (8-10). 56.3% males and 43.8% females had depression (score≥11). While another study showed that Altogether 38.9% of women and 5.4% of men were suffering from possible anxiety and 8.3% of women and 2.7% of men were suffering from possible depression. Overall, there was no significant difference between genders.[1] Yet in another study carried out in a tertiary hospital in Lahore 17.31% males and 53.33% females had mild to moderate anxiety while 7.69% males and 6.66% females revealed severe anxiety.[5] This study showed a significant impact of gender on anxiety while our study shows insignificant impact of gender on anxiety.

In our study age showed to have no significant effect on depression, while age had effect on anxiety. The Chi-square p value for anxiety came out to be 5.882 at p=0.05, df=2, which was slightly less from being significant. In other study,[4] there was no significant difference in psychological morbidity between three training grades of different age groups but SHOs and registrars reported significantly higher levels of burnout than either senior registrars or consultants. 25% (66/267) of consultants and 19% (17/89) of house officers scored as cases of psychiatric disorder.[4]

In our study we found no significant statistics showing relation between anxiety and speciality of doctors. The Chi-square value was 2.595 at p=0.273,

df=2. Also analysing relation of depression and speciality, statistics were really close but not enough to be considered significant. The Chi-square was 5.882, at p=0.05, df=2. Same results were seen in a previous study as there was no significant statistical difference between results of surgical and non-surgical residents.[6]

We should pay attention to carry out more research on mental health issues in health professionals to probe, manage and eventually eradicate the factors responsible for them and produce more productive and efficient health professionals.

CONCLUSION

The doctors working in tertiary care hospital (Jinnah Hospital) have tendency for borderline Anxiety and depression especially at younger age group male gender and medicine and allied profession.

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FREQUENCY, CAUSES AND IMPACT OF SMOKING AMONG UNDERGRADUATE STUDENTS

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Abstract

Background: Numerous researches have been carried out to study the risk factors associated with smoking uptake. Tobacco consumption is one of the major causes of death-second major cause-and the fourth most common risk factor for diseases, worldwide. Epidemiologic studies have traced the use of alcohol, tobacco and other illegitimate substances among young students.

Objective: This research aimed to examine the frequency, causes and impact of smoking among undergraduate students.

Material and Methods:

Study Design: Cross sectional

Study Setting: Allama Iqbal Medical College

Study Duration: April 2018 – June 2018.

Sampling technique: 300 medical students selected through non probability / purposive sampling

Data collection and analysis: After informed consent, questionnaire was filled by asking frequency, causes and impact of smoking among medical undergraduates. Data was entered and analysed in SPSS version 21. Frequency and percentages were calculated for qualitative variables. frequency causes and impact of smoking among students were assessed using chi square test with $p < .05$ as statistically significant.

Results: 22.7% are the smokers and 77.3% are the non-smokers. Frequency of smoking among students varies according to their ages; 9% students under 20, 48% aged 20-21, 36% aged 22-23 and 7% aged 24 or above are the findings. Furthermore,. 9% students smoke for recreation purposes and 13.7% do that to release stress. Out of smokers 58.8% take less than 10 cigarettes a day, 30.8% take 11-20 cigarettes per day. 10.4% take more 21 cigarettes per day.

Conclusions: Our study concluded that frequency of smoking is low among medical undergraduate and initiated due to stress in life and majority of students smoke half a pack per day.

Key Words: smoking, tobacco, cigarettes smoking.

Smoking is a practice in which a substance is burned. In simple words it is the action or habit of inhaling and exhaling the smoke of tobacco or a drug. Smoking is one of the leading causes of preventable death globally.[1-3] Smokers-men and women both-lose an average of 13.2 and 14.5 years of life, respectively.[4] Smoking generally has adverse health effects, because smoke inhalation through tobacco or any other toxic drug presents challenges to various physiologic processes such as respiration.[5]

Tobacco smoking is an activity that is exercised by some 1.1 billion people, and up to 1/3 of the adult population.[6-8] Diseases caused by tobacco smo-king have apparently killed approximately half of the long-term smokers as compared to average mortality rates of non-smokers.[9-11] Over five million deaths a year from 1990 to 2015 have been reported due to smoking. [12-17] There are many reasons for which people still smoke today; most important being people trying it for the first time and then adopting it as habit, advertisements, peer pressure etc. Today it is a well known fact that smoking is injurious to health. So, despite the bad effects why do people continue to smoke? Addiction primarily is the cause

of smoking.[18-22]

In college, cigarette smoking is considered to be a social activity by those who consume it, and more than half of the students who use tobacco do not consider themselves smokers. This may be because most college students plan to discontinue smoking by the time of their graduation. The commonness of cigarette smoking by college students has increased through the 1990s, but has since leveled off and has diminished in recent years. Education is seen as a leading cause for this decrease. This activity is not as socially acceptable as it was in the past.[23-26]

Among young people, smoking has respiratory and non-respiratory effects.[27-29] It also causes addiction to nicotine. Also, there is a danger of some other drug use.[30-33] Cigarette smokers' health is affected as they have a reduced rate of lung growth and lower level of lung function.[34,35] Smoking negatively affects young people's physical fitness in terms of both performance and patience. Life expectancy of a smoker is less than that of a nonsmoker. On average, someone who never smokes lives 7 years more than the one who smokes a pack or more of cigarettes each day. Teenage smokers suffer from shortness of breath almost three times as often as teens who don't smoke.[36] In comparison with the nonsmokers, teens who smoke are three times more likely to use alcohol, eight times more likely to use marijuana, and 22 times more likely to use cocaine.[37-39] The purpose of our research is to find out the frequency of smoking, its various causes and its implications among the undergraduate students.

OBJECTIVES

The objective of study was to evaluate frequency of smoking among the students of AIMC, causes of smoking among medical students and its impact.

METHODS

A Cross-sectional was conducted at Allama Iqbal Medical College Lahore from April –June 2018. 300 medical students for 3rd and 4th year were selected through non-probability/purposive sampling. After Ethical approval and an informed consent, detailed demographic information of the participants was obtained. Participants of the study were asked some questions to fill a well-designed questionnaire which was aimed to get necessary information in order to fulfil the objectives of the research. Inclusion and exclusion criteria were strictly followed while choosing the participants of the study. In addition, anonymity pertaining to the information they shared was ensured. Data was entered and analysed in SPSS version 21. Results were recorded as frequencies, percentages and are shown in the form of tables, pie chart and bar graph. Crosstabs were done for variables of interest and likewise pie graphs and bar graphs were generated.

RESULTS

Total 300 students were selected at Allama Iqbal Medical College. 50% of the students were male and 50% were female. Out of 300 students, 27 were under 20 and the rest aged 20-24 or above. 68 students were frequent smokers i.e 22.7%. The frequency of the smokers who did it for recreational purpose was 27(39.7%). The frequency of students who did smoking for stress relief was 41(60.3%). The number of boarders was 225/75.0% and that of boarder was 75/25% (table 1).

Out of 68 students, 40(58.8%) students took less than 10 cigarettes a day, 21(30.8%) smoked 11-20 cigarettes a day, 4(5.9%) smoked 21-30 cigarettes and 3(5.5%) smoked 31 or more cigarettes per day. During the initial phase of smoking 26.5% took cigarettes at home, 32.5% at school, 33.8% at some friend's house and 7.2% students smoked at public places (table 2).

Initially, 37 students felt pleasure, 14 found the taste of cigarette to be bad, 11 were relaxed and 6 found smoking to have enhanced their focus. Frequency of students who became regular smokers at 10-17 years of age was 18(26.4%), 14 students became smokers at 18-21 years and 3 did it at the age of 22 or above. Research brought out an interesting fact that pupils were influenced by the warning labels on the cigarette packs. Out of 300, 40(13.3%)

students were influenced to quit smoking, 22(7.3%) students took no notice and 6(2.0%) found it amusing (table 2). There were 44 students i.e out of 68, who tried to quit smoking ever. However, the number of attempts to quit smoking was less (tables 3). 64.7% tried to quit smoking and 35.3% students never tried to do that. Last attempt to quit smoking ranges from 1 week to less than 6 months ago. 47.1% tried 5 times to quit this fatal habit and 23.5% tried 5-10 times.

These students had relatives and family who smoked at home. Parents of 23 students smoked, 12 had siblings who took cigarettes and 33 students told us that their close relatives had this habit of smoking. During the study, it was observed that 247(82.3%) students received the education about smoking dangers at school. 41(13.7%) got no education about its dangers, whereas 6 learnt of its dangers to some extent and 6 were not sure if they were taught about it. 82% of the students were educated about the smoking side effects at school, 12.3% were never told about it, 3.0% were aware about it to some extent; however, 2.7% were not sure if they were taught about it (table 2).

289 students had the knowledge of negative health impacts of smoking and 11 were ignorant of it. Moreover, students also had knowledge of harmful impact of smoking on females and pregnancy as shown in tables and bar graphs. It was found out that some students were also allergic to smoking (tables 4).

Table 1: *Demographic Detail of Respondents*

Variables n = 300	Frequency	Percent
Age		
20-21 years	171	57.0
22-24 years	129	43.0
24 years or Above	21	7.0
Gender		
Male	150	50.0
Female	150	50.0
Residential status		
Boarders	75	25.0
Non boarders	225	75.0

Table 2: *Smoking Status and Reasons for Smoking*

Variables n = 300	Frequency	Percent
Smoking status		
Yes	68	22.7
No	232	77.3
Number of Cigarettes per Day (n= 68)		
Less Than 10	40	58.8
11- 20	21	30.8
21- 30	4	5.9
Place of smoking		
At Home	18	26.5
At School	22	32.5
At Friends' House	23	33.8
In Public Places	5	7.2
Feeling after Smoking during Starting Phase (n= 68)		
Pleasurable Feeling	37	55
A Bad Taste	14	21
A Relaxed Feeling	11	16
Increase In Focus	6	8
Reason for Smoking		
Recreation purposes	27	39.7
Stress Relief	41	60.3
Age at which You Became a Regular Smoker		
Not Regular Smoker	33	48.4
10-17 Years Age	18	26.4
18-21 Years Age	14	20.5
22 Years or Above	3	4.4
Did Anyone Smoke at Home		
Parents	23	33.8
Siblings	12	17.6
Close Relatives	33	48.6
Number of Close Friends Who Smoked		
None	11	16.2
Some	45	66.2
Most or All	9	13.23
Not Sure	3	4.4
Ever Tried to Quit Smoking or Not		
Yes	44	64.7
No	24	35.3

Table 3: *Comparison between Smokers, residential status and Gender (n= 300)*

Variables	Smoker	Non-Smoker	Total	
Boarder	45	180	225	X^2= 36.815
Non-Boarder	23	52	75	P = 0.000
Male	56	94	150	X^2= 36.815
Female	12	138	150	P = 0.000

Table 4: Impact of smoking:

Allergic to Smoking n=300	Frequency	Percent
Yes	19	6.3
No	250	83.3
To Some Extent	18	6.0
Not Sure	13	4.3
Smoking Advertisements while Growing Up		
Never	12	4.0
Sometimes	100	33.3
A lot	187	62.3
Not Sure	1	.3
Influence of the Warning Labels		
Not Applicable	232	77.3
Influenced to Quit	40	13.3
No Effect	22	7.3
Found It Amusing	6	2.0
Education about Smoking Dangers at School		
Yes	247	82.3
No	41	13.7
To Some Extent	6	2.0
Not Sure	6	2.0
Knowledge about High Mortality Rate of Passive Smoking		
Yes	251	83.7
No	27	9.0
Somewhat	20	6.7
Not Sure	2	.7
Knowledge about Negative Health Impacts of Smoking		
Yes	289	96.3
No	11	3.7

RESULTS

DISCUSSION

The aim of this study is to examine the frequency of smoking among the students of AIMC, study the causes of smoking and evaluate the impacts of tobacco intake upon students.

This study gives a contemporary picture of risk of smoking among the students. A national and international awareness is needed to eliminate smoking.

In order to standardize the results, a case-controlled study was performed with great scrutiny selecting students of Allama Iqbal Medical College. Our study revealed that there was a greater tendency of smoking in younger students, especially males. The risk of smoking in all age groups was not significantly high. Our study revealed that there were various factors that contributed to the causes of smoking. Despite having the knowledge of negative impacts of smoking, students were prone to smoking. However, the harmful impacts of tobacco intake were there. Students seemed to ignore the fact that smoking was injurious to health. The frequency of smoking among pupils wasn't alarming but it could lead to various diseases.

Our study revealed that mostly pupils did smoking for stress relief.

According to a report published by World Health Organization titled, WHO Report on the Global Tobacco Epidemic, 2013: Enforcing Bans on Tobacco, tobacco advertisement, promotion and sponsorship (TAPS) enhance the possibility that people will start or continue to smoke. According to the report, young people are especially prone to becoming tobacco users and once addicted, will possibly be the consistent customers for many years.

In addition, a study funded by the Texas department of Public Health; published as AM J Addict, 2008, concluded that smoking prevalence among student health professionals was much lower than the rates observed among their undergraduate peers. However, 16.8% still identified themselves as current smokers.

To summarize the above discussion, our results suggest a risk of negative health impacts of smoking on students. In addition, slightly increased tendency of overlooking the dangerous effects of smoking was also present in students.

Despite limitations, our study remains nationally representative and has the merit to provide accurate data.

CONCLUSION

The conclusion of our study is that the frequency of smoking among students is not alarming but majority of the smokers students were males and students initially began smoking outside of their home and the prominent cause of smoking is relief of

stress and medical students were well educated about the dangers of smoking at school.

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COMPARISON OF SERUM ADIPONECTIN LEVELS IN MIGRAINE PATIENTS AND CONTROLS

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Abstract

Background: Migraine is one of the commonest primary headache syndromes rated by WHO to be as disabling as quadriplegia, psychosis and dementia. Migraine is defined as a recurrent, incapacitating neurovascular disorder characterized by attacks of debilitating pain associated with photophobia, phonophobia, nausea and vomiting. Migraine has been seen to affect 16% of the general population. It has been found to be associated with increased levels of serum Adiponectin (ADP). There is no laboratory investigation to diagnose migraine. It is diagnosed on purely clinical basis. Raised levels of Adiponectin can associate it with migraine and it can make Adiponectin a candidate biomarker to diagnose the disease through simple laboratory investigation.

Objectives: The objective of this study was to compare serum adiponectin levels in migraine patients and healthy controls.

Design: It was cross sectional, comparative study.

Place and duration of study: The duration of study was six months, September 2015 – February 2016.It was conducted in Shaikh Zayed medical complex.

Material and method: Serum Adiponectin levels were measured and compared in 80 subjects divided in two groups, migraine group and a healthy control group.

Results: Mean serum Adiponectin levels of control group were (34.5 ± 9.2) ng/mL and mean serum Adiponectin levels in migraine group were (38.9 ± 10.1) ng/mL with a p-value of 0.042, which is statistically significant.

Conclusion: Measured ADP levels were raised in migraine group as compared to healthy controls.

Key words: Adiponectin, migraine

Migraine is the ubiquitous and widely occurring primary headache syndrome worldwide.[1] The prevalence of this headache is witnessed more in the age range of 25-55 years.[2] It was found that 16% of the world population is prey to distressing life due to migraine. Quality life assurance of migraineurs is perturbed and ruffled. A number of studies promulgated impact of migraine on physical, mental and social aspects of life to be deleterious when compared to healthy subjects.[3] Migraine attack period in diseased personages brings poor family relationships, abysmal and inadequate educational performance and student related activities.[4] World Health Organization (WH0) has classified this tormenting headache to be as crippling as other disorders like quadriplegia, psychosis and dementia.[5] Migraine is defined as "recurrent incapacitating neurovascular disorder with episodes of about 4 to

72 hours duration of unilateral, pulsating, and moderate to severe debilitating pain that is aggravated by movements and is associated with photophobia, phonophobia, nausea and vomiting".[6]

The pathophysiology of this complex, agonizing and chronic, neurovascular disorder is still vague and cryptic but initiation and prolongation of pain is attributed to the episodic activation of the trigeminal system; in particular, trigeminal ganglia.[7] The excitability of the brain changes during the attack of migraine and it leads to the increased excitation of trigeminovascular system (TVS) and vasodilation of brain vasculature.[8] The TVS innervate the cranial vasculature and dura matter. Certain areas of central nervous system like, areas of the brainstem (locus coeruleus and periaqueductal grey area), thalamus and hypothalamus are connected with the TVS via ascending connections to brain areas from TVS. These connections travel through trigeminothalamic and trigeminohypothalamic tracts. Different neuropeptides i.e. calcitonin gene related peptide, substance P, neurokinin A, vasoactive intestinal polypeptide, nitrous oxide and acetylcholine are released due to activation of these sensory afferents and leads to migraine pain and inflammation.[9,10,11] CGRP at physiological concentrations and possibly via stimulation of its selective receptors on T-cells, triggers the secretion of different cytokines like IL-6, iL-1, TNF alpha. IL-6 and Nuclear factor kappa β(NF-kβ) are increased during acute migraine attacks.[12,13] IL–6 contributes to proinflammatory signaling that eventually leads to increased blood vessel permeability, tissue edema of the brain tissues, and pain sensitization, this provides in part the molecular and functional mechanisms related to migraine pain in dura mater.[14]

Adiponectin is one of the adipokines predominantly produced by adipocytes (subcutaneous adipose tissues > visceral adipose tissue). It is cardinally involved in inflammation, metabolism of glucose and lipids, and energy homeostasis processes.[14] The discovery of adiponectin took place when human cDNA project expressed the genes of human adipose tissues.[15] The gene of adiponectin is located on chromosome 3q27 which is expressed in enormous amount.[16] Structurally, adiponectin has 244 amino acids, single peptide whose N-terminus has a domain similar to collagen and C-terminus has a globular domain.[17] Several types of Adiponectin receptors have been found in different organs of body. Most widely studied are adiponectin receptors 1(AdipoR1) and adiponectin receptor 2 (AdipoR2). They are present in hypothalamus, peri-aqueductal grey area and brainstem and hepatocytes.[18] Adiponectin has anti-inflammatory properties. It has protective role in those diseases which have inflammation in their pathophysiology.[19]

Adiponectin is associated with migraine centrally through migraine involved brain areas like hypothalamus. Receptors of adiponectin are expressed on anterior hypothalamus, posterior hypothalamus and paraventricular nucleus. Recording of positron emission tomography supports the activation of hypothalamus during migraine attack, so the key of connection may lie in altering of adiponectin receptors on hypothalamus in attack period.[20] Besides this central link of migraine with adiponectin, the two are also interrelated peripherally. Abnormalities in cytokine levels have been noted in the blood of migraine sufferers. Specifically, NF-κβ and the proinflammatory cytokines, TNF-α, IL-1β, and IL-6, have all been shown to be increased[13]. Adiponectin is connected to migraine in this way as it is also involved in the activation of proinflammatory nuclear factor kappa β (NF-κβ) pathways and it also stimulated release of nitric oxide, a potent vasodilator, the proinflammatory cytokines, IL-6 and TNF-α.[21]

The objective of our study was to compare serum levels of Adiponectin in migraine patients and controls. Elevated levels in diseased subjects will strengthen the association of adiponectin with migraine, a step further in labeling adiponectin as candidate biomarker. Because, despite widespread prevalence, migraine still lacks a diagnostic test to accurately label a patient as "migraineur".

METHOD

It was a cross sectional, comparative study conducted in the department of Physiology, Shaikh Zayed Postgraduate Medical Institute, Lahore and Neurology department, Shaikh Zayed hospital, Lahore after taking permission from the respective head of departments. The study duration was six months.

A study population of 80 individuals was selected according to inclusion and exclusion criteria, and was categorized into two groups, as follows:

Group A: This was the control group which included 40 healthy individuals, having no signs, symptoms or complaints of migraine. Healthy subjects were recruited from students and faculty of Shaikh Zayed Medical complex.

Group B: This group included 40 migraine patients. They were clinically diagnosed migraine patients

Convenient (non-probability) sampling was done.

The inclusion criteria

Male and female migraine patients with

- Age range of 18-40 years
- BMI range of 18.5-24.9 kg/m2

The exclusion criteria

Controls and migraine patients with other causes of headache i.e. tension headache and cluster headache.

Migraine patients were enrolled from the out-patient clinics of Neurology Department of Shaikh Zayed medical complex fulfilling the inclusion criteria. Controls were taken from faculty and students of Shaikh Zayed medical complex. After getting written informed consent, the demographic data of all the subjects was collected and every individual was assessed by taking history and using specially designed questionnaire. Blood samples were taken. Serum Adiponectin levels were estimated by using ELISA technique in Pathology Laboratory of Shaikh Zayed Medical Complex.

The data was entered into and analyzed by SPSS (Statistical Package for Social Sciences) version 20.0. Independent sample t-test was applied to compare the mean serum Adiponectin levels between both groups. p value less than 0.05 was considered statistically significant.

RESULTS

Following results were obtained:

DISCUSSION

In this research the levels of serum Adiponectin in age and BMI matched two comparative groups which included migraineurs who fulfilled the criteria of diagnosis for migraine, and a healthy control group were compared. Mean age of group A was 30.17.02 years and that of group B was28.7±6.8 years. BMI of Group A and Group B was 21.43 ±2.02kg/m^2 and 22.08±1.94kg/m^2 respectively.

The mean serum Adiponectin levels of group A was 34.5 ± 9.2ng/mL and mean serum Adiponectin levels of group B was 38.9 ± 10.1ng/mL. The data was normally distributed and independent sample t-test revealed that there was statistically significant difference in mean serum Adiponectin levels between both groups (p-value = 0.042). Serum Adiponectin levels were higher in patients of migraine but there was no equal rise in healthy control group.

Table 1: Comparison of Serum ADP levels (ng/mL) between both Groups

	Serum ADP Levels (ng/ml)			
	Mean ± SD	Minimum	Maximum	p- value
Group A	34.5 ± 9.2	16	48	0.042*
Group B	38.9 ± 10.1	20	59	

* p-value is significant, independent sample t-test

Our raised levels were in line with another study conducted by Pterlin et al. It was the pioneer research program which compared the adiponectin levels between healthy controls and migraineurs. The value of serum adiponectin was calculated to be significantly higher (p\0.005) in migraineurs than controls, this study even found raised levels more pronounced ictaly[22].

Duarte et al. published the work which clearly found the statistically significant increased serum adiponectin levels in migraine population. The sample size of study was 130, among them 68 individuals were clinically diagnosed migraine patients and 65 were controls. They were age, gender and BMI matched and results showed elevated adiponectin levels in migraineurs.[23] Clara et al, also second this view by showing significantly raised adiponectin levels in migraineurs, it also showed correlation between adipocytokine levels and other inflammation related molecules.[24] Dearborn et al. also found higher Adiponectin levels in migraineurs. Though this specific study found that there was interlinkage with the gender such that the elating levels of Adiponectin were associated with increased odds of migraine in older men, but not female population. That was attributed to the lower testosterone levels in older men.[25]

In contrast to this Lippi et al. gave contradictory reports as they failed to find raised adiponectin levels in migraine population when data was analyzed between migraine population and healthy controls.[26]

While the neoteric research advocates the link of adiponectin with migraine by addressing various aspects of disease pathophysiology. Scrupulous studies using assiduously constructed designs and methodology is needed to vigilantly consider pain state during sampling and its effects on adiponectin levels. We did not put a halt to preventive treatments during study which could have affected our results. These limitations are recommended to be addressed in future research programs.

CONCLUSION

Though contemporary institutes are operational on this topic but quite a few data are obtained to reasonably label the proposed association. Our study would help in providing aid in this emerging concept of relating adiponectin with migraine. This study not only helps in finding a link between migraine and Adiponectin, it also brings Adiponectin in limelight as postulant, viable biomarker for migraine diagnosis.

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DIAGNOSTIC ACCURACY OF FROZEN SECTION IN DIFFERENTIATING BENIGN AND MALIGNANT THYROID LESIONS BY TAKING PARAFFIN SECTION HISTOPATHOLOGY AS GOLD STANDARD

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Abstract

Objective: The objective of this study was to determine the diagnostic accuracy of frozen section (FS) of thyroid lesions taking diagnosis on paraffin sections as a gold standard.

Study design and place: This is a cross-sectional survey conducted at Histopathology Department, Shaikh Zayed Federal Postgraduate Medical Institute, Lahore.

Material and methods: Sample size of 125 cases of neoplastic and non-neoplastic lesions was calculated and included in the study through non probability, purposive sampling.

Results: The sensitivity and specificity was calculated as 93.3% and 87.5% respectively. Positive predictive value and negative predictive value was calculated as 80.8% and 95.8% respectively with the diagnostic accuracy of the FS as 89.6%.It was concluded from results of this study that FS is reliable enough to diagnose thyroid lesions either malignant or benign.

Key words: Thyroid Lesion, Malignant, Benign, Frozen Section, Histopathology, Paraffin Section.

Frozen section biopsy technique often helps a rapid diagnosis of a mass during surgery which in turn may help a surgeon to know the status of the margins of his resection before closing.[1] As with any diagnostic tool, there are specific limitations that allow errors to occur. These include the initial selection of tissue by the surgeon, the sampling of the tissue by the pathologist, the technical expertise required to prepare the slide.[2] The rationale of this study is to find diagnostic accuracy of frozen section of thyroid as international studies literature review showed variation in sensitivity of frozen section. This will help our surgeons to decide about use of frozen section in making early decision in patients undergoing thyriodectomy. The surgical specimen is placed on a metal tissue disc which is then secured in a chuck and frozen rapidly to about 20 to 30°C. The specimen is embedded in a gel like medium consisting of poly ethylene glycol and polyvinyl alcohol.[3,4]

Each tissue is cut frozen with the microtome portion of the cryostat, the section is picked up on a glass slide and stained (usually with hematoxylin and eosin, the H&E stain). The preparation of the sample is much more rapid than with traditional histology technique (around 10 minute's vs. 16 hours). The entire system can occupy a space less than 9-square-foot (0.84m^2), and minimal ventilation is required compared to a standard wax embedded specimen in a laboratory.[3,4]

METHODS

This is a cross-Sectional non probability, purposives sampling survey. The study is done in histopathology Department, Shaikh Zayed Federal Postgraduate Medical Institute, Lahore. We included patients of both gender and of any age group, excluding the inadequate sample. The study was carried out in collaboration with the surgical units of the hospital. The histopathology department was intimated about the impending referral and the clinical data was provided at the time of the consultation. Surgery and fresh specimen sent to the histopathology department without fixative was

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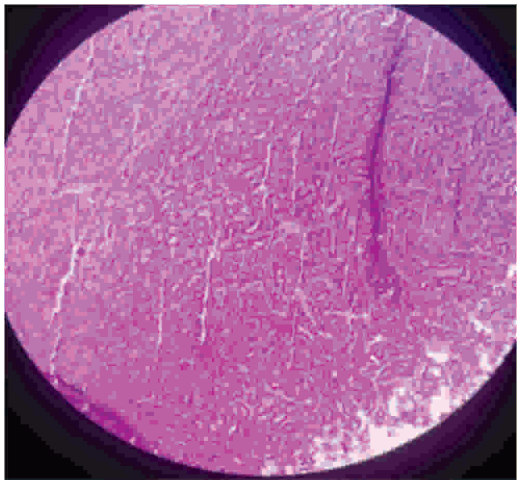
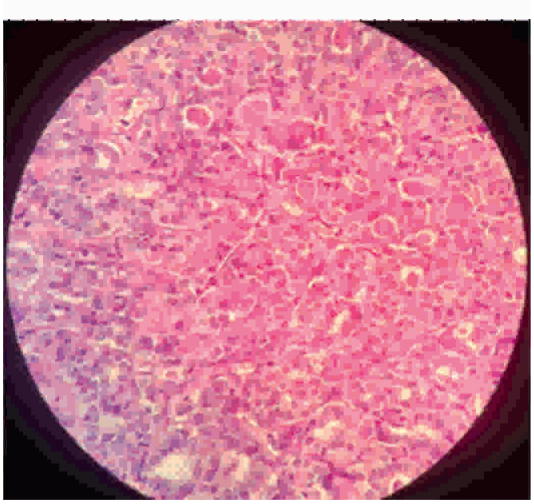
initially examined by the consultant pathologist who were to perform the gross examination and demarcate the representative area for sequential cytological examination and for frozen sections. All the smears and sections were examined microscopically. A diagnosis was formulated and conveyed to the operating surgeon. Next day, the paraffin sections were examined microscopically to obtain the final diagnosis, which were sent to the surgical unit.

RESULTS

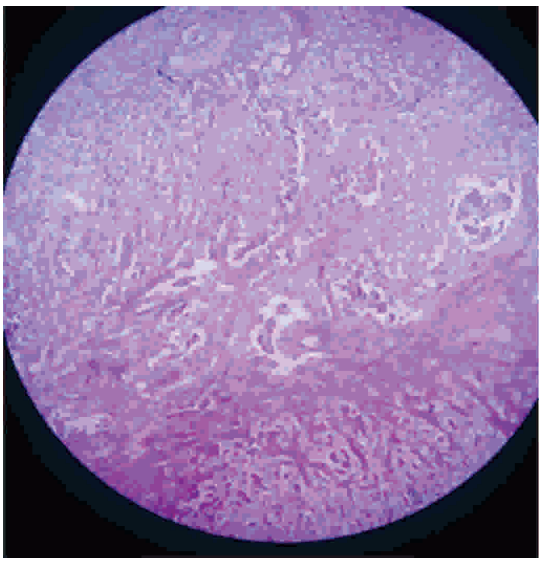
A total of 125 cases over a period of 6 months, with mean age of the patients as 30.25±8.22 years with minimum and maximum ages of 16 and 45 years respectively noted. Out of 125 patients, 47 (37.60%) were males and 78 (62.40%) were females. The male to female ratio was 1:1.7. The mean age of male patients was observed as 29.09±9.19 years with minimum and maximum ages of 16 and 45 years respectively. The mean age of female patients was observed as 30.87±7.56 years with minimum and maximum ages of 19 and 45 years respectively. Out of 125 patients 52 (41.6%) were appeared with malignant frozen section and 73(58.4%) were appeared with Benign frozen section. About 45 (36%) patients had malignant lesion on paraffin section and 80 (64%) had benign lesion on paraffin section. Out of 80 benign lesion on paraffin section, 22 (17.6%) were follicular adenoma, 17 (13.6%) were thyroiditis, 21 (16.8%) were Multinodular goiter and 20 (16%) were hyperplastic nodules. Out of 45 malignant lesions on paraffin section, 13 (10.4%) were follicular carcinoma, 18 (14.4%) were papillary carcinoma and 14 (11.2%) medullary carcinoma. The sensitivity and specificity was calculated as 93.3% and 87.5% respectively. Positive predictive value and negative predictive value was calculated as 80.8% and 95.8% respectively with the diagnostic accuracy of the FS as 89.6%.



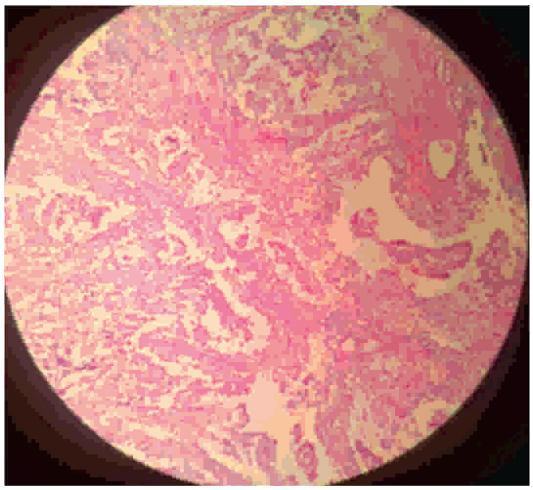
a. Papillary carcinoma(Frozen section, 10x)



b. Papillary Carcinoma (Paraffin Section, 20x)



c. Medullary Carcinoma (Frozen Section, 10x)



d. Medullary carcinoma (Paraffin Section, 20x)

DISCUSSION

Thyroid nodules occur frequently. It is important to differentiate between benign and malignant lesions to determine whether surgery is indicated and, if so, the extent of thyroidectomy required. Several preoperative examinations, such as ultrasonography, computed tomography, MRI, TFTs (radionuclide scans), and FNAC, can help predict the probability of malignancy.[5]

If there is sufficient concern that a nodule could be malignant, the extent of surgery has to be determined. Total thyroidectomy results in lifelong thyroid hormone replacement therapy and an increased risk of postoperative hypoparathyroidism and recurrent laryngeal nerve palsy. Therefore, most surgeons prefer to avoid total thyroidectomy when it is not clearly indicated. There is also increased cost and inconvenience.[6,7]

Frozen section was done in planning the extension of the surgery, it needed high specificity.[8] In the United States, in a very large study of 53,856 thyroid carcinomas reported by Hundahl et al., the incidence of papillary carcinoma was 42,686 (79.26 %) and follicular carcinoma 6,764 (12.56%).[9] The incidence of encapsulated or minimally invasive follicular carcinoma of the thyroid gland ranges from 16% to 47% of all follicular carcinomas of the thyroid.[10]

Literature has reported that he frozen section evaluation of thyroid and parathyroid lesions remains a highly accurate procedure with a low false-positive rate. Gross inspection, complemented by cytologic and histologic review, provides the surgeon with the rapid, reliable, cost-effective information necessary for optimum patient care.[11]

Specificity of FS for diagnosis of follicular carcinoma ranges from 99 % to 100 %.[12,13]

Callcut et al., reported that FS for diagnosis of follicular thyroid cancer had a sensitivity, specificity, positive predictive value, and accuracy of 67%, 100%, 100%, and 96%, respectively.[14] Choaet al., showed that Sensitivity, specificity, Positive predictive value, negative predictive value, and accuracy for carcinoma were 82.1%, 100%, 100%, 95.8%, and 96.5%, respectively in the population of Taiwan.[15]

Tworek et al., also reported that frozen section has sensitivity and specificity of 71.4% and 98% respectively.[16]

In 1985, a study done by Ramli about frozen section without imprint cytology for thyroid nodules, showed a sensitivity of 78.9% and specificity of 98.9%.[17] Huber et al., reported the sensitivity and specificity of FS were 32.4% and 96.5%, respectively. He concluded that Intraoperative FS did not give additional information in malignant cases. In this setting, it led to conflicting results and did not contribute to correct decision making.[7]

CONCLUSION

Through this study we have achieved accurate sensitivity of this procedure and ultimately diagnostic accuracy. Thus it was concluded from results of our study that FS is a reliable tool.

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AWARENESS AND SELF-ASSESSMENT TOOL OF BREAST CANCER AMONG THE MEDICAL STUDENTS OF ALLAMA IQBAL MEDICAL COLLEGE, LAHORE.

Omer Khalid, Noman Shahzad

Abstract

Background: The incidence of breast cancer is rising world-wide, specifically among the females in Pakistan. The awareness of breast cancer preventive methods is therefore critical in the reduction of breast cancer morbidity and mortality.

Objectives: The objective of this study is to assess the knowledge, attitude and practice of breast self-examination (BSE) among female undergraduate students of Allama Iqbal Medical College, Lahore.

Methods: The cross-sectional study was conducted on 200 female students of ages 18-25 years (mean ± SD = 21±1) sampled randomly. Data was collected by a pretested self-administered questionnaire and analysed by SPSS Version: 21.0

Results: Nearly three quarter (74.0%) of the respondents had previously heard of BSE. Only 36.0% knew how to perform BSE Although perceived by 88.0% of the respondents as important, only 14.0% had performed BSE regularly. Furthermore, only 8.0% of the respondents have been to any health facility to have breast examination. Overall, although a majority (75.4%) of the respondents had a moderate attitude towards BSE as an important method for early detection of breast cancer, just a modest 9.6% were substantially aware of it. Lack of knowledge on BSE was cited as the main reason for not performing BSE.

Conclusions: These findings highlight the current knowledge gap that exists in the practice of BSE in the prevention of breast cancer in the study population. Sensitization campaigns and educational programmes ought to be intensified in order to address this issue.

Keywords: Breast cancer, Breast self-examination, Knowledge, Attitude, Practice, Undergraduate students, Allama Iqbal Medical College, Lahore.

Breast cancer is the most commonly diagnosed cancer and leading cause of death among females, accounting for 23% of total cancer cases and 14% of total cancer deaths.[1] Among women, breast cancer and among men, prostate cancer is the leading type of cancer in adults[2] particularly among the women of low and middle socio-economic countries due to poor availability of screening, diagnosis and treatment.[3]

The risk factors for breast cancer include advancing age, women with history or family history of breast cancer, women who started menstruation early or went through menopause late[4], and the use of hormonal replacement therapy (HRT) with combined oestrogen and progesterone.[5]

The control of breast cancer involves educating and screening young women for signs of breast cancer. Breast cancer screening methods include breast self-examination (BSE)[6], clinical breast examination and mammography, and these are usually done in combination. BSE is the recommended method in developing countries because it is easy, convenient, private, safe and requires no specific equipment. Several studies have revealed that a positive association exists between the performance of BSE and detection of breast cancer, and most of the early breast tumour detection have been self-discovered.[7]

BSE for the early detection of breast cancer is not often done by women. In studies performed by Fon Peter et al. in Cameroon[8] and Nafissi et al. in Iran,[9] only 5% and 12% of women respectively were observed to perform BSE monthly. As a result, most cases of women diagnosed with breast cancer are

usually in an advanced stage of the disease. Although BSE is a simple, quick and cost-free procedure, it appears that many women either perform it incorrectly or not at all. The purpose of this study was to evaluate the knowledge, attitude and practice of BSE among female undergraduate students of Allama Iqbal Medical College, Lahore in order to generate data that may be useful in designing interventions aimed at creating awareness of BSE as a screening method for the early detection of breast cancer.

METHODS

A cross sectional study was conducted in Allama Iqbal Medical College, Lahore for a duration of 6 weeks which included regular female students of AIMC. 200 subjects who fulfilled the inclusion criteria were randomly selected in our research study. After approval from ethical committee and informed consent from subjects, self-administered questionnaires were provided to students for the evaluation. Data from the questionnaire was analysed using SPSS Version: 21.0. Statistical analysis performed included the Pearson Chi-square test to determine the association between knowledge and attitude stratified according to the scores, and the practice of BSE.

RESULTS

A cross-sectional descriptive study was carried out among 200 female undergraduate students in Allama Iqbal Medical College, Lahore. The respondents were between 18 and 25 years (mean ± SD = 21±1) of age. 29 (14%) of the respondents had a positive family history of breast cancer.

a) Knowledge on BSE:

Nearly three-quarter (74.0%) of the respondents had heard about BSE before. Nearly half (45.5%) of the respondents actually knew how to perform BSE. Furthermore, only 36.5% of the participants had performed B SE regularly. A maj ority (88.0%) of the respondents perceived BSE as an important technique in the early detection of breast cancer. Overall, just a modest 9.6% of the respondents were substantially aware of BSE, 53% were partially aware, and 37.4% had never heard of BSE.

		Ever heard of BSE	Know how to perform BSE	Perform BSE regularly	Know BSE is important in the early detection of BC
Response	Yes	148	91	73	200
	No	52	109	127	0
Percentage		74.00	45.50	36.50	2.00

b) Attitude towards BSE:

Out of 200 respondents, only 73(36.5%) use to perform BSE regularly. A majority (88.0%) of the respondents approved that BSE was important and useful in the early detection of breast cancer. Overall, most of the respondents were in favour of the BSE as a tool for early detection of breast cancer.

c) Practice of BSE:

Nearly half (45.0%) of the respondents actually knew how to perform BSE. Furthermore, only 36.5% of the participants had performed BSE regularly. Overall, 69.5% of the respondents were in favour of seeing a doctor if found any breast anomaly, 19.5% in favour of telling it to family/ friends, and only 11.0% were to ignore it. The quest to learn more about the breast cancer and the screening tools was found among 80% of the participants.

		Know how to perform BSE	**Perform BSE regularly**	**Will go to a doctor if found any anomaly**	**Learn more about BSE**
Response	Yes	91	73	139	163
	No	109	127	61	37
Percentage		74.00	45.50	69.50	81.50

DISCUSSION

As mentioned earlier, the breast cancer (BC) is the most common cause of cancer-r elated deaths in women[1], the prevalence of which is grossly underestimated among developing countries due to poor availability of screening, diagnosis and treatment. There are several methods by which the early onset

of breast cancer can be detected including the breast self-examination (BSE). Although there are some controversies regarding the techniques used in performing BSE, the method is still considered as relevant and recommended in developing countries where access to diagnostic and curative facilities is a problem.[3] This study performed among female students in Allama Iqbal Medical College was aimed at evaluating their awareness, attitude and practice of BSE as a screening tool for early detection of breast cancer.

Regarding the knowledge about the breast cancer, the medical students had comparatively better knowledge regarding the Breast cancer and BSE. The risk factors associated with breast cancer were much known by the respondents mainly advancing age, women with history or family history of breast cancer, women who started menstruation early or went through menopause late,[4] and the use of hormonal replacement therapy (HRT) with combined oestrogen and progesterone.[5]

According to our study, the level of practice of BSE observed in this study was generally low. Only four out of ten students had performed BSE which is quite similar to the reports found in other developing countries e.g. Cameroon,[8] Iran[9] etc. The general attitude of the respondents in this study towards BSE was moderate, implying that just a little motivation may easily sway their attitude towards highly in favour of practicing BSE. Educating these young women could also help instil some courage in them. Further studies will be required to throw more light on the role of health personnel and the media on the uptake and practice of BSE in women in the study area.

For further awareness, the media especially television can be used to sensitize women on the importance of BSE, as well as instruct women on how to perform BSE. Physicians, nurses and other health personnel also have a role to play in sensitizing and educating young women on the importance of BSE and how it should be performed, which is evident in this study as 80.0% of the respondents were eager to learn more about the BSE.

Moreover, the study is limited in the sense that it is confined to a sample of young educated women in an urban area which does not necessarily reflect what transpire among women in rural areas. Furthermore, a majority of students in Allama Iqbal Medical College are from highly educated families. All of these factors limit its generalization to the entire population of Pakistani women. The study could also be limited to the fact that it was based on self-report - women were not assessed on their ability to correctly perform BSE, which may have led to the overestimation of their knowledge on how to perform BSE.

CONCLUSION

A majority of female students in Allama Iqbal Medical College do not practice breast self-examination as a screening tool for early detection of breast cancer regularly. Moreover, the attitude of the students was observed to be moderately in favour of BSE but the knowledge on BSE was generally unsatisfactory which could have affected the practice of BSE by these young women. Sensitization campaigns using the audio-visual media and other programs designed to create awareness about BSE should be intensified in order to change the attitude of young women in the study area towards the practice of BSE in the prevention of breast cancer.

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FREQUENCY OF DENTAL CARIES AND ORAL HYGIENE PRACTICES AMONG STUDENTS OF KINNAIRD COLLEGE FOR WOMEN LAHORE

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Abstract

Background: Worldwide the dental caries is believed a leading public health problem caused by its elevated prevalence and considerable social impact. The prevention about oral disease can be attained through best oral health practices that comprise tooth brushing, dental visits, adequate dietary practices and flossing. Therefore, much attention is required to give information to female college students about oral hygiene who will be the future mothers and by enhancing their knowledge dental caries could be avoided.

Objectives: The study objectives were to discover the frequency of dental caries in female college students and to know the practices about oral hygiene to prevent dental caries.

Method: This was a cross-sectional descriptive study conducted at Kinnaird College for Women Lahore among 120 female students. All the information was collected through questionnaire and entered into computer software SPSS (Statistical Package for Social. Sciences) version 20.0. Results: Out of 120 female students, 79.2% were aged 19-22 years. All of them used toothbrush for teeth cleaning and 51.7% cleaned once daily. 63.3% participants' toothpaste, contained fluoride. Among the participants, 53.3% had no decayed, 83.3% had 0 missed tooth and 49.2% had 0 filled tooth. The participants mean DMFT score was 2.31.

Conclusion: Most of the participants brushed their teeth once/twice daily. The participants overall oral health was satisfactory.

Oral health is a significant part of general health and complete well-being of a person.[1] Oral cavity is believed like a mirror that reveal general health. The oral health affects individuals psychologically and physically and influences that how they look, grow, chew, .speak, socialize and taste food. Oral health is a state free from facial and mouth chronic pain, oral sores, throat and oral cancer, birth defects for example, periodontal disease, cleft lip and palate, tooth loss and decay, and several other diseases and problems that affects oral cavity.[2]

Practice of keeping the mouth clean and healthy through brushing as well as flossing to protect gum disease and tooth decay is asserted as oral hygiene.[3]

Worldwide dental caries is believed a leading public health problem caused by its elevated prevalence and considerable social impact.[4] There are several factors responsible for dental caries. It is a chronic illness of the microbiological origin that effect hard tissues of tooth, distinguished through alternating phases of remineralization and demineralization. The disease can be restricted, arrested and probably reversed in its early phases, but not mostly self-limiting and without adequate care. This can grow until tooth is damaged.[5]

Dental caries and associated oral illness i.e. periodontitis and gingivitis are most frequent dental illness, with significant prevalence in both developing and developed states, affecting all types of people.[6] Globally, dental cavities is found among 60 to 90 percent school children and virtually 100 percent adults. Dental cavities could be avoided by maintaining persistent low level of fluoride in oral cavity. Acute periodontal disease that can result in the tooth loss is observed among 15 to 20 percents peoples aged 35 to 44 years. Almost 30 percent people aged 65-74 years are without natural teeth, worldwide. Among adults and children oral disease

is more prevalent who belonged to poor socio-economical status.[7]

Dental caries, as per WHO (World Health Organization) is graded yet as 3rd most prevalent communicable oral disease that affect individuals regardless of their demography.[8]

In Pakistan, however, the trends of oral health had demonstrated miserable outcomes; dental caries is 5 times more prevalent than the asthma and 7 times more prevalent than the hay fever. As per analysis done in 2004, asserted that, total DMFT scores in rural areas among the permanent dentition aged 12 years was 1.59, increasing to 2.26 among children aged 15 years, 8.73 among adults aged 35-44 years and 18.9 among individuals aged 65 years or more. Therefore, dental caries escalating trends among growing people highlighted oral health requirement, preventive knowledge and curative services.[8]

Among developing states, increase in dental caries prevalence is linked with several factors, for instance, unhealthy eating practices, inadequate and unsatisfactory public health services, inadequate utilization of fluoride and poor access to health care services. In contrast, decline in dental caries prevalence among developed states is attributed to adaptation in oral hygiene practices and sugar eating habits, constant participation in the oral health and other related programs. In addition, urbanization and western life style acceptance by developing states without useful public health interventions are also held responsible for abrupt rise in the dental caries.[9]

To make better the oral health of people, WHO has set the promotion of seif care of as one of the goals for the year 2020. ROSC (Recommended Oral Self Care) comprises tooth brushing more than once daily, less use of sugar holding snacks once a day or infrequently and constant use tooth paste having fluoride.[10]

The prevention about oral disease can be attained through best oral health practices that comprise tooth brushing, dental visits, adequate dietary practices and flossing.[11]

The role of female in the society is more significant because they are the future mothers and play a considerable role in better development of children. Therefore dire need is required to boost their knowledge regarding ora! hygiene and dental caries. By improving their knowledge oral hygiene can be improved and dental caries could be avoided. The current study is carried out to assess the frequency of dental caries and oral hygiene practices among female students.

METHODS

This was a cross-sectional descriptive study conducted at Kinnaird College for Women Lahore among 120 female students. All the information was collected through questionnaire and entered into computer software SPSS (Statistical Package for Social Sciences) version 20.0. Frequencies and percentages were calculated and data was presented in the tabulation form. Confidentiality of the data was ensured and proper consent from participants was taken before data collection.

RESULTS

Table-1 describes that out of 120 participants, 13 (10.8%) were less than 18 years old, 95 (79.2%) were 19-22 years old and 12 (10.0%) participants were above 22 years old.

Table 1: *Frequency Distribution of Participants According to Age*

	Frequency	Percentage (%)
<18 years	13	10.8
19-22 years	95	79.2
>22 years	12	10.0
Total	120	100.0

Table-2 indicates that out of 120 participants, 43 (35.8%) cleaned teeth twice daily, 62 (51.7%) once daily and 15 (12.5%) participants cleaned teeth occasionally. Results indicated that all female participants cleaned their teeth with brush. Likewise, to clean teeth, 43 (35.8%) participants used tooth-picks, 22(18.3%) thread (dental floss), only 5 (4.2%) participants used Miswak, 52 (43.3%) mouthwash and 21 (17.5%) participants used sugar free gums.

Out of 120 participants, 76 (63.3%) used toothpaste containing fluoride, 6(6.0%) used toothpaste containing no fluoride and 38 (31.7%) participants had no knowledge that their toothpaste contains fluoride.

Table 2: *Frequency Distribution of Participants According to Oral Hygiene Practices*

	Frequency	Percentage (%)
Frequency of teeth cleaning		
Twice a day	43	35.8
Once a day	62	51.7
Occasionally	15	12.5
Total	120	100.0
Method used for teeth cleaning		
Toothbrush		
Yes	120	100.0
No	0	0.0
Total	120	100.0
Toothpicks		
Yes	43	35.8
No	77	64.2
Total	120	100.0
Thread (dental floss)		
Yes	22	18.3
No	98	81.7
Total	120	100.0
Miswak		
Yes	5	4.2
No	115	95.8
Total	120	100.0
Mouthwash		
Yes	52	43.3
No	68	56.7
Total	120	100.0
Sugar free gums		
Yes	21	17.5
No	99	82.5
Total	120	100.0
Use toothpaste that contains fluoride		
Yes	76	63.3
No	6	5.0
Don't know	38	31.7
Total	120	100.0

Table-3 exhibits that out of 120 participants, 64 (53.3%) had no decayed, 35 (29.2%) had one decayed, 12 (10.0%) had 2 decayed and 9 (7.5%) participants had more than 2 decayed. The mean decayed of participants was 0.93. Among the participants, major proportion 100 (83.3%) had 0 missed tooth, 14(11.7%) had one missed tooth, 3(2.5%) had 2 missed teeth and also 3(2.5%) participants had more than 2 missed teeth. The mean missed of participants was 0.29. Similarly among participants, 59(49.2%) had 0 filled tooth, 37 (30.8%) had one filled tooth, 9(7.5%) had 2 filled teeth and 15(12,5%) had more than 2 filled teeth. The mean filled tooth of participants was 1.12.

Table 3: *Frequency Distribution of Participants According to Dental Caries*

	Frequency	Percentage (%)
Decayed		
0	64	53.3
1	35	29.2
2	12	10.0
>2	9	7.5
Total	120	100.0
Mean = 0.93		
Missed		
0	100	83.3
1	14	11.7
2	3	2.5
>2	3	2.5
Total	120	100.0
Mean = 0.29		
Filled		
0	59	49.2
1	37	30.8
2	9	7.5
>2	15	12.5
Total	120	100.0
Mean =1.12		

Table-4 demonstrates that out of 120 participants, 30 (25.0%) had 0 DMFT score, 21 (17.5%) had 1 score, 34 (28.3%) had 2 score, 14 (11,7%) had 3 score and 21 (17.5%) participants had more than 3 DMFT score. The mean DMFT score of participants was 2.31.

Table 4: *Frequency Distribution of Participants According to DMFT Score*

	Frequency	Percentage (%)
0	30	25.0
1	21	17.5
2	34	28.3
3	14	11.7
>3	21	17.5
Total	120	100.0
Mean = 2.31		

DISCUSSION

Dental caries is leading public health problem that exacerbate the quality of life of people. Currents study was undertaken to know the frequency of dental caries and oral hygiene practices among female students of Kinnaird College for Women Lahore. To obtain better results, total 120 female college students participated in the study. They were studying in first, second, third and fourth years. Most of the participants were 19 to 22 years old and some of them were above 22 or less than 18 years old. Brushing is useful technique that helps individuals to prevent dental caries. During study it was found that large number of participants (51.7%) cleaned their teeth once a day, 35.8% cleaned twice a day and 12.5% cleaned occasionally. A similar study carried out by Kakkad et al. (2014) showed that 30.8% participants cleaned teeth once a day, major proportion (67.0%) twice a day and 2.2% more than twice a day .[12]

With the passage of time use of toothbrush is increasing rapidly and people depend heavily on this technique.

Similarly, an effective tooth paste is also essential to prevent dental caries and to improve oral hygiene. Study disclosed that 100.0% participants cleaned teeth with toothbrush. There were 35.8% participants who used took picks, dental floss (18.3%), Miswak (4.2%), mouthwash (43.3%) and sugar free gums (17.5%) for the cleaning of teeth. A study undertaken in 2014 by Manna and teammates also indicated that majority (67.4%) of participants used toothbrush for the cleaning of teeth while the other techniques were toothpick (2.3%), floss (2.3%), chew stick (0.8%) and charcoal (0.8%).[13]

The significance of fluoride can never be underestimated in preventing dental caries. It is important to mention that mainstream (63.0%) of participants were using, toothpaste that contained fluoride.

It was found during study that majority (53.3%) of the participants had no decayed. The findings of our study are better than the study carried out by Kaur and coworkers (2010) who confirmed that 70.0% participants were found with decayed teeth.[14] But the study done by Manna and teammates (2014) highlighted that merely 19% participants had decayed teeth.[13]

As far as missed teeth are concerned, study found that 16.7% participants had missed and 50.8% had filled teeth. However, our study results showed higher prevalence of filled teeth but results exhibited better scenario than the study performed by El-Khateeb and associates (2015) who elucidated that 56.5% and 61.8% participants had missed and filled teeth, respectively.[15]

When DMFT score was assessed among participants, study revealed that one-forth (25.0%) of the participants had zero score, 17.5% had 1 score, 28.3% had 2 scores, 11.7% had 3 scores while 17.5% had more than 3 scores. The findings of the study conducted by Manna and teammates (2014) exhibited better scenario who asserted that mainstream (62.8%) had zero score, 14.4% had 1 score, 14,4% had 2 scores, 2.3% had 3 scores and 6.1% had more than 3 scores.1131 Study further disclosed that overall mean score was 2.31 among participants. The findings of our study are comparable with the study carried out by Fayaz and Sivakumaar (2014) who confirmed that DMFT score of participants was 2.32.[16]

CONCLUSION

Study concluded that majority of the participants were between the ages of 19 to 22 years. Mainstream used toothpaste but brush was used by all female participants. Most of them brushed their teeth once / twice a day. Majority also used toothpaste containing fluoride. The participants overall oral health was satisfactory. The mean DMFT score was 2.30. Further studies are required on large scale to assess the frequency of dental caries and oral hygiene practices among female students of college.

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RISK FACTORS OF MORTALITY IN PULMONARY TUBERCULOSIS

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Abstract

Objective: Tuberculosis is a transmissible infectious disease caused by Myco-bacterium tuberculosis (Koch bacillus or BK). It is estimated by the World Health Organization (WHO) to be one of the world's most fatal infectious diseases with more than 1 million deaths a year. To determine risk factors for mortality in positive-smear pulmonary tuberculosis.

Study Design: we conducted a retrospective study of all cases of microscopically positive pulmonary tuberculosis who died during hospitalization.

Setting: Department of Pulmonology DHQ hospital Faisalabad. DURATION: This study collected 1803 cases of tuberculosis over a period of 2.5 years, 46 of which died.

Methodology: This was retrospective study in department of pulmonology DHQ hospital Faisalabad collected 1803 cases of smear positive cases who died during hospitalization.

Results: The prevalence of death is 2.55%. The population is 32 men and 14 women. The average age was 53 ± 17 years old. Smoking was found in 50% of the cases. Comorbidity was found in 43%, with 17% of diabetes. The diagnostic delay had a median of 60 days with percentile (30d, 105d). The clinical symptomatology was dominated by cough, dyspnea and sputum respectively: 97.8%, 69.6% and 67.4% of cases. Radio logically, lesions were diffuse and bilateral in 76.1% of cases. All patients were on RHEZ. 11% had antibacillary toxicity (hepatic in 3 cases and neurological in 2 cases). The median time to death was 8.5 days (5d, 17d). The causes of death found were: fulminant hepatitis (3 cases), ketoacidosis (3 cases), ARDS (2 cases), massive hemoptysis (2 cases), and respectively a case secondary to exacerbation of COPD, cardiac decompensation, hypoglycemia and anasarca table.

Conclusion: This study suggests that the terrain, delayed diagnosis and side effects of treatment are the leading risk factors for mortality in hospitalized patients for pulmonary TB.

Keywords: Tuberculosis, Mortality, Comorbidity

Tuberculosis remains a public health problem for a large part of the world's population. It is the second leading cause of death from infectious diseases after infection with the human immuno-deficiency virus (HIV). The World Health Organization (WHO), in 2012, identified 8.6 million new cases of the disease with 1.3 million deaths. Nearly 85% of new TB cases have been diagnosed in sub-Saharan Africa and South Asia.[1] The purpose of this work is to determine the risk factors for mortality during pulmonary tuberculosis microscopy positive.

OBJECTIVE

To determine risk factors for mortality in positive-smear pulmonary tuberculosis.

METHODS

This is a retrospective study of all cases of microscopically positive pulmonary tuberculosis who died during their hospitalization. This study collected 1803 cases of tuberculosis including 46 deaths over a period of 2.5 years.

Inclusion criterion: all new cases of tuberculosis with positive microscopy undergoing tuberculosis

treatment who died during their hospitalization.

Exclusion criteria: Cases of relapse of pulmonary tuberculosis, failure or resistance were excluded from the study and patients with a history of TB treatment.

We studied epidemiological data, clinical data, complementary examinations (biological, radiological, bacteriological), therapeutic means, evolutionary modalities. The statistical study was carried out using SPSS software version 18. The numbers are expressed as a percentage. Quantitative values are expressed as mean and standard deviation when the distribution is symmetrical and median and quartile.

RESULTS

During the selection period, among 1803 hospitalized tuberculosis patients, 46 deaths were recorded, ie 2.55%. There were 32 men and 14 women (Sex ratio = 2.28). The average age of 53 ± 17 years old. Half of the cases were smoking. 43% of cases had at least one comorbidity. Diabetes was the most common comorbidity (17%) followed by COPD in 15% of cases. Cardiovascular comorbidities (hypertension, heart failure, cardiac arrhythmia ...) were found in 7% of cases. HIV serology was positive in 2% of cases. The diagnostic delay had a median of 60 days with a quartile of (30d; 105d). The clinical symptomatology was dominated by cough, dyspnea and sputum respectively: 97.8%, 69.6% and 67.4%. General signs were present in 97.8% (Table 1).

Table 1: *Patient Distribution According to Clinical Characteristics*

Clinical signs	Number of patients (%)
Respiratory signs	
Cough	97.8
Dyspnea	69.6
Sputum	67.4
hemoptysis	23.4
Chest pains	9.6
General signs	
Alteration of the general condition	96.3
Fever	84.6
sweats	73.4

Radiologically, excavated opacities were found in 35% of cases, reticulonodular infiltrates in 46% and the combination of both in 67% of cases. Lesions were diffuse and bilateral in 76% of cases (Figure 1 and Figure 2).

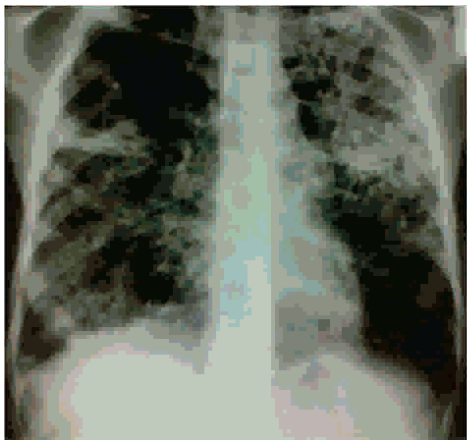

Figure 1: *Chest X-ray, Extensive and Bilateral Excavated lung Lesions in COPD*

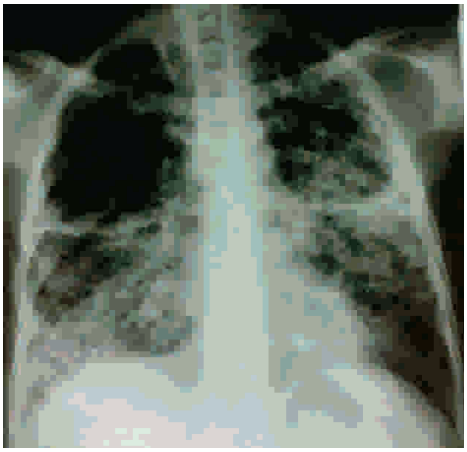

Figure 2: *Chest X-ray, Extended and Bilateral Pulmonary Tuberculosis in a Woman*

All patients received quadruple TB treatment with isoniazid, rifampicin, pyrazinamide and ethembutol. 11% of cases had antibacillary toxicity: hepatic in 3 cases and neurological in 2 cases.

The median time to death was 8.5 days with a quartile of (5d, 17d). The causes of death found were fulminant hepatitis (3 cases), diabetic ketoacidosis (3 cases), ARDS (2 cases), massive hemoptysis (2 cases), and one case secondary to exacerbation of COPD. Cardiac decompensation, hypoglycemia and anasarca.

DISCUSSION

Tuberculosis is an old infectious disease that is becoming more prevalent, with the number of new cases reported having steadily increased in recent years. This re-emergence phenomenon, including the pro-HIV role, and the deterioration of socio-economic conditions in some countries is associated with the emergence of multidrug-resistant strains of conventional anti-TB drugs.

Tuberculosis is the eighth leading cause of death in low- and middle-income countries (the seventh in men and the ninth in women). In adults aged 15 to 59, it is the third leading cause of death, after HIV / AIDS and ischemic heart disease. In 2012, 1.3 million people died of TB; nearly one million were HIV-negative and 320,000 HIV-positive. The African region has the highest number of deaths.[1,2] In our series, the average age found is lower than that described in industrialized countries, this can be explained by the fact that tuberculosis in Morocco affects young people. With excess male mortality.

Overall, however, our data are in line with the current incidence of the disease in high-prevalence countries, particularly in Africa where, on the one hand, there is a higher incidence of men and on the other maximum incidence for advanced age groups. The minimum incidence for older children and adolescents is justified for some by the duration of the BCG vaccination coverage that would protect against the disease only fifteen years, explaining the resumption of infection in young adults[3]. The factors that have been recognized as responsible for the current excess male mortality are both genetic and environmental factors.[4] Smoking in half the cases, this risk factor has already been cited by an international team that has shown that smoking is the major cause of half of all TB deaths in India.[5,6]

In a review of the literature on the determinants of diagnostic delay during tuberculosis, this delay was relatively homogeneous across the various selected studies, regardless of the country, between 60 and 90 days.[7] Expectedly, the longest delays were found in developing countries, with the excep-tion of a study in the eastern suburbs of London where the median time to diagnosis was 126 days.[8]

In our work, the total delay was 60 days, close to the averages found in the literature. It was comparable to countries like Tunisia, Vietnam, South Africa and Nigeria.[9-11] This delay was longer than that found in some studies in high-income countries such as Japan and China (Hong Kong)[12,13] The lesions were diffuse in the majority of patients, in relation to the delay in relatively long diagnosis and comorbidity. It should be noted that HIV is only found in 2 patients, whereas the WHO says that 1 in 4 patients with HIV die of tuberculosis and Globally, 320 000 people died by tuberculosis / HIV co-infection in 2012.[1,14] According to Lemon,[15] the decline in tuberculosis mortality in Europe at the beginning of the twentieth century should be related, on the one hand, to a better immunity of the populations and, on the other hand, improvement of socio-economic conditions. The association between tuberculosis mortality and pauperism has been emphasized several times.[16,17] The reduction in tuberculosis mortality is contemporaneous with the implementation of urban planning, the gradual improvement of working conditions, the improvement of housing and the relative rise in the standard of living.

CONCLUSION

At the end of this work, comorbidities, delayed diagnosis and side effects of treatment are the main risk factors for mortality in hospitalized patients for pulmonary tuberculosis. In Pakistan, the National Tuberculosis Control Program establishes absolute free testing, diagnosis and treatment of all forms of TB in public health facilities, but the patient still needs to be consulted and tuberculosis evoked by the doctor.

Contributions of the authors

All authors contributed to the conduct of this work and the writing of the manuscript. All authors

state that they have read and approved the final version of the manuscript.

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HOW THE GLASGOW COMA SCALE (GCS) EFFECTS THE OUTCOME OF BI-POSITIVE AIRWAY PRESSURE VENTILATION IN PATIENTS OF CHRONIC BRONCHITIS WITH ACUTE TYPE-2 RESPIRATORY FAILURE (RF)?

Riaz Hussian, Safia Ashraf, Asif Aleem, Syed Touseef Bukhari

Abstract

Objective: This study compared the efficacy of Non Invasive Ventilation(BiPAP) in patients with normal conscious state (GCS=15/15) to those having decreased conscious state (Glassgow Coma Scale in between 11-14) in acute exacerbation of chronic bronchitis presenting with carbon dioxide induced impairment in conscious state.

Design and setting: A comparative study conducted at Intensive Care Unit

Patients and Method: 85 patients admitted with acute rise in carbon dioxide in patients with chronic bronchitis. Arterial Blood Gases (ABGs) were drawn in all patients on presentation full filing criteria of type-2 respiratory failure. Conscious state was assessed by Glasgow Coma Scale. Patients with Glasgow Coma Scale 11 or above were put on Non Invasive (BiPAP) ventilation. ABGs were repeated again at 2 hours. Efficacy of BiPAP was checked in all patients. One group with Glasgow Coma Scale 15/15(normal) and second group with GCS= 11-14. Effect of Non Invasive Ventilation was compared in both groups with ABGs and GCS improvement.

Results: Arterial blood gases(ABGs) PH readings improved in both groups at 2 h. Response rate of ABGs-PH with BiPAP was up to 98.4% in group with normal GCS compared to 36.36% in patients with GCS=11-14. Response rate of ABGs-PO2 at two hour of BiPAP ventilation was up to 98.4% in group with normal GCS compared to 45.45% in patients with GCS=11-14.

Conclusions: If patient is not responding to conventional medical treatment in acute exacerbation of chronic bronchitis, the BiPAP(Non Invasive mechanical ventilation) should be next best option even in low GCS=11-14.

Keywords: Type-2Respiratory Failure (RF)· Chronic Bronchitis , BiPAP, Hypercapnic Respiratory Failure, Glassgow Coma Scale(GCS)

When lungs do not meet the metabolic demand of body in the form of decrease oxygen supply to tissue or unable to take out carbon dioxide, this will result in respiratory failure. Respiratory failure may be due to poor ventilation or poor blood supply of lungs with each respiratory cycle resulting in the changes in the PO2 of oxygen and carbon dioxide.[1]

Acute exacerbations of chronic bronchitis are a major load on critical care units. Bi-Positive Air Way Pressure (BiPAP-Non-invasive ventilation) has a major role in the treatment of type-2 (Hypercapnic) respiratory failure as traditional Invasive Positive Pressure Ventilation (IPPV) results in many complications which includes difficult to wean off ventilator.[2]

BiPAP which is Non Invasive Mechanical Ventilation (NIPPV) provides the patients ventilator support in both phases of respiratory cycle (inspiration and expiration) by using pressure cycled machine. BiPAP is applied through face or nasal mask tightly fitted on face.[3]

Type-2 RF may result in impaired neurological sign which is reversible. This may range from mild

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stupor to coma.[4]

BiPAP has a one of the relative contra- indication in patients with impaired conscious state due to potential risk of aspiration pneumonia. As recommended by to international society of critical care, the invasive positive pressure mechanical ventilation (IPPV) is the best choice for patients with low Glasgow Coma scale.[5]

As Invasive Mechanical Ventilation has many potential risks in term of difficult weaning in chronic bronchitis patients presenting with Type-2 respiratory failure. So in this study the BiPAP which is Non Invasive type of Mechanical Ventilation was applied to chronic bronchitis patients with hypercapnic respiratory failure with GCS Between 10-15. The efficacy of BiPAP in patients with normal Glasgow Coma Scale (GCS15/15) was compared to patients with impaired conscious state (GCS=10-14).

OBJECTIVE

To establish the efficacy of NIPPV in patients with chronic bronchitis presenting with type-2 RF in relation to their level of conscious state

Study Design: Comparative Study

Study Duration: From 1-July -2017 to 31 Dec. 2017 at King Fahd Hospital Alhassa Saudi Arabia

METHODS

In this study patients of chronicbronchitis presenting with respiratory failure (RF) with or without change in their cognitive state admitted at King Fahd Hospital Alhassa Saudi Arabiain age group of 50-70 years were included. Initial Arterial blood gases (ABGs) were noted in Accident and Emergency Department. On the result of these ABGs patients were started on conventional treatment in the form of oxygen therapy, Beta-2 agonist nebulization and antibiotics.

Conscious state of patient were evaluated by GCS score system. Computerized tomography of brain and other base line investigations were done to rule out other possible causes of impaired conscious level. It was established that impaired conscious state is most likely due to hypercapnia

Patients with type-2 respiratory failure divided in two categories

Category -1: Normal conscious state with Glasgow Coma Scale 15/15

Category -2: Patients with impaired conscious level Glasgow Coma Scale between 10-14

Respiratory failure criteria were defined:

1- PaO<60mmhg, and

2- PaCO2 values >55 mmhg

In case of conventional Medical therapy failure, BiPAP was applied to both categories with this criteria:

- 12cm H_2O for IPAP
- 6-7cm H_2O for EPAP

If a patients were unable to tolerate the BiPAP, then oxygen was given to keep the SPO_2 around 92%.

Bi-positive pressure ventilation (BiPAP) was discontinued with worsening SPO_2 or GCSor other clinical parameter at any stage of 2 hour ventilation.

DATA COLLECTION

After recording demographic data of patients, the baseline clinical parameters were recorded. Base line information were noted like pH, GCS, PO_2, PCO_2, RR and bicarbonate as shown in ABGs.

Clinical parameters and arterial blood gases (ABGs) were repeated again after two hours of receiving the BiPAP therapy. The data was collected through performa and then entered into SPSS 21 and analysed

Arterial blood gases (ABGs) before and after NIPPV in both Groups were compared in relation to their GCS. Mean and SD were calculated for quantitative variables. Paired `t'test and Chi-Square test was applied for comparison of relevant parameters.

RESULTS

A total of 85 patients were included in this study. The mean age of study subject was 62.6 (+7) with an age range of 50-70 years with male predominance. Out of total 85 patients, 22 patients

were having impaired cognitive function with GCS in between 11-14. & 63 patient having normal GCS (15/15). (Table .1)

Non Invasive Ventilation (BiPAP) was tolerated well by all patients. ABGs were repeated again in all patients after two hours.(Table.2) In patients with GCS 15/15, ABGs and other clinical parameter improved after 2 hours. Out of 63 patients with normal Glasgow Coma Scale, ABGs-PH and PO2 were improved in 62 (98.4%) patients. One patient (1.6%) with normal GCS did not showed improvement and was put on conventional IPPV Ventilation.

Other group with GCS in between 11-14, Out of 22 patients ABGs-PH and PO2and other clinical parameter improved in 8 (36.36%) patients at 2 hours(Table.3)

Table 1: *Baseline Clinical Parameter in Relation Glasgow Coma Scale (GCS):N=85*

Variables	Normal GCS (15/15) n = 63	Impaired conscious Level (GCS 10-14) n = 22
Age(years)	62.6 ± 7.30	62.6 ± 7.30
Gender	Male = 54 Female = 9	Male = 18 Female = 04
R/R	31.11(3.39)	27.8 (3.32)
ABGs PH	7.30(.02)	7.21(.03)
ABGs -PaCO2	67.9(4.48)	65.0(6.75)
ABGs-PaO2	55.6(3.28)	53.67(4.89)
ABGs HCO3	33.02(3.00)	32.7 (3.11)

Table 2: *Comparison of Clinical Parameters on Presentation and at 2 hours after NIPPV Ventilation in all Patients*

Clinical Parameter	On Presentation Mean±SD	At 2 hours of NIPPV Ventilation Mean±SD	P Value
R/R	30.6 (3.22)	24.3 (5.66)	.0002
ABGs PH	7.24 (.02)	7.40 (.05)	
ABGs -PaCO2	65.2 (5.33)	45.5 (15.6)	
ABGs-PaO2	53.8 (3.77)	89.1 (9.2)	
ABGs HCO3	34.9 (3.77)	27.3 (1.76)	

Paired t test with level of significance at P<05

Table 3: *Relationship between GCS and efficacy of NIPPV*

Glasgow Coma Scale	At 2 hours of NIPPV		P value
	ABGs pH value		
	Normal Parameter (n)	Abnormal Parameter (n)	**.0002**
11-14	8 (36.36%)	14(63.63%)	
15	62 (98.4%)	1 (1.6%)	
	ABG-PCO2		
11-14	11(50%)	11 (50%)	
15	56 (88.8%)	7 (11.2%)	
	ABGs-PO2		
11-14	10 (45.45%)	12 (55.55%)	
15	62 (98.4%)	1 (1.6%)	
	ABGs-Bicarbonate		**.390**
11-14	8 (36.36%)	14 (63.63%)	
15	11 (17.46)	52 (82.53%)	

Fishers exact test and X^2 test with level of significance at <.04

DISCUSSION

In this patients with chronic bronchitis presenting with hypercapnic respiratory failure not responding to conventional treatment, can be managed more efficiently by using BiPAP particularly if their GCS is normal (15/15) with ABGs pH in-between 7.22-7.35. Out of 63 patients with normal Glasgow Coma Scale, 62 patients showed improvement in the form of ABGs-PH and PO_2 to BiPAP therapy. In past BiPAP therapy was not advisable in patients with chronic bronchitis presenting with hypercapnic respiratory failure with PH in between 7.35-7.22 and impaired conscious state. Efficacy of BiPAP has been well established by many studies. Mostly studies in all over he world have shown good results with NIPPV particularly if GCS is 15/15. BMJ inn 2003 Rightowler JV, et, al[7] have shown efficacy up to 89% in acute rise of carbon dioxide in patients with chronic bronchitis managed by NIPPV therapy. Our study response rate with NIPPV was about 98.4% in patient with normalGCS(15/15). In many studies the same has been reported as 92%, and 86% by Plant PK et al, and Bott et al respectively.[8,9]. Our study the outcome of NIPPV in patients with normal Glasgow Coma Scale

was comparable with studies in Pakistan.

As objective of our study was to show the effectiveness of NIPPV in acute exacerbation of chronic bronchitis in patients with low GCS (11-14) .NPPV treatment is thought to be not a good choice for these patients because of aspiration pneumonia and mismatch ventilation. Internationalsocieties most recommended IPPV as first line therapy in these patients.[10]

In our study, out of 22 patients with low Glasgow Coma Scale GCS (11-14) , 8 patients (36.6 %) responded well to Non Invasive therapyin the form of ABGs-PH and PO_2. ABGs and conscious level improved in these patients. 14 patients (63.60 %) with impaired conscious state did not show improvement and were put on invasive mechanical ventilation.

One study conducted by Corrado, et al, included 150 patients and their response rate was 72%. Response rate was directly related to deteriorating conscious level as GCS went down 15 to 3. Adverse outcome in GCS ≤5.11 our study showed the response rate of 36.8% which was low as compared to their outcome. This difference in outcome may be due to availability of trained personals and infrastructure.

in America Claudett et al[11] showed 44% success rate in patients with type-2 respiratory failure treated with NPPV. Our study is almost comparable to these results. The little difference in results may be because their study includes patients with type-2 RF due to any etiology but we included only patients with chronic bronchitis presenting with hypercapnic encephalopathy.

The difference in the effectiveness of Bi-PAP in other studies can also be explained by difference of criteria used to assess the conscious level like ES, KMS [11].

CONCLUSION

BiPAP (Non Invasive Mechanical Ventilation) should be started even in low Glasgow Coma Scale patients presenting with type-2 respiratory failure. Although this type of treatment is not gold standard therapy in these patients particularly if GCS is less than 10. AS traditional IPPV has many complication with poor outcome, BiPAP therapy should be initial choice if patient is able to tolerate it.

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MEDICAL RESIDENT'S PERSPECTIVES REGARDING PROFESSIONALISM AND CHALLENGES TO PROFESSIONALISM

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Abstract

An increased interest in professionalism has been reported in the field of medical education due to concerns regarding deterioration of humanism and professional values in the teaching and practice of medicine. Research defining professionalism exists, yet little is known about how residents view this important attribute for medical practice. Knowing more about resident's perspectives about professionalism will facilitate to develop curriculum to achieve professional behavior at undergraduate and postgraduate level.

Material and method: Study conducted from 15-10-16 till 15-03-17. 240 residents participated from different specialties. Predesigned proforma distributed among them. Identity kept anonymous.

Results: Results were analyzed carefully .Total trainees participating in study were 240. Female candidates were 148(62%), male were 92(38%), 1st and 2nd year trainees were 87 (38%) and77 (32%) , 220(92%) candidate with age group ranging from25-35 years with exception of few trainees whose age were more than 40 years (8%). 128 (57%) were unmarried. Views of trainees were different regarding attributes of professionalism. 95% of them viewed empathy, respect and communication skill at top of other attributes. 92% considered altruism must be priority. Conflict resolution was not appraised as feature of professionalism by 55% of trainees. Reasons for unprofessional behavior were workplace problems, long duty hours, and stress and negative role models.

Professionalism personifies the relationship between society and medicine. It ventures to make certain attitudes tangible that are desirable among medical profession. It is difficult to define professionalism as it has many insinuated and implied meanings. It is derived from Latin word Professus or Public declaration.[1]

However Epstein and Hundert have defined professionalism, "Professional competence is habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for benefit of individuals and community being served."[2] Professionalism defines those attributes and conducts which are desirable by certain individuals while manifesting their profession and embraces competence, ethical behavior, integrity, honesty, justice and respect for others and self regulation.[3]

The good physician treats the disease; the great physician treats the patient who has disease. (William Osler).[4] A doctor is not a professional but has an important and foremost role of healer as well which form the basis of medical profession and its salient features or attributes. These attributes vary however in different cultures over the world but essence remains the same. (Cruess, 2010).[5] The American Board of Internal Medicine (ABIM) in 1995 identified six domains of medical professionalism, which include altruism, accountability, duty, excellence, integrity, honor and respect.[6]

This topic is essentially important as theoretical principles of professionalism are learned predominantly in preclinical years .Professionalism is a core competency and its assessment is more likely to occur as part of resident's training.[7] Professionalism has gained so much importance these days as autonomy is replaced by accountability. Expert opinion are given not on personal experiences rather these are evidenced based. Self interest has transformed to team work and shared responsibility. Moreover with increasing expectations from patient's health care managers and Government

professionalism is more relevant today than ever before.[8]

Medical profession has enjoyed a noble and privileged status in society. But in recent decades there is growing concern regarding infringement of professional values. Medical schools face the pressing need to address this by teaching professionalism to tomorrow's doctor. It is imperative to know the attitude of millennial students towards professionalism in order to design the learning and teaching activities.[9]

METHODS

A study carried out at Jinnah hospital Lahore from 15th October 2016 - 15th March 2017. 240 trainees participated. Identity was kept anonymous A predesigned proforma was distributed to those residents who were willing to take part in study. Performa included demographics of residents including age, gender, year of training and department or specialty. Trainees were asked to define professionalism and to pick up the attributes which according to them were integral part of professionalism. Second part of study which was the reasons behind their unprofessional attitudes was. It included stress at work, unfavorable environment, long duty hours, logistic problems, improper job description and negative role modeling.

Table 1:

Gender	n=240	%
Female	148	62
Male	92	38

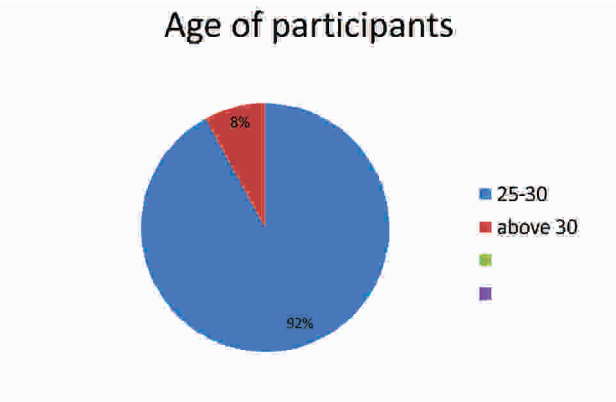

Table 2: Marital Status

Marital status	N=240	%
Married	112	47%
Unmarried	128	53%

Table 3: Year of Residency

Year of residency	N=240	%
1st year residents	87	36.1%
2nd year residents	77	32.4%
3rd year residents	42	17.5%
4th year residents	34	13.8%

Table 4: Resident Understanding of Professionalism

Year of residency	View about professionalism
1st year trainees	Clinical skills and knowledge
2nd year trainees	Committed and compassionate
3rd year trainees	Dedicated to duty
4th year trainees	Empathy and respect

No trainee was able to define professionalism. 50% were non responders to this question.

Table 5: Trainees views Regarding Elements of Professionalism

Elements of professionalism	%
Altruism	92
Empathy	95
Respect	95
Integrity	86
Communication skills	95
Approachability	83
Teamwork	74
Conflict resolution	55

Table 6: Work Place Problems

Year of residency	N=240	%
Heavy workload	144	60
Logistic problems	53	22
Improper job description (Clerical work, non cooperation of nurses/paramedics)	43	18

Table 7: Duty Hours

Duty hours	Number of trainees	%
40-60h/week	84(35%)	35%
60-80h/week	96(40%)	40%
More than 80h/week	60(25%)	25%

Table 8: Duty Hours and Impact on Professional Behavior

Duty hours/ week	Loss of empathy	Less time for communication with patients	Poor performance due to fatigue	Conflicts with colleagues and staff	No impact
40-60 (n=84)	-	9 (10%)	-	-	75(89.3%)
60-80 (n=96)	2(2%)	25(26%)	6(6.25%)	4(4.1%)	59(61%)
Above 80 (n=60)	5(8.3%)	32(53.3%)	8(13.3%)	9(15%)	6 (10%)

Table 9: Negative Role Modeling

Senior collegues/Consultants	75	31%
Peers	67	28%
Initial education years	98	41%

RESULTS

Results were analyzed carefully. Most of the candidates were female about 148 (62%). Majority of trainees were from 1st and 2nd year residency 87 (38%) and 77(32%) respectively and belonged to young age group ranging from25-30 years 220(92%) and above 30 years were 19(8%). Unmarried were 128(57%). Views of trainees were different regarding attributes of professionalism. According to 1st year trainees clinical skills and knowledge was a quality of a professional. 2nd and 3rd year trainees viewed a professional as committed to duty, While 4th year trainees have different opinion according to them empathy and respect towards patients and colleagues were main attributes to professionalism. When they were given options regarding salient elements of professionalism 95% of them were able to consider empathy, respect and communication skill at top of other attributes. 92% viewed altruism must be priority. Conflict resolution was not appraised as feature of professionalism by 55% of trainees. Regarding work place problems 144(60%) trainees were overburdened with clinical work, 53(22%) were problems due to insufficient logistics and 43(18%) perceived improper job description as workplace problems. Another barrier to professionalism was burnout due to long duty hours. Among trainees doing 40-60 h/week, only 9(10%) had problem in communication with patients due to time constraint while it increased to 26% and 53% in residents doing 60-80 and more than 80 hours respectively. Similarly loss of empathy perceived by 0%, 2% and 5% and interpersonal conflicts found in 0%, 4% and 9% in trainees doing 40-60, 60-80 and more than 80h/week. 177(74%) of trainees found themselves under stress at duty place, 41(17%) were having stress at home and 22(9%) were stressed at both home and workplace. Negative role modeling by seniors, peers and non medical personnel was perceived as barrier to professionalism by 75(31%), 67(8%) and 98(41%) trainees respectively.

DISCUSSION

Over the past two decades studies carried out on professionalism revealed that trainees need for professionalism and ethical teaching. The accelerated advancement in medical science and technology throughout the world has produced a pressure and compulsion to explore and strengthen the scientific knowledge base in undergraduate and post graduate curriculum and social science experiences are not being addressed and Pakistan is not exempted as well. A study has been carried out at Jinnah hospital Lahore among trainees of different specialties. 240 trainees participated in study. The number of residents is almost half of the trainees in a study carried out in Bangladesh by Abdulsalam, where total participants were 445.[10] Among study participant's number of female residents were 62%, male residents was 38%. Number of participants were exactly same in a study conducted at Malaysia Male (38%), Female (62%).[11] Half of them married (53%) and 47% were unmarried. Being married is associated with humanism, less cynicism and depersonalization.[12] But no difference seen in our study in consideration of professionalism among married or unmarried residents. Majority of responders were first year residents (36%), followed by second year residents 32%. Responders from 3rd year residency

level were 17%. Fourth year resident participation was lower (13%). Similar trend was observed among trainees participation in study conducted by Bolen where response rate by postgraduate trainees was as follow : 74% were PG Year-1, 45% PG Year -2, 42% PG Year -3, 19% PG Year 4.[13]

The most important part of Performa was to define professionalism. No one of them was able to define it properly. 50% did not respond to this question at all. Study carried out Zain ul Abidin university showed that trainees has some concept of professionalism. Though they could not define it in scientific terms but 78% of them responded to this question and only 22% were non responders.[11] It was interesting to see that there was difference in understanding and viewing professionalism among residents of different years. Junior residents viewed that a good professional must be competent enough to do surgeries and having core knowledge of subject. They meant the academic part as professionalism. As the level of training increased their perception regarding professionalism changed and they had more concrete concept of it. During mid part of their training (2nd and 3rd year) they realized that it was all about being committed and dedicated to their work. One thing again lacking was attitude with patient's and communication. 4th year trainee perceived professionalism as being empathetic and respectful to patients. So it was evident from the results that understanding of professionalism improved as the training progressed and they acquired humanism. However the results of our study were contrary to the studies which were carried out previously that showed that there is decline in sympathy and humanism as the students progressed in studies. They enter in medical college with aim of helping poor and serve humanity. But during course of progress this passion declines and they become more materialistic as they enter training program.[14] Study conducted by Taylor et al also showed difference in perception of elements of professionalism among different years of training. According to this study First year perceived altruism and integrity as salient elements of professionalism. Second year residents identified ethics, empathy and learning attitude as principles of professionalism. Third year residents' highlighted respect and humanism must be at priority. This study also showed that with advanced years of training, residents got aptitude to be respectful and humanistic with patients.[15]

These were views of trainees when they were not given options for basic principles of professionalism. Options given regarding eight principles of professionalism including altruism, empathy, respect, integrity, communication skills, approachability, team work and conflict resolution. Their opinions were sought about their understanding towards professionalism. Almost all trainees were able to recognize and consider professionalism. 95% of trainees viewed respect, empathy and communication skills as cardinal part of professionalism. 92% viewed altruism while approachability or easy availability of doctor was considered as an integral feature of professionalism by 83% of trainees. Team work was perceived important by 74% resident. It was interesting to note that conflict resolution was only considered as part of professionalism by half of trainees (55%). No difference of opinion seen among male, female, junior or senior residents when they were provided with option list of important attributes of professionalism. Results of this part of study were compared with other studies carried out. Integrity of profession and respect were given highest scores in local study conducted at Agha khan hospital like our study.[16] Neda and Bolen showed that Conflict resolution was given less importance by residenst.[13] A qualitative research done at khyberpakhtoon khawa probed expectation of families of patients from doctors. They mentioned that one of the most important attribute is 'Akhlaq' (morality) of a doctor and communication skills as the second important attribute for a professional.[17]

Second part of survey was to know the reasons for unprofessional attitude of residents. Residency is a period of transformation from a trainee to consultant. It provides chance to develop and

achieve skills and professionalism but it is a difficult time also during which a trainee is facing certain problems which may lead to unprofessional behavior. One of them was workplace problems. Environmental factors such as workload, specialty, logistics problem, patient characteristics were factors making workplace environment difficult[18]. Our study had shown that 60% of candidates were over burdened with clinical work, 22% were having logistic problems while 18% were facing problems due to clerical work and lack of cooperation with paramedical staff and nurses. Trainees were having workplace problems due to heavy workload in public hospitals, time constraints, poor and low resources, uneducated and noncompliant patients, interpersonal conflicts with other trainees and staff.[13]

An interesting part of our study was that residents having long duty hours i.e more than 80 hrs/week were having a negative impact on professional attitude. 8% of them found themselves lacking empathy, 53% have problems in communicating with patients due to time constraints, 13% were having burnout and 15 % were facing interpersonal conflicts. Only 10 % were coping with these duty hours. Among trainees having duty hours up to 60 h /week 89% had no negative impact on professionalism, while those doing more than 60 but less than 80 hours, 60% of them perceived themselves as not being unprofessional. It showed that long duty hours were causing trainees to behave unprofessionally. ACGME implemented work hours limitations in July 2003. Accepted duty hours were 80 hours /week and no more than consecutive 24 hours. But at same time concern arises that reducing duty hours will affect trainees clinical skills, coping with stressful conditions and altruism will be difficult to achieve.[19]

The fact that stress is prevalent during the residency period is well-documented in the literature. The Resident Service Committee of the Association of Program Directors in Internal Medicine (APDIM) divided the common stressors of residency into three categories: situational, personal, and professional. Situational stress means stress at workplace, personal stress denotes stress at family level and professional stress includes problems and difficulties at clinical and academic levels and interpersonal conflicts.[20] Results of our study have shown that 74% of our residents were found stressed at workplace, 17% had stress at home and 9% had stress at home and workplace both. And there was no discrimination among male or female. Twoes et al surveyed and found that female trainees were found to be more stressed and depressed.[21] Stress, however, is a normal part of residency and can produce desirable effects such as tolerance of ambiguity, self confidence, and maturity. Stress also may stimulate the acquisition of knowledge and skills.[22]

Last and most important part of our study was impact of negative role modeling in causing non professional behavior. A lot of research is being done and role modeling is considered as pillar or backbone of curriculum to teach professionalism. It is said that professionalism is not taught but caught. But research had shown that it can be learned through mentoring and role modeling. In contrast to other studies which have shown positive effect of mentorship, a strong impact of negative role models was evident from our study.[11,16] 31% of trainees considered their senior colleagues and consultant as negative role model. For 28% peers were a source for negative role modeling. It was surprising to find out that not at medical college or training levels but at initial level of schooling and education 41% of trainees have got mentors leaving negative impact. Aldoki described in his study that trainees were deficient in achieving professionalism due to negative role modeling by faculty.[23]

CONCLUSION

In public hospital in Pakistan there are pathetic circumstances not for patients but for medical staff as well. Resources are being drained and not used properly. There is heavy workload, lack of job description. Pressure from media and government is causing breeches in empathy and altruism, huma-

nism is on decline. Our trainees' value attributes of professionalism but due to above mentioned reasons they are failing to exhibit it in their daily life. Provision of supportive environment which fosters collaboration, team work and intellectual honesty and endorsing positive mentoring would be a great step to promote professionalism. Future research is needed to explore perspectives of faculty, paramedical staff and patients regarding professionalism.

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COMPARISON OF SERUM VISFATIN AND ALDOSTERONE LEVELS IN OBESE AND NON-OBESE PRIMARY HYPERTENSIVE SUBJECTS

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Abstract

Background: Primary hypertension accounts for majority of the cases in which no medical cause can be found, obesity being its major risk factor. Serum visfatin and aldosterone levels are raised in both hypertension and obesity.

Objectives: The study was conducted to determine and compare serum levels of visfatin and aldosterone in non-obese normotensives, non-obese hypertensives and obese hypertensives. This study also aims to correlate serum visfatin and aldosterone levels.

Method: This correlation study was conducted at the Physiology Department of Postgraduate Medical Institute, Lahore. 81 subjects were equally divided into three groups (non-obese normotensives, non-obese hypertensives and obese hypertensives) of 27 each. Males and females between age of 30-55 years were selected. Subjects with any medical illness except primary hypertension and those pregnant or on anti-obesity drugs were excluded. Fasting blood samples were collected to estimate serum visfatin and aldosterone levels. Data were analyzed using SPSS version 20.

Results: Mean serum visfatin levels of 70.97±50.30 ng/ml were observed in the obese hypertensive patients while 33.71±10.66 ng/ml and 5.21±3.57 ng/ml was found in the non-obese hypertensives and non-obese normotensives (controls), respectively. In obese hypertensive group, mean aldosterone level was 895.17±337.69 pg/ml, whereas 287.09±170.81 pg/ml in non-obese hypertensives and 80.42±55.42 pg/ml in controls. A positive correlation ($r = 0.653$, $p<0.001$ and 0.569, $p<0.001$) was also observed between aldosterone and systolic and diastolic blood pressure values, respectively. A strong positive correlation was observed between serum visfatin levels and serum aldosterone levels ($r = 0.674$, $p<0.001$).

Conclusion: Current study showed positive correlation between serum visfatin and aldosterone, A positive association of serum visfatin and aldosterone levels with obesity and hypertension were also seen. Unravelling possible links between hypertension and obesity, and adipokines such as visfatin is important for the control of these conditions

Key Words: Obesity, Hypertension, Serum Visfatin, Normotensive, Non-obese.

Hypertension is a chronic condition in which arterial blood pressure (B.P) is raised above the normal ranges of 120 mmHg systolic and 80 mmHg diastolic blood pressure.[1] Multiple factors are attributed as a cause of hypertension but in cases where no definitive cause is found despite thorough investigation, the condition is termed as primary, idiopathic or essential hypertension.[2] Essential hypertension shows genetic predisposition in addition to aggravation by contributing factors like obesity, stressful life style, diet, and smoking[3]. Obesity is defined as excessive accumulation of fat. An individual with a body mass index (BMI) of 30 Kg/m^2 or more is considered as obese.[4]

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Visfatin is an adipocytokine which produced from visceral fat. Normal serum level of visfatin is 15.8 ng/ml ±16.7 ng/ml, in both genders.[5] Visfatin causes proliferation of adipocytes and raised levels are seen in obesity.[6] Visfatin induces inflammation and oxidative stress causing nitric oxide breakdown and raised levels of Endothelin factor 1 (ET-1) resulting in atherosclerosis and vasocontriction.[7] Study done by Rezk et al. contradicts the above observations and suggests that visfatin provides protection against hypertension and its release from the visceral adipose tissue is, infact, a compensatory mechanism to reduce the raised arterial pressure.8 The definitive role of visfatin in systemic hypertension is still unclear and merits further exploration.

Aldosterone also plays an essential role in development of hypertension. In obese individuals adipose tissue secretes aldosterone - releasing factors, thus stimulating secretion of aldosterone independent of rennin-angeotensin - aldosterone system. This hyperaldosteronism along with impaired pressure natiuresis results in salt sensitive hypertension.[9]

Present study probes the possible association between serum aldosterone and visfatin levels with hypertension in non-obese and obese individuals and their correlation with age, BMI, waist hip ratio, systolic and diastolic blood pressure. Effective control of hypertension is not possible without proper understanding of underlying pathophysiology of this disease and the proposed role of visfatin.

METHODS

This comparative cross sectional study was conducted in the Physiology Department of Postgraduate Medical Institute (PGMI), Lahore from 01st November, 2013 to 30th October, 2014 in cooperation with Services Institute of Medical Sciences, Lahore after the approval by the Advanced Science and Research Board of the University of Health Sciences (UHS), Lahore. Prior to sample collection the study was approved by ethical committee of PGMI. A total of 81 male and female subjects between the age of 30 and 55 years, equally divided into three groups, were included in the study. First group consisted of 27 non-obese normotensive controls. Second group comprised of 27 non-obese hypertensive individuals. Third group included 27 obese hypertensive subjects.

Non-obese, normotensive male and female individuals between the age of 30 and 55 years were included in the control group, while inclusion criteria for cases consisted of hypertensive individuals from both genders, both non-obese and obese, having been diagnosed within last six months and having ages between 30 and 55 years.

Individuals diagnosed with hypertension more than six months ago, having any acute or chronic illness (except hypertension), pregnant females and individuals taking anti-obesity drugs were excluded from this study. Information about demographic and physical characteristics such as height in meters and weight in kilograms was recorded on special data collection forms after taking informed consent.

Blood pressure was recorded using mercury sphygmomanometer according to Joint National Committee (JNC) guidelines on prevention, detection, evaluation and treatment of hypertension.[1] Body Mass Index (BMI) and Waist Hip Ratio (WHR) were measured.

5 ml of fasting blood sample was drawn through venipuncture using aseptic technique. Serum was sperated for estimation of visfatin and aldosterone levels and was stored at -40°C. Sandwich ELISA was performed for quantitative estimation of serum visfatin using ELISA kit for human soluble PBEF1/ visfatin/ NAMPT by Aviscera Bioscience. Aldosterone was estimated using ELISA kits by Labor Diagnostika Nord, Germany.

DATA ANALYSIS

Data were entered into SPSS version 20 for statistical analysis. Quantitative variables such as age, BMI, WHR and serum visfatin and aldosterone levels were expressed in mean +SD. The qualitative variables like gender were expressed as frequency

and percentages. One way analysis of variance (ANOVA) was applied for the comparison of these serum values in the three groups. p-value of less than 0.05 was considered to be statistically significant.

RESULTS

The study included 81 subjects, 40 being males and 41 females. The subjects were separated into three equal study groups (controls, non-obese hypertensive and obese hypertensive) each having 27 subjects. The subjects were of ages between 30-50 years. Table 1 shows mean Age, BMI, WHR, systolic and diastolic blood pressures for the three study groups.

Marked variations in the mean visfatin and aldosterone values among the three study groups were observed (Table 2). Mean ±SD level of visfatin observed in the control group was 5.21±3.57 ng/ml. Mean serum visfatin levels of obese hypertensive (70.97±50.30 ng/ml) and non obese hypertensive (33.71±10.66 ng/ml) were significantly higher as compared to controls (p <0.05). There was also a significant difference in the serum visfatin level of obese and non obese hypertensives (p <0.05). Highly significant difference was observed between controls and obese hypertensives (p <0.001) and also between non-obese and obese hypertensives (p< 0.001). Mean ±SD serum aldosterone level of 80.42±55.42 pg/ml was observed in controls. Non-obese hypertensives showed a mean value of 287.09±170.81 pg/ml while the obese hypertensives showed a value of 895.17±337.69 pg/ml. There was a significant difference in the levels of aldosterone among obese and non obese hypertensives (p <0.001) as compared to controls (p<0.003)

Table 1: *Physical Characteristics of Study Participants*

Variable	Control mean ±SD (n = 27)	Non-Obese hypertensive mean ± SD (n = 27)	Obese hypertensive mean ± SD (n = 27)
AGE (yrs)	40.95±6.34	41.13±6.52	40.78±6.23
BMI (kg/m^2)	23.11±1.16	23.07±1.14	32.59±1.55
WHR	0.73±0.11	0.69±0.11	1.12±0.26
B.P (Systolic) (mm Hg)	111.85±7.36	146.67±7.85	151.30±10.71
B.P (Diastolic) (mmHg)	73.52±4.12	97.78±5.43	97.59±4.68

BMI= Body Mass Index, WHR= Waist Hip Ratio,
B.P = Blood Pressure, n= Number of subjects

Table 3 represents the correlation of visfatin and aldosterone levels with age, BMI, WHR, systolic and diastolic blood pressures. Serum visfatin levels showed a positive correlation (r = 0.602, p <0.001) with the BMI, WHR (r= 0.492, p <0.001), Systolic blood pressure (r= 0.543, p <0.001) and diastolic blood pressure levels (r= 0.538, p <0.001). Serum aldosterone levels also showed a positive correlation (r= 0.794, p <0.001) with the BMI, WHR (r = 0.590, p <0.001), Systolic blood pressure (r=

Table 2: *Comparison of Serum Visfatin and Serum Aldosterone Levels in Controls, Non-obese Hypertensives and Obese Hypertensives by Applying One Way ANOVA*

Variable	Control mean ±SD (n = 27)	Non-Obese hypertensive mean ± SD (n = 27)	Obese hypertensive mean ± SD (n = 27)	*p*-value
Serum Visfatin (ng/ml)	5.21±3.57	33.71±10.66	70.97±50.30	<0.001***
Serum Aldosterone (pg/ml)	80.42±55.42	287.09±170.81	895.17±337.69	<0.001***

n = number of subjects, ***= highly significant, Controls: non-obese normotensives

Table 3: *Correlation of Serum Visfatin and Aldosterone, with Age, BMI, Waist Hip Ratio, Systolic and Diastolic Blood Pressure by Applying Pearson's Correlation*

	Age		BMI		WHR		B.P (Systolic)		B.P (Diastolic)	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Visfatin	.191	.087	.602**	<0.001	.492(**)	<.001	.543**	<.001	.538**	<0.001
Aldosterone	.263	.018	.794(**)	<0.001	.590(**)	<.001	.653**	<.001	.569**	<0.001

** highly significant, BMI= Body Mass Index, WHR= Waist Hip Ratio, B.P = Blood Pressure

0.653, p <0.001) and diastolic blood pressure levels (r= 0.569, p <0.001).

Serum visfatin levels when compared with serum aldosterone levels showed a strong positive correlation (r = 0.674, p <0.001). No correlation was seen within the three study groups as seen in figure 1.

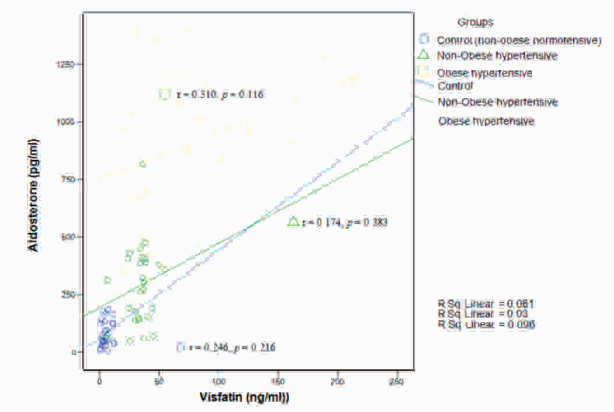

Figure 1. *Correlation of Serum Visfatin with Serum Aldosterone in Controls, Non-Obese Hypertensives and Obese Hypertensives*

DISCUSSION

Obesity and hypertension and are two of the most common, non-communicable diseases in the world. The present study explores the relationship of visfatin and aldosterone with obesity and primary hypertension and compared it in the three study groups i.e. controls, obese hypertensives and non-obese hypertensives. Serum visfatin levels showed marked variations in the three study groups. Mean serum visfatin level observed in controls was within a normal range while both non-obese hypertensive and obese hypertensive subjects showed higher visfatin levels. Several previous studies have reported a positive correlation between serum visfatin and BMI and WHR. A study was carried out to determine the serum visfatin levels in obese hypertensive female subjects. It concluded that visfatin and other related adipokines played significant role in development of obesity and hypertension in females.[10] Another study conducted to see the role of visfatin on state of the vessel wall in obese hypertensive patients also confirmed the above results.[11] Visfatin is produced from adipocytes in visceral fat. Therefore, visfatin levels are believed to be raised in individuals with higher body fat. Visfatin also causes inlfamation of vessels resulting in vasoconstriction and hypertension. This may be the reason why visfatin levels are found to be higher in obese hypertensive subjects as compared to controls in our study. However in contradiction, a study carried out in young adults recently diagnosed with hypertension showed no correlation between visfatin hypertension.[12] The reason for these results may be the fact that the study included only non-obese subjects belonging to younger age groups. As hypertension is not as frequent in young non-obese individual, a significant correlation may not have been established. Another reason mentioned by the researcher was that blood pressure levels were influenced by medications which may also have affect the results. Relationship between visfatin and hypertension is multifaceted and cannot easily be explained by simple mechanisms without taking into consideration various endocrine and metabolic factors such as insulin resistance which influences the levels of visfatin.[13,14]

Present study shows raised levels of aldosterone in obese and non obese hypertensive subjects which is consistent with results from various other studies. The role of aldosterone has been proved in insulin resistance, systemic inflammation and dyslipidemias which lead to obesity and hypertension.[15] A recent study showed that adipokine mediated secretion of aldosterone in obese individuls promotes endothelial dysfunction resulting in cardiovascular diseases and hypertension.[16] Similar results were also reproduced in obese female mice.[17] However, a study conducted by O'Seaghdha et al., on 3rd generation of participants of the classic Framingham Heart Study showed no significant correlation between serum aldosterone levels and obesity. This could be attributed to the racial limitations of the study. Nevertheless, further research is indicated to find correlation between aldosterone and obesity

Current study shows a positive correlation between serum levels of visfatin and aldsoterone. Studies have shown that blocking RAAS decreases

aldosterone levels, which in turn reduces visfatin levels.[18] Renin and angiotensin are also known to promote gowth of adipocytes by increasing uptake, storage and synthesis of fatty acids which results in raised visfatin levels.[19] Another study found a negative correlation between visfatin and aldosterone levels which may be attributed to use of ACE inhibitors however authours could not identify the reason for this negative correlation.[13]

CONCLUSION

The serum levels Visfatin and aldosterone of obese and non-obese hypertensive subjects are seen to be progressively raised as compared to those of non-obese normotensive subjects. A positive correlation also exists between visfatin and aldosterone in the studied population.

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ETIOLOGY AND DEMOGRAPHIC FACTORS OF MICROCYTIC HYPOCHROMIC ANEMIA AMONG CHILDREN

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Abstract

Introduction: Anemia is reduction of hemoglobin concentration or the red cell mass in the blood, below the level that is normal for age and sex of individual. It is a global health issue affecting persons of all ages and socio-economic groups. Of all the types of anemias, microcytic hypochromic anemia is most common.Although a number of studies have been done on general prevalence of anemia, very few are focused on microcytic hypochromic anemia of children

objective: To determine the pattern of microcytic hypochromic anemia among children of different age groups and gender.

Methods: Hundred children of age of each gender ranging from 1 to 14 years were included in the study.

Blood samples were taken for Hemoglobin, RBC morphology, serum iron, ferritin and TIBC. Hemoglobin electrophoresis was done for thalassemia and related disorders. Data was entered in computer software SPSS version 23.0. Chi-Square test applied and P-value ≤ 0.05 was considered statistically significant.

Results: Out of total 100 cases, 49% were male and 51% female. Ninty one subjects were diagnosed to have iron deficiency anemia, while seven subjects were diagnosed with beta thalassemia trait. Anemia of chronic disease was diagnosed in only two subjects. Results showed frequency of IDA was significantly higher in young children (1-7years) with p value=0.005.However frequency of iron deficiency was not significantly different in the two genders.

Conclusion: We conducted this study to find out the causes of microcytic hypochromic anemia in children of various age groups with regards to underlying etiology and also to see hemoglobinopathies. Our study showed that iron deficiency remains the most common cause of microcytic hypochromic anemia amongst our population.

Key words: Microcytic Hypochromic Anemia, Iron Deficiency Anemia Thalassemia trait, Anemia of chronic disease

The term anemia refers to reduction in the hemoglobin concentration or the red cell mass in the blood, below the level that is normal for the age and sex of the individual. Anemia is a global problem of immense health significance affecting persons of all ages and economic groups.[1]

There are 2 billion people with anemia in the world and it is estimated that half of all anemia cases are due to iron deficiency. In developing countries, 39% children below 5 years and 48% children between 5 – 14 years suffer from anemia.[2] It is reported that, in Asia, the prevalence of anemia in children below two years of age will possibly surpass 90% of children.[2] In South East Asia, 66% of the children are anemic which results into 324,000 deaths.[3] In Pakistan the reported prevalence of IDA in children under five is between 40–70%.[4] In Pakistani children IDA has been associated with growth retardation, impaired cognition, reduced physical activity and postulated as a contributor to

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the high national infant mortality rate.[4] Widespread micronutrient deficiencies along with other clinical and social factors are believed to be the leading cause of IDA in Pakistan.[4] Children with anemia may present in hospital with anemia related nonspecific or specific symptoms or with other associated diseases. Anemia is diagnosed after hemoglobin estimation and further sub typing is done by complete blood counts, peripheral blood smears and other relevant tests as and when required. Iron deficiency anemia (IDA) shows microcytic hypochromic erythrocytes on peripheral smear, which may however also be seen in thalassemia, chronic inflammation, lead poisoning and sideroblastic anemia.[2] In the current study, we have analyzed all pediatric cases with microcytic hypochromic anemia due to iron deficiency.

Classification of anemia is important because it would help in an orderly approach to diagnosis as well as the treatment. Microcytic hypochromic anemias can be classified into the following three types.[1]

1. Disorders of Iron metabolism: Iron deficiency anemia – It is the most common form of nutritional. Anemia of chronic disorders. It is usually seen in patients with infections, inflammatory or neoplastic disorders that persist for more than 1 to 2 months. **2.Disorders of Globin Synthesis:** The Thalassemiais a group of inherited disorders in which synthesis of one of the normal globin polypeptide chain is absent.[3] Disorders of Porphyrin and Heme-synthesis:characterized by deposition of iron in the erythroblast mitochondria in perinuclear area giving rise to ringed sideroblasts.[1]

OBJECTIVES

To determine the causes of Microcytic Hypochromic Anemia among children of varying age and gender groups

METHODS

It was a cross sectional study conducted at department of Pathology, Allama Iqbal Medical College, Lahore. A total of 100 Children aged 1-14 years, of either gender with Microcytic Hypochromic anemia based on CBC and blood smear examination.were included in the study. Cases were selected were included by non probability / purposive sampling techniques. Smears were made for peripheral blood examination and stained with Giemsa stain. Hemoglobin electrophoresis was carried out for detecting thalassemia and hemoglobinopathies. Serum iron TIBC and ferritin were determind. Anemic children who have received blood transfusion in last three months, having anemia of types other than microcytic hypochromic anaemia and having history of acute illness were excluded from the study.

As per operational definitions, patients having microcytosis and hypochromia on smears, MCV < 75fl and MCH <25 pg have been regarded as microcytic hypochromic. Iron deficiency anemia; was defined as ≤ Hb 11 g/dl, serum iron ≤70ug/dl in males, ≤60 ug/dl in females, TIBC >400 ug/dl and serum ferritin ≤30ng/ml in males and ≤20ng/ml in females. Anemia of chronic diseasewas defined as ≤ Hb 11 g/dl, serum iron ≤70ug/dl in males, ≤60 ug/dl in females, TIBC ≤ 200 ug/dl and, serum ferritin > 30ng/ml in males and>20ng/ml in females. Thalassemia Trait was defined as Hb ≤ 11 g/dl, with Hb A2 >3.5 along with normal iron studies.

Data was entered and analyzed in SPSS Version 23. Frequency and percentages were calculated for aetiological factors of microcytic hypochromic anemia. Cross tabulation was done and chi square was applied for variable of interest age, genderwith dependent variable i.e microcytic hypochromic anemia. Statistical significance was determined at p-value ≤0.05

RESULTS

A total of 100 cases of microcytic hypochromic anemia, fulfilling the inclusion and exclusion criteria were included in this study.

The mean age of patients in this study was 6.17 ± 3.23 with minimum and maximum age of 2 and 13 years. A total of 65(65%) patients were 1-7 years of

age while rest of 35(35%) were 8-14 years old. There were 49(49%) male and 51(51%) were female patients.(Table No: 1)

The mean Hb, PCV, RBC, MCV, MCH, MCHC and RDW were 8.87±2.02(g/dl), 28.83±4.37(l/l), 4.52 ± 0.87×106/ul, 65.29 ± 6.04fl, 19.33±4.45pg, 28.84 ± 3.61g/dl and 44.3414.34.

Frequency of IDA, thalassemia trait and ACD were 91 (91%),7 (7%)and 2((2%) respectively in 100 total subjects based on the operational definitions. (Table No, 2)

Means of serum iron, TIBC, serum ferritin and transferrin saturation in IDA, Thalassemia trait and ACD are shown in.(Table No; 3)

IDA was found more in 59/91(64.8%) patients of 1-7 year of ages, In 8-14 year of ages there were 32/91 (35.2%) with IDA. chi square =8.01 and p-value= .005,these values were statistically significant (this is calculated by chi square test). Thalassemia traits were seen in 5/7 (71.4%) of cases in age group of 1-7 years while 2/7 (28.6%) were found in age group of 8-14 years. p-value = 0.25 and chi square was = 1.28. ACD was found in 1/2(50%) in 1-7 years age group and 1/2(50%) in other age group of 8-14 years. (p-value = 1.00). (Table No; 4)

IDA was noted in 43(47.3%) males and 48(52.7%) female children out of total 91 cases of IDA. p-value=0.6. Thalassemia trait was found in 5/7(71.4%) males and 2/7(28.6%) females. p-value=0.25. ACD was found in1/2(50.0%) males and 1/2(50.0%). females. p-value=1.0 There was no significant difference between types of anemia and gender. (Table No: 4)

In children of age group 1-7 years severe anemia was seen 13/65(20%), moderate anemia was 30/65(46.1%) and mild anemia was 22/65(33.9%). Severe anemia, moderate anemia and mild anemia were 4/35(11.4%), 17/35(48.6%), 14/35(40%), the age group 8-14 years respectively. The age groups were not associated with grading of anemia

Table 1: *Demographic Feature of Study Population*

Feature	Group	Frequency	Percentage (%)
Age(years)	1-7	65	65
	8 -14	35	35
Gender	Male	49	49
	Female	51	51

Table 2: *Descriptive Statistics of Types of Anemia*

TYPE	Frequency	Percentage
IDA	91	91.00%
Thalasemia trait	7	7.00%
ACD	2	2.00%

IDA=Iron Deficiency ,ACD= Anemia of Chronic Disease

Table 3: *Iron Status In Anemia Patients*

	Parameter	Mean	SD	Min.	Max.
IDA	**S. Iron** (ug/dl)	28.49	14.33	9.00	70.00
	TIBC (ug/dl)	480.43	63.40	467.00	825.00
	S. Ferritin (ng/ml)	7.04	6.91	1.01	30.00
	T. Saturation%	5.87	3.40	13.00	17.50
Thalassemia trait	**S. Iron** (ug/dl)	55.43	15.01	32.00	70.00
	TIBC (ug/dl)	347.86	61.36	250.00	400.00
	S. Ferritin (ng/ml)	27.00	12.17	5.00	40.00
	T. Saturation%	16.65	6.22	8.20	24.00
ACD	**S. Iron** (ug/dl)	33.00	4.24	30.00	36.00
	TIBC (ug/dl)	199.00	0.71	199.00	200.00
	S. Ferritin (ng/ml)	90.00	14.14	80.00	100.00
	T. Saturation%	17.80	3.96	15.00	26.60

Table 4: *Frequency Of Type Of Anemia In Different Age And Gender Groups*

Feature	Groups	Types of Anemia						
		IDA (n=91)	*P-value*	Trait (n=7)	*P-value*	ACD (n=2)	*P-value*	Total (n=100)
Age (years)	**1-7**	59	0.005	5	0.25	1	1.0	65
		64.8%		71.4%		50.0%		64.0%
	8-14	32		2		1		35
		35.2%		28.6%		50.0%		35.0%
Gender	**Male**	43	0.6	5	0.25	1	1.0	49
		47.3%		71.4%		50.0%		49.0%
	Female	48		2		1		51
		52.7%		28.6%		50.0%		51.0%

Table 5: *Comparison of Severity of Anemia with Age*

Groups	Severe Anemia (< 7 g/dl)	Moderate Anemia (7-10 g/dl)	Mild Anemia (> 10 g/dl)	Total
1-7 Years	13	30	22	65
	20%	46.1%	33.9%	100%
8-14 Years	4	17	14	35
	11.4%	48.6%	40%	100%
Total	17	47	36	100

children(p-value=0.105).(chi square was4.51 and p-value=0.105). (Table No; 5)

Severe anemia was found in, 7/49(14.3 male children, moderate anemia in males was 21/49 (42.9%) and mild anemia in males was found 21/49 (42.9%) . Severe anemia, moderate anemia and mild anemia in females were found 10/51(19.6%), 26/51 (51%) and 15/51(29.4%) respectively. p-value = 0.364so gender was not significantly associated with grading of anemia.(Table No; 6)

Table 6: Comparison of Severity of Anemia with Gender

	Severe Anemia (< 7 g/dl)	Moderate Anemia (7-10 g/dl)	Mild Anemia (>10 g/dl)	Total	*P-Value*
Male	7 14.2%	21 42.9%	21 42.9%	49 100%	0.364
Female	10 19.6%	26 51.0%	15 29.4%	51 100%	
Total	17	47	36	100	

DISCUSSION:

Anemia is described as a hemoglobin concentration or RBC mass less than the 5th percentile for age. Iron deficiency is beyond doubt the most frequent cause of hypochromic microcytic anemia in children but other causes may also be involved therefore checking iron-status for determining the status of disease is absolutely mandatory.[5] Classification of Anemia is usually based on the size of RBCs which is measured by the mean corpuscular volume (MCV). Microcytic anemia (MCV less than 80 fl), normocytic (80 to 100 fl) or macrocytic (greater than100 fl).[6] The red cell distribution width is a measure of the RBCs size varaibilty. By the age of 18 years 20 percent of children in the USA and 80% of children in developing countries will be anemic at some point Whereas as mentioned in a cross sectional study in India, anemia prevalence in children was 51.5%.[7] At birth HbFaccounts for approximately 80% of hemoglobin, HbA for 20%. Most children between 6 and 10 months after birth have a distribution of hemoglobin types similar to that of adults. Thus disorders of beta-globin genes such as beta thalassemia or sickle cell disease is not apparent until the first postnatal year.[15] In the past a close similarity between iron-deficiency anemia of infancy and adults hypochromic microcytic anemia was assumed. It was also concluded that the average presumptively healthy child in the latter half of the first year and for a few years after that has a mild hypochromic anemia. This conclusion was based on the comparison with the normal values for later childhood and adult life. It is shown that at least during the first and second years of life children secrete small amounts of gastric juice which contain relatively small amount of acid. It is during this period of life iron absorption from ordinary routine diet is difficult and maybe improved by giving soluble iron a routine measure considering the acid absorbing effect of milk in regulating diet. According to a survey of abnormal hemoglobin variants among the ethnic groups Pakistan in which 202,600 subjects were studied, showed that the patients with low hemoglobin, low mean cell volume (MCV) and mean cell hemoglobin (MCH) including anemia, microcytosis, hypochromia hemolysis and target cells, were referred formolecular methods for identification of hemoglobinopathies.[8] Population screening then discovered that 60% people had iron-deficiency anemia while 40% had hemolytic anemia, of which 20.6% were due to beta-thalassemia major, 13% beta-thalassemia trait, 5.1% sickle cell disease, 0.76% hemoglobin D Punjab (HbD Punjab), 0.32% hemoglobin C (HbC), and 0.22% hereditary persistence of fetal hemoglobin (HPFH).[8] In present study we also reported the frequencies of different types of anemia and found that IDA was diagnosed in 91%, Trait was seen in 7% and ACD was diagnosed in 2%. In patients having trait the mean HbA, HbF and HbA2 was 91.71±2.99, 4.52 ± 2.78 and 5.27 ± 0.3 respectively. There was significant association between IDA anemia and age groups (p value= 0.005).There was no association between types of anemia and sex. So when we compare these two studies we see a wide difference of 60% versus 91% subjects having iron deficiency

anemia, while beta thalassemia trait was 13% in Karachi study versus 7% in our study. This difference may be due to large sample size of the reference study. Although a number of studies have been conducted in Pakistan to see general prevalence of anemia but none of these have focused microcytic anemia in children, which is the commonest of all causes, physical as well as health challenges of children.[14] Therefore we conducted this study to find out the status of Microcytic Hypochromic anemia in children of various age groupswith regards to underlying etiology and also to see that if there is any drift in causes towards hemoglobinopathies due to availability of hemoglobin electrophoresis facilities in tertiary care centers of Lahore. The mean age of patients in our study was 6.17 ± 3.23 with minimum and maximum age 13 years.[13] A total of 65(65%) patients were 1-7 years of age while rest of 35(35%) were 8-14 years old. There were 49(49%) male and 51(51%) were female patients. In our study 59(64.8%) of subjects under the age of seven year were having IDA while 32(35.2%) were of 8 to 14 years age group. IDA proportion difference was statistically significant in age groups (p-value 0.005). ACD and Thalassemia traits difference was not significant among different age groups. The age groups were also not different with regard to grading of anemia among children (p-value= 0.105). In another study by Bhutta et al, who aimed to determine the prevalence of anemia and the main risk factors for anemia in young children concluded the prevalence of anemia (hemoglobin level < 11 g/dl) was the highest in the six-month-old age group (47%) and a decrease in the prevalence from three years of age. Thus, 42% of the children less than three years of age were anemic, while 21% of the children between three and five years of age were anemic. The lowest mean +/- SD Hb value (10.7 +/- 2.1 g/dl) was seen in the six-month-old children and an improved level of Hb seen from six months to three years of age.[9] When we combined these both age groups it become 63% which is in close proximity to our study.

The percentage of children without anemia was high in urban areas than in rural areas (17.3% and 10.3% respectively), while severe anemia was seen among the children living in rural areas ($p<0.001$). Our study has shown the incidence of iron deficiency anemia can be somewhat controlled by modifying the lifestyle, early screening and timely management. In a similar study by Bolt et al, he observed that anemia in children was mostly encountered by family physician. Thorough history, physical examination and laboratory evaluation help to make specific diagnosis.[10] The mean corpuscular volume can be used to classify the anemia as microcytic, normocytic or macrocytic in this diagnostic approach.[11] The most common type of microcytic anemia is iron deficiency anemia which is caused by reduced dietary intake mainly.[12]

CONCLUSION

Our study concluded that iron deficiency remains the most common cause of microcytic anemia amongst our population. A screening program on a large scale should be initiated to find out the exact frequency amongst Pakistani population. Iron deficiency anemia can be controlled by modifying the life style, increasing health education, early screening and timely management. More studies under the umbrella of ministry of health and WHO should be initiated for in-depth results.

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ACCURACY OF CLASSIFYING LUNG CANCER BIOPSIES WITH ROUTINELY USED LUNG CARCINOMA IMMUNOHISTOCHEMICAL MARKERS ON LIMITED BIOPSY MATERIAL

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Abstract

BACKGROUND: The distinction between squamous cell carcinoma (SqCC) and adenocarcinoma(ADC)is essential for the desired therapy. The utility of thyroid transcription factor-1 (TTF1), Napsin A, Cytokeratin7 (CK7), p40, P63 and CD56immunohistochemical(IHC) markers in identifying and subclassifying lung cancer, was assessed retrospectively. Multiple studies have used tissue microarrays obtained from resection specimens to assess the accuracy of IHC staining for classification of lung cancer, however a small number of studies have utilized small biopsies of lung cancers.

METHODS: A total of 53trucut biopsies (TCB) were separated by a computed assessment over a time span of two years. The immunostaining patterns of IHC stains were compared with the diagnosis made on histological slides. Measures of validity were calculated.

RESULTS: TTF1IHC stain was used in 31 cases of ADC and its sensitivity and specificity was 78.9%and 50%, while, CK7and Napsin A showed highest sensitivity of 100%. In 13 cases of SqCC, P63 IHC stain showed sensitivity and specificity of 77% and 50%, while p40 showed highest sensitivity of 100%.

Conclusion:. Variable sensitivity and specificity of IHC markers was seen in our study for sub-classifying lung cancers. Combination of different markers can aid in the formulation of an algorithm for sub classification of lung cancer.

Keywords: trucut biopsy, lung cancer, immunohistochemistry

History of Lung cancer dates back to early 1400s when it was found in the miners in Germany and Chekosalvakia , after inaugural of coal mines there.[1] The current studies have identified Lung carcinoma as the prominent cause of death due to carcinoma. It accounts for over 1.3 million deaths worldwide which is alarming by itself.[2,3] Lung carcinomashave been classified as Primary lung cancers which include SCC andnon small cell carcinoma (NSCLC). NSCCis further divided into ADC (50-70%), SCC(20-30%) and miscellaneous subtypes (<10%).[4,5]

Over the years evolution in diagnostic techniques for Lung cancer has been seen, but despite all efforts the prognosis has been poor.[6] Imaging Techniques have their own importance in diagnosing and staging lung cancer. However, molecular biology and immunohistochemistry has profoundly increased the understanding of lung tumors.[7] Molecular biology has also opened a gateway for the development of personalized or targeted therapy for lung carcinoma.[8] FNAC and TCB have been used to study lung tumors where as material retrieved from FNAC is often limited and contains a modest amount of tumor. The distinction between SqCC and ADC can be difficult due to sparse tumor tissue in FNA specimens.[9] TCB yields better histological information than FNAC.[10]

Further classification of lung tumors requires usage of different tumor markers. TTF-1[11] and Napsin-Aaremarkers for differentiation.[12] Both have a sensitivity of 80%. P40 is reported as being the most sensitive and specific marker in SCC.[13] Other recommended antibodies are cytokeratin 5/6 and P63.[11] Tissue microarrays obtained from resection specimens have been used by several studies to evaluate the accuracy of IHC staining in lung carcinoma. However, only few have used TCB of lung tumors. The utility of true cut biopsy in such tumors leading to correct classification, has received little attention in the literature. We have retrospectively assessed the use of TTF-1,CK7, P63,Napsin A and p40 IHC markers in distinguishing and classifying ADC,NSCLC and SCC on TCB.

METHODS

53 TCB were identified by computed assessment over a time span of two years, at the department of Histopathology and Radiology, The Diagnostic Centre Lahore, Pakistan.Thesearch rendered 31 cases of ADC of lung,13 cases of SqCC, 5 cases of SCC and 4 cases of poorly differentiated carcinomas. The related slides and their clinical information were reviewed. Patient's privacy was ensured. The immunostaining patterns were evaluated. Suitable pattern of staining in greater than 5% of tumor cells was considered as positive. In accordance with specific staining patterns, cytoplasmic staining was considered as positive for Napsin A. Nuclear staining was taken as positive forP63, TTF-1 and CD56 and cytoplasmic staining was taken as positive for CK7. Positive and negative controls were included in individual assays. Precautions were taken to avoid misinterpretation of false positive staining in entrapped normal lung bronchial epithelium or pulmonary macrophages. The immunostaining findings of IHC stains were compared with histological diagnosis of tumors. Measures of validity i.e. accuracy, specificity, sensitivity, positive predictive value (PPV) and negative predictive value (NPV)were evaluated.

RESULTS

In this study of 53 cases of lung biopsy, 35 cases were males (66%) and 18 cases were females (34%). Patients' age ranged from 40-80 years. Majority of the cases were in the sixth and seventh decade i.e. 19 cases (35.8%) and 11 cases (20.7%) respectively. The peak incidence was seen in the 6th decade of life. In our study maximum number of cases was of NSCC, accounting for 48 cases (90.5%) while 5 cases (9.5%) were of SCC. Among the 48 cases of NSCC, 31 cases (64.5%) were of ADC, 13 cases (27%) cases were of SqCC and 4 cases (8.5%) were of poorly differentiated carcinoma.

The outcome of IHC staining pattern on TCB specimens for individual histological subtypes of carcinomaare given in Table 1. The specificity, sensitivity, PPV and NPV of IHC stains for SqCC and AC are given in Tables 2 and 3.P63 IHC stain was positive in 10 out of 13 cases (77%) of histopathologically diagnosed SqCC. It was positive in 8 out of 16 cases (50%) of adenocarcinoma and negative in all of 4cases of poorly differentiated carcinoma. The sensitivity of P63 IHC stain for SqCC in our study turned out to be77%, specificity 50%, PPV 55.5%, NPV 72.3% and accuracy was seen to be 62%.TTF1 IHC stain was positive in 26 out of 31 cases of ADC. It was positive in 3 cases out of 6 total cases of SqCC, 1 out of 4 cases of poorly differentiated cancer and 1 out of 5 cases of SCC. The sensitivity of TTF1 IHC stain for ADC, in our study, was 84%, specificity 50%, PPV 90%, NPV 37.5% and accuracy turned out to be 78.38%. The Napsin A IHC stain was performed on 15 out of 31 cases of ADC (due to limited biopsy material in the remaining 16 cases). It showed positive staining in all 15 /15 cases (100%) of ADC making the sensitivity of Napsin A as 100%. The P40 IHC stain was performed on 6 cases of SqCC and showed positive staining in all 6 out of 6 cases of SqCC making the sensitivity of p40 as 100%. CD56 IHC stain was positive in all of the 5 cases of SCC and both of the cases of adenocarcinoma. Sensitivity of CD56 IHC stain was 100% for SCC, PPV and accuracy was

71.4%. CK7 was positive in 20 out of 20 cases of ADC making the sensitivity as 100%.

Table 1: Immunohistochemical Findings in TCB

Histopathological diagnosis on TCB	Biopsy IHC number positive/ total stained					
	TTF1	P63	P40	CK7	Napsin A	CD 56
ADC	26/31	8/16	-	20/20	15/15	2/2
SqCC	3/6	10/13	6/6	-	-	-
SCC	1/5	-	-	-	-	5/5

Table 2: Percentage(%) Specificity and Sensitivity of Immunohistochemical Markers for Adenocarcinoma in TCB lung

	TTF1	NAPSIN A
Specificity	50%	-
Sensitivity	84%	100%
Positive predictive value	90%	100%
Negative predictive value	37.5%	-

Table 3: Percentage(%)Specificity and Sensitivity of Immunohistochemical Markers for Squamous Cell Carcinoma in TCB Lung

	P63	P40
Specificity	50%	-
Sensitivity	77%	100%
Positive predictive value	55.5%	100%
Negative predictive value	72.7%	-

DISCUSSION

The field of pathological diagnosis and management of lung cancer is undergoing a revolution, driven primarily by therapeutic advancements. Resection is not possible in 70% of lung cancers due to late presentation. Small biopsy specimens remain the major source for diagnosing majority of the patients of lung cancer.[14] Recently, the classification of lung carcinoma, especially that of the non-small cell variant was found to be of great importance for targeted therapy and precise subtyping is essential in small biopsy specimens.[14,15]

The cases which cannot be diagnosed on morphological grounds should undergo immunostaining assessment as an adjunct for diagnosis, as per recent International Association for the Study of Lung Cancer (IASLC) guidelines.[4] The morphological criterion established is as follows; glandular differentiation or mucin for adenocarcinoma and keratinization/ intercellular bridges for squamous cell carcinoma. Performance of immunohistochemistry is recommended if morphological criteria is absent.

The difficulty in classification is not infrequent in small biopsy specimens, arising either owing to poor sampling or due to presence of only a small amount of tumor that may not show differentiating features. The study of ours shows high specificity and sensitivity of some IHC markers for certain subtypes of lung tumors and this can help in sub classifying lung tumors in cases of limited biopsy material. Although previous reports have proven utility of numerous of these stains, mostly studies have assessed resected specimens,[16-22] tissue microarrays[23-27] or a variety of specimen types[28] rather than focusing specifically on the biopsy specimens. Our focus was on biopsy specimens as majority of lung cancers are unresectable when diagnosed and biopsy is the sole tissue available for diagnosis.

In our study maximum number of cases was of NSCC, accounting for 48 cases (90.5%) while 5 cases (9.5%) were of SCC. NSCC was also seen as the most common lung tumor in the studies conducted by Singh[29] and Shetty.[30] Among the 48 cases of NSCC, 31 cases (64.5%) were of ADC, 13 cases (27%) cases were of SqCC and 4 cases (8.5%) were of poorly differentiated cancer. ADC was also seen as the most common NSCC in the studies conducted by Zanderet al[31]and Gurdaet al.[32]

The study conducted by us shows that different immunohistochemical stains, including Napsin A, TTF-1, p63, p40 and CD56 show high specificity and sensitivity for specific types of tumors of the lungs. The specificity of P63 IHC stain for SqCC in our study was 50%, sensitivity was 77%, PPV 55.5%, NPV 72.3% and accuracy turned out to be 62%. Literature review also shows a high sensitivity of p63 IHC stain for diagnosing SqCC of lung.[33] The low specificity of p63 IHC stain (50%) was due to its positive staining in 8 cases of ADC. Similar low

specificity of p63 IHC stain for diagnosing SqCC was also seen in study conducted by Mukhopadhyay S.[33]

In our study p40 IHC stain showed a high sensitivity for diagnosing SqCC i.e. 100%.

In our study we found that Napsin A IHC stain showed a sensitivity of 100% for diagnosing ADC as compared to TTF1 IHC stain, which showed a sensitivity of 84%. International studies also show a similar high sensitivity of Napsin A in diagnosing ADC as compared to TTF1.[33]

CONCLUSION

Variable sensitivity and specificity of IHC markers was seen in our study for subclassifying lung cancers. Morphological findings can aid in the formulation of an algorithm for sub classification of lung cancer by using combination of different markers.

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FREQUENCY AND CLINICOPATHOLOGICAL FEATURES OF PATIENTS WITH BCR-ABL 1 NEGATIVE MYELOPROLIFERATIVE NEOPLASM PRESENTING IN A TERTIARY CARE HOSPITAL

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Abstract

Background and Objectives: Major categories of Myeloproliferative Neoplasms include Chronic myeloid leukemia (CML), Polycythemia Rubra Vera (PRV), Essential Thrombocythemia (ET), and Primary Myelofibrosis (PMF). CML is characterized by t (9;22) mutual replacements between chromosomes 9 and 22 resulting in BCR-ABL1 fusion gene. The other diseases in this group, PRV, ET, and PMF, are known as BCR-ABL-negative myeloproliferative neoplasms. The objective of the study was to determine the frequency and clinicopathological features of patients with BCR-ABL 1 negative Myeloproliferative neoplasms in a tertiary care hospital.

Methodology: It was a prospective cross-sectional study conducted in the hematology section of Allama Iqbal Medical college from January 2017 to November 2018. A predesigned proforma was filled for each patient who was brought for bone marrow biopsy with the provisional diagnosis of Myeloproliferative Neoplasm. This proforma included demographic details, clinical features, CBC findings, bone marrow biopsy opinion, serum and molecular genetics.

Results: Out of 1484 bone marrow biopsies during the study period, 112 (7.5%) cases were diagnosed as Myeloproliferative Neoplasms (MPNs). 33 of these were BCR ABL 1 negative MPNs. Among these, Polycythemia Rubra Vera was found in 14 (42%) cases, Primary Myelofibrosis in 11(32.3%) cases and Essential Thrombocythemia in 08 (23.5%) cases. The major presenting complaint in Polycythemia Rubra Vera was headache (47%) and in Primary Myelofibrosis was abdominal discomfort due to massive spleen (100%). Gum bleeding (37.5%) and thrombotic events (25%) were frequently seen in Essential Thrombocythemia. JAK 2 V617F mutation was found mostly in Essential Thrombocythemia (75%) followed by Polycythemia Rubra Vera (71%) and Primary Myelofibrosis (63%).

Conclusion: BCR ABL1 negative MPNs constitute significant proportion of all cases of MPNs. Despite overlapping features among the three entities, there are certain clinical and laboratory features which are specific to each category. Polycythemia Rubra Vera is the most common among BCR-ABL 1 negative Myeloproliferative Neoplasms followed by Primary Myelofibrosis and Essential Thrombocythemia. JAK 2 V617F was positive in more cases of Essential Thrombocythemia as compared to Polycythemia Rubra Vera. JAK 2 exon12 was not done.

Key words: Myeloproliferative Neoplasms, Polycythemia Rubra Vera, Primary Myelofibrosis, Essential Thrombocythemia

Myeloproliferative neoplasms (MPN) are clonal hematopoietic stem cell neoplasms characterized by the proliferation of one or more cell lineages of myeloid, erythroid, or megakaryocytic origin. The incidence of MPNs is estimated at 6–10/100 000 individuals. MPNs are characterized

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by bone marrow hypercellularity with effective hematopoiesis and increased number of red blood cells, granulocytes, and/or platelets in peripheral blood. Hepatosplenomegaly is frequently present. Chronic myelogenous leukemia (CML) is a prototypical MPN, defined by the BCR-ABL[1] gene rearrangement and adequately controlled with a variety of new targeted tyrosine kinase therapeutic agents.[1]

The classical BCR-ABL1-negative Myeloproliferative Neoplasms (MPN) include Primary Myelofibrosis (PMF), Polycythemia Vera (PV) and Essential thrombocythemia (ET).[2] They are uncommon clonal disorders of adults, with an incidence ranging from 0.5 to 3/100,000. [3] They are characterized by stem cell-derived clonal proliferation, harbor Janus kinase[2] (JAK2), or calreticulin (CALR), or myeloproliferative leukemia virus oncogene (MPL) driver mutations and exert an over activated JAK-signal transducer and activator of transcription (STAT) pathway.[2]

Insight into the molecular pathogenesis of these disorders was first provided by the discovery of a single, gain of function, point mutation in the Janus kinase 2(JAK2) gene in 2005.[4] This mutation predicts an amino acid substitution of valine to phenylalanine at position 617 (p.V617F) in the JH2 pseudokinase domain and leads to constitutive activation of JAK 2.5 The JAK2pV617F mutation is seen in over 95% of the patients of PV and 50%–60% of ET and MF patients. JAK2 exon 12 mutations are seen in 5% of cases of PV only. Point mutations in codon 515 of the thrombopoietin (TPO) receptor gene (MPL) are seen in 5%–10% of cases of JAK2 negative ET and MF.[6]

Careful distinction between PV, PMF, and ET is especially important, as patients with ET have a significantly better prognosis than patients with PMF and PV, while patients with PMF have the worst outcome.[5] The risk of occurrence of complications such as thromboembolic phenomena or the progression to acute myeloid leukemia differs between the types of MPN and hence, reliable differentiation between them is essential. Although bone marrow findings in PV, ET, and MF show some degree of overlap, certain features such as the presence of with loose clusters of giant megakaryocytes (PV), predominant proliferation of hyper lobulated or "staghorn" megakaryocytes without reticulin fibrosis (ET) or megakaryocyte proliferation with marked atypia along with myeloid proliferation and the presence of reticulin fibrosis (MF) are helpful in distinguishing the three subtypes.[1]

Diagnosis of these entities in a limited resource conditions can be challenging due to certain overlapping clinicopathological features. But it is seen that there are certain characteristics features which are specific to each category even if they are JAK 2, CALR and/or MPL mutation negative. Studying the clinicopathological features of these disease entities help in defining the category of BCR ABL1 negative Myeloproliferative Neoplasm. This will lead to appropriate management of these patients and will help to predict the prognosis of the disease.

OBJECTIVE

The objective of the study was to determine the frequency and clinicopathological features of patients with BCR-ABL 1 negative Myeloproliferative neoplasms in a tertiary care hospital

METHODS

It was a prospective cross-sectional study conducted in the hematology section of Pathology department at Allama Iqbal Medical college from January 2017 to November 2018.

It included patients of all age groups and those with clinical and laboratory evidence of MPNs. Patients of BCR ABL1 negative MPNs on treatment were excluded from the study.

A predesigned proforma was filled for each patient who fulfilled the inclusion criteria. This proforma included demographic details, clinical features, CBC findings, bone marrow biopsy detail and molecular genetics. Among clinical features, the parameters included were weakness, fatigue, pallor, fever, headache, night sweats, plethora, bleeding, thrombosis, hepatomegaly, splenomegaly etc. CBC was done by taking sample in EDTA vacutainer. Fresh sample were run on Sysmex KX 21. Reports were verified by peripheral smear examination.

Bone marrow biopsy was done using disposable bone marrow biopsy needle of 11G. Both bone marrow aspirate and trephine biopsy were taken. Aspirate was stained with Giemsa stain and trephine biopsy was sent in formalin to histopathology section.

Data was analyzed in software SPSS 23. Frequencies, percentages, mean and SD (standard deviation) were calculated.

RESULTS

A total of 1484 bone marrow biopsies were performed in the study period. Among these, 112 were diagnosed as Myeloproliferative Neoplasms. Frequency of MPNs is shown in Figure 1.

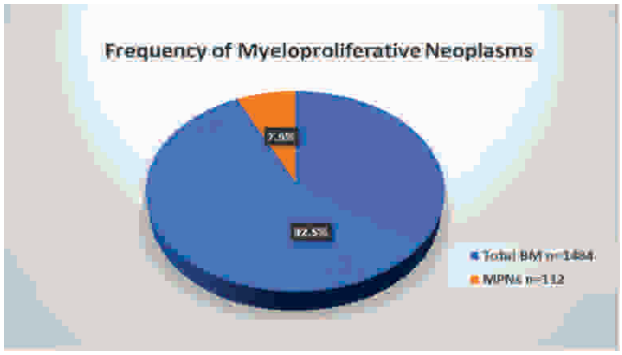

Figure: 1

Among 1484 bone marrow biopsies, 33 cases were diagnosed with BCR ABL1 negative MPNs. Frequency is shown in Figure 2.

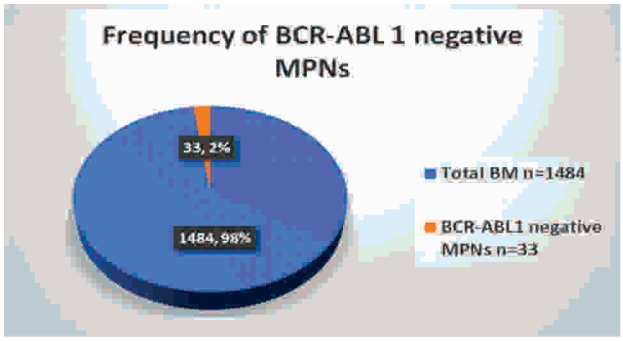

Figure: 2

Among112 cases of MPNs, 33 cases were BCR ABL1 negative MPNs making a frequency of 29.5% of total MPNs. 14 of these were of Polycythemia Rubra Vera (PRV), 11 of Primary Myelofibrosis (PMF) and 08 cases of Essential Thrombocythemia (ET). When the frequency of these entities was calculated among total bone marrow biopsies (n=1484), it was seen that PRV constitute 0.94%, PMF 0.74% and ET 0.53% of cases.

The age of PRV ranged from 39 years to 72 years with the mean age as shown in Figure 3.

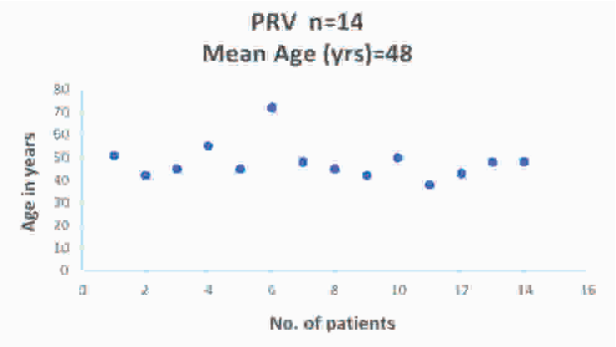

Figure: 3

The age of the patients in PMF ranged from 45 years to 75 years with the mean age as shown in Figure 4.

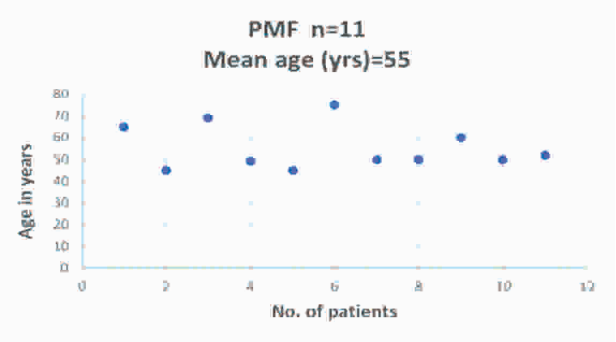

Figure: 4

Age range of ET patients were from 20 years to 71 years with the mean age as shown in Figure 5.

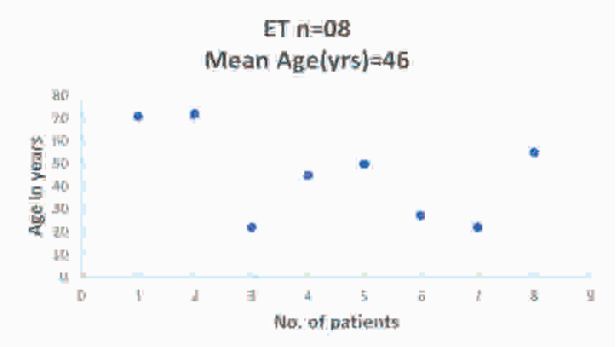

Figure: 5

PRV cases showed the M:F ratio of 2.5:1, PMF

1:2.3 and ET had the M:F ratio of 1:1. Gender distribution is shown in Figure 6.

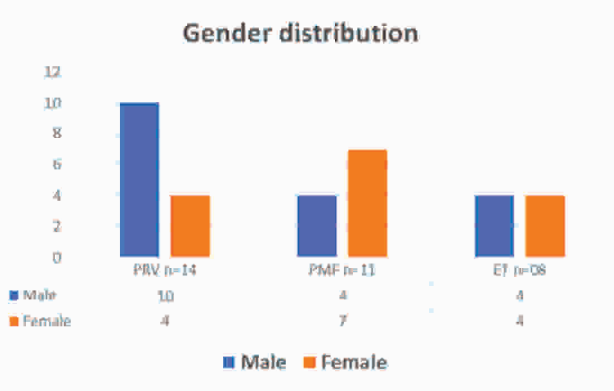

Figure: 6

The main clinical feature was headache in PRV which was present in 7 (50%) cases followed by 5 (35%) of cases. Thrombotic events were seen in 2 (14%) cases. Figure 7.

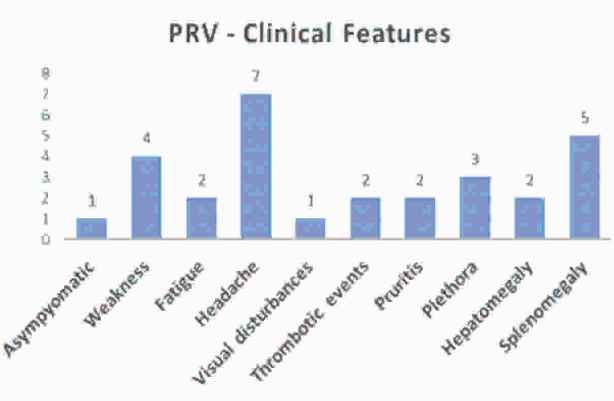

Figure: 7

Splenomegaly was seen in all the 11 (100%) cases of PMF. Hepatomegaly was seen in 8 (72%) cases and pallor in 5 (45%) cases. Rest of the clinical features are shown in Figure 8.

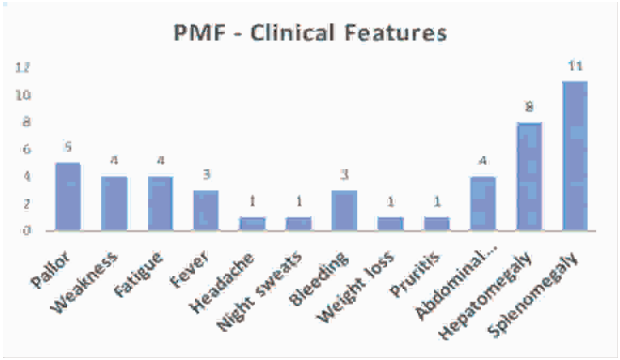

Figure: 8

Main clinical features in ET were pallor and weakness. Thrombotic events were seen in 2 (25%) cases. The frequency of other clinical features is shown in Figure 9.

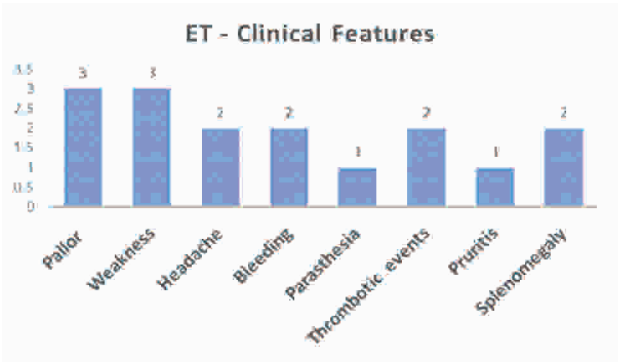

Figure: 9

CBC showed mean Hemoglobin of 17.42 g/dl, Hematocrit of 57.4%, WBC count of 13.06 x 10^9/l and platelet count of 471 x 10^9/l in PRV.

Mean Hemoglobin was 9.7 g/dl, WBC count of 23.9 x 10^9/l and platelet count of 194 x 10^9/l in PMF while Mean Hemoglobin was 11.1 g/dl, WBC count of 9.08 x 10^9/l and platelet count of 1337 x 10^9/l in ET. The range, mean and SD of all the parameters of

Table 1:

	Hemoglobin (Range, Mean, SD)	HCT (Range, Mean, SD)	MCV (Range, Mean, SD)	MCH (Range, Mean, SD)	WBC count (Range, Mean and SD)	Platelet count (Range, Mean and SD)
PRV	(15.5 – 20.4) **17.42 ± 1.12**	(53.5 – 71.9) **57.54 ± 5.04**	(60.2 – 92.5) 82.12 ± 5.73	(15.5 – 29.5) 25.32 ± 3.20	(7.2 – 40.1) **13.06 ± 8.65**	(275 – 676) **471.43 ± 149.28**
PMF	(6.2 – 12.7) **9.77 ± 2.15**	(21.6 – 47.2) 35.32 ± 8.89	(56.7 – 90.2) 80.79 ± 9.79	(16.7 – 28.1) 24.74 ± 3.46	(1.5 – 55.1) **23.90 ± 17.90**	(20 – 446) **194.91 ± 161**
ET	(8.2 – 14.5) **11.12 ± 1.94**	(28.8 – 44.6) 36.9 ± 4.85	(64.6 – 86.4) 80.96 ± 7.74	(17.6 – 29.5) 24.76 ± 3.67	(6.2 – 11.2) 9.08 ± 1.66	(1075 – 1650) **1337.25 ± 230.81**

CBC of the three entities are given in Table 1.

On bone marrow biopsy, all the cases of PRV showed panmyelosis with pleomorphic megakaryocytes. Hyperlobulated (staghorn) megakaryocytes were seen in ET. Bone marrow biopsies of PMF showed fibrosis with cluster of megakaryocytes having hyperchromatic bulbous nuclei. Among PMF, Grade II fibrosis was seen in 5 (45%) cases while Grade I and Grade II fibrosis was seen in 3 (27%) cases each.

JAK 2 V617F mutation was seen in 6 cases of ET, 7 cases of PMF and 10 cases of PRV. The frequencies are shown in Figure 10.

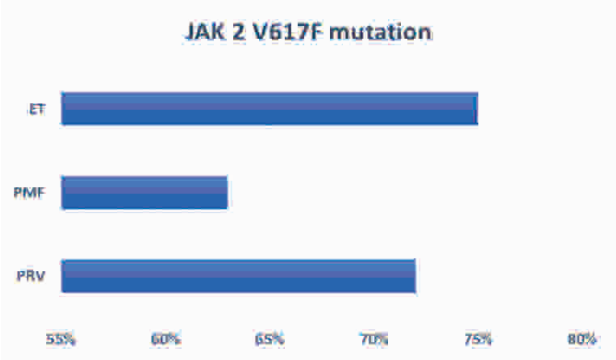

Figure: 10

DISCUSSION

In the present study, frequency and the clinicopathological features of the BCR ABL1 negative Myeloproliferative Neoplasms were analyzed.

Frequency of PRV, PMF and ET was found to be 0.94%, 0.54% and 0.53%, respectively. Titmarsh et al mentioned the frequency of 0.84% for PRV but ET (1.03%) was found to be more common than PMF (0.47%).7Similarly, Roaldsnes et al observed the frequency of 0.8%, 0.5% and 0.9% for PRV, PMF and ET, respectively.[8]

According to Verstovsek S, MPNs can occur at any age. Mean age of PRV, PMF and ET was reported as 61, 65 and 56 years, respectively while in the present study these entities were described comparatively earlier with 48, 55 and 46 years, respectively.[9]

According to Geyer HL et al, most female patients were more likely to have essential thrombocythemia (48.6% versus 33.0%) and most male patients were more likely to have polycythemia vera (41.8% versus 30.3%). Gender distribution of the present study is consistent with the mentioned study for PRV but essential thrombocythemia was found equally in both sexes.[10]

Most common presenting complaint in PRV was found to be headache in the present study. Buyukasik Y et al mentioned headache as one of the more frequent complaint in PRV. Splenomegaly and plethora were the most common physical finding in this entity.

Buyukasik Y et al reported venous and arterial thrombosis in 19% to 34% of cases of BCR-ABL1 negative MPNs. But this percentage was lower in polycythemia.[11] In the present study, about 14% of the patients of PRV presented with venous thrombosis.

Takenaka K described splenomegaly, anemia and constitutional symptoms in Primary Myelofi-+brosis as the most common presenting complaint. Abdominal pain and discomfort were due to enlarged spleen.[12] These findings are consistent with the present study in which splenomegaly was seen in 100% of the cases of Primary Myelofibrosis followed by pallor and constitutional symptoms.

Melikyan et al reported thrombosis in 24% of the patients with essential thrombocythemia.[13] It was seen in 25% of the ET cases in present study. Mean platelet count for essential thrombocythemia in present study was 1337. Two patients presented with thrombosis and two with bleeding. Tefferi A in his study reported lesser incidence of thrombosis with increasing platelet count. MPV was found to have more linear relationship with thrombosis.[14]

Present study showed mean Hemoglobin of 17.42±1.12 in PRV while it was 16.7±2.42 in a study conducted by Dixth R in 2019. Same study showed mean Hemoglobin of 8.7 g/dl, WBC count of 11.7 × 109/l and platelet count of 150 × 109/l for Primary Myelofibrosis. It was found in the present study that the values of mean hemoglobin and platelet count were near the above-mentioned mean values but mean WBC count was found to be raised with the value of 23.9 × 10^9/l. Similarly, mean platelet count in the present study was raised (1337 × 10^9/l) for ET as compared to the mean platelet count mentioned by Dixth R (970 × 10^9/l).[3]

Findings of bone marrow morphology including megakaryocytic features of present study are consistent with the findings by Dixth R except that he showed more percentage of cases having grade III (46%) fibrosis in PMF 3 as compared to present study which showed more cases having grade II fibrosis (45%).

Lin Y et al mentioned that JAK 2 mutation was found in 85% of cases of PRV, 65% of PMF and 58% of ET.15Sadiq MA et al reported JAK 2 mutation in 100% of PV cases, 50% of PMF cases and 52.6% of ET cases.16However, a study conducted by Yildiz I

el al in Turkey concluded that the frequency of the JAK2 V617F mutation was 73% in PV patients, and 61% in ET.[17] In the present study it was found in 73% of PRV cases, 63% of PMF cases and 75% of ET cases. Frequency of JAK 2 V617f in ET was found to be higher in the present study. This percentage can become consistent with the above-mentioned studies by increasing the sample size.

CONCLUSION

This study concluded that BCR ABL1 negative Myeloproliferative Neoplasmsconstitute significant percentage (30%) of cases of the all the Myeloproliferative Neoplasms. Despite overlapping features among the three entities, there are certain clinical and laboratory features which are specific to each category. Exact categorization will help in risk stratification of each entity which again has a role in defining treatment strategies and prognosis of the disease. PRV and PMF were found in older age group as compared to ET in which few cases were found in younger age group as well. Thrombotic events were more common in ET. JAK 2 V617F mutation was detected in most of the cases of PRV and ET as compared to PMF. Limitation of the study included the inability to perform JAK 2 exon 12 mutation, CALR and MPL mutation for JAK 2 V617F negative cases.

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AWARENESS AND ACCEPTABILITY OF HUMAN PAPILLOMA VIRUS VACCINE IN PAKISTANI WOMEN

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Abstract

Aim of study: To determine the awareness and acceptability of vaccination against Human Papilloma Virus and to establish the reasons of denial for the vaccination

Study Design: Cross sectional study

Study Place & Duration: Study was conducted in Obstetrics &Gynae department of Sharif Medical City Hospital, Lahore during 6 month period.

Methodology: All the married women who had at least one female child were included in the study after their consent. It was enquired whether they have heard of vaccination against Human Papilloma virus and their willingness for HPV vaccination to their eligible daughters and siblings. The women who refused for HPV vaccination were further interviewed to identify the reason of denial. Data was analyzed in SPSS 23.

Results: Total number of women recruited was 1200. Their mean age was 29.2±7.4 year with mean parity of 2.4 ±1.6.Only 0.8% of study participants had heard about HPV vaccine. The women who were willing to get their daughters or siblings vaccinated were 186 (15.5%)while 1014 (84.5%) refused. High cost of HPV vaccine was the major reason of denial in79 % (949) cases. Other reasons were fear of side effects in 61.5% (738), No family or social trends in 49.5% (595), family or husband refusal in 47.4%(569), children are too young in 28.5%(347) and religious belief in 2.1(26)%.

Conclusion: Awareness and acceptability for HPV vaccine among women attending a tertiary care hospital is extremely low. Major obstacles for vaccine acceptability are high cost, fear of adverse effects, social non-acceptability and family refusal.

Key Words: Acceptability, Awareness, Human Papilloma virus, Vaccine

Cervical malignancy is women killer disease especially in developing countries.[1] One of the major risk factor for cervical cancer is Human Papilloma virus. Thereare different strains of human papilloma virus(HPV); type 16 and 18 are responsible for 70% of premalignant and malignant conditions of cervix. Human papilloma virus type 6, 8, 31, 32, 45,52 and 58 have relatively less oncogenic potential.[2,3] HPV 16 is common in Pakistani women affected with cervical carcinoma.[4] In females it is also responsible for vulval, oral and anal cancer while penile cancers in males. Infection with most of the Human Papilloma virus may clear spontaneously however persistent infection and precancerous lesions may progress to invasive carcinoma of the cervix.[5]

Prevention is better than cure. A revolution to preventive strategies is vaccination against human papilloma virus. Vaccine against two strains of human papilloma virus i.e. 16 and 18 is called bivalent HPV vaccine available in market by the trade nameof Cervarix. A tetravalent HPV vaccine is against HPV strains 16, 18, 6 and 11 by trade name of Gardasil. Now an anovalent HPV vaccine has been introduced that provides protection against cervical, vulval, vaginal and anal cancer caused by HPV types 16, 18, 31,33,45,52 and 58. It also delivers immunity against HPV 6 and 11to provide protection against genital warts. These nine types of human Papilloma virus are associated with 90% of benign and malignant diseases of cervix, vulva and vagina in females while anal while penile lesions in males. The

dosage schedule of these vaccines consists of three doses at 0, 1 and 6 month. Route of administration is intramuscular.[6,7] According to Centers of Disease Control vaccine against Human Papilloma Virus (HPV) is safe and is recommended for girls and boys of age 11 to 12 years. Few adverse effects of the HPV vaccine have been reported in the literature.[2]

Most of the Pakistani population is not aware of this vaccination. High cost of the HPV vaccination is a major barriers to avail this opportunity in developing world where the prevalence of HPV related diseases is quite high. Moreover HPV vaccine is not included in national immunization programme of Pakistan.

As cervical carcinoma is a major killer especially in developing countries, so the rationale of the study is to determine the awareness about HPV vaccine in Pakistani women, its acceptability and to identify the reasons of its refusal so the factors can be addressed to overcome the gravity of situation.

METHODOLOGY

It was a questionnaire based cross sectional study conducted in Obstetrics and Gynae Department of Sharif Medical City Hospital after approval from ethical review board; no. All the patients who had at least one female child or sibling were included in the study after their consent. A sample size of 237 was calculated taking an assumed proportion of 0.19, acceptable difference 0.05 with a confidence level of 95%. Information was collected on a structured proforma translated into Urdu language. Their sociodemographic characteristics like age, parity, education status and occupation were asked. They were also inquired whether they have heard about vaccination against Human Papilloma Virus. All the participants were provided with verbal and written information about HPV vaccination. It was inquired whether they would like to get their eligible children or siblings vaccinated or not. The women who refused for HPV vaccination were interviewed further to identify the reason of denial. Confidentiality and comfort of the study participants was ensured by the doctors during data collection.

Data was entered and analyzed in SPSS 23. The quantitative variable like age was calculated using mean and standard deviation. Qualitative variables like parity, education status, occupation, awareness about HPV vaccination, willingness for HPV vaccination and reasons of denial etc. were measured in percent. Chi square test was applied for multivariate analysis. A P value ≤ 0.05 is considered significant.

RESULTS

Total number of women recruited for the study was 1200. Their mean age was a 29.2±7.4 year ranging from 18 year to 65year of age as shown in figure 1.

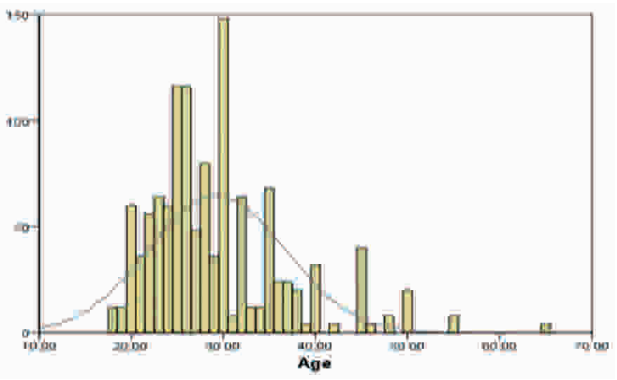

Figure 1: *Age Distribution of Study Participants*

All the participants were married females with mean parity of 2.4 ±1.6. Their sociodemographic characteristics are shown in table I. The literacy and employment status of the study participants is strongly associated with women awareness regarding HPV as shown in multivariate analysis in table I.

Results revealed that only 0.8% of study participants had heard about HPV vaccine. Women were provided verbal information supplemented with information leaflets. They were inquired whether they would like to get their eligible children, grandchildren or siblings vaccinated. Only 186 (15.5%) females were willing to get their daughters or siblings vaccinated after discussing with their family. However 1014 (84.5%) refused. Their reasons of refusal are shown in figure 2.

Table 1: Sociodemographic Characteristics and Multivariate Analysis

Variables	Number	Percentage	Chi Square	P Value
Parity				
Primipara	0422	35.2%	0.11	0.73
Multipara	0778	64.8%		
Total	1200	100%		
Education status				
Illiterate	0551	45.9%	**5.23**	**0.02**
Literate	0649	54.1		
Total	1200	100%		
Occupation				
House Wives	1132	94.3%	**104.23**	**0.00**
Employed	0068	5.7%		
Total	1200	100%		

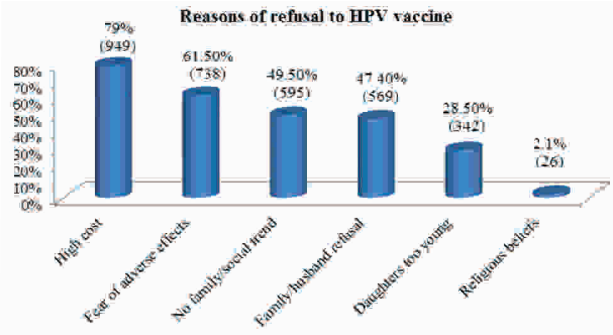

Figure 2: *Reasons of Refusal to HPV Vaccine*

*Percentage is greater than 100 due to multiple responses by study participants

DISCUSSION

According to a pooled analysis 118 million women were vaccinated against Human Papilloma virus throughout the world but only 1% were from low and middle income group that makes the major chunk of vulnerable population.[8] So it is very important to focus on the low and middle income population to target the most susceptible population to control the disease.

Only 0.8% of the participants had heard about HPV vaccine. The awareness about HPV vaccine was 9.2% among the interns and nurses working in a tertiary care hospital in Karachi, Pakistan.[9] A meta-analysis of 58 observational studies revealed awareness level of 15.9%.[10] In China 19.3% of mothers were aware of HPV vaccine. The level of awareness was directly proportional to level of education.[11] Most (62.6%) of the US parents were aware of HPV vaccine especially who were older, female, educated and insured.[12] The awareness about HPV vaccine is significantly associated with literacy (0.02) and employment status (0.00) in current study.

Women were given verbal and written information about the preventive efficacy of the vaccine, its cost and side effects. Only 15.5% were willing to vaccinate their eligible siblings, daughters or granddaughters after discussing with their family. According to Yu et al 26.4% mothers showed interest for HPV vaccine for their daughters.[11] While Zhang et al divulged that 33.7% mothers were agreed.[10] YK Do observed that acceptability for HPV vaccine was higher among the study groups who have antecedent knowledge and awareness as compare to the participants who have no previous information i.e. 58% versus 47%.[13]

The women who were informed about HPV vaccine, high cost of the vaccine was the major barrier in 79% of cases. Cost of the vaccine was an obstacle in 50% of Tanzanian urban women.[14] In Pakistan only bivalent and tetravalent HPV vaccines are available but the cost of these vaccines is a concern. So it is crucial to reduce the cost of this vaccine to promote its use. Government should take initiative to include HPV vaccination in national immunization programme to eradicate the disease from the country.

Fear of side effects is a significant concern shown by 61.5% participants. Fear of adverse effects was a hurdle in 41% of Tanzanian women.[14] According to Centers for Disease Control HPV vaccine is safe. HPV vaccine has few mild side effects; the common side effects are injection site pain, redness and swelling. It may be associated with fever, tiredness, headache or gastrointestinal symptoms. Occasionally it may cause muscle and joint pain. Some of the HPV recipient may faint during HPV vaccination so it should be injected during lying down or sitting position and the client should remain

in this position for at least fifteen minutes to avoid this adverse effect. Vaccination against HPV does not cause HPV infection or cancer. HPV vaccine is not associated with any infertility problems. It is of prime importance to create awareness in public to avail this preventive strategy to protect their young generation from this grave disease especially in developing world.[6,7]

In 49.5% of cases women were reluctant to choose HPV vaccination for their daughters or siblings because there was no family or social trends. Social non-acceptance was a hindrance in 16% in a study conducted in Tanzania.[14] Family and husband refusal was another reason of denial in 47.4%. It is essential to involve families in awareness campaigns to improve their compliance. According to Yu et al 24.9% mothers were reluctant to use HPV vaccine because of its limited use.[11] My daughter is too young to be at risk of cervical cancer was response by 30.9% of mothers in China versus 28.5% of Pakistani mothers. Religious belief was a concern in 2.1% however Cunningham MS et al revealed it a reason of denial by 6%of women.[14]

The challenges faced are lack of public awareness so intervention is needed to educate the target population about the Human Papilloma virus, its associated implications leading to morbidity and mortality.[15] Population should be taught about the preventive strategies including the Vaccine against HPV and cervical screening.[16] Awareness drive should focus on the health care providers as well as the target population involving the families for better compliance. Engagement of community to address their concerns and myths is decisive.[17]

Quality -assured vaccine should be included in national immunization programme in developing countries to prevent the HPV infection. Free of cost easily accessible cervical screening facilities should be available for all the married women for early detection of the disease. Government should ensure suitable delivery infrastructure for proper implementation of the preventive policy throughout the country.[18]

CONCLUSION

Awareness and acceptability of HPV vaccine among women attending a tertiary care hospital is very low. The participants, who were given information about HPV vaccination, most of them refused to get their daughters and siblings vaccinated. Major obstacles are high cost, fear of adverse effects, social non-acceptability and family refusal.

Limitations of the study: It is a single centered study.

Strengths of the study: Data was collected from ample number of patients.

Conflict of interest: Authors have no conflict of interest to disclose.

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TRENDS OF SELF-MEDICATION IN PATIENTS OF ACNE VULGARIS

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Abstract

Objective: To determine the frequency and factors leading to self-medication in patients of acne vulgaris presenting to a tertiary care hospital.

Methods: A total of275 cases of all grades of severity of acne vulgaris were interviewed and asked to fill a proforma recording frequency of self-medication and various factors leading to it. Details of type of medication and source of advice were also noted. Data was analyzed by SPSS version 17. Frequency and percentages were calculated for gender, self medication and contributing factors.

Results: The mean age of the patients was 20.8 ±4.15 years with a range of 13-35 years. Among the 275 cases, 156 (56.7%) were female and 119 (43.3%) were males. Frequency of self medication was observed in 246 i.e. 89.5% of patients. The underlying factors contributing to self medication were as follows; starting self medication to save time instead of consulting a doctor was the most frequently noted factor i.e. in 50 (18.2%) of cases, mild nature of disease as a reason for self- medication was reported in 45(16.4%) of cases, low educational status in 9 (3.3%) of cases, and economic issues were found in 6 (2.2%) of the cases. Majority of the patients received the advice about self medication from their friends/class mates i.e. 32.7%.

Conclusion: Self-medication for acne vulgaris was found to be very common in our study population i.e. 89.5%. The main factors identified were to save time, low educational status, economic issues, increased potential to manage certain illnesses through self-care, and greater availability of medicinal products over the counter.

Key Word: Acne vulgaris, self-medication, contributing factors

Self-medication is a widespread phenomenon. It is practiced depending on cultural and social norms. Being an inexpensive alternative to visiting a costly healthcare facility, patients try to treat minor illnesses on their own.[1]

Acne being one of the common and conspicuous skin disorders is more prone to self-medication as compared with other diseases.[2,3] Products used range from traditional herbal remedies to prescription based medication. However, excessive and unchecked dispensation of non-prescription drugs by pharmacies and their widespread use exposes the public to adverse reactions. It is an increasing problem in developing countries especially where educational status is low and public is easily influenced by external factors e.g. media etc. This problem needs to be addressed without delay. Most patients particularly teenagers attempt self-medication without proper medical advice and supervision.[3]

Self-medication in skin diseases like acne is a major contributory factor in increasing the burden of the disease. Application of various remedies containing topical steroids for prolonged period of time leads to skin atrophy, pigmentation and increased hair growth. The condition may become resistant to treatment. Not many studies have looked into this problem. The objective of the current study was to determine the burden of self-medication in our population and identifying factors leading to it so as

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to prevent harmful and often lifelong side effects of non-judicious use of drugs in our population.

METHODS

It was a descriptive study conducted in Dermatology Unit 1 of Jinnah Hospital, Lahore. A total of 275 cases of acne vulgaris of any age, either gender, were included through non-probability consecutive sampling technique after the approval from hospital ethical committee. Patients with other concomitant skin diseases or on medication known to cause acne were excluded. Written informed consent was taken from each patient. Demographic details (name, age, gender, educational status) were obtained. Then all patients were interviewed by the researcher. A questionnaire was used as research instrument which was filled by the researcher herself to reduce misclassification and interview bias. Details of the factors leading to self medication, type of medication and source of advice were noted.

Data was analyzed by SPSS version 17. Frequency and percentage were calculated for gender, self-medication and contributing factors. Chi-square test was applied with p-value less than and equal to 0.05 considered as significant.

RESULTS

The ages of the patients ranged from 13 years to 35 years with a mean age of 20.8 ± 4.15 years. Out of the total cases, 156 (56.7%) were females and 119 (43.3%) were males. Self medication was practiced by 246 out of 275 patients (89.5%).

The most common underlying factor contributing to self medication was saving time by staying home rather than by going to a skin specialist. This was seen in 50 (18.2%) of cases. Other contributing factors included mild nature of the disease in 45 (16.4%) of cases; low educational status in 9 (3.3%)and economic issues in 6 (2.2%). Combination of different factors was seen in 165 patients (60%). (Table 1) The sources of information about medication for patients using self-medication were friends/ class mates (32.7%), family members (27.6%), beauticians (11.3%) and electronic media (7.6%). Combination of the above was seen in 57 (20.7%)patients. (Table 2)

The type of medication used included commercial anti acne creams (31.6%), prescription drugs/ creams (28%), home remedies (1.8%), herbal products (1.1%)and combination of above (37.4%). (Table 3).

When data was stratified for age, gender and educational status, there was statistically insignificant difference observed with respect to age and frequency of self-medication (p-value = 0.344). Similarly statistically insignificant difference was found between gender as well as educational status and self-medicated patients. (p-value = 0.828 and 0.344 respectively).

Table 1: *Contributing Factors to Self Medication*

	Frequency	Percent
Time saving	50	18.2
Mild nature of the disease	45	16.4
Low educational status	9	3.3
Economic issues	6	2.2
Others/ combination of different factors	165	60
Total	275	100

Table 2: *Source of Information Regarding Self Medication*

	Frequency	Percent
Friends/Classmates	90	32.7
Family members	76	27.6
Beauticians	31	11.3
Electronic Media	21	7.6
Others/ combination of above	57	20.7
Total	275	100.0

Table 3: *Type of Self-Medication Used*

	Frequency	Percent
Commercial Anti-Acne creams	87	31.6
Prescription drugs/creams	77	28.0
Home Remedies	5	1.8
Herbal Products	3	1.1
Combination of above	103	37.4
Total	275	100.0

DISCUSSION

Increasing incidence of self medication has been documented throughout the world by large population based studies and national health surveys.[4,5] Most patients particularly students of health related professional courses, attempt self-medication by using nonprescription medicines, with lack of adequate knowledge about the pathophysiology of acne and without proper medical advice and supervision. In this regard the present study was taken up to observe the frequency of self medication and also the factors leading to it. We have limited data if at all to document this trend in our population. This study was an effort to throw some light on this problem in our population.

The results of our study have shown an alarmingly high incidence of self-medication in patients with acne vulgaris, i.e. 89.5%. A rate similar to this was reported in study conducted in Faisalabad by Khalid et al in which the incidence of self medication was found to be 77, but the sample size was relatively small i.e. 150.[6] Similarly another study done in 2013 on 256 medical/paramedical students of KIMS (Kempegowda Institute of Medical Sciences) India reported 52.5% incidence.[7] Whereas another Indian study published in 2016 by Surviya S et al on 472 medical students reported that self medication was practiced by 44.8% of the subjects.[8] Franzke N et al found a much lower frequency of self medication in German population i.e. 45 out of 502 (9.2%) acne patients.[9] This could be due to better educational status of the study population.

In our study the reasons quoted for self-medication included: avoiding consultation to save time (18.2%), mild nature of the disease (16.4%), low educational status (3.3%) and economic issues (2.2%). Majority of patients (60%) however reported a combination of all these factors as the reason for self medication. These results were compared to those by Jyothi R et al which reported mild nature of the disease (82.34%), time saving (12.96%), to save cost of consultation (2.35%), all the above (2.35%).[7]

James et al in (2006) observed that the 1st year medical students' knowledge about appropriate self-medication was poor, but knowledge of the benefits and risks of self-medication was adequate. The respondents found self-medication to be time-saving, economical, convenient and providing quick relief in common illnesses.[8] This can be attributed to socio-economic factors, life style, ready access to drugs, the increased potential to manage certain illnesses through self-care, and greater availability of medicinal products.

The present study also shows that self-medication was based on the suggestions by friends/ classmates (32.7%), family members (27.6%), electronic media (7.6%) and beauticians (11.3%). The results of our study are similar to study by Khalid et al which reported that 31% of patients were influenced by the advice of their friends 27% by relatives and 16% patients consulted the person running a medical store, who is not usually a pharmacist in our set up. This is in contrast with other studies where pharmacists were consulted the most for self medicated drugs.[6] Study conducted on doctors reported the most common source of information leading to self medication was based on textbooks (32.4%) followed by friends (28.4%), coaching notes (25.6%) and internet (13.6%).[8] Pharmacists also play a key role in providing them with assistance, advice and information about medicines available for self-medication. Moreover, the internet is emerging as a major source of information on health issues by providing required information.[8]

In our study the most common type of self-medications included were commercial anti-acne creams (31.6%), prescription drugs/creams (28%), commercial + prescription drugs/creams (20%) herbal products (1.1%), home remedies (1.8%), and commercial + prescription drugs/creams (20%). However, in the study by Franzke et al, results showed that products prescribed for acne were prescription-only in 61.1 % followed by cosmetic

products (23.1%) and pharmacy-only products (14.5%).[9] Jyothi's study results were also similar with our study These included commercial anti-acne creams (21.17%), herbal products (18.8%), home remedies (17.65%), clindamycin gel (10.6%), benzoyl peroxide (8.23%), erythromycin (1.17%), oral erythromycin (1.17%) and combinations (21.17%).[7]

The respondents in our study found self medication to be time-saving, economical, convenient and providing quick relief in common illnesses.

Important disadvantages of self-medication are the risk of making a wrong diagnosis, inappropriate drug use and adverse effects. Therefore it is a practice not to be encouraged as it increases the burden of disease in the community. There is no proper awareness about the use of medication in our population .Appropriate education and guidance is necessary to avoid inappropriate use of drugs.

CONCLUSION

In our study the frequency of self-medication was found to be very high i.e. 89.5%. The main factors identified were to save time, low educational status, economic issues, increased potential to manage certain illnesses through self-care, and greater availability of medicinal products in our population.

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CORRELATION BETWEEN CLINICAL AND DERMOSCOPIC DIAGNOSIS IN PATIENTS OF PLANTAR WARTS

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Abstract

OBJECTIVE: To determine the correlation between clinical and dermatoscopic diagnosis in patients of plantar warts.

PATIENTS AND METHODS: A total of 250 patients of any age, either gender, presenting to dermatology outpatient department (OPD) with clinical suspicion of plantar warts were enrolled in the study after taking informed consent. All patients were then subjected to dermatoscopic examination of plantar areas. Findings were recorded on a predesigned proforma. Outcome variables were presence of red dots, black dots or linear streaks. Both clinical and dermatoscopic examination was performed by a single observer with controlled bias. Data was entered and analyzed in SPSS version 21.0. Diagnostic accuracy was calculated by 2 x 2 table to determine dermatoscopic accuracy in diagnosis of plantar warts.

Result: Mean age of the patients was 31.54 years + 17.03 years. Out of 250 patients 58% were males and 42% were females. A total of 219 patients (87.6%) were diagnosed as having plantar warts as per the criteria for dermatoscopic diagnosis i. e black dots and red dots while dermatosopy was negative in 31 patients (12.4%) .

CONCLUSION: Dermatoscopy was positive in 87. 6% of clinically diagnosed cases of plantar warts. The results of this study suggest that dermoscopy is helpful in confirming the clinical diagnosis of plantar warts.

Key Words: Dermoscopy, dermatoscopy, plantar warts, warts, red dots, black dots.

Plantar warts are a very common skin disease occurring in children and young adults.[1] Plantar warts are caused by Human papilloma virus sero-types HPV 2 and HPV 4. They present as firm papules with a rough, horny surface ranging in size from 1mm to over 1cm in diameter which may coloase to form large masses.[2] On careful observation, tiny black dots may be visible at the surface of the wart, and these represent thrombosed, dilated capillaries.[4] Many cases of plantar warts are diagnosed clinically, however in few cases ambiguity may be present, where plantar warts can be confused with corns, callosities and rarely acral melaoma.[5]

Dermatoscopy is a noninvasive, simple and inexpensive diagnostic technique that permits visualization of morphological features that are not visible to the naked eye, thus forming a link between macroscopic clinical dermatology and microscopic dermatology.[8] Dermatoscopy offers a huge potential to enhance the clinical interpretation of neoplasms and various skin diseases. In our study hand held dermatoscope with a fixed magnification of 10X was use to perform dermatoscopic examination.[10]

The dermatoscopic diagnosis of plantar warts is based on the presence of a verrucous, yellowish structure- less area exhibiting a variable number of irregularly distributed red to brown to black dots or linear streaks (hemorrhages), which are thought to be caused by the chronically high vascular pressure at plantar sites. These hemorrhages are a helpful criterion to distinguish plantar warts from callus due to chronic friction, which lacks blood spots, but instead typically reveals central reddish to bluish structure-less pigmentation.[9]

Histological examination, is not only impractical but also it is difficult to fully appreciate the

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morphologic features of vessels as histology provides a vertical view of sections of lesions; dermatoscopy, by contrast, provides a horizontal view of the lesion, allowing the identification of a wide variety of vascular structures.[3] Dermatoscopy has been established as a routine skin examination technique in many western countries but its use is limited in developing countries. To the best of our knowledge, no study has been done in our local population on dermatscopic patterns of plantar warts.

METHODS

This cross sectional study was conducted in department of dermatology unit 1, Jinnah hospital, Lahore from November 2016 to April 2016. A total of 250 patients of any age and both genders, presenting to dermatology outpatient department with clinical diagnosis of plantar warts were enrolled in the study after taking informed consent. All patients were then subjected to dermatoscopic examination of plantar areas. Findings were recorded on a predesigned proforma. Outcome variables were presence of red dots, black dots or linear streaks. Both clinical and dermatoscopic examination were performed by a single researcher with controlled bias. Data was entered and analyzed in SPSS version 21.0. Diagnostic accuracy was calculated by 2 × 2 table to determine dermatoscopic accuracy in diagnosis of plantar warts.

RESULTS

Mean age of the patient was 31.54 years + 17.03 years. Among 250 patients 58% were males and 42% were female. Out of a total of 250 patients, 219 patients (87.6%) were diagnosed as having plantar warts as per the criteria for clinical diagnosis and 31 patients (18.4%) were not diagnosed as plantar warts. (Table 1) Dermatoscpy was positive in 219 (87.6%) while it was negative in 31(12.4%). (Table 2) Red dots were seen in 204 patients, black dots in31 patients, while linear streaks were seen in 31 patients. (Table 1). When data was stratified for age, it was observed that plantar warts were commonly diagnosed in patients less than 45 years as compared to patients more than 45 years (p value <0.05). However, when data was stratified for gender, site of the lesions and number of the lesions, there was no statistically significant difference.(p value >0.05).

DISCUSSION

Although dermatoscopy has been primarily designed for aiding the in vivo diagnosis of skin tumors, recent advances indicate it is also useful in the diagnosis of common skin diseases. This study was designed to use dermatoscopy as a tool for the accurate diagnosis of plantar warts. The present study showed a degree of agreement of 87.6% between clinical and dermatoscopic diagnosis of plantar warts. The results of our study were compared with a study carried out in 2009 in Korea by Bae JM et al in which 48 patients with 111 lesions suspected of having plantar warts were followed over a 14 month period. In this study 79% of clinically diagnosed patients of plantar warts were confirmed on dermatoscopy. In both the studies

Table 1: *Diagnostic Criteria of Plantar Wards*

	Diagnostic Criteria 1: Red Dots		Diagnostic Criteria 2: Black Dots		Diagnostic Criteria 3: Linear Streaks	
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Yes	204	81.6	219	87.6	31	13.2
No	46	18.4	31	12.4	217	86.8
Total	250	100.0	250	100.0	250	100.0

Table 2: *Dermoscopic Diagnosis of Plantar Warts*

Diagnosis	Dermoscopic Diagnosis	
	Frequency	**Percent**
Yes	219	87.6
No	31	12.4
Total	250	100.0

Table 3: *Dermatoscopic Diagnosis: Correlation with Age, Gender, Site and Number of Lesions*

		Dermoscopic Diagnosis		Total	Chi-square P value
		Yes	**No**		
Age	< 45 years	186	10	196	X^2= 44.492 P=.000
		84.9%	32.3%	78.4%	
	> 45 years	33	21	54	
		15.1%	67.7%	21.6%	
Gender	Male	131	14	145	X^2= 2.395 P=.122
		59.8%	45.2%	58.0%	
	Female	88	17	105	
		40.2%	54.8%	42.0%	
Lesion	Forefoot	141	17	158	X^2= 1.064 P=.302
		64.4%	54.8%	63.2%	
	Heel	78	14	92	
		35.6%	45.2%	36.8%	
No of Lesion	< 5	151	21	172	X^2= .018 P=.892
		68.9%	67.7%	68.8%	
	> 5	68	10	78	
		31.1%	32.3%	31.2%	
Total		219	31	250	
		100.0%	100.0%	100.0%	

hand held dermatoscope with a fixed magnification of 10X was used to perform dermatoscopic examination.

In our present study the mean age of the patients was 31.54 years SD 17.3 while in the study carried out by Bae JM et al the mean age was 18 years (range 4-69 years). The difference in these results may be because of lack of early presentation of our patients due to less awareness. In our study 105 patients (42%) were females while 145 patients (58%) were males. However in the study carried out by Bae JM et al 30 patients (62.5%) were female and 18(37.5%) were males. Our results show increased incidence of plantar warts in males which can be explained by the fact that females have lower attendance at the outpatient department because of different reasons. Additionally, males are generally having more outdoor activities which increase the chance of acquiring the infection.

The dermatoscopic examination of all 250 patients showed the typical findings of plantar warts i.e red dots and black dots in 219 patients (87.6%). These results were comparable with the study carried out by Bae JM et al in which 79% patients revealed homogenous red or black dots and papilli form surfaces or interrupted skin lines. In our study 31 patients (12.4%) did not show the typical findings of plantar warts, however linear streaks were seen which was consistant with the diagnosis of callosities. In the study by Bae JM et al 19% patients demonstrated homogenous opacity diagnostic of callus. These results were also comparable in both the studies.

Another study by Piccolo D et al evaluated the validity of digital dermatoscopy in the diagnosis of pigmented skin lesions, by comparing the diagnoses of a dermatologist experienced in dermoscopy (5 years of experience) with those of a clinician with minimal training in this field. Specificity of the diagnosis by the experienced dermatologist was higher (99%) than that of the inexperienced clinician (94%). The study indicated that analysis by a trained dermatologist can improve the diagnostic accuracy of melanoma compared with that of an inexperienced clinician. However, in our study no case of melanoma was diagnosed dermatoscopically.

Limitation of our study was that the study population was relatively small, i.e. 250 cases only, as compared to the burden of disease in our society. Also there was a risk of transmission of virus from one patient to another via contact dermatoscopy. This was minimized by cleaning the dermatoscope lens with alcohol swab after each examination.

CONCLUSION

Dermatoscopy was positive in 87.6% of clinically diagnosed cases of plantar warts. Dermatoscopy is helpful in confirming the clinical diagnosis of plantar warts and should be performed in patients in whom there is doubt about the diagnosis.

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PREVALENCE OF SURGICAL SITE INFECTION IN A NEW ORTHOPAEDIC WARD OF A TERTIARY CARE HOSPITAL

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Trauma and Orthopaedic surgery is a rapidly evolving surgical specialty with a wide range of procedures performed under this category. Wound infections created by an invasive surgical procedure are referred to as surgical site infections (SSIs). SSIs are one of the most important causes of healthcare-associated infections (HCAIs). Hospitals in UK have approximately 8% of patients with an HCAI according to a prevalence survey done in 2006. SSIs accounted for 14% of these infections. However, prevalence studies tend to underestimate SSI because infections may occur after the patient has been discharged from hospital.[1]

SSIs are a major contributor to morbidity and mortality in surgical patients. Risks are multifactorial and include a host hospital-related, patient-related, and procedure-related factors. Prevention of SSIs relies on optimization of all these factors and use of evidence-based pharmacologic and non-pharmacologic measures. At the forefront of these measures is maintenance of theatre cleanliness, staff training and antimicrobial prophylaxis, which has been shown to be effective at reducing risk of surgical site infection.[2]

Wound contamination occurs with each surgical incision, but time proven strategies exist to decrease the risk of SSIs. In particular, improved adherence to preventative measures, clean surgical approach and effective antimicrobial therapy are needed to optimize the treatment of SSIs.[3]

As ambulatory surgery is increasing in frequency, there is growing interest in assessing, monitoring, and tracking complications that occur secondary to outpatient procedures. One research determined the rates of 14- and 30-day acute care visits for surgical site infection after outpatient hand surgery. The rates of SSIs after ambulatory hand procedures are low but not negligible and the fact that many of these events may need hospitalizations or additional procedures, adherence to preventive protocols is very important.[4]

Another challenge in SSIs is acquisition of Methicillin - resistant Staphylococcus Aureus (MRSA) colonization and is associated with poor outcomes especially in high-risk patients. High prevalence of MRSA colonization was reported in many settings in Pakistan, nonetheless more local data is required.[5]

Prevalence of SSIs also depends on the surgical specialization. Analysis of the causes of surgicalsite infections allows concluding that microorganisms from the patient's skin-Gram-positive cocci- Staphylococcus and from the patient's own microbial flora - Gram-negative Rods are the most common agents causing SSIs. One particular study looked at characteristics of SSIs caused by these bacteria in patients who underwent surgical procedures at a Regional Specialist Hospital on selected surgical wards.[6]

Another five-month prospective survey of SSIs was conducted in the department of general surgery in Tanzanian hospital. SSIs were classified according to Centers for Disease Control and Prevention (CDC) criteria and identified by bedside survei-

llance and post-discharge follow-up. This study showed that 77 (19.4%) of the patients developed SSI.[7]

As guidelines for prevention of surgical site infection become increasingly complex, outcomes are dependent on various preventive measures and better performances of surgical staff at any particular setup.

Gulab Devi Educational Complex is serving the ailing humanity for more than 100 years. Recently it established Al Aleem Medical College and proudly opened its doors to all surgical and medical specialties. In its newly established Trauma and Orthopaedic Unit, we have 40 beds and offering Trauma and Elective Orthopaedic procedures. We aim to look for prevalence of SSIs in our newly established Orthopaedic department.

KEY WORDS

Surgical site infections, orthopaedic, Wound management

METHODS

A systematic review was performed of first 125 Orthopaedic interventions, between April 2018 and December 2018 as recorded in Theater log books, ward register and patient records of Orthopaedic ward at Gulab Devi Educational Complex. For each case in-patient charts, anesthetic charts, operation notes and follow up notes were reviewed to record study variables. The type of procedure and status of wound was recorded from operations notes.

Standard of theatre protocols was followed for each patient which involve one dose of Pre operative antibiotic 20 minutes before application of tourniquet or start of surgery, combination of Cefoperazone + sulbactam and two further doses at 12 and 24 hours interval. Antibiotics were changed if culture reports were available with varying sensitivities. Staff strictly wear clean theatre kits, face masks, head caps and other personal protective equipment (PPE) at all times inside theatre. Instruments, gowns and sheets were sterilized and chain of sterility maintained till end of surgery. Theatre traffic kept to minimum. After each surgery all exposed theatre surfaces were cleaned with a disinfectant. Regular Theatre cultures and cleanliness was ensured.

All patients who underwent an Invasive surgical procedure during the study period were included in the study. All non invasive procedures such as Manipulations, Application of plaster casts and image guided intra articular injections were excluded from study.

Infection was defined as the invasion and multiplication of microorganisms such as bacteria, viruses, and parasites that is not normally present within the body.

Surgical site Infection was defined as Wound infections created by an invasive surgical procedure are referred to as surgical site infections (SSIs).

For each patient wound was categorized according to the USA National Research Council Categorization of Incisions for pre-op and post-op follow-up (Table A). A note of previous surgery and any existing infection was carefully recorded. Minimum follow up was Four weeks or till the wound healing for all patients. Patient ward notes and outpatient follow ups were carefully recorded for identification of any post-operative infection and recorded on ward register.

Table A:

Classification	Criteria
Clean	Wounds that are non -traumatic and/or do not enter the digestive, respiratory or genital urinary tract. These cases involve only the skin and sterile body spaces without breaks in sterile technique. Joint Arthroscopies, Breast s urgery, Inguinal hernia repair, Carpal tunnel release
Clean-contaminated	Wounds in which the digestive, respiratory or genitourinary system is entered, without visible contamination and without obvious infection. These cases involve non -sterile viscera, which have a relatively low level of bacterial colonization. Biliary surgery, Bowel surgery with prepared bowel, Hysterectomy, Tonsillectomy
Dirty	Wounds in which there is visible contamination from a hollow viscous or are clinically infected. These case s involve exposure to high levels of bacteria. Excision of perforated appendix/ bowel, Drainage of abscess

RESULTS

We performed total 125 patients from April 2018 to December 2018. We had 84(67%) male patients and 41(33%) female patients. Age range was between 2 years to 86 years old. Average age was 31 years. We used USA National Research Council Categorization of Incisions.

According to these criteria our patients had pre-op assessment and 87(69%) patients had Clean Wound, 13(11%) had Clean-contaminated wounds and 25 (20%) patients had Dirty wounds. Out of these 125 patients, 53(43%) patients had cultures sent from their wounds intra-operatively based on either pus drained from surgical site as in Dirty wounds or suspicion of infection as in Clean-contaminated wounds. Of these cultures sent, 21 came back positive.

Table-01 shows the spectrum of organism detected among the positive culture results. 05 patients were diagnosed with Bony tuberculosis and started on anti-tuberculosis regime. 04 patients had mixed growth of bacteria, 04 patients had MRSA infection, 04 patients had gram negative and 04 patients had Gram positive infection.

Table-02 shows SSI with respect to various wound categories. Out of 21 positive cultures, one was clean wound, three were clean-contaminated and 17 were Dirty wounds. Out of these, post-operatively infection was detected in 03 of our patients as shown in Table-02. P-value was ≤ 0.05 which indicates that SSI are significantly associated with patients having dirty wounds.

After performing surgery, all patients were followed up for minimum of four weeks to record SSIs. Figure-01 shows post-operative wound types in our study population, 118(94.5%) patients had primary closure with one reported superficial infection which was settled with 5 days course of oral antibiotic without any further intervention. 4 patients had delayed closure with a second wash out of wound at 48 hours interval and all of them went on to heal without any further reported problems. 3 patients had their wound left to heal by secondary intention and one of these patients needed a second washout at 3week interval and this was recorded as SSI on our database. After second procedure wound was derided and primarily closed and went on to complete healing at the end of four weeks with no further reported complications.

DISCUSSION

A standardized definition of SSIs was published by the Surgical Wound Infection Task Force USA in 1992. According to which: the presence of purulent drainage; spontaneous drainage of fluid from the wound, regardless of whether it is culture positive for bacteria; localized signs of infection for superficial sites or radiological evidence of infection for deep sites; an abscess or other type of infection on direct surgical exploration; or a diagnosis of an infection by a surgeon.[11] Furthermore, SSIs have been categorized by the CDC into 3 categories: superficial, deep, and organ/space infections.[11] Superficial infections involve the skin or subcutaneous tissue; deep infections involve the muscle or fascia; and organ/space infections involve the body cavity such as the pleural cavity or liver bed.[12]

The SSI incidence varies. All surgical wounds are prone to infection but only a minority demonstrates clinical infection. SSIs are a consequence of several factors: theatre cleanliness, staff adherence to hygienic protocols, preparation of surgical kits, exposure of the wound to contaminants during the procedure, the virulence of the contaminants, the microenvironment of each wound, and the integrity of the patient's immunity. All these intrinsic and

Table 1: *Spectrum of Organisms Detected in Positive Cultures*

	Frequency n= 21
AFB/TB	5
MRSA	4
Gram +ve	4
Mixed Growth	4
Gram –ve	4

Table 2: *SSI With Respect to Various Type of Wound Categories*

	Infection before surgery (n=21)	Surgical site Infection (Infection after surgery) (n=03)	p-value
Clean	01(1.15%)	01(0.8%)	<0.05
Clean-contaminated	03(23%)	00	
Dirty	17(68%)	02(1.6%)	
			p-value ≤ 0.05 significant

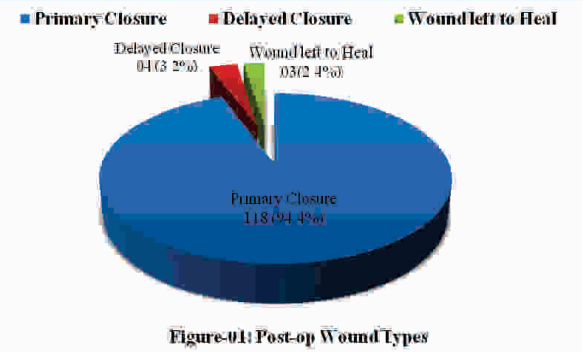

Figure-01: Post-op Wound Types

extrinsic factors affect the incidence of infection. Researches conducted in United States by the National Nosocomial Infections Surveillance (NNIS) program has indicated that three factors: surgical risk, as measured by the ASA, duration of surgery, and level of bacterial contamination of the wound, provide an infection rate across a wide range of surgical procedures.[13]

Among latest studies in Pakistan, one study has found SSI in 7.09% patients in elective Orthopaedic surgeries[15], another study shows SSI in 5.3% [16] and Ishaq et al found SSI in 9% patient[17].

Our results revealed SSI rate 2.4% in first 125 patients. Large international multicentre studies have varied SSI rate of 3%–5% in the United States.[14] In our study SSI rates was 0.8% in clean cases, none in clean contaminated and 1.6% in dirty cases. Role of strict theatre protocols, antibiotic policy, involvement of local pathologists and close surveillance helped us to keep SSI under control. Non-quantifiable risk factors for infections such as duration of surgery, antibiotic prophylaxis and skin preparation have been determined to be important in other studies[12, 14] but this is beyond the scope of this paper due to small study population and a new established set up. A further detailed paper will be published as more data is collected along these lines.

Our study is based on prospective case series of a small number of patients to look at our newly established theatres. The conclusions drawn from this might be limited but they give us an encouraging picture to continue good practice and improve it further.

CONCLUSION

Surgical Site infection (SSI) rates in a new established Orthopaedic Ward at Al-Aleem medical College / Gulab Devi Educational Complex Lahore, are comparable to international standards. We aim to continue the good practice and further improve the SSI rate by adherence to strict policy of theatre cleanliness and patient care.

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THE EXPANDING HORIZON OF DIAGNOSTIC CYTOPATHOLOGY; 38-YEARS' INSTITUTIONAL DATA ANALYSIS WITH FORECASTING OF FUTURE TRENDS

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Abstract

Background: Histopathology and cytopathology are fundamental diagnostic tests in the initial detection and diagnosis of cancer, premalignant conditions and several other diseases. Cytopathology has been discovered and developed during the last hundred years or so but is quickly gaining importance as techniques for collection of specimens and ancillary tests continue to get refined.

Materials and methods: Workload data for the last 38 years for histopathology and 22 years for cytopathology was retrieved from our archives and analyzed to see past trends and forecast future trends.

Results: Annual workload for both histopathology and cytopathology showed an increase. The increase was more marked for cytopathology. Forecast sheets indicate that workload of cytopathology is expected to match that of histopathology in the next fifteen years or less.

Discussion: Cytopathology has gained significance in medical diagnostics owing to its safety, speed, low cost and increasing reliability. Numerous ancillary tests also add greater sensitivity and specificity to the technique. Both public and private sector laboratories need to plan ahead to be able to cope with this increasing workload.

Keywords: histopathology, cytopathology, ancillary tests, workload, forecast

The study of material aspirated from palpable swellings began long ago. Famous Muslim scientist Al Zahrawi (936–1013 AD) describes in detail the methods employed by him to assess thyroid swellings by aspirating them using needles similar to the ones we use today. He seems to be familiar with cystic as well as solid thyroid nodules, while also being cognizant of the fact that some thyroid swellings were encapsulated while others were not. He warns of serious consequences of meddling with highly vascular swellings.[1-3]

The development of microscopes offered the opportunity of microscopic examination of aspirated materials. Surprisingly, hematologists not histopathologists, were the pioneers of the technique as we know it today. In 1912, a German hematologist, Hans Hirschfeld (1873-1944), reported the results of aspirations on enlarged lymph nodes.[4] Soon afterwards, the first research paper on the subject was published in 1930 from New York Memorial Hospital by Drs. Martin and Ellis.[5] The potential of the technique was realized by the histopathologists not long thereafter and the 1980s saw a dramatic rise in publications related to it. The first American Board of Examination in Cytopathology was undertaken in 1989.6 The last few decades have witnessed an explosive increase in applications of the technique and the ensuing publications.[7]

The technique was introduced in our institution in 1997. A humble beginning saw only 507 cases in the first year. From then on there has been a steady rise in number of FNAC procedures, testifying to the increasing reliability of the results. Taking advantage of the fact that workload log of the laboratory was well maintained since its inception 38 years ago, we retrieved relevant data to study our workload

in both histopathology and cytopathology and analyzed it to assess the past trends as well as forecasting future trends.

METHODS

Histopathology workload data of 38 years (1981-2018) was retrieved. Total number of cases were recorded year by year. Similar record was obtained for cytopathology since its introduction in 1997. The proportion of cytopathology vs histopathology was also calculated in percentage for each year. The total period was divided into decades and workload for each decade was compared with that of the next decade to assess increase in workload; statistical significance was calculated using Student's t-test. Future trends were calculated using Excel 2019.

RESULTS

The results are given in Figures 1-5 and Tables 1 & 2.

There was a marked but non-uniform overall increase in workload for both histopathology and cytopathology over the years (Fig 1,2). The increase was more marked for cytopathology than histopathology indicated by the increasing percentage of its cases compared with histopathology cases (Fig 3). The comparison of decade wise increase in cases is shown in Tables 1&2. There was a statistically significant increase in most comparisons. Forecast for future trends (Fig 4,5) indicated that the total number of cytopathology cases were expected to match the total number of histopathology cases by 2033.

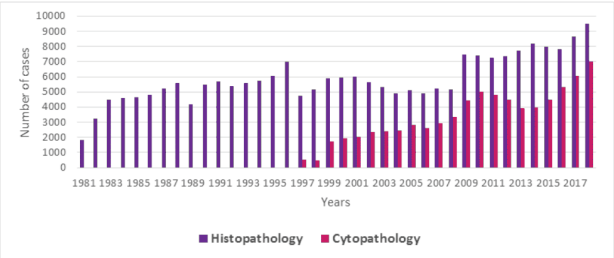

Fig 1: *Bar Diagram Showing Annual Workload of Histopathology and Cytopathology*

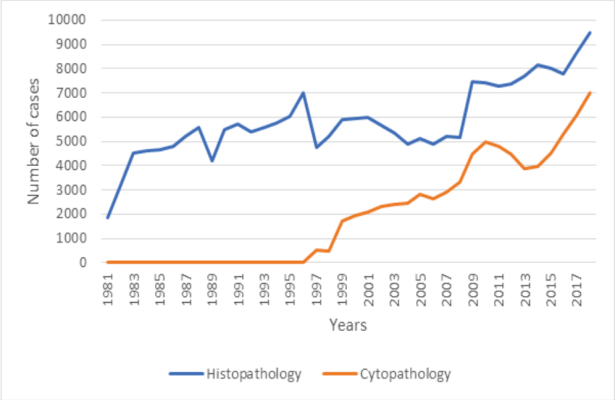

Fig 2: *Line Chart Showing Annual Workload of Histopathology and Cytopathology. The Greater increase in Cytopathology is Indicated by the Steeper rise of the Cytopathology Line*

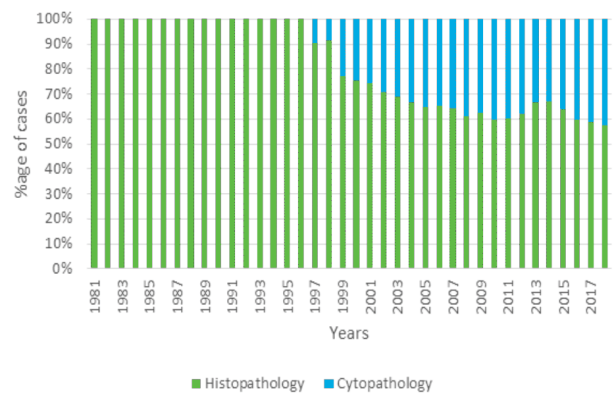

Fig 3: *Bar Diagram showing Relative Percentage distribution of Workload amongst Histopathology and Cytopathology. The Relative Percentage of Cytopathology shows a rise with Passage of Time*

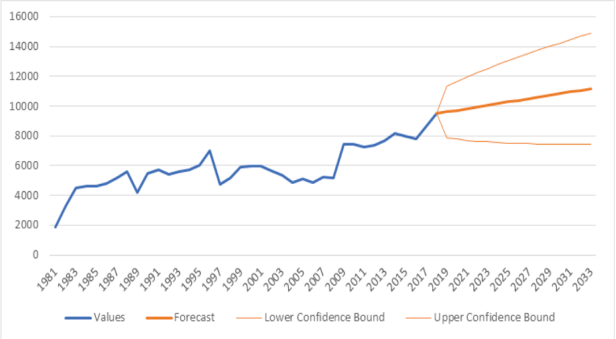

Fig 4: *Forecast Sheet Indicating possible Future Workloads in Histopathology*

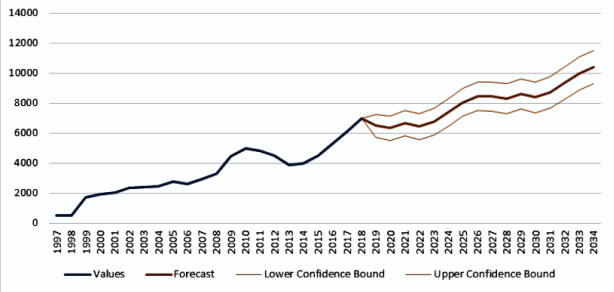

Fig 5: *Forecast Sheet Indicating Possible Future Workloads in Cytopathology*

Table 1: *Comparison of Increase of Workload in Histopathology by Decades*

Group	Time period Group 1	Time period Group 2	p-value	Significance
First and second decades	1981-1990	1991-2000	0.0043	Highly significant
Second and third decades	1991-2000	2001-2010	0.9681	Insignificant
First and last decades	1981-1990	2009-2018	0.0001	Extremely significant

Table 2: *Comparison of Increase of Workload in Cytopathology by Decades.*

Group	Time period Group 1	Time period Group 2	p-value	Significance
First and second decades	1997-2006	2007-2016	0.0001	Extremely significant
First and last decades	1997-2006	2009-2018	0.0001	Extremely significant

DISCUSSION

The results show a staggering increase in workload in both histopathology as well as cytopathology during the period of study (Fig 1,2). This has been reported in several other studies as well. The possible reasons cited include:

- An ever-increasing population
- Better access to medical care facilities
- Increased cancer incidence, due in part to increased life expectancies
- Increased efforts to diagnose cancer at early stages following awareness campaigns
- Increase in cancer patients on follow up
- Increased modalities for collection of samples becoming available, e.g., endoscopic biopsies and ultrasound and CT-guided biopsies

These factors contribute to the fact that the demand for cancer diagnostics is higher than ever.[8]

However, in our data this trend was not consistent throughout. There were times when the total workload stayed constant or even declined (Fig1,2 and Table 1). Some possible reasons could be periods of unrest like strikes by doctors, law and order situations preventing people from seeking medical care and sprouting of private sector laboratories. Public sector laboratories are known to have longer turn-around-times and have failed to keep up with some of the latest developments in the field. If these factors could be addressed the total workload will probably be several fold higher.

Fig 3 shows that currently cytopathology forms a small proportion of the total workload the main chunk being taken up by histopathology. This is in concordance with figures from other centers. Data from the Royal College of Pathologists showed a meagre 11% of requests in 2012 were for cytology while histology formed the major bulk of workload.[9] Similar results were reported by the Warwick System of Prospective Workload Allocation in Cellular Pathology.[10] Other studies report variable number from less than a quarter[11] to nearly 40%.[12] The consistent finding is that cytopathology continues to carve a niche for itself and is soon expected to become the first-line tool for tumor diagnosis. In line with this background, our results also show a disproportionate increase in cytopathology cases (Fig3).

Cytopathology has rapidly established itself as a reliable, safe, quick and economical tool in the realm of medical diagnostics. So much so that the previous century has been termed “the century of cytopathology”.[13] This trend is likely to continue as smaller and smaller masses are being picked up through improved radiological investigations. In addition, numerous ancillary studies are being applied to cytology smears like special stains,

immunohistochemistry, fluorescent in situ hybridization, molecular biology, flow cytometry and image analysis.[14-18] The forecast sheets suggest that in the next fifteen years or so cytopathology workload could come to match surpass that of histopathology (Fig 4,5). In view of the additional information that is likely to be gained from cytological samples by virtue of ancillary studies just mentioned, it would not be surprising if this happens before the said time period following the Upper Confidence Bound curves shown in Fig 5, and cytopathology workload may even surpass that of histopathology.

The paradigm of medical diagnostics is always shifting. It has not been constant in the past and is not likely to remain so in future.[8] It would be pragmatic to prepare for these changes. Our recommendation would be to encourage training of medical and paramedical staff in cytopathology. The newer developments need to be incorporated into the outdated public sector system so that our diagnostic teams are able to cope with this inevitable change.

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EFFICACY OF GLYCOLIC ACID PEELING IN MELASMA

Khadija Malik, Lamees Mahmood Malik, Saima Ilyas, Shaista Umbreen, Sahrish Rashid, Naima Aliya,Tariq Rashid

Abstract

OBJECTIVE: To determine the efficacy of glycolic acid (10-40%) peeling in the treatment of epidermal melasma.

MATERIALS AND METHODS: A total of 100 patients of epidermal melasma (as determined by Wood's lamp) were included in this study. Baseline melasma area and severity index (MASI) score was taken in all patients. Patients were treated with glycolic acid peel, starting with10%, going up to 40%. All patients were evaluated for improvement of melasma using MASI score before each peel, at the end of 16 weeks and at 30 days follow-up period.

RESULTS: Mean age of the patients was 31.83±6. Out of 100 cases, 91 were females and 9 were males. Glycolic acid (10-40%) peeling in the treatment of epidermal melasma, proved to be efficacious in 77 patients (77%). Efficacy was considered as 50% or more reduction in MASI scores (grade 3 & 4) at the end of 16 weeks. Comparison between baseline MASI scores and scores after 16 weeks was found to be statistically significant ($p<0.001$).

CONCLUSION: Glycolid acid peeling was found to be efficacious (grade 3& 4 improvement) in 77% of melasma patients in our study.

Melasma is a common, acquired, circumscribed hyper-melanosis of sun exposed skin that is associated with considerable psychological impact. It presents as symmetrical, hyperpigmented macules having irregular, serrated and geographic borders. Most common locations are the cheeks, upper lips, chin, and the forehead but other sun-exposed areas may also be involved.[1] Three clinical patterns of distribution of the pigmentation may be recognized: Centro-facial, malar and mandibular. Melasma affects females much more commonly than males, and majority of the patients are in the third and fourth decades of their life.

The exact cause of melasma is unknown but multiple factors are implicated in its etiopathogenesis, mainly sunlight, genetic predisposition and role of female hormonal activity. Exacerbation of melasma is almost inevitably seen after uncontrolled sun exposure, and conversely melasma gradually fades during a period of sun avoidance.[2]

Therapy for melasma has generally been difficult particularly in dark skinned patients. Topical therapies include the routine use of broad-spectrum sunscreens and various concentrations of hydroquinone, with or without the addition of corticosteroids, retinoids (tretinoin), salicylic acid or glycolic acid[3] Despite these measures treatment of this recalcitrant disorder is often difficult and frustrating both for the patient and the clinician. In general, epidermal melasma responds better than dermal.

Chemical peels are used to create injury at a specific skin depth with the goal of stimulating new skin growth and improving surface texture and appearance. The exfoliative effect of chemical peels stimulates new epidermal growth and collagen with more evenly distributed melanin, remodelling of collagen and elastic fibres with deposition of glycosaminoglycans in dermis.

Peels are classified by the depth of action into superficial, medium and deep peels.[4] Various substances are used for peeling, such as alpha-hydroxyacids (glycolic acid, lactic acid), beta hydroxy acid (salicylic acid), trichloroaceticacid and Jessner's solution. Alpha-hydroxy acids (AHA) are class of compounds derived from various fruits and

natural substances. The benefits of AHAs for chemical peeling have long been recognized. Out of all AHAs, glycolic acid which is derived from sugar cane is most commonly used for chemical peeling. Glycolic acid peel's efficacy for melasma has been compared to other topical therapies, such as hydroquinone, triple combination creams andother peeling agents.

Melasmais avery common condition causing cosmetic disfigurement and consequent psychological stress. Different treatment modalities are present, but none is satisfactory. Most of the therapies are expensive and must be used long term, leading to problems with patient's compliance. The present study was planned to determine the efficacy of glycolic acid which is easily available and is a cheap alternative to many expensive preparations.

METHODS

This study was carried out over a period of six months from 29-08-2013 to 28-02-2014 in Jinnah hospital Lahore.

A total of 100 patients were included in this study of which 91 were females and only 9 were males. Pregnant and lactating women, patients with anaemia (Hb<10), with any cutaneous infection, those taking oral contraceptive pills and who had used any other topical treatment for melasma in last 2 weeks were excluded from study.

After taking written informed consent and briefly explaining the procedure, all patients were treated with glycolic acid peel. Starting strength of the peel was 10% and it was gradually increased to 20,30 and 40% each after 2 sessions (i.e. 4 weeks) depending upon patients' tolerance and side effects if any. Post auricular peel test was performed and left for 15-20 minutes to find any hypersensitivity to the ingredients of peeling agent. Before application of peeling agent patients were advised to wash face with soap and water. After patting the face dry, cleansing was done with spirit and then acetone-soaked sponges to remove all cutaneous oils. Glycolic acid was applied with mild strokes of cotton bud. After a contact period of 5-10 minutes neutralization was done with cold water and finally neutralization was done with sodium bicarbonate. Post peel topical sun block was advised, and patients were instructed to continue using sun block during the whole treatment period and even afterwards. Eight Peeling sessions were done every 15 days for 16 weeks unless patient developed any complication. For the assessment of efficacy of treatment, coloured photographs and MASI scoring was done at baseline, before each peel, at the end of treatment (16 weeks) and at 30 days follow-up period. At the end of study, response in each patient was graded.

RESULTS

The ages of patients ranged from 18-47 years with a mean age of 31.83±6.96. The maximum number of patients were in the age group 30-40 years (50%). Out of 100 cases, 91 patients were females, and 9 were males. The mean duration of melasma was 2.55 + 2.19 years. In majority of the patients the duration of melasma was 2 years or less (55 patients.)

The mean baseline MASI score was 16.79+ 5.19, with maximum number of patients (51) in the range of 11-20. The mean MASI score at the end of treatment was 10.11+4.35 (Table 2). Difference between baseline MASI and after 16 weeks was statistically significant ($p<0.001$).

At the end of the last treatment session, 15 patients showed poor response (< 25% reduction in MASI score), 8 patient showed fair response (25-49% reduction), 55 patients were recorded with good response (50-75% reduction) and 22 patients showed excellent response (> 75% reduction in MASI Score)(Table1).

Regarding tolerability and safety of glycolic acid peeling, all (100%) patients showed mild transient erythema and burning sensation which resolved within 1-2 hours.

When response of patient was stratified according to age and sex it was found that there was no statistical difference across the groups. However,

stratification with duration of melasma showed that patients with duration of 2 years or less showed a greater improvement with 33% showing good and 10% excellent response (Table 3).

Table 1: *Grades of Improvement*

Grades of improvement	Clinical response (%age of pts)	Reduction in MASI at end of 8 peels
0	No response (0)	No change in MASI
1	Poor (15)	< 25%
2	Fair (8)	25-49%
3	Good (55)	50-75%
4	Excellent (22)	< 75%

Table 2: *Mean MASI at Baseline and After each Session*

Variables	Mean	SD
MASI baseline	16.79	5.19
MASI 2 weeks	16.30	5.33
MASI 4 weeks	17.78	5.06
MASI 6 weeks	14.05	5.09
MASI 8 weeks	13.31	4.43
MASI 10 weeks	12.52	4.05
MASI 12 weeks	11.92	3.95
MASI 14 weeks	10.55	4.55
MASI 16 weeks	10.11	4.35

Table 3: *Stratification of Response with Duration of Melasma*

Duration (years)	Efficacy				Total
	Excellent (>75%) improvement	Good (50-75%) improvement	Fair (25-49%) improvement	Poor (<25%) improvement	
0-2years	10	33	5	7	55
2-4years	7	12	2	4	25
4-6years	5	10	1	4	20

DISCUSSION

Melasma is a common skin problem especially in women of child-bearing age,[5] resulting in considerable psychosocial impact. Therapy for melasma has generally been difficult, time consuming and expensive and is at times frustrating both for the patient and clinician.

The benefits of AHAs have long been recognized.[6] Cleopatra, for example, applied sour milk (containing lactic acid) to her face, while Polynesian women found sugarcane juice (containing glycolic acid) useful to provide them with similar benefits. AHAs decrease corneocyte cohesion leading to sloughing of dead cells and stimulation of new cell growth in the basal cell layer. In higher concentrations, they cause epidermolysis. Products with a small molecular size per volume are more active and penetrate the skin more deeply. Glycolic acid has the smallest molecular structure, followed by lactic, pyruvic, malic, tartaric, and citric acids. The bioavailability of AHAs increases as the pH decreases (desirable pH 2.8-4.8), and they are the only peels that are time dependent and can be neutralized easily.[7]

In the present study effect of chemical peeling with glycolic acid in increasing concentrations from 10 to 40% was studied in patients of melasma. The mean age of our patients was 31.83±6.96, which is comparable to studies by Kumari et.al, Dogra et. al and Puriet. al,[8] in which mean ages were 32 ± 6.9 years, 33 years and 29.72 years respectively.

In our study, majority of patients (91) were female and only 9 were male, which is also comparable to studies by Puri et.al[8] and Kumari et.al in which female predominance was 82% and 98% respectively.

In present study, mean duration of melasma was 2.55+2.19years. This is in concordance with studies by Puriet.al,[8] Dograet.al[9] and Kumari et.al in which mean durations were 4 years ,3.92 years and 4.3+ 2.5 years respectively.

In our study the mean baseline MASI score was 16.79+5.19, while mean MASI score at the end of 16 weeks was 10.11+4.35. This is comparable to studies by Godse et.al[10] and Erbil et.al,[11] where the mean MASI score reduced from 19.72+ 6.71 to 10.17 and from 18.67 to 11.30 respectively.In another study by Dogra et.al[9] mean baseline MASI score was 13.20+ 3.45 and mean MASI score at the end of treatment was 9.16+ 3.45 which was also comparable to our results.

Our study showed that glycolic acid (10-40%) peeling in the treatment of epidermal melisma proved to be efficacious in 77% of the patients. Out of 100 cases, 55% patients showed good efficacy

(50-75% reduction in MASI), and 22% patients showed excellent response (>75% reduction in MASI). Kumari and Thappa demonstrated in their study that >50% reduction in MASI was observed in 70% of patients.[12] Sarkar et al[13] had compared the efficacy of 20% GA with Kligman's formula in 20 cases of epidermal melasma and saw a significant reduction (>80%) in MASI scores with GA when compared to plain Kligman's regime.

Mild erythema and transient burning sensation were observed in all our patients. These were transient and got relieved in 1-2 hours. Regular use of sunscreens prevents the chances of post peel hyperpigmentation. Glycolic acid peel is associated with fewer side effects, and has the added advantage of facial rejuvenation, and patients can continue to go for work.

The present study shows that glycolic acid peel has proven to be efficacious. Combining the glycolic acid peel with other treatment modalities may become more common in future. However, the glycolic acid peel is here to stay, as it is a simple, evidence-based, result-oriented, and cost-effective procedure.

CONCLUSION

Glycolic acid peeling was found to be efficacious (grade 3& 4) in 77% of melasma patients in our study.

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THE FREQUENCY OF INDICATIONS OF EMERGENCY OBSTETRICAL HYSTERECTOMY IN PATIENTS PRESENTING AT JINNAH HOSPITAL, LAHORE

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Abstract

BACKGROUND AND OBJECTIVES: Emergency peripartum hysterectomy is an unequivocal marker of severe maternal morbidity and 'near-miss' mortality. Its indication commonly arrives after uncontrollable hemorrhage due to uterine atony, placenta previa, adherent placenta, morbidly adherent placenta and uterine rupture. The objective of the study was to determine the frequency of indications of emergency obstetrical hysterectomy in patients presenting at Jinnah Hospital, Lahore (a tertiary care hospital of Punjab).

MATERIAL AND METHODS: This is Cross sectional type of study conducted at Department of Obstetrics & Gynaecology, Unit-II, Jinnah Hospital, Lahore from 31st March 2017 to 30th September 2017.

DATA COLLECTION AND ANALYSIS: 55 pregnant women who fulfill the inclusion/exclusion criteria from Emergency Department of Jinnah Hospital, Lahore were included in the study. A detailed informed consent was taken to include their data in the study. Patients were examined to record the indications of hysterectomy i.e. ruptured uterus, uterine atony and morbidly adherent placenta according to operational definition mentioned above. All information was recorded on a pre-designed proforma. The collected data was entered in computer software SPSS (version 11.0). The demographic information (age, parity and gestational age) were presented as mean + sd. Categorical variables like morbidly adherent placenta, uterine atony and rupture of were presented in the form of frequently and percentages. Indications of obstetrical hysterectomy were stratified. No test of significance was required.

RESULTS: Majority of the patients i.e. 50.90%(n=28) were recorded between 31-35 years, Mean and standard deviation was recorded as 28.21 + 3.32 years, 34.55%(n=19) were between 1-3 gravida, 50.90%(n=28) had 4-5 and 14.55%(n=8) had >5 gravidas, gestational age were;32.73%(n=18) between 32-36 weeks, 56.36%(n=31) between 37-40 weeks, 10.91%(n=6) had >40 weeks of gestation, indications of obstetrical hysterectomy revealed 38.18%(n=21) had morbidly adherent placenta, 25.45%(n=14) had uterine atony, 23.64%(n=13) had uterine rupture while 12.72%(n=7) had other indications.

CONCLUSION: We concluded that morbidly adherent placenta and uterine atony are the common indications followed by rupture of uterus in patients presenting at Jinnah Hospital, Lahore (a tertiary care hospital of Punjab) requiring emergency obstetrical hysterectomy due to any cause.

KEY WORDS: Obstetrical Hysterectomy, Indications, Morbidly adherent Placenta, Uterine Atony, Uterine Rupture

She died in childbirth.'' These haunting words have echoed throughout the ages. Hemorrhage probably has killed more women than any other complication of pregnancy in the history of mankind. Annually, an estimated 150,000 maternal deaths worldwide result from obstetric hemorrhage, the majority of these are from postpartum hemorrhage (PPH).[1]

Postpartum hemorrhage (PPH), according to WHO causes 25% of maternal deaths.[2] In Pakistan the obstetric hemorrhage is amongst the three leading causes of maternal mortality and morbidity and the emergency hysterectomy is an emergency lifesaving procedure.[3] It is more common in develo-

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ping countries because of high incidence of unbooked and improperly supervised deliveries outside the hospitals.[4]

The patient usually present very late in moribund state, with ragged necrotic rents in the uterus, which requires an emergency obstetric hysterectomy to save the lives of the patients, and to give them good quality of life thereafter. The delay in presentation in the hospital, makes emergency obstetric hysterectomy to be associated with high fetomaternal morbidity and mortality.[5]

Previous literature shows three major indications in patients for emergency obstetrical hysterectomy i.e. ruptured uterus (35%), uterine atony (23%) and morbidly adherent placenta in 20% of women.[6] In another retrospective clinical study of emergency hysterectomy performed between 1997 and 2007 at two tertiary hospitals to study incidence, indications and maternal mortality. There were 12 emergency hysterectomies. Indications included uterine rupture 25%(3 cases), atony 33.33%(4 cases).[7] there may be some geographical variation as well. The indications for emergency peripartum hysterectomy in recent years has changed from traditional uterine atony to abnormal placentation.[8]

So, this study is planned to determine the frequency of indications of emergency obstetrical hysterectomy in pregnant women presented to Jinnah Hospital, (a tertiary care setting) because not much local data is available & above quoted local study was retrospective & was carried out from 2002-2007. There may be a change in indications overtime as now placental causes may be playing a major role due to rise in cesarean section rate. So a prospective study is needed to generate most recent results in our population with an adequate sample size.

OBJECTIVES

The objective of the study was:

- To determine the frequency of indications of emergency obstetrical hysterectomy in patients presenting at Jinnah Hospital, Lahore (a tertiary care hospital of Punjab).

OPERATIONAL DEFINITION

Emergency Obstetrical Hysterectomy:

It was defined as surgical removal of a pregnant uterus with pregnancy in patients undergoing C-section having intractable hemorrhage due to any cause.

Morbidly Adherent Placenta:

Severe obstetrical complication including abnormally deep attachment of placenta through the endometrium and into the myometrium. It has no line of cleavage and never completely removed and partial remove is always associated with PPH. It was assessed by ultrasonography.

Uterine Atony:

It was called if uterus found not contracting and retracting after delivery of baby and placenta on clinical examination.

Ruptured uterus:

It was a catastrophic event during child birth by which the integrity of the myometrial wall was breached with complete rupture the contents of uterus spill into the peritoneal cavity. It was assessed by ultrasonography and examination for general signs of peritonitis.

MATERIAL & METHODS

STUDY DESIGN:

Cross sectional survey

SETTING:

Department of Obstetrics & Gynaecology, Unit-II, Jinnah Hospital, Lahore

STUDY DURATION:

Six months(from 31st March 2017 to 30th September 2017)

SAMPLE SIZE:

Sample size of 55 patients was calculated with 95% confidence level, 11% margin of error and taking expected percentage of morbidly adherent placenta and ruptured uterus i.e. 20%(least among all) in patients who require emergency obstetrical hysterectomy presenting in a tertiary care hospital

SAMPLING TECHNIQUE:

Non-probability: Purposive Sampling Technique

INCLUSION CRITERIA:

- Age 25 to 35 years
- Primi and multiparous women
- All pregnant women undergoing elective and emergency cesarean section due to obstetrical reasons
- Patients who require emergency obstetrical hysterectomy due to any cause.

EXCLUSION CRITERIA:

- Patients delivered outside the hospital
- Patients delivered by SVD and having PPH
- Patients with multiple gestation and having PPH
- Patients having PPH due to instrumental delivery and cervical tears and injuries (assessed on clinical/P.V examination)
- Diagnosed cases of bleeding disorders on treatment having PPH

DATA COLLECTION:

55 pregnant women who fulfill the inclusion/ exclusion criteria from Emergency Department of Jinnah Hospital, Lahore were included in the study. A detailed informed consent was taken to include their data in the study. The potential effect modifiers that may alter the results of the study were excluded as mentioned in the exclusion criteria. Patients were examined to record the indications of hysterectomy i.e. morbidly adherent placenta, uterine atony and ruptured uterus according to operational definition mentioned above. All this information was recorded on a pre-designed proforma.

DATA ANALYSIS:

The collected data was entered in computer software SPSS (version 11.0). The demographic information (age, parity and gestational age) were presented as mean + sd. Categorical variables like morbidly adherent placenta, uterine atony and uterine rupture were presented in the form of frequently and percentages. Indications of obstetrical hysterectomy were stratified. No test of significance was required.

RESULTS

A total of 55 cases fulfilling the inclusion/ exclusion criteria were enrolled to determine the frequency of indications of emergency obstetrical hysterectomy in patients presenting at Jinnah Hospital, Lahore (a tertiary care hospital of Punjab).

In our study, majority of the patients i.e. 34.55% (n=19) were recorded between 20-30 years, 50.90% (n=28) were between 31-35 years, 14.55%(n=8) were found with >35 years of age. Mean and standard deviation was recorded as 28.21 + 3.32 years. (Table No. 1).

Parity of the subjects was recorded where 34.55% (n=19) were between 1-3 gravida, 50.90% (n=28) had 4-5 and 14.55% (n=8) had >5 gravidas. (Table No. 2)

Gestational age of the patients was presented in table No. 3, where 32.73% (n=18) between 32-36 weeks, 56.36% (n=31) between 37-40 weeks, 10.91% (n=06) had >40 weeks of gestation. (Table No. 3)

Indications of obstetrical hysterectomy revealed 38.18%(n=21) had morbidly adherent placenta, 25.45%(n=14) had uterine atony, 23.64%(n=13) had uterine rupture while 12.72%(n=7) had other indications. (Table No. 4)

Stratification of indications of hysterectomy according to age of the patients was done which shows that out of 28 cases between 31-35 years 42.86% (n=12) had morbidly adherent placenta, 25%(n=7) had uterine atony, 32.14%(n=9) had uterine rupture while no others indications, out of 19 cases between 20-30 years 31.58%(n=6) had morbidly adherent placenta, 17.86%(n=5) had uterine atony, 7.14%(n=2) had uterine rupture while 21.43%(n=6) had others indications, out of 8 cases with >35 years of age had 37.5%(n=3) had morbidly adherent placenta, 25%(n=2) had uterine atony, 25%(n=2) had uterine rupture while 12.5%(n=1) had others indications.

Table 1: *Distribution of the Patients According to Age (n=55)*

Age in years	No. of cases	Percentage
20-30	19	34.55
31-35	28	50.90
>35	8	14.55
Total	**55**	**100**
Mean and S.D	**28.21±3.32**	

Table 2: *Distribution of Patients According to Parity (n=55)*

Gravida	No. of cases	Percentage
1-3	19	34.55
4-5	28	50.90
>5	08	14.55
Total	**55**	**100**

Table 3: *Distribution Of Patients According To Gestational Age(In Weeks) (n=55)*

Gestational age(in weeks)	No. of cases	Percentage
32-36	18	32.73
37-40	31	56.36
>40	06	10.91
Total	**55**	**100**

Table 4: *Frequency of Indications of Obstetrical Hysterectomy (n=55)*

Indications	No. of cases	Percentage
Morbidly adherent placenta	21	38.18
Uterine atony	14	25.45
Rupture of uterus	13	23.64
Others	7	12.73
Total	55	100

Table 5: *Stratification of Indications of Hysterectomy According to Age of the Patients (n=55)*

Age (in years)	No. of cases	Morbidly adherent placenta (n=21)	Uterine atony (n=14)	Uterine rupture (n=13)	Others
20-30	19	6(31.58 %)	5(17.86%)	2(7.14%)	6(21.43%)
31-35	28	12(42.86%)	7(25%)	9(32.14%)	00
>35	8	3(37.5 %)	2(25%)	2(25%)	1(12.5%)
Total	**55**	**21**	**14**	**13**	**7**

DISCUSSION

Hysterectomy is the most frequently performed major surgical procedure in gynaecology.[9] Obstetric, including cesarean and postpartum hysterectomy is an uncommon but important obstetric operation. It is very often associated with a relatively high morbidity and mortality rate, especially when performed under emergency life-threatening situations.[10]

The current study was carried out to determine the frequency of indications of emergency obstetrical hysterectomy in pregnant women presented to Jinnah Hospital, (a tertiary care setting) because not much local data is available & above quoted local study was retrospective & was carried out from 2002-2007. There may be a change in indications overtime as now placental causes may be playing a major role due to rise in cesarean section rate.

The study reveals, majority of the patients i.e. 50.90% (n=28) were recorded between 31-35 years, Mean and standard deviation was recorded as 28.21 + 3.32 years, 34.55%(n=19) were between 1-3 gravida, 50.90%(n=28) had 4-5 and 14.55%(n=8) had>5 gravidas, gestational age were; 32.73%(n= 18) between 32-36 weeks, 56.36%(n=31) between 37-40 weeks, 10.91%(n=6) had >40 weeks of gestation, indications of obstetrical hysterectomy revealed 38.18%(n=21) had morbidly adherent placenta, 25.45%(n=14) had uterine atony, 23.64% (n=13) had uterine rupture while 12.72%(n=7) had other indications.

Siddiq N9 and colleagues in Karachi, Pakistan conducted a 5 years clinical trial to assess the frequency and causes/indications of emergency obstetrical hysterectomy and found multipara and grand multipara women in majority.

The findings regarding frequency of indications of hysterectomy are in agreement with previous study showing three major indications in patients for emergency obstetrical hysterectomy i.e. ruptured uterus (35%), uterine atony (23%) and morbidly adherent placenta in 20% of women.[6] While another retrospective clinical study of emergency hysterectomy performed between 1997 and 2007 at two tertiary hospitals to study incidence, indications and maternal mortality. There were 12 emergency hysterectomies. Indications included

uterine rupture 25%(3 cases), atony 33.33% (4 cases).[7]

Lovina S.M. Machado8 concluded the predominant indication for emergency peripartum hysterectomy was abnormal placentation(placenta previa/accreta) which was noted in 45-73%, uterine atony in 20.6-43% and uterine rupture in 11.4-45.5% Nava Flores J[10] and colleagues conducted a study with the view to identify women with potential risk for this event and to prevent this obstetric problem, they found uterine atony and placenta accrete as the most frequent and their findings are in agreement with the current study, as we found 40% of the subjects with uterine atony while 23.33% of the patients were found with placenta previa. The cause for uterine atony could be interstitial edema, as well as myometrial hypertrophy, because such histopathological diagnoses were the most common.

Iqbal Begum and colleagues[11] found uterine atony among the most common indications which further authenticates the results of this study while another study by Ezechi OC, Kalu BK, Njokanma FO, Nwokoro CA, Okeke GC conducted a 20 years review found placenta praevia in 27.3%, which also correlates with this study.[12]

However, the frequency of indications of emergency obstetrical hysterectomy in pregnant women presented to Jinnah Hospital, (a tertiary care setting) are comparable with other published studies.

CONCLUSION

We concluded that morbidly adherent placenta and uterine atony are the common indications followed by uterine rupture in patients presenting at Jinnah Hospital, Lahore (a tertiary care hospital of Punjab) requiring emergency obstetrical hysterectomy due to any cause.

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ASSESSMENT OF WHO SAFETY CHECKLIST FOR ITS SIGNIFICANCE IN GENERAL SURGERY: A PROSPECTIVE CROSS-SECTIONAL STUDY

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Abstract

Background: The WHO safety check list was initiated in 2008 to avoid the expected complications in a patient undergoing surgery. Following the WHO safety-check list certainly reduces the litigation, morbidity and mortality in surgical patients. We have conducted a prospective survey to investigate the significance and usefulness of WHO safety checklist.

Objective: To evaluate the significance of WHO safety check list in surgical patients of general surgery departments of different teaching hospitals in Lahore.

Materials and methods:

Study design: Cross sectioned study.

Prospective setting and duration: Department of Surgery Unit-I from 15-08-2017 to 15-07-2019.

Data Collection and Analysis: 400 consultants including professors, associate professors, assistant professors and Senior Registrar, and PGR's working in different teaching hospitals in Lahore were included in study. After an informed consent a questionnaire was administered regarding WHO safety check-list. Data was collected, entered and analysed in SPSS Version 21.0 . Data was tabulated and percentage was calculated. Chi-square test was used to assess statistical significant at $p<0.05$.

Result: Among 400 consultants & post graduate residents 93 (23.25%) following WHO safety check list. Consultants and Post-graduate residents: followed WHO safety checklist partially; 36(9%) followed WHO safety checklist occasionally and 210 (52.50%) did not follow WHO Safety checklist. Followup and feed back was also taken from anesthetists and nurses.

Overall, 2 cases of gossipbioma were reported. One case of wrong side hernia operation and one case of wrong patient were reported.

Morbidity was reduce by 14% following WHO safety –check list and mortality was reduced by 5% who followed the WHO safety check-list.

Keywords: WHO (Word Health Organization) safety checklist. PGRs (Post Graduate Residents) and Consultants SOP (System of protocol).

To Err is Human. Human being is not 100% accurate in any field of life.[1] So minor errors may occur. But as in driving; a person has to be 99.9% accurate otherwise accident may occur, so in Surgery one has to be as much accurate as possible. Otherwise preoperative or-+ postoperative complications may occur. In the light of the reported incidents and mortalities, world Health Organization decided to have an SOP in 2008 named as WHO safety checklist.[2] It certainly reduced the morbidity & mortality in patients undergoing Surgery of paired structures e.g. inguinal hernia, mastectomies, thyroid lobectomies, Orchidectomies, oophorectornies and limb Surgeries.

An example of Significance of medical safety check list is the checklist developed in the intensive (ICU) care unit at Johns Hopkins University School of Medicine.[4] The objective was to reduce the rate of bloodstream infections induced by central venous/ arterial lines. The interventions like hand washing, using full barrier- aseptic, cleansing of skin with Chlorhexidine, avoiding femoral sites if possible,

and removing unnecessary lines and catheters reduced the morbidity and ultimately mortality in the ICU patients.

It has been noted that there have been a number of observations in operating theatres that illustrate some specific challenges in that environment. In general Surgery (high volume, rapid turnover cases) demonstrated that minor problems, distractions or equipment problems found associated with long operations time a deductions in surgical performance.[6]

Very astonishingly, it has been noted that some renounced healthcare centres and surgeons in the world even in USA do not follow the WHO safety checklist instead of the higher litigation rate.

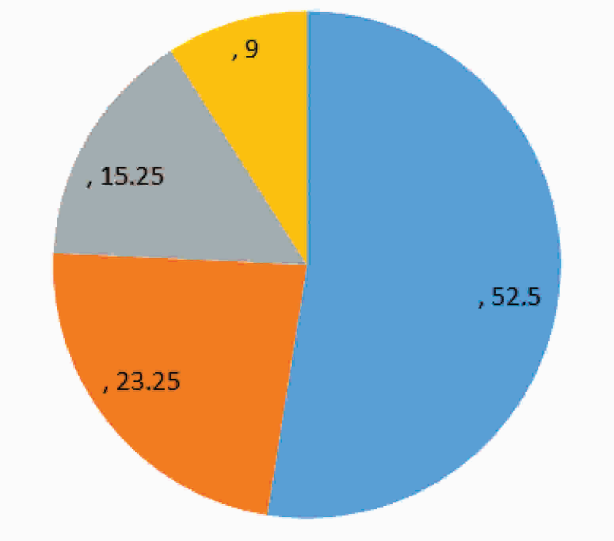
Sometimes the minor errors can become particularly problematic. Although, they can be unimportant individually but they can have unexpected response by the patients or their attendants e.g. skin burn of neck/ fenestration of skin while cauterization of small vessels during thyroid surgery. Some factors such as anaesthetist-+ Surgeon's mindset, overcrowding of theatre occupants, distraction of surgeon like gossiping in operation and unnecessary interruption (e.g .by senior consultants) may cause problematic outcomes.[9] Communication errors are other health-care problems.

WHO safety Checklist contains correct site, safe anesthesia, management of airway, hemorrhage, allergies, minimal surgical site infection, preventing retention of Swab/instruments, accurate identification of specimens, effective communication among surgical team and routine surveillance of Surgical outcomes.

The final stage of any guidelines is to test it practically.

METHODS

Data was collected for complications within 1 months following surgery. 400 surgeons filled the questionnaire as mentioned above. SPSS version 21.0 was applied. Chi-Square test was applied to assess surgical significance of WHO safety check list.



52.5% did not follow the WHO Safety check-list.
23.25% followed WHO safety checklist fully.
15.25% followed WHO Safety Checklist partially.
9% followed WHO safety checklist occasionally.

Biosummation

Stake	No.%	Male	Female	Expe-rience (in Years)	Consul-tancy (In Years)
Professor	1.25%	1%	0.25%	20-25	15-20
Associ. Prof.	4.5%	3.75%	0.75%	20-23	15-18
Assis. Prof.	8.75%	7.5%	1.25%	15-20	15-17
SR.	21.75%	16%	5.25%	5-15	-
PGR,s	64.25%	52%	12.25%	1-4	-

WHO Safety Checklist Complianc

Sr. List	Followed fully	Followed partially	Followed Occasionally	Not followed
Surgeons(Senior)	1.25%	0.75%	1.5%	2.25%
Surgeons(Junior)	7.75%	6.75%	3.25%	12.25%
PGR,s	12.5%	6%	2.75%	43%

% of Complications

Stake	Wrong pt.	Wrong Site	Wrong Specimen	Gossipbioma
Senior Surgeons	0%	0.04%	0%	0%
Junior Surgeons	0.04%	0.04%	0.04%	0.04%

Median Value:0.04%
*Compared with 2500 Surgical Operations.

DISCUSSION

Among these 5.75% were senior consultants i.e

Professors Associate Professor, 30% were Junior consultants i.e Assistant Professors and Senior Registrars and 64.25% were Post Graduate residents (PGR,s). 80.25% were males & 19.75% were females. Only 34% of consultants & 10% of PGRs followed WHO safety checklist.

There was a major hesitance on the part of the participants to disclose any mishap, incidence or a litigation against them (due to unknown reasons).

With a very keen interest and confidence only 1 cases of gossipbioma, 1 cases of wrong site/ side and 1cases of wrong patient; and 1 case of wrong specimen were reported. Majority of the Surgeons were not following WHO safety check list among whom the above cases were reported. Almost same was seen in a study in England [5].

Only one case of retention of instrument was reported in whom following who safety check list.

There was overall 14% reduction in morbidity and 5 % reduction in mortality in those hospitals and surgical units who followed WHO safety checklist.

CONCLUSION:

The conclusion of study is to give weightage to WHO safety checklist and adopting it at every step and stage of management among surgical patients to avoid complications and mortality.

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CLINICAL AND ETIOLOGICAL SPECTRUM OF PANCYTOPENIA IN PEDIATRIC POPULATION ADMITTED IN TERTIARY CARE HOSPITAL OF LAHORE

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Abstract

Objectives: To determine the frequency of various clinical presentations and etiological factors related to pancytopenia in children.

Methodology: This is a descriptive cross sectional study carried out in Department of Pediatrics, Jinnah Hospital Lahore from04th December 2015 to 03rd November2016. Non probability consecutive sampling technique was used. After taking permission from hospital ethical committee patients presenting with pancytopenia were enrolled in study. All patients underwent detailed medical history and physical examination followed by investigations as per clinical indications and results were tabulated using SPSS20.0

Results: The average age of the patients was between 5.6 ± 2.8 years. Out of 195 patients 9 patients lost follow-up (4.8% dropout rate). Among remaining 186 patients 120 were male and 66 were female majority of patient belonged to younger age group i.e. 118 patients. Most common cause was enteric fever in 22.6% patients followed by sepsis in 19.4% patients, malaria in 15.1% patients, ALL in 12.9%, AML in 9.7%, aplastic anemia in 11.8%, gaucherdisease in 7.5% and in 2 cases no definitive cause was found. The commonest clinical presentation was fever in 80% cases followed by pallor in 74.7% bleeding tendency in 51 %, hepatomegaly in 48.3%, splenomegaly in 46.2% lymphadenopathy in 26.8% and joint pains in 12.3% patients.

Conclusions: This study concluded that the most common cause of pancytopenia in children was infections including enteric fever, sepsis and malaria followed by malignancy and aplastic anemia. Most common clinical presentation was fever followed by pallor, bleeding tendency, Hepatomegaly, splenomegaly, lymphadenopathy and joint pains

Keywords: Pancytopenia, Malignancy, Infections, Fever

Pancytopenia is not a disease itself but it is common presentation of various clinical illness. Pancytopenia is labeled when all three cell lines are reduced i.e. anemia, thrombocytopenia and leukopenia[1] Pancytopenia can be congenital or can be acquired. Acquired pancytopenia is caused by various etiological factors, some are benign conditions like viral infections leading to temporary self-limiting depression of cell lines while pancytopenia can also be result of severe disease like leukemia or lymphoma.[2] Pancytopenia can present in various clinical manifestations. Decreased hemoglobin level results in pallor and easy fatigability, decreased white blood count leads to weak defense system resulting in infections and fever. Decrease platelet count results in bleeding tendency which can manifest as patchie, bruises, hematuria or prolonged bleeding from trauma site. The clinical manifestation can also indicate underlying disease like joint pains, hepatomegaly, splenomegaly or lymphadenopathy reflect underling malignancy.[3] Finding out etiology of pancytopenia is very essential as treatment depends upon causative agent. Initial blood count help in documenting pancytopenia,

peripheral smear can show blast cell due to malignancy or thick and thin film show malaria infestation. Moreover we can do workup for infections like enteric fever and sepsis. Bone marrow aspiration and examination is mandatory in most of cases as it can help to find definitive cause and rule out malignancy like ALL and AML. Treatment of pancytopenia depend on etiology and clinical manifestation. Supportive therapy like fever control, managing bleeding and prevention of infection are mandatory part of treatment. Underlying condition is treated as per clinical condition of patient.

In one study 248 patients were studied, aplastic anemia was the most common cause of pancytopenia that was observed in 83 cases (33.47%) followed by megaloblastic anemia in 52 cases (20.97%), leishmaniasis in 34 patients (13.71%), hypersplenism also in 34 patients (13.71%), and tuberculosis and other connective tissue disorders in 18 cases (7.26%)[4]

The rationale of this study is to make the availability of data regarding the etiology and clinical presentations of pancytopenia in local population which will help in early diagnosis and treatment, as previously no such data is available. Early recognition of etiology of pancytopenia and institution of early treatment can improve the outcome by reducing the mortality and severe morbidity as most causes of pancytopenia are reversible in children. By knowing the common etiologies of pancytopenia the morbidity burden due to treatable causes like megaloblastic anemia, enteric fever and malaria can be reduced.

OBJECTIVES

To determine frequency of various clinical manifestations and etiological factors related to pancytopenia in children.

METHODS

This was a descriptive cross sectional study carried out in Department of Paediatrics, Jinnah Hospital Lahore from: 04th December 2015 to 03rd November 2016. Simple random sampling technique was used.

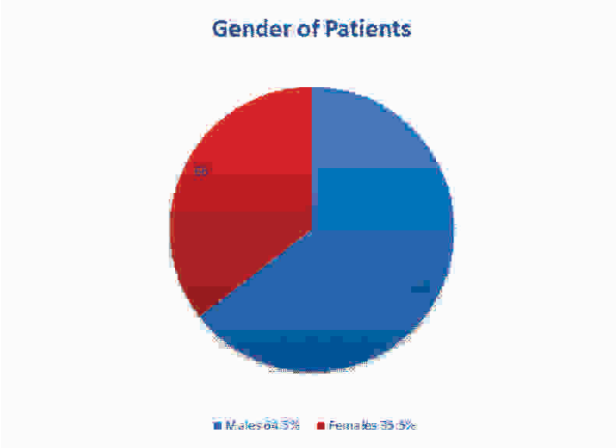
Pancytopenia is defined as reduction in all three cell lines having hemoglobin less than 10 g/dL, absolute neutrophil count less than 1.5 × 109/L and platelet count less 100 × 109/L.

After taking approval from hospital ethical committee children aged 1 to 12 years of both genders having pancytopenia on initial complete blood count were enrolled. Diagnosed cases of Aplastic anemia or leukemia and patients having history of blood transfusion in recent past, patients having weight and height less than 3rd centile, known case of malabsorption syndrome and congenital pancytopenia were excluded from study. Informed consent was taken from parents. Detailed history and clinical examination was carried out. Clinical presentation was noted. All relevant investigations including CBC with peripheral smear for blast cells, thick and thin smear for malaria, iron, vitamin B12 and folate levels, blood culture for sepsis and enteric fever and bone marrow aspiration were done as per clinical indication. All clinical and hematological parameter were noted in specially designed performa. Data was entered in spss 20.0 and confidentiality of data was made sure. Outcome variables of clinical features i.e. pallor, fever, visceromegly, bleeding manifestation and joint pains as well as etiological spectrum i.e. aplastic anemia, enteric fever, malaria, malignancy, gaucher disease and sepsis were analyzed and tabulated. Cross tabulation was done for gender and age of patients, chi square test was done, p-value <0.05 was taken as significant. Patients were treated as per hospital guidelines.

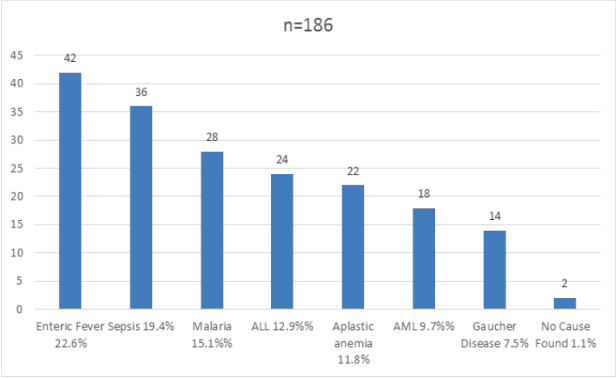
RESULTS

During our study total 1825 patients were admitted in indoor unit of pediatric medicine ward. Out of these 1825 patients 195 patients had pancytopenia and were enrolled in study after taking written consent from their guardians/parents. Total 9 patients lost follow from study so dropout rate was 4.8%. Rest 186 cases continue to participate in study and their data was tabulated. The frequency of pancytopenia was 10.6%.Out of which 120(64.5%) were male and 66(35.5%) were female. Male to female ratio was 2:1. The minimum age of patient was 1 year while maximum age was 12 years. The mean age was 5.6 ± 2.8 years. Most children belonged to younger age group (1 to 6 years) i.e. 63.4 %(118 patients). The most frequent etiology among these patients was enteric fever 22.6% followed by sepsis 19.4%, malaria 15.1%, ALL 12.9%, aplastic anemia 11.8%, AML 9.7%, gaucher disease 7.5% and in 1% patients no definitive cause was found. The most frequent clinical presentation among these patients was fever 150 (80%) followed by pallor 139 (74.7%), bleeding tendency 96 (51%), hepatomegaly 90(48.3%), splenomegaly 86(46.2%), lymphadenopathy 50 (26.6%) and joint pains in 23 (12.3%) patients. Data was stratified for etiological factors with age and p value was significant i.e. 0.000. When stratification of data was done with

gender of patient p value was 0.021.



Graph 1: *Frequency Distribution Of Sampled Population According To Etiological Presentation*



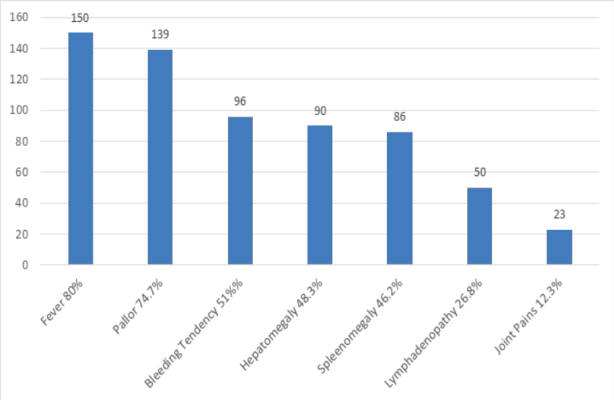
Graph 2: *Frequency Distribution Of Sampled Population According To Clinical Presentation*

DISCUSSION

Pancytopenia is common presentation of various disease states in which either production of cell lines is decreased or cell are destroyed in body. The sign and symptoms are varied. Etiologies and presentation is discussed in this study. In our study frequency of pancytopenia in pediatric population was 10.6%. These results are much higher than other international studies, a study carried out in India showed frequency of 5%[5] while in another study frequency reported was 2.01%, and Singh et al reported 1.86% frequency [7] this difference in result can be due to different population.

The mean age of patients was 5.6 ± 2.8 years and more patient belonged to younger age group 63.4%. Male to female ratio was 2:1.Similar results were seen in other studies, Kumar et al showed that 51.6% patient belonged to younger age group.[7] In another local study there were 102(60.71%) males and 66(39.29%) females. Male to female ratio was 1.60:1. Average age of the patients was 7.46 years ±3.[8] This similarity in statistics of population strengths the power of study.

The most common etiology found were infections including enteric fever 22.6%, sepsis 19.4%, malaria 15.1 5. Similar results were seen in one local study carried out at National University of Medical Sciences Rawalpindi in which pancytopenia was studied in both adult and pediatric population. Results for pediatric pancytopenia was presented separately which showed that septicemia was present in 25% patients and gaucher disease was present in 12.5% population. These similar results



strengths our study and confirm the results of previous study done on small number of patients

Table 1: *Cross Tabulation Between Gender Stratification and Etiological Factor*

Etiology	Male	Female	Total
Sepsis	28(77.8%)	8(22.2%)	36(100.0%)
Malaria	18(64.3%)	10(35.7%)	28(100.0%)
Enteric Fever	18(42.9%)	24(57.1%)	42(100.0%)
ALL	16(66.7%)	8(33.3%)	24(100.0%)
AML	10(55.6%)	8(44.4%)	18(100.0%)
Aplastic Anemia	16(72.7%)	6(27.3%)	22(100.0%)
Gaucher Disease	12(85.7%)	2(14.3%)	14(100.0%)
No Cause	2(100.0%)	0(0.0%)	2(100.0%)
Total	120(64.5%)	66(35.5%)	186(100.0%)
P value= 0.021			

Table 2: *Cross Tabulation Between Age Stratification and Etiological Factor*

Etiology	Age		Total
	1-6 Years	7-12 Years	
Sepsis	34(94.4%)	2(5.6%)	36(100.0%)
Malaria	16(57.1%)	12(42.9%)	28(100.0%)
Enteric Fever	16 (38.1%)	26(61.9%	42(100.0%)
ALL	16(66.7%)	8(33.3%)	24(100.0%)
AML	8(44.4%)	10(55.6%)	18(100.0%)
Aplastic Anemia	12(54.5%)	10(45.5%)	22(100.0%)
Gaucher Disease	14(100.0%)	0(0.0%)	14(100.0%)
No Cause	2(100.0%)	0(0.0%)	2(100.0%)
Total	118(63.4%)	68(**36.6%**)	186(100.0%)
p-value= 0.000			

(n=90).[9] While international studies showed different results which showed that nutritional anemia and malignancies are common causes of pancytopenia, Bhatnagar et al in 2005 showed that megaloblastic anemia was most common cause i.e. 28.4% followed by Aplastic Anemia in 21 % and leukemia in 20%.[10] Jha et al in 2008 conducted a study which showed that megaloblastic anemia was found in 23% and aplastic anemia in 29% patients while infections were found in 5.4% patients[11] Khan et al in 2012 found leukemia as most common cause followed by aplastic anemia.[12] This difference in etiology of pancytopenia can be explained in difference of selected population as in our setup infection is very common. We have unhygienic water supply which is biggest cause of enteric fever furthermore misuse of antibiotics had led to development of drug resistance in salmonella typhus due to which complicated cased of enteric fever had dramatically increased. While in develop countries malignancy and aplastic anemia are more common because of prevalent risk factors like excessive use of carcinogenic chemicals and radiations from mobile towers. Epidemiologically, aplastic anemia has a pattern of geographic variation, with higher frequency in the developing world and industrialized West.[13] Large prospective studies indicate an annual incidence of two new cases per million populations in Europe and Israel.[14] Its exact incidence in Pakistan is not known due to lack of population-based studies. Studies from Thailand[15] and China[16], showed the incidence to be about three-fold that in the West. Its exact etiology is still not known but an auto-immune mechanism has been inferred from positive responses to non-transplant therapies and laboratory data. Most of the patients had taken pyramethamine-sulfamethaxazole, trimethoprimsulfamethoxazole and sodium valporate. European studies have confirmed and quantified medical drugs as risks for the development of marrow failure.[17, 18] In our study malignancy was found in less number of patients, ALL was found in 12.9%. Aplastic anemia in 11.8% and AML in 9.7% patients, while gaucher disease was found in 14 cases 7.5%. Rathod in his study concluded that aplastic anemia was present in 20%, leukemia in 17% and malaria in 7% patients.[6] In our study malaria was more common cause of pancytopenia as compared to other international studies this can be explained due to difference of study setting as Pakistan in endemic country for malaria fever and not treated properly due to lack of facilities.

In our study fever was most common presentation in 80% patients followed by pallor n 74.7%, bleeding tendency in 51%, hepatomegaly in 48.3%, splenomegaly in 46,2%, lymphadenopathy in 26.8% and joint pain in 12.3%. These results are almost similar to other local studies. Tufail A in her study found fever and pallor as most common clinical presentation i.e.92% and 83% respectively[19] Similar results were seen in another local study which showed the most common presenting symptom was pallor in 200 cases (87%) and fever in 150 cases (65%), which was prolonged for more than 2 weeks.[20]

CONCLUSIONS

Pancytopenia occur commonly in Paediatrics patients. Although malignancy and bone marrow failure were common causes of pancytopenia, infections and megaloblastic anemia are easily treatable and reversible etiologies. Early recognition of underlying condition by identifying the common pattern of clinical presentation will have impact on mortality and morbidity in Paediatrics population.

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