pISSN 1997-3438
eISSN 1997-3446
Indexed in
Index Pakistan (IP/016)
WHO Index Medicus (IMEMR)
EMBASE
EBSCO
Clavirate
IMEMR
Asian Digital Library (ADL)
Elsevier
Pakmedinet
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QUARTERLY

JOURNAL OF MEDICAL SCIENCES

PESHAWAR - PAKISTAN

Recognized by Higher Education Commission of Pakistan

J Med Sci 2021 January; 29(1)

KHYBER MEDICAL COLLEGE, PESHAWAR - PAKISTAN

JOURNAL OF MEDICAL SCIENCES

Printed at:
Khyber Printers
E-mail: khyberprinters@yahoo.com

Journal of Medical Sciences (Peshawar, Print/Online) is a peer reviewed open access journal that publishes biomedical public health and educational research on quarterly basis.

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Journal of Medical Sciences is published on controlled circulation basis and distributed among the faculty of all national medical colleges, main libraries throughout the province, Pakistan Medical Research Council, PMDC, HEC and Tertiary Referral Centers.

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Journal of Medical Sciences is published quarterly, composed and printed at Khyber Printers, Peshawar KP, Pakistan.

Annual Subscription
Pakistan: Rs. 5000/-
Overseas: US $ 500/-

Printed at:
Khyber Printers
E-mail: khyberprinters@yahoo.com

EDITORIAL

PLEASE STOP CHEATING-ACADEMIC DISHONESTY IN RESEARCH

The complaint registered by a faculty in my institute, as chairman of the Plagiarism standing and Review committee, I tried to facilitate him. He claimed that the data belonging to his M.Phil. research has been published by some faculty members in one of the journals, hence stealing the data. Upon preliminary inquiry, I found that the claims of the faculty were correct, but I was not in a position to take action as the authors of that research papers as well as the journal both did not belong to my institute. On my advice, he complained to the journal for retracting the article. Anyway, after 3 months of communication, an internal inquiry by the editorial board of that journal, and comments from the deanery of my institute, the article was retracted recently. The data was labeled as plagiarized- a typical form of academic dishonesty.

There are different forms of academic dishonesty. All these are collectively grouped into 3; data falsification, data fabrication, and plagiarism[1]. Data falsification means deliberately manipulating the research data to extract the results of a researcher`s choice. The reasons may be, manipulating the data for personal ease, lack of commitment, lack of time, and many others. Examples include manipulating the research hypothesis in cases of drug trials in cases of pharmaceutically sponsored studies, rounding up the figures of different variables in a study like blood pressure readings, and adding the results of variables where the data has never been collected. Data fabrication is defined as creating a new record of data or results. Examples include filling forms related to informed consent, adding data sets and variables into SPSS where the data has never been collected. Plagiarism is defined as presenting others` ideas, work, data, and results as one`s own without acknowledging these. All these may be collectively called as 'deception". Unintentional deception is called "academic dishonesty", while intentional one can be called a "fraud"[2].

The reasons behind these academic ailments may be fame, promotions, recruitments, habit, and lack of knowledge, to say a few. The culture of "publish or perish" is another important factor, where the researchers exhibit these traits because of lack of knowledge, greed, pressures, and many other factors[3].

The problem of academic dishonesty and fraud in research is prevalent in Pakistani culture in almost all academic institutions. Examples include, "research for sale culture", where people are dedicated for this purpose, develop research proposals, thesis, and research papers for needy students. This phenomenon is prevalent in postgraduate students of the College of Physicians and Surgeons of Pakistan (CPSP), postgraduate nursing institutes, allied medical institutes, and even general education to say a few. The individual institutes and regulating agencies have turned a blind eye to this menace. Sometimes, the faculty belonging to some institutes promote this culture either to promote students to the next grades or for personal gains.

The Higher Education Commission (HEC) of Pakistan has developed a plagiarism policy for educational institutions in the country, and it has yielded fruitful results till now[4]. Many cases of plagiarism have been pointed out till now, and faculty members belonging to different institutions have been punished based on this policy. The HEC should be more proactive in curbing the problem of fraud and academic dishonesty. Similarly, the faculty, research supervisor, and students must be educated right from the start of academic sessions about this topic. The governmental agencies should come up with new legislation about academic fraud and dishonesty and the educational institutions need to implement these. Institutional research ethics committees should take proactive roles in implementing the culture of ethical approvals for research before starting it, and the journal should discourage publishing research work without prior ethical approval. The CPSP, nursing and allied institutions, and others should reflect upon these malpractices among postgraduate students and implement mechanisms to prevent research fraud being conducted by some of the students belonging to these academic organizations. Research studies are needed in the country to estimate the magnitude of the problem and highlight it in different forums.

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ORIGINAL ARTICLE

EXFOLIATIVE CYTOLOGICAL FINDINGS IN ORAL POTENTIALLY MALIGNANT DISORDERS

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ABSTRACT

Objective: Patients with oral potentially malignant disorders (OPMDs) are at risk for development of malignancy. This study was designed to assess the dysplastic changes in oral exfoliative cytological specimens from OPMD cases thus screening patients who may need biopsy for evaluation and progression of their lesion.

Materials and Methods: This descriptive cross-sectional study was conducted at Histopathology Laboratory of Peshawar Medical College, Peshawar for which samples were collected from two dental hospitals and private dental clinics of Peshawar. The study included 20 cases of clinically diagnosed Oral Potentially Malignant Disorders (OPMDs); including 10 cases of leukoplakia and 10 cases of oral lichen planus (OLP), and 20 age and gender matched healthy controls, after observing a strict inclusion and exclusion criteria. A pre-designed proforma was used to collect the data, which was later analyzed in SPSS version 21.

Results: A total of 40 participants had a mean age of 48.25±10.01 years with gender distribution of 32(80%) males and 8(20%) females, giving a male to female ratio of 4:1. The duration of OPMD lesions had a mean of 2.3±4.4 years. On Oral Exfoliative Cytology (OEC), 10% OPMDs showed atypical changes and 90% showed no such changes, as compared to healthy controls which exhibited a normal cytology without any atypia. As per Oral Bethesda Criteria, 18 (90%) OPMD cases were Negative for Intraepithelial Lesion/Malignancy (NILM) and 2 (10%) showed Low grade Squamous Intraepithelial Lesions (LSIL). Buccal mucosa 12 (60%) was the most common site of lesions.

Conclusion: This study concluded that dysplastic cytological findings were seen only in 10% of OPMD cases thus saving majority of the patients from the need to go through the invasive biopsy procedure.

Keywords: Oral Potentially Malignant Disorders; Cytology; Oral Exfoliative Cytology

This article may be cited as: Waris M, Ahmad S, Khan M, Nasir S, Mushtaq Q, Taj F. Exfoliative cytological findings in oral potentially malignant disorders. J Med Sci 2021 January;29(1):2-5

INTRODUCTION

OPMDs are defined by WHO as ''the risk of malignancy being present in a lesion or condition either during the time of initial diagnosis or at a future date"[1]. The cardinal OPMDs include: leukoplakia, erythroplakia, oral lichen planus (OLP) and oral submucous fibrosis (OSF)[1]. There are some conditions which can potentiate OPMDs leading to their transformation to frank malignancy. These include: actinic cheilitis, some inherited disorders, like xeroderma pigmentosum and Fanconi's anemia, immunodeficiency disorders and prolonged treatment with immunosuppressive drugs[2]. The worldwide prevalence of OPMDs in general population is about 1–5%[3]. Average age of patients with OPMDs is 50–69 years, however some recent studies reveal occurrence of OPMDs in about 5% cases under 30 years of age[4]. In frequency order the OPMDs are usually found on the buccal mucosa, gingivae, tongue and floor of the mouth[4]. The incidence and prevalence of OPMDs in Pakistani population have not been reported in the recent literature, however a Karachi based study published in 1976 reported a prevalence rate of 705/100,000 of population[5]. Dysplasia of oral mucosa is characterized by cellular atypia, loss of normal maturation and stratification[6]. The deviation of one or more architectural or cellular features from the normal appearing cell or group of cells is referred to as 'atypia'[7]. Diagnostic procedures used for OPMDs include histopathological methods like scalpel and punch biopsy; cytopathological methods including exfoliative cytology and oral brush biopsy; and molecular methods like immunohistochemistry[8]. There is a rapid turnover of cells in the oral cavity, and the exfoliated cells play an important role in the diagnosis of OPMDs. Oral Exfoliative Cytology (OEC) examines the exfoliated cells obtained from an oral

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Date received: 27-08-2020
Date revised: 07-02-2021
Date accepted: 18-02-2021

epithelial surface, under a microscope. It is a non-invasive, simple and sensitive staining technique used as an adjunct for biopsy[9]. Based on The Bethesda System (TBS) different researchers have developed their own systems for diagnosis of oral cytology. The Japanese Society of Clinical Cytology (JSCC) developed "Oral Bethesda System" (OBS) in 2013, which when tested showed a sensitivity of 94% and a false negative rate of 6%[10]. The OBS has four categories; Negative for Intraepithelial Lesion or Malignancy (NILM), Low grade Squamous Intraepithelial Lesion (LSIL) that shows mild keratinized low grade atypical cells, High grade Squamous Intraepithelial Lesion (HSIL) that shows moderate keratinized moderate atypical grade cells, and Squamous Cell Carcinoma (SCC) that shows abundantly keratinized severely dysplastic cells[11]. The objective of this study is to compare exfoliative cytological changes in clinically diagnosed OPMDs with healthy controls having no oral lesions, so as to use the findings of OEC to screen OPMDs for biopsy.

MATERIAL & METHODS

This descriptive cross-sectional study was conducted at Histopathology Laboratory of Peshawar Medical College, Peshawar and samples were collected from Peshawar Dental College, Khyber College of Dentistry, and some private dental clinics of Peshawar. This study included 20 clinically diagnosed OPMD patients (10 each of leukoplakia and OLP) and 20 age and gender matched individuals as healthy controls free of any oral lesions. Cytology smears of OPMD cases were collected from site of the lesion. OEC samples of healthy controls were obtained from the buccal mucosa. A disposable medium quality toothbrush was used for each subject. Firstly, the subjects rinsed their oral cavity with water, then the brush was applied repeatedly in one direction over the entire lesion using moderate pressure, until pinpoint bleeding was observed. Smears were made on clean dried glass slides and placed immediately for fixation in 95% ethyl alcohol for 30 minutes. The slides were stained with hematoxylin and eosin (H&E). The slides having at least 30 well preserved cells from intermediate or parabasal layers were considered adequate for analysis[12]. All the data from each subject was recorded on a pre-designed proforma, which was later analyzed in SPSS v21.0.

RESULTS

This study included 40 individuals (20 cases and 20 controls), with a mean age of 48.25 ± 10.01 years with gender distribution of 32(80%) males and 8(20%) females, with a male to female ratio of 4:1 in both the groups (Table 1). The duration of OPMD lesions had a mean of 2.3±4.4 years. Among OPMD cases, 10 (50%) were having Leukoplakia, while 10 (50%) were of OLP. In cases, as per Oral Bethesda Criteria, 18 (90%) were Negative for Intraepithelial Lesion/Malignancy (NILM), while 2(10%) had Low grade Squamous Intraepithelial Lesion (LSIL) (Table 2). Buccal mucosa 12(60%) was the most common site of lesions in OPMDs, followed by vestibule 5(25%) and alveolar mucosa with 3(15%). The comparison of oral exfoliative cytological changes in cases and controls are shown in table 3.

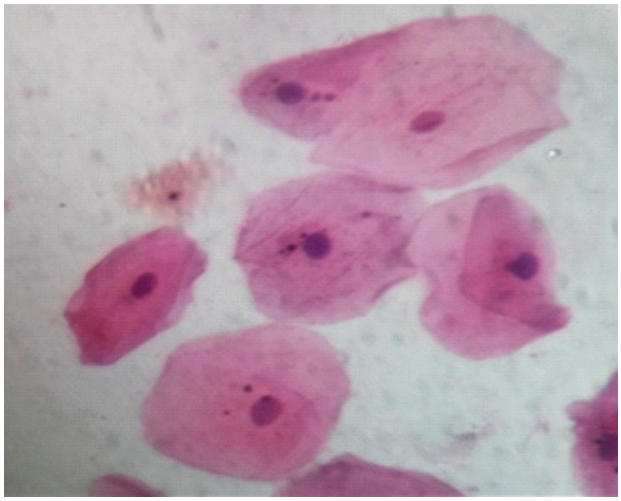

Fig 1:A group of normal oral squamous epithelial cells (H&E; 40x)

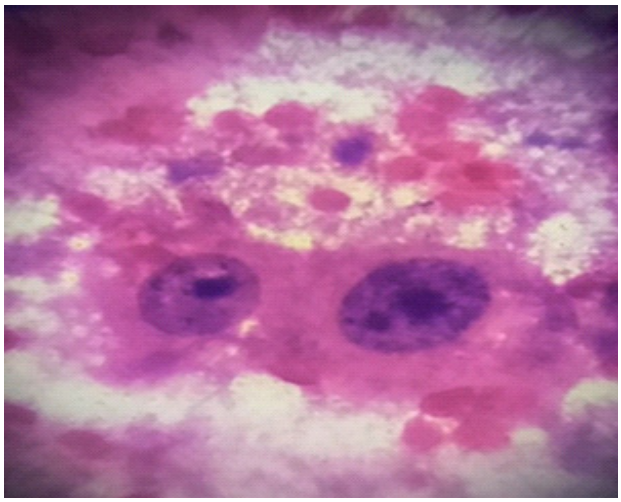

Fig 2: Dysplastic oral squamous epithelial cells with prominent nucleoli, vesicular chromatin and altered N/C ratio (H&E; 40x)

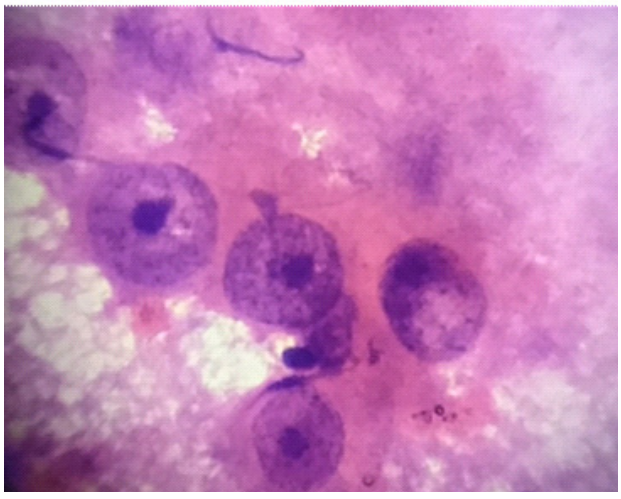

Fig 3: A group of dysplastic oral squamous epithelial cells with prominent nucleoli, vesicular chromatin and altered N/C ratio (H&E; 40x)

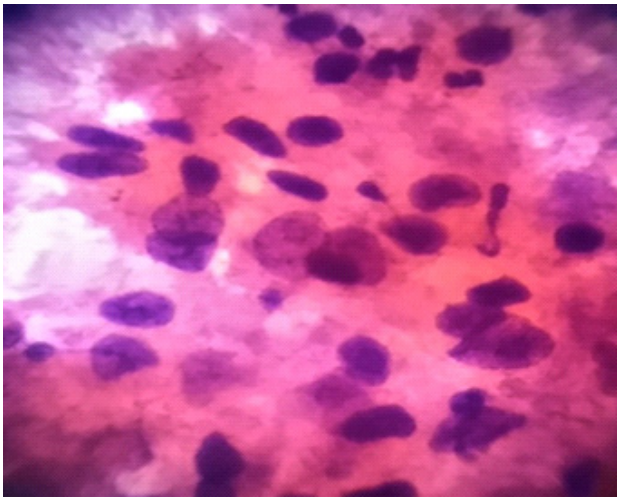

Fig 4: A cluster of oral squamous epithelial cells with severe dysplasia showing prominent cellular and nuclear pleomorphism (H&E; 40x)

Table 1: Age and gender matched OPMDs cases and controls

	Cases	Controls
Age range	30 – 70 years	30 – 70 years
Mean age	48.25±10.01 years	48.25±10.01 years
M:F ratio	4:1	4:1

Table 2: Classification of OPMD cases based on Oral Bethesda Criteria

Oral Bethesda Criteria	Number (%)
Negative for Intraepithelial Lesion / Malignancy (NILM)	18 (90)
Low grade Squamous Intraepithelial Lesion (LSIL)	2 (10)
Total	20 (100)

Table 3: Cytological changes in OPMD cases and controls

Cytological Changes			Cases	Controls
			n (%)	n (%)
Cellularity	Hypercellular		14 (70%)	15 (75%)
	Hypocellular		6 (30%)	5 (25%)
Cell type	Superficial		18 (90%)	20 (100%)
	Intermediate		20 (100%)	20 (100%)
N/C Ratio	Normal		18 (90%)	20 (100%)
	Increased		2 (10%)	0
Cellular Pleomorphism	Present		2 (10%)	0
	Absent		18 (90%)	20 (100%)
Individual cell keratinization	No Change		2 (10%)	18 (90%)
	Hyperkeratinization		18 (90%)	2 (10%)
Nuclear changes	Nuclear Enlargement	Present	2 (10%)	0
		Absent	18 (90%)	20 (100%)
	Irregular Nuclear Membrane	Present	2 (10%)	0
		Absent	18 (90%)	20 (100%)
	Multinucleation	Present	1 (5%)	0
		Absent	19 (95%)	20 (100%)
	Prominent Nucleoli	Present	1 (5%)	0
		Absent	19 (95%)	20 (100%)
	Chromatin Clumping	Present	1 (5%)	0
		Absent	19 (95%)	20 (100%)
	Hyperchromatism	Present	1 (5%)	0
		Absent	19 (95%)	20 (100%)
	Nuclear Pleomorphism	Present	2 (10%)	0
		Absent	18 (90%)	20 (100%)

DISCUSSION

Patients with OPMDs are at increased risk of developing carcinomas, therefore early diagnosis and management is important.

In this study the dysplastic features in OPMDs included cellular and nuclear pleomorphism, hyperchromatism, chromatin clumping, prominent nucleoli, multinucleation, nuclear membrane irregularities, nuclear enlargement and increased nucleus to cytoplasm ratio. Similar changes were studied by Kabiraj et al, in their study on OEC in leukoplakia and OLP, in which 90% (36 out of 40) of leukoplakia cases and 65% (26 out of 40) of OLP cases showed minor atypia. The atypical cytological changes observed in their study included cellular and nuclear pleomorphism and hyperchromatism[9]. Histopathology of most white oral lesions show hyperkeratosis, as was observed by Abidullah et al in their study on white, non-scrapable oral mucosal lesions. Their studied showed that 90% (59/66) leukoplakia cases and 100% (30/30) OLP cases showed hyperkeratosis.(13) Similar findings on OEC were observed in this study, where 90% (18/20) of the OPMD cases (leukoplakia and OLP) showed hyperkeratinization.

Trakroo et al (2015), in their study on efficacy of oral brush biopsy in oral premalignant and malignant lesions observed that only 36.36% (12/33) cases of OPMDs (leukoplakia & OLP) showed atypical changes, while 63.64% (21/33) OPMDs showed normal cells with no signs of atypia[14]. The results of their study are comparable with those of this study as majority of the OPMDs i.e. 90% (18/20) showed no signs of atypia and only 2% (2/20) showed atypical changes on OEC. The same study by Trakroo et al reported a male predominance (86%) in OPMDs and malignant lesions as is found in our study (80%). The most common site of OPMD lesions in their study was the buccal mucosa (69.7%) which is similar to this study (60%)[14]. A study conducted on exfoliative cytology as a tool for monitoring oral pre-malignant and malignant lesions by Segura et al (2015) showed that only 7% of leukoplakia and OLP cases exhibited normal cytology with no atypical changes and 93% exhibited cellular atypia, which is at odds with this study[15]. Duration of the lesion is a vital parameter in determination of its advancement

to malignancy. Long duration of OPMD lesions is a risk factor for their malignant transformation[16]. In our study we had a mean duration of 2.3±4.4 years for OPMD cases but those with dysplastic changes persisted for a longer time than the rest i.e. 2.99±0.41 years. Patients with clinically suspicious lesions detected on oral examination are candidates for OEC. The lesions with features of dysplasia on cytological examination need confirmation by histopathology for a definitive diagnosis and management. Not all suspicious oral lesions have to undergo biopsy. If dysplasia is not seen on OEC examination then they can be kept under surveillance. Chances of compliance with screening by OEC are higher as this is a non-invasive and affordable method[17]. Dysplastic cytological features on the other hand identify the patients who need confirmation with biopsy of the lesion to rule out malignancy. In this study, only 2 OPMD cases out of 20 showed dysplasia on OEC and therefore, it can be used to screen OPMD cases for biopsy.

CONCLUSION

This study concluded that all OPMDs patients should be screened by OEC examination because atypical changes are seen in some of the clinically diagnosed OPMD cases. The risk for progression to malignancy in such cases should be assessed through biopsy of the lesion.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Waris M:	Concept, study design, discussion, manuscript writing, facilitation of the reagent and materials, critical review.
Ahmad S:	Facilitation of the reagent and materials, critical review, interpretation.
Khan MM:	Analysis, interpretation, manuscript writing, study conduction.
Nasir S:	Critical review, study conduction.
Mushtaq Q:	Planning, study conduction, critical review.
Taj F:	Study conduction, discussion, manuscript writing.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

COMPARISON OF SERUM PROLACTIN LEVELS IN PATIENTS WITH ERECTILE DYSFUNCTION WITH AND WITHOUT TYPE 2 DIABETES MELLITUS

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ABSTRACT

Objective: To compare serum Prolactin levels in patients with erectile dysfunction (ED) with and without type-2 Diabetes Mellitus

Materials and methods: This cross-sectional descriptive study was conducted over 100 Diabetics and 100 non-Diabetics patients with ED and their serum Prolactin levels were measured in all and compared in 2 groups. A convenience sampling technique was used to select patients from two Hospitals, i.e, Khyber teaching hospital Peshawar and Government Naseerullah Babar hospital, Peshawar. Independent sample t-test was performed for comparison between two groups.

Results: Serum Prolactin levels were high in diabetic patients with ED. Majority of patients were 40-49 years old. Duration of ED was higher in Diabetics patients as compared to Non-Diabetics.

Conclusion: ED is common in age group 40-49 years and in diabetics than in non-diabetics and is associated with high levels of serum Prolactin levels respectively. The duration of ED was also found to be more in diabetics than non-diabetics.

Keywords: Erectile Dysfunction, Serum Prolactin.

This article may be cited as: Hassan J, Rehman SU, Shah I, Salman H, Abideen ZU, Shereen MI. Comparison of Serum Prolactin levels in Patients with Erectile dysfunction with and without Type 2 Diabetes Mellitus. J Med Sci 2021 January;29(1):6-9

INTRODUCTION

Prolactin was first discovered by Stricher and Giveter in 1928. It is a protein of molecular weight 23,000 D. Normally the values in blood do not exceed 20-25 ng/ml. It is secreted by the mamotrofa cells of the Anterior Pituitary. The secretion is under the control of hypothalamic factor called the Prolactin inhibitory factor[1].

Prolactin is produced in man in several other tissues like brain, mammary gland, lymphocytes, spleen and thymus. In reproduction, there is negative correlation between sperm and Prolactin levels. Hyperprolactinemia prevents Gonadotropin secretion affecting testicular functions[2]. ED, previously called impotence, is defined as the condition in which there is failure to achieve or maintain a rigid penile erection for successful sexual intercourse. It is said that in about 50% infertilities, the causative factors belong to male[3]. Diabetes Mellitus type-2 is commonly associated with ED and may be a factor related to ED[4,5]. ED is commonly observed in adult men above 40 years of age both in both diabetics and non-diabetics[6]. It has been observed that there is an inverse relationship of serum prolactin with testicular hormones and sexual functions in males. This study is aimed to compare the serum prolactin in diabetic and non-diabetic population with ED. It will improve our understanding about the relationship of this hormone and may be a target of future research and therapies for this purpose.

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Date revised: 15-01-2021
Date accepted: 14-03-2021

MATERIALS AND METHODS

This cross-sectional descriptive study was con-

ducted over 100 Diabetics (of more than 1 year duration) and 100 non-Diabetics patients with ED and their serum Prolactin levels were measured in all and compared in 2 groups. A convenient sampling technique was used to select patients from two Hospitals, i.e. Khyber teaching hospital Peshawar and Government Naseerullah Babar hospital, Peshawar. Patients having age of 30-65 years in both groups were included in the study. Those with active comorbidities like renal failure, liver cirrhosis, malignancy and cardiac failure were excluded. Unmarried persons were also excluded from the study.

A detail proforma and consent form was prepared before carrying out the study. The information obtained from the patients included name, age, ethnicity, duration of ED and family history of the Diabetes. The study was approved by the ethical committee of KMU and also Khyber Medical College, Peshawar, and data collection approval was taken from the relevant heads of the 2 hospitals. For prolactin, the kit used was ARCHITECT Prolactin (Abbot Diagnostic Wiesbaden, Germany) kit, (Reference No. TK 76-25). Glycosylated hemoglobin and blood glucose level were calculated in case of Diabetics.

SHIM SCORE was used for grading the degree of ED. ED was categorized as "Severe ED with a score of 1-7, moderate ED with a score of 8-16, and mild ED with a score of 17-21[7]. Frequencies and percentages were calculated for Prolactin of hyperglycemic and normoglycemic groups. Data was analyzed using SPSS version 23. Independent sample t-test was performed for comparison between two groups.

RESULTS

Among the 2 groups, age-wise distribution is shown in table-1, where almost half of patients were seen with ages between 40-49 years. Figure 1 shows comparison of levels of serum prolactin in both groups which is more in diabetics than non-diabetics (p=0.021). The severity of ED is shown in Table-2 in Non-Diabetic with ED (100 patients), where more than half of patients have mild ED. The severe and moderate forms of ED were noted approximately in equal frequency (23% and 20%).

The severity of ED is shown in Table-3 in Diabetic patients with ED where more than half of patients are in the mild ED group like the previous observation. It is worth noticing that the distribution of severity of ED is approximately similar in both the Diabetic and Non-Diabetic cases. This study also shows that the duration of carrying the burden of ED is higher for the Diabetic patients (see figure-2). In Diabetics, the duration of ED is 85.12 25.75 (months) and in case of Non-Diabetics, the duration is 44.10 17.34 (months). The difference between the two groups is significant (less than 0.05)

Table 1: Age-wise distribution of ED patients in both Groups (200)

Age Group	Frequency	Percentage
30-39yrs	45	22.5
40-49yrs	89	44.5
50-59yrs	43	21.5
60-65 yrs	23	11.5

Table 2: Severity of ED in non-diabetic cases

Age Group	Frequency	Percentage
Data on Severity	Frequency	Percent
Mild	57	57%
Moderate	20	20%
severe	23	23%

Table 3: Severity of ED in Diabetic Patients

Form of ED	Frequency	Percent
Mild	56	56%
moderate	23	23%
severe	21	21%

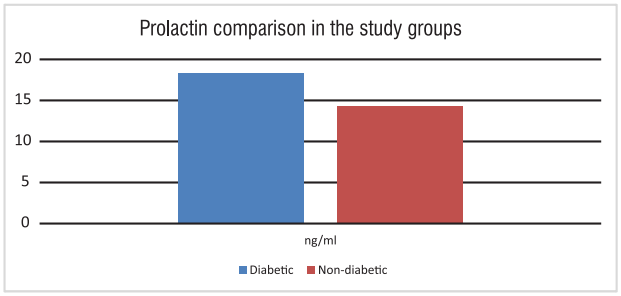

Fig 1: Prolactin comparison in the study groups

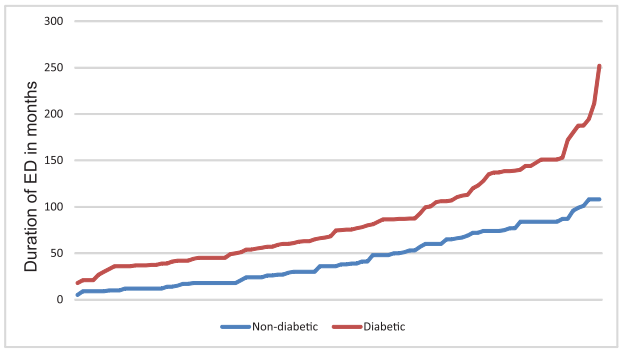

Fig 2: Duration of ED in diabetic vs Non-diabetic males

DISCUSSION

Chronic hyperprolactinemia is found to be associated with decrease sexual desire in both genders[8]. Prolactin reduces the concentrations of sex hormones in blood. Gonadotropin releasing hormone secretion from the hypothalamus is reduced by the increased secretion of Prolactin from the Pituitary Gland. This lowers the secretion of Testosterone. This reduces the sexual desire and hence the chances of ED are increased[9]. In my study, we compared ED with serum Prolactin levels in Diabetic and Non-Diabetics. Concomitant with above fact, the Diabetic cases of our study showed a higher level of Prolactin than the Non-Diabetic cases. This is apparently due to diabetes affecting the autonomic and somatic nerves functions. Furthermore, Hyperprolactinemia prevent gonadotropin secretion affecting the testicular function[10]. In one of the study, hyperprolactinemia was noted in patients of Diabetes Mellitus type-2. Serum Prolactin levels were raised in 20% of control volunteers and 86.25% in those suffering from Diabetes Miletus type-2. It was also noted that Prolactin level were normal in 80% of control volunteers and 13.75% in Diabetics[11]. A Link could also be seen between high Prolactin levels and Insulin resistance in some studies[12]. In our study, the most prevalent age for ED was 40-49 years which is in contradiction to a Japanese and Australian study, where ED severity increased with increasing age[13,14].

There is no information on how long the condition stays but our limited study suggested that ED stayed less longer (44 months on the average) in Non-Diabetic patients[15]. However, it is more prolonged when associated with Diabetes (averaged 85 months and counting). However, this duration is amid the ED and a proper follow up will lead to the duration in which the condition is resolved with medication, education, exercise and/or otherwise. For division of patients based on severity of ED, we have assorted the patients into these categories based on the sexual Health Inventory for Men (SHIM) score. My study has shown that there is no significant difference regarding the severity of the disease in Diabetic and Non-Diabetic group (P-value > 0.05). This study, although limited to a single city and was hospital based, but still highlights the importance of ED as one of the important social and psychological factor in the management of diabetic patients. Further large scale studies are needed to highlight the relationship of ED with serum prolactin levels in different age and population groups.

CONCLUSION

ED is common in age group 40-49 years and in diabetics than in non-diabetics and is associated with high levels of serum Prolactin levels respectively. The duration of ED was also found to be more in diabetics than non-diabetics.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

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Reman SU:	Facilitation of the reagent and materials, critical review, interpretation.
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Shereen MI:	Over all supervision

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

THE RELATIONSHIP OF DIABETIC CONTROL WITH SERUM ALANINE AMINOTRANSFERASE LEVELS IN PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE (NAFLD) AND TYPE 2 DIABETES MELLITUS (T2DM)

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ABSTRACT

Objectives: This study is aimed to find out the relationship of Diabetic control with serum Alanine aminotransferase in patients with Non Alcoholic Fatty Liver Disease and Type 2 Diabetes Mellitus.

Material and methods: This cross sectional descriptive study was conducted from August to October 2019 in general medical outpatient department of Khyber Teaching Hospital Peshawar, a tertiary care hospital in Khyber-Pakhtunkhwa, Pakistan. Patients with non-Alcohol Fatty Liver Disease and T2DM were categorized into two groups. Group A with HbA1c from 6.5-8% and group B with HbA1c of more than 8%. Serum Alanine aminotransferase levels were correlated in these groups with the level of HbA1c. Data was collected through a specially designed proforma and was analyzed through statistical package for social sciences, SPSS version 23.

Results: Amongst 452 patients with T2DM, 289 were females and the rest were males. NAFLD was present in 197 patients. Amongst these 197 patients, Serum Alanine aminotransferase was raised in 17 (27.86%) patients in Group A but was raised in 64 (47.05%) patients in Group 2.

Conclusions: Diabetic control was positively correlated with serum Alanine aminotransferase level in our patients with Non Alcoholic Fatty Liver Disease and Type 2 Diabetes Mellitus.

Keywords: Type 2 Diabetes Mellitus, Non Alcoholic Fatty Liver Disease, Serum Alanine Aminotransferase.

This article may be cited as: Saleem I; Khan HA, Khan MY, Iqbal MD, Shah BM, Iman NU. The Relationship of Diabetic Control with Serum Alanine Aminotransferase Levels in patients with Nonalcoholic Fatty Liver Disease (NAFLD) And Type 2 Diabetes Mellitus (T2DM). J Med Sci 2021 January;29(1):10-12

INTRODUCTION

Type 2 diabetes mellitus (T2DM), is one of the most common metabolic disorder. Various genetic and acquired factors play their roles in the onset and manifestations of this disorder[1,2,3,4]. Insulin resistance is the major underlying factor and is a component of metabolic syndrome. The other components include abdominal obesity, hypertension, hypertriglyceridemia and low serum HDL cholesterol[5,6]. Non-Alcohol Fatty Liver Disease is now included as a component of metabolic syndrome. Patients with metabolic syndrome have 4 to 11 times higher risk of NAFLD as compared to people without metabolic syndrome.[5,7]. Non Alcoholic Fatty Liver Disease (NAFLD) refers to the accumulation of fat, mainly triglycerides in hepatocytes leading to increase in liver weight of up to 5%, provided patient is taking less than 20 grams of alcohol/ day (i.e. approximately 2 standard drinks),and patients do not have viral hepatitis[8]. Primary NAFLD results from insulin resistance. More than 40% of patients with NAFLD have obesity, while more than 20% have T2DM and hypertriglyceridemia and may have other features of metabolic syndrome[9,10].

As one of the common cause of raised serum Alanine aminotransferase is NAFLD, so we want to assess the relationship of diabetic control with serum alanine aminotransferase in patient having both Non Alcoholic Fatty Liver Disease and T2DM[1,9].

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MATERIAL AND METHODS

This cross sectional descriptive study was conducted in general medical outpatient department of Khyber Teaching Hospital Peshawar, from August to October2019, after approval from the Committee for Ethical Review of Research involving Human Subjects of Khyber

Teaching Hospital. All patients, >14 years of age, having Type 2 Diabetes Mellitus for more than two years and Non-alcoholic Fatty liver disease, who agreed to be included in the research, were included in the study. Patients below age 14, patients having Type 1 Diabetes Mellitus, patients having comorbid conditions especially those affecting HbA1c, were excluded from the study. Diabetes mellitus was confirmed by doing fasting plasma glucose (equal to or more then 126 mg%) or random plasma glucose (equal to or more the 200 mg%) or HbA1c more than 6.5%. The upper limit of normal for Serum Alanine aminotransferase was 30iu/L for men and 19 iu/L for women[1]. Though biopsy is the gold standard for confirmation of NAFLD but liver biopsy being an invasive procedure is not recommended in asymptomatic individuals[5]. Further as ultra-sonogram has the sensitivity of 80% and specificity of 98%so ultra-sonogram was our investigation of choice[12]. In order to avoid bias due to individuals ultra sound was performed by a qualified radiologist[5,11,12]. Data thus collected according to a preformed proforma, was analyzed through statistical package for social sciences (SPSS version 23), where chi-square test was applied to find out the relationship between the two groups and p-value of 0.05 or less was considered significant for correlation.

RESULTS

Out 1500 patients examined in out patients, only 452 (30.13%) patients had type 2 Diabetes Mellitus, 289(63.93%) were females and the males were only 163(36.06%). The mean age of patients with T2DM was 53.87 years, amongst the 452 patients with T2DM, Non Alcoholic Fatty Liver Disease was present in only 197(43.58%) patients.

DISCUSSION

Out of 1500 patients examined, 452 patients had T2DM, which accounts for 30.13% of the total patients, a figure which is significantly higher than another figure of 11.7%, published recently[13]. Out of these 452 patients 197 (43.58%) had NAFLD. Depending upon the populations

Table 1: Demographics of the Patients with T2DM

	Patient without T2DM	Patient with T2DM	P Value
Frequency of the patients presenting to Medical OPD with T2DM			
	1500	452	
Age wise distribution of the patient presenting to the Medical OPD			
Mean + S.D	47.18 + 16.42	53.87+11.41	0.000
Gender wise distribution of the patient presenting to the Medical OPD			
Male	507	163	0.47
Female	993	289	
Total (n=1952)	1500	452	

Table 2: Presence of NAFLD in T2DM Patients

Blood Sugar Levels	Present	Absent	Pearson's R
Group A (n = 153)	61 (39.86%)	92 (60.13%)	0.64
Group B (n = 299)	136 (45.48%)	173 (54.51%)	
Total (n = 452)	197 (43.58%)	255 (56.41%)	

Table 3: Correlation of Diabetic status with the serum ALT in patients with NAFLD & T2DM

Blood Sugar Levels	Within Normal Limits	Elevated	Pearson's R
Group A (n = 61)	44 (72.13%)	17 (27.86%)	0.011
Group B (n = 136)	72 (52.94%)	64 (47.05%)	
Total (n = 197)	116(58.88%)	81 (41.11%)	

studied, 21-72% patients with Type 2 Diabetes mellitus have been reported to have NAFLD[14]. NAFLD was present in 61 (39.86%) in group A and in 136 (45.48%) patients in Group B, i.e., slightly higher in patients with HbA1c of more than 8% as compared to group A with HbA1c of between 6.5-8%. Over all, 81 (41.11%) patients suffering from T2DM had elevated serum alanine aminotransferase level. This figure is significantly lower than 61.2% published by Shiful Islam from Bangladesh[15]. The probable reason being that our population looks to be different from people of Bangladesh in many respects. But exactly a similar figure of 41.05% has been reported by a local study about two years ago from same area[16]. On further observations, we found that serum alanine aminotransferase was elevated in only 17 (27.86%) of patients in Group A, in which the HbA1c was between 6.5-8%, but serum alanine aminotransferase was raised in 64 (47.05%) in patients of Group B with HbA1c of more than 8%. The figure in Group B is almost double as compared to the figure of Group A. This means that in patients suffering from T2DM and NAFLD, worsening of diabetic status is associated with elevation of serum alanine aminotransferase level. In other words serum level of alanine aminotransferase in patients suffering from both T2DM and NAFLD is positively correlated with blood glucose level. Serum alanine aminotransferase is considered as the surrogate marker of NAFLD. Up to 30% of patients with NAFLD have the evidence of metabolic syndrome and insulin resistance i.e. T2DM[1]. A number of studies have been published in which the Serum level of Alanine Aminotransferase has been correlated in patients suffering from NAFLD and T2DM with insulin resistance. The insulin resistance is the major cause of T2DM. Tough some studies have shown that serum level of alanine aminotransferase may be normal in patients suffering from NAFLD and T2DM, but a number of studies have confirmed that serum level of aminotransferase gets elevated with worsening of glycemic status and higher serum level of alanine aminotransferase is associated with insulin resistance for example JangSuk Yoo et al and Rui Wang[17,18,19].

CONCLUSION

Diabetic control was positively correlated with serum Alanine aminotransferase level in our patients with Non Alcoholic Fatty Liver Disease and Type 2 Diabetes Mellitus.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Iqbal S:	Concept, study design, discussion, manuscript writing, facilitation of the reagent and materials, critical review
Khan HA:	Facilitation of the reagent and materials, critical review, interpretation.
Khan MY:	Analysis, interpretation , manuscript writing, study conduction.
Iqbal MD:	Analysis, interpretation , manuscript writing, study conduction
Shah BM:	Critical review, study conduction.
Iman NU:	Over all supervision

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

FETAL OUTCOME AFTER CAESAREAN SECTION PERFORMED FOR FETAL DISTRESS BASED ON ABNORMAL CARDIOTOCOGRAPHY

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ABSTRACT

Objective: To determine the fetal outcome after Caesarean Sections (CS) performed for fetal distress (FD) based on Cardiotocography (CTG) along with fetal outcome.

Material and Methods: This retrospective chart review was conducted at the Gynaecology and Obstetrics Department of Lady Reading Hospital Peshawar from June 2015 to June 2016 after approval from hospital ethical committee, using non-probability convenient sampling technique. Hospital record of 234 patients who had CS for fetal distress was reviewed. Patients with singleton term gestation who had CS for fetal distress diagnosed on the basis of abnormal Cardiotocography alone were analyzed. Fetal outcome was noted in terms of Apgar score at 5 min, admission to neonatal intensive care unit (NICU) and perinatal mortality. The results are expressed in frequencies and percentages and shown in tables and charts.

Results: In one year, total 1255 CS were performed, among them 234 (18.64%) fulfilling inclusion criteria were enrolled. Babies delivered with 5 minute Apgar score of 7 or above were 166 (70.94%). Twenty-one (8.97%) babies were admitted in Neonatal ICU and perinatal mortality was 6 (2.54%).

Conclusion: Fetal Distress diagnosed on CTG alone poorly correlates with fetal outcome. In 70.94% of Caesarean sections, fetal outcome was good. These CS could have been prevented by restricting CTG to high risk patients, availability of fetal blood sampling and confirmation of diagnosis by cord ABG's and PH.

Key words: Fetal Distress, CTG, Caesarean section.

This article may be cited as: Hussain SS, Fatima SS, Shafqat T, Rasool F. Fetal outcome after Caesarean Section performed for fetal distress based on abnormal Cardiotocography. J Med Sci 2021 January;29(1):13-16

INTRODUCTION

Fetal distress (FD) is characterized by abnormalities in fetal heart rate. This distress is usually due to temporary or permanent impairment of oxygen supply to the fetus resulting in hypoxia or acidosis. Fetal hypoxia is a common cause of fetal mortality and morbidity[1-3]. Fetal hypoxia leads to metabolic acidosis resulting in accumulation of hydrogen ion, which causes a low PH in fetal blood. This in turn causes changes in fetal heart pattern which can be observed on Cardiotocography (CTG). Intermittent fetal heart rate (FHR) auscultation and CTG monitoring are the most common methods of intrapartum fetal monitoring. Though, a normal trace is 98% predictive of a normal acid base balance at birth but an abnormal CTG trace has a low predictive value of adverse fetal outcome (30%), the false-positive rate of the CTG is around 60% which often results in unnecessary Casarean section (CS)[3-7].

Suspected FD diagnosed on CTG is one of the leading indications for CS for past few decades. As diagnosis of fetal distress on CTG alone has resulted in increase in CS rate, it should be coupled with FBS. FBS is a useful tool for diagnosis of fetal hypoxia and acidosis. FBS pH value of less than 7.20 has a higher specificity than a pathological CTG to predict low Apgar score. Along with this, umbilical cord blood gas analysis is highly recommended in all high-risk deliveries where fetal hypoxia is suspected. It has its own clinical and medico legal significance[8-13]. CS carries the risk of maternal mortality and morbidity, in both current and future pregnancies. High cost of CS adds tremendously to financial burden on health system in developing countries. Avoiding caesarean section where possible will help in decreasing adverse pregnancy outcomes in next pregnancy too. In this context this study was conducted to critically assess CS performed for FD considering fetal outcome[14, 15].

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Date accepted: 20-05-2020

MATERIAL AND METHODS

This retrospective chart review was conducted in one of the Gynaecology and Obstetrics unit of Lady Reading hospital in Peshawar from June 2015 to June 2016. A

total 1255 CS were performed. Among them, 321 (23.69%) patients had CS for fetal distress. Using non-probability Convenience sampling, 234 (18.64%) were included in this study as they fulfilled inclusion criteria. These were the patients with single alive intrauterine pregnancy with term gestation (37+1 -41+6, calculated by 1st trimester scan or LMP) and no fetal abnormality on ultrasound who underwent CS for suspicious or pathological CTG (CTG interpreted as suspicious or pathological according to NICE Guidelines on intrapartum care)[14]. Patients with antepartum hemorrhage, chorioamnionitis, intrauterine growth restriction, eclampsia, mal-presentation and with more than one previous CS were excluded from study. The primary outcome of study was neonatal and perinatal outcome. Neonatal outcome was defined as Apgar score at 5 min, (Apgar score of 7-10 was considered reassuring, 4-6 as moderately abnormal and score of 0-3 as low in term baby) and NICU admission and perinatal outcome in terms of mortality within 7 days of birth[16]. It was noted from patient record whether the fetal blood sampling and post natal umbilical cord arterial blood gas analysis was carried out or not. The results are expressed in frequencies and percentages and presented in form of tables and charts.

RESULTS

This study showed that majority of babies were born healthy with good Apgar score, despite being diagnosed to have abnormal CTG (figure 1), meconium was noted in almost half of the cases (Table 1) but had no adverse effect on neonatal outcome (figure 2 and 3). Ninety-one percent (n= 213) of babies went home without requiring neonatal ICU admission (Fig 2). Among those admitted, 16 babies were discharged within 24-48 hours, 2 were treated for meconium aspiration syndrome, 3 babies died in nursery while 3 were fresh still birth. In total, 2.54% (6) of babies died within 1 week of life (early neonatal death).

Table 1: Meconium Stained Liqor (MSL)

MSL present	**51.70% (n=121)**	Grade 1	9.91%(n=12)
		Grade 2	33.88%(n=41)
		Grade 3	43.01%(n=53)
MSL Absent	48.29%(n=113)		

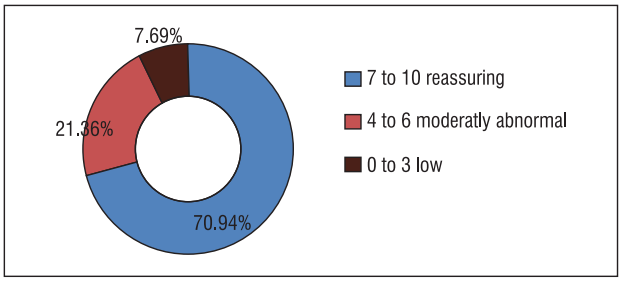

Fig 1: Apgar score at 5 min

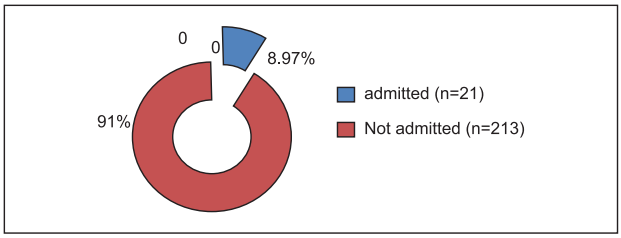

Fig 2: NICU admission.

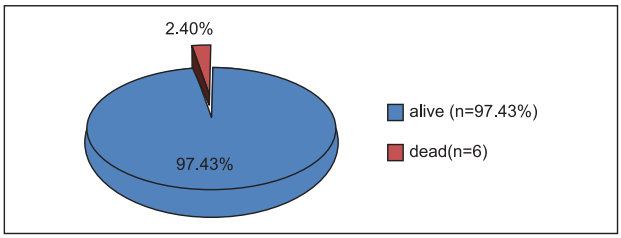

Fig 3: Perinatal outcome.

DISCUSSION

CTG has good positive predictive value when it is used as a screening test to indicate non-compromised condition of fetus. Its use and importance in this aspect cannot be denied, but its ubiquitous presence in labor room has led to its injudicious use in low risk woman, its complicated interpretation and fear of litigation of compromised babies has led to low threshold and increased rate of CS.

Use of CTG alone to diagnose fetal distress correlates poorly with fetal outcome In this study, 70.94% babies were born with reassuring Apgar score, after they had CS performed for fetal distress. A Cochrane review published in 2017 concluded that 'CTG during labor is associated with reduced rates of neonatal seizures, but no clear differences in cerebral palsy, infant mortality or other standard measures of neonatal wellbeing. However, its use increased the rate of instrumental and caesarean deliveries significantly [17,18].

In low resource countries like Pakistan, unfortunately still it is CTG alone, on which fetal distress is diagnosed and managed. In this study, the rate of CS performed for FD based on abnormal CTG findings was 18.64% (n=234). A study in Bangladesh reported 21% caesarean section rate for FD and another local study reported it as 27%[18, 19, 22].

Our study revealed that 8.97% (n=21) of neonates were admitted in Neonatal ICU. Among them,[18] were treated and discharged from Neonatal ICU. Roy KK at el noted 15.2% NICU admissions in a related study while perinatal mortality was 2.54%, which is comparable to 3.1% perinatal mortality in other similar studies[9,22].

Meconium stained liquor (MSN) is considered as sign of fetal distress. In spite of presence of meconium, fetal outcome was reassuring in majority of cases (70.94%),

which shows that decision of immediate delivery should not be based on presence of meconium only. In our study, it was present in 51.70% of patients along with non-reassuring FHR, which is comparable to another study which reported it in 49% of cases. An other similar study reported CS in presence of MSL in 42.04%[22-24].

Other methods like FBS should be performed in association with electronic fetal monitoring patterns, where abnormality is noted. There is only one RCT comparing CS rate for fetal distress in CTG alone with combination of CTG and FBS where the results were 18% versus 11% in later group. Fetal pulse oximetry is another modality which can be utilized to confirm CTG based diagnosis of fetal distress. It is less invasive and seems as reliable as FBS[25-30]. Umbilical cord blood sampling should be carried out in all high-risk deliveries. It gives insight into etiology of asphyxia as well as it confirms or negates antenatal fetal compromise and justification of CS for fetal distress[9,10]. Keeping in view the impact, consequences and financial burden of CS, these modalities should be explored, which can lead to significant decrease in unnecessary CS rate for fetal distress.

CONCLUSION

Use of CTG alone to diagnose fetal distress can lead to unnecessary operative intervention. In an environment of poor health seeking behavior, the future of these women will be in jeopardy as many of them may avoid skilled birth attendants in their subsequent deliveries with its serious consequences, like repeat CS, uterine rupture and postpartum haemorrhage[31,32]. Its use should continue to be investigated by carefully designed randomized controlled trials to optimize its utility and compare outcomes with newer, potentially more accurate ways of evaluating fetal well-being in labor.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Hussain SS: Conceived, Concept, Data Collection Results.

Fatima SS: Literature Review.

Shafqat T: Statiscal analysis.

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DEVELOPING AND VALIDATING THE IP-SRP (IMPACT OF PANDEMICS OVER SURGICAL RESIDENCY PROGRAM) TOOL IN A TERTIARY CARE HOSPITAL SETTING

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ABSTRACT

Objective: To develop and validate a survey to be used for determining the impact of pandemics on residents working in Surgical and allied disciplines in a teaching hospital.

Material and Methods: A survey tool was developed and reviewed according to AMEE guide 87, Khyber Medical College, Peshawar. After face, content and construct validation, internal consistency and test-retest reliability were calculated by Cronbach alpha on standardized items and Pearson "r" respectively with the help of SPSS-25.

Results: During the process, a 28-item survey tool was reduced to 16 items. The items were grouped under 5 sections namely: preliminary data, skills, academic activities, impact over research activities and impact over examination preparations and schedules. The responses of all sections were recorded in the Likert scale (with options from 4-6) while one sections response was either "yes/no/unsure. The results of the pilot study revealed Cronbach's alpha of 0.7 and Pearson "r" for test-retest reliability on all items as 0.7 to 1.

Conclusion: IP-SRP survey is a new validated tool with good validity and reliability that can be used by healthcare professionals in times of pandemics, calamities and natural disasters that occur locally, regionally or globally.

Keywords: IP-SRP survey, skills, academic, research, examination.

This article may be cited as: Ahmed F, Ali S, Kashif L, Sethi A, Mahboob U, Anwar K. Developing and validating the IP-SRP (Impact of Pandemics over Surgical Residency Program) tool in a tertiary care hospital setting. J Med Sci 2021 January;29(1):17-20

INTRODUCTION

Natural disasters in the form of earthquakes, tsunamis have affected everyday life throughout the world. But the recently developed pandemic of COVID-19 has affected human life across the globe in all aspects notably, economics, education, and health[1]. This is also true for postgraduate residency programs in healthcare in all disciplines. The number of out-patients has declined significantly throughout the hospitals in the country and similarly, the number of surgeries (both major and minor) performed in these hospitals has also declined. Similarly, ward round teachings, research activities, seminars, workshops, and conferences have been halted due to the pandemic and some of these activities have been converted into virtual platforms. There is meagre exposure of postgraduate students to patients that have resulted in reduced exposure of students to patient encounters, surgeries, and other activities like presentations skills and research activities. No one knows the extent of this pandemic, but everyone knows the duration of students'training[2]. Which is being affected by lack of teaching and training that will ultimately affect the quality of specialists produced with limited skills and attitudes regarding their speciality.

The magnitude of the impact of the pandemics and other natural calamities especially COVID-19 over healthcare education needs to be measured explicitly so that corrective measures can be taken post-pandemic. So far, no method of measurement has been identified or proposed to calculate the true impact of it throughout the world. One method of measuring it is with the help of developing a survey or qualitative analysis. These measures need to be validated to enhance their worth, a new survey was developed and validated which is termed IP-SRP (Impact of Pandemics over Surgical Residency Program). Which will help to measure the impact of disasters and

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pandemics, especially COVID-19, over postgraduate surgical residency program in teaching hospitals. The survey can be utilized in other residency programs related to medicine, dentistry, allied health, and nursing with or without minor modifications. This study aims to describe the steps of developing and validating the IP-SRP survey in a teaching hospital setting to be used later for its defined purpose.

MATERIALS AND METHODS

We developed and validated the IP-SRP survey in the month of July 2020, in the department of medical education in collaboration with the surgical and allied disciplines of Khyber Teaching Hospital, which is a 1600 bedded tertiary care hospital in the Khyber Pakhtunkhwa province of Pakistan. The IREB (Institutional Research and Ethical Review Board) of the institution approved the proposal of the research. Survey validation: FA and SA did an extensive literature search to find studies, surveys, and other materials related to the topic. In the first instance, SA presented a tool consisting of 28 items with yes/no responses. After extensive discussion, FA and SA modified the tool by reducing the number of items to 16, with 5 point Likert scale responses (A-E), where A means 100%, B means 75%, C means 50%, D means 25%, and E as 0%. The IP-SRP survey was divided into 5 sections and one open-ended question at the end. The first section consisted of the name (optional), gender, specialty, name of the hospital, and year of the residency program. The next section consisted of 4 domains; i.e. Skills (containing 4 items), Academic activities (2 items), impact over research activities (3 items), and impact over examination preparations and schedules (4 options). The responses of this section are in "yes/no/not applicable.

The survey tool was sent to 2 medical educationists with doctorate degrees via email to check for content and construct validity. After their feedback, we modified the items construct from a question type to a narrative type and dropped one item from section 4. We presented the survey form to a subject experts in a meeting and the final changes were made after the deliberations as shown in results.

Reliability of a pilot survey enable refinement of the item list and demonstration of construct validity[3]. We developed Google forms for the IP-SRP tool to be distributed amongst surgical residents as part of pilot testing. No financial or other incentives were provided to the residents for participation. We calculated Reliability using Cronbach alpha on standardized items and test-retest reliability using Pearson "r" keeping the p-value as 0.05 or less.

RESULTS

We performed a literature review to find the available tool to determine the impact of pandemics over residency programs in healthcare. Google Scholar and ERIC (Educational Resource and Information Center) were used as databases. The search statements used during the literature search were, 1) Tools to assess the impact of pandemic over healthcare residency programs 2) Surveys to assess the impact of COVID-19 pandemics on healthcare residency programs. A total of 5 recent articles published were reviewed to develop and validate our tool (see table-1 for details)

Item related to academics and research were grouped into "before the pandemic and during pandemic" and were converted from percentage style of Likert scale responses to "none, rare, occasional and frequent". Items related to research were converted to a "yes and no" for the first item and 6 points Likert scale for the rest of the items. For items related to assessment, 4 points Likert scale "not confident, less confident, confident and very confident" was developed along with an open-ended question about the examination preparations. After all these modifications, the survey was considered fit for pilot testing. Upon sending the survey via Google forms to 35 residents belonging to different surgical specialties and having experience of year 1-4, we received responses from 19 participants. Those 19 participants were re-surveyed the next day to check test-retest reliability. The results of the survey are mentioned in the next section, while a reliability coefficient (Cronbach alpha) was calculated via SPSS-25 and was found to be 0.7 for standardized items. For test-retest reliability, Pearson "r" ranged from 0.7-1 (see table-2).

We all authors decided to replace the name of CPSP (College of Physicians and Surgeons of Pakistan) with the assessment body, the name of IMM (intermediate module) with intermediate examination for a residency program, and Part-2 examination (part-2 examination of FCPS) with exit examination of the residency program. These names were used in section 4 (assessment) of the proforma. This was done with the intent that not all residents are the students of CPSP, as some students belong to institutions other than that. The results of the last open-ended questions were analyzed thematically, where 3 themes were derived. These were related to 1) deficiency in clinical training, 2) deficient knowledge and 3) lack of educational environment in a clinical setting.

DISCUSSION

We have described the development and validation of an instrument that can measure the impact of

Table 1: Literature search databases and number of articles retrieved

Database used	Articles retrieved after search statement-1	Articles retrieved after search statement-2	Abstracts read	Final articles included for study
ERIC	1012	197	13	2
Google Scholar	17200	1400	15	3
Total	18212	1597	28	5

Table 1: Details of inter-item correlation of different items used

Domains	Items	Inter-item correlation (r)
Surgical skills	Opportunities to observe surgeries before the pandemic	1**
	Opportunities to observe surgeries during the pandemic	0.7**
	Opportunities to assist surgeries before the pandemic	0.9**
	Opportunities to assist surgeries during the pandemic	0.9**
	Opportunities to perform surgeries under supervision before the pandemic	0.9**
	Opportunities to perform surgeries under supervision during the pandemic	1**
	Opportunities to perform surgeries independently before the pandemic	1**
	Opportunities to perform surgeries independently during the pandemic	0.9**
Academics	Frequency of academic ward rounds before the pandemic	0.7**
	Frequency of academic ward rounds during the pandemic	0.7**
	Frequency of workshops/ seminars attended before the pandemic	1**
	Frequency of academic ward rounds during the pandemic	1**
Research activities	Has the pandemic delayed your synopsis/proposal writing/ acceptance?	1**
	How much has your data collection been affected by changes in hospital protocols during the pandemic?	1**
	How much has your dissertation/thesis writing been affected by changes in hospital protocols during the pandemic	0.9**
Assessments	How confident are you that your final assessment (IMM / FCPS examination) will take place in time despite the pandemic?	0.9**

pandemics and calamities over residency programs in healthcare settings, especially in surgical practices. This survey tool was developed at a time where the COVID-19 pandemic is rampant throughout the globe, but it can also be used in localities where such calamities and natural disasters happen that can affect the continuity of education and healthcare. The explicit process of face, content, and construct validation and adequate reliability coefficient signifies its utility to be used in such circumstances. Although the Delphi technique[4] was not used in the generation of the tool, the input of subject experts, reviewers of the tools, and feedback of the pilot study participants cannot be underestimated. A Cronbach alpha of 0.7 or more for standardized items and its consistency during test-retest analysis highlights the value of this tool to be used when any surgical residency program is interrupted by calamities and disasters like the COVID-19 pandemic.

Another tool was recently developed and used amongst cardiothoracic trainees in the United Kingdom[5] to find out the impact of the COVID-19 pandemic over the cardiothoracic residency program. Which was a 31-item newly validated questionnaire distributed amongst 118 trainees. It assessed the pre-COVID and post-COVID training in terms of patient care, research activities, and educational activities. This is different from our survey as we explored the perceptions of students in quantitative terms during COVID-19 only. We did not incorporate questions in all items, which could have compared the pre and post COVID-19 situations. Although, we compared the domain of clinical skills and academics before and during the pandemic only[6,7]. Another survey conducted in India[8], to assess the impact of COVID 19 on Ophthalmology training, was published recently. That survey tool was a non-validated self-designed 21 item tool that focused over theoretical teaching, practical surgical training, mental wellbeing and small group educational activities[9]. A nationwide survey was conducted in Italy to determine the impact of COVID-19 over Gastroenterology services and training, which revealed that clinical, endoscopic and patient management services have impaired drastically due to the pandemic[10]. A world-wide survey amongst neurosurgeons revealed that non-emergency neurosurgical operations have been significantly postponed due to the pandemic[11]. Similarly, the impact of this pandemic over dentistry programs, spine surgical specialties, urology, nursing programs and other allied health disciplines had been determined using different types of survey instruments[12,13,14,15]. All surveys already mentioned used tools, which were used for the first time and were self-designed. Our tool is different from others as it looks explicit, short, focused, and only concentrates on surgical skills, academics, research, and assessments. Our survey does not take into account many of the items included in other studies mentioned here because of which, we think this tool can be used in most of other clinical disciplines also.

One of the limitations of this research seems to be a small sample size during pilot testing. This sample size was based on a study published in the Saudi Journal of Anaesthesia which highlights the need of a preliminary pilot testing during validating and translating a survey instrument[11].

CONCLUSION

IP-SRP is a new tool with good validity and reliability that can be used by healthcare professionals in times of pandemics, calamities, and natural disasters that strike the world population locally, regionally, or globally. Further pilot testing at multiple centers throughout the world is needed to enhance the validity and reliability of this tool.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

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Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

PRIMARY PROCEDURE FOR ANORECTAL MALFORMATIONS IN CHILDREN; A SINGLE CENTER EXPERIENCE

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ABSTRACT

Objective: To share our experience with outcome of primary procedure for anorectal malformation (ARM) in children.

Material & Mathods: This Retrospective study included 40 patients from both genders who were operated in between January 2018 and January 2019 for high and intermediate ARM in the department of pediatric surgery Khyber Teaching Hospital Peshawar. Patients with common cloaca and associated life-threatening anomalies were excluded. Demographic and clinical data were tabulated and analyzed. The cost of the procedure was recorded in Pakistani Rupees and hospital stay in days. Continence was evaluated by Kelly's score and parents' satisfaction graded by Likert scale.

Results: Male to female ratio was 1.6:1. Mean hospital stay was 5.91±1.01 days and mean cost was 22950 ± 3234 Pakistani Rupees. Wound dehiscence was recorded in 3 (7.5%), 2 (5.0%) patients developed surgical site infection and 11 (35.48%) patients who had perianal excoriation. Adhesive obstruction and mucosal prolapse were seen in 1 (2.5%) patient each while anal stenosis in 2(5.0%) Patients. After 6 months 28 (70%) patients had formed stools while 12 (30%) had loose stools. Stool frequency was 0-1 time/day in majority i.e. 20 (50 %) patients. Continence was fair in 24 (60%) patients. Parents of 20 (50%) patients were very satisfied, 17(42.5%) satisfied only. Continence for age and sex revealed insignificant P values of 0.213 and 0.07 respectively.

Conclusion: Primary procedure for anorectal malformations may be a good alternative to traditional three-stage procedure in selected patients with intermediate and high variety of ARM.

Keywords: Anorectal malformation (MeSH); Abdominoperineal pull through (Non-MeSH); Kelly's score (Non-MeSH).

This article may be cited as: Waheed T, Ali S, Uzair M , Rehman UI. Primary procedure for anorectal malformations in children; A single center experience. J Med Sci 2021 January;29(1):21-25

INTRODUCTION

Anorectal malformations (ARMs), encompass a wide range of congenital anomalies of the terminal part of the gastrointestinal tract. With an approximate incidence of 1 in 2000 to 1 in 5000 live births and slight male predominance, the anomalies range from trivial malpositioning of the anus with a good functional prognosis to extremely complicated anatomical deviation of the hind gut and urogenital system[1,2]. Depending upon the location of the blind end of distal gut above, within, or below the Levator muscle ARMs were respectively classified as high, intermediate, or low by Wingspread. The in fashion Krickenbeck classification is not just a diagnostic tool for categorizing the malformations but also helps in assessing the prognosis after treatment[3].

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Diagnostic workup for anorectal malformation includes a formal history, thorough examination of the perineum, and where needed x-ray cross table/invertogram. Good centers even do MRI and ultrasound of the perineum[4]. These unfortunate newborns in a significant proportion suffer from the consequences of associated anomalies as well, of which urogenital malformations predominate. The co-existence of congenital cardiac and vertebral distortions is also not uncommon. Echocardiography, ultrasound for urogenital anatomy, and lumbosacral radiography are important before planning intervention[5].

Regarding its treatment different surgical centers have different approaches based on the variety of anomalies and experience of surgeons. Simple anomalies like perineal fistulae are dealt with primarily. Regarding others, there is no absolute consensus recommendation. However, both single-stage and three-stage repairs are in practice[4]. The supporters of the single-stage procedure claim low morbidity, low mortality, and low cost. The counter-argument on the issue of continence is its attribution to the development of cerebral fibers which develop by the end of the first year of life. As there is no pouchitis and tissue planes are virgin perineal dissection becomes technically feasible and easier. Moreover, the social resistance to sto-

ma is not encountered and hence no bowel preparation is needed. Other notable benefits are less physical and psychosocial stress to the parents, child, and surgeon which makes it a considerable option. In antagonism to the opinion are surgeons who rightly fear the endangered urogenital system in primary repair[6]. Moreover, handling the underdeveloped pelvirectal musculature is a demanding job.

In Pakistan most centers favor the traditional 3 stage procedure[7]. But in a developing country, where socio-economic problems and insufficient infrastructure are unavoidable concerns, the outcome of primary definitive abdominoperineal pull through and primary posterior sagittal anorectopexy/anterior sagittal anorectopexy needed evaluation. So here we are with our experience with single-stage procedure for ARMs in selected patients.

MATERIAL AND METHODS

This retrospective study was conducted in the department of Paediatric surgery Khyber teaching hospital Peshawar. After formal ethical approval from the Institutional Review and ethical approval board, operative, post-operative and follow-up records of patients who had a primary procedure for ARM between Jan 2018 to Jan 2019 were retrieved. 40 subjects from both sexes qualified for the study applying inclusion and exclusion criteria. Irrespective of the type of ARM Patients with severe life-threatening other congenital malformations, sepsis or necrotizing enterocolitis with pneumoperitoneum, extreme prematurity, and common cloacae were excluded as they are known contraindications to primary repair[7].

Patients operated for any indication elsewhere were also excluded. Primary definitive operations included Primary PSARP in female patients with recto vestibular fistula, imperforate anus without fistula in both males and females, primary abdominoperineal pull-through for high anorectal atresia, rectovaginal fistula in females, and recto urinary fistula in males.

Demographic features documented in patients' files, intraoperative findings, and postoperative complications were tabulated. The cost of the procedure in Pakistani Rupees was calculated from the cash memo which included cash spent on surgical and medical stuff only. Hospital stay in days was counted from the date of admission till the date of discharge. Follow-up variables were obtained from the record. Continence was evaluated by Kelly's score from the available 6 months follow up data and parents' satisfaction graded by the Likert scale.

The data was entered into SPSS version 20, computer program, and analyzed accordingly. Study variables were analyzed by simple descriptive statistics. Mean and the standard deviation was calculated for numerical variables. Frequency and percentage were calculated for gender, intraoperative findings and postoperative outcome of primary PSARP/abdominoperineal pull-through maintained at follow-up after month 6. Age at the time of surgery and gender were then evaluated for continence and a p-value was generated. P-value of less than 0.05 was considered for significance.

RESULTS

All surgeries were completed in one go and no case was converted to alternate surgery. We did not encounter any mortality. Characteristics of patients are shown in Table I. The male to female ratio was 1.6:1, operative outcome depicted a mean operative time of 102 minuets, mean hospital stay of 5.91 days, the mean cost of 22950 Pakistani Rupees(PKR), and complications as listed in Table II.

As tabulated in Table 2, 3 (7.5%) patients developed perianal wound dehiscence, 2 (5.0%) patients had surgical site infection,11 (35.48%) patients suffered from perianal excoriation, adhesive obstruction, and mucosal prolapse were seen in 1 (2.5%) patient each while anal stenosis in 2(5.0%) Patients. Functional outcome in terms of stool consistency, frequency and continence following Kelly's criteria at 6th-month post-primary procedures for ARMs as per record are shown in table 3.

Parents' satisfaction evaluated via a Likert scale is shown table IV. When continence was checked for age and sex as shown in table V, the chi-square test revealed insignificant P values of 0.213 and 0.07 respectively.

Table 1: Characteristics of patients

Parameters		
Age (months)	Mean±SD	1.42±0.76
	Range	0 – 6 months
Gender	Male	25(62.5%)
	Female	15 (37.5%)
Weight (Kg)	Mean±SD	3.89±0.42
Any other congenital abnormality		0(0.0%)
Past history of surgery	Yes	0(0.0%)
	No	40 (100.0%)

Table 2: Operative outcomes

Operative outcomes	No. of patients (%)
Operative time	102 ± 20.67 min
Mean hospital stay (days)	5.91±1.01
Perianal wound dehiscence	3 (7.5%)
Surgical site infection	2 (5.0%)
Perianal excoriation	11 (35.48%)
Adhesive obstruction	1 (2.5%)
Mucosal prolapse	1(2.5%)h
Anal stenosis	2(5.0%)
Cost of the procedure	22950 ± 3234 PKR

Table 3: Functional outcome

Parameters		At 6th month
		n (%)
Stool consistency	Liquid	0(0.0%)
	Loose	12 (30%)
	Formed	28 (70%)
Stool frequency	0 to 1	20 (50 %)
	2 to 3	11 (27.5%)
	More than 3	9 (22.5%)
Continence	Good	10 (25%)
	Fair	24 (60%)
	Poor	6 (15%)

Table 4: Parents' satisfaction

Parents' satisfaction	Unsatisfied	3 (7.5%)
	Satisfied	17 (42.5%)
	Highly satisfied	20 (50%)

Table 5: Continence for Age and Gender

		Continence			P* value
		Good	Fair	Poor	
Age	Less than one month	6	17	6	0.213**
	One month to 6 months	4	7	0	
	Total	10	24	6	
		Continence			P* value
		Good	Fair	Poor	
Gender	Male	5	14	6	0.07**
	Female	5	10	0	
	Total	10	24	6	

*chi square test

** Not significant

DISCUSSION

Countries with poor econom where the socioeconomic status of the people is not satisfactory, the quality of health care is compromised. In such regions of the world, the traditional three stages of surgical management of ARMs i.e. Colostomy followed by PSARP and then closure of stoma mean a costly policy both in terms of money and time. The idea sounds further irrelevant when the psychosocial surrounding considers the anomaly and colostomy as a stigma. The psychological stress of parents cannot be avoided at the cost of a long and tiring surgical where continence is never a promise. Above all these recognized complications of a colostomy should always be kept in mind[8]. The incidence of these complications has been reported in the literature from 28% to 74%[10]. When prosperous countries initiated primary (one-stage) PSARP in selected neonates, it was found as feasible and safe alternative[10]. The main consideration in one go strategy has always been the uncertain endangered urogenital anatomy. Therefore, literature favoring the classic strategy has questioned the functional outcome of the single-step surgery in ARM[6]. The socioeconomic status of the people in this part of the world and questionable results of the three-stage procedure in terms of functional outcome were sufficient indications to share our local experience with single-stage correction for ARM.

Sharing our findings and results of a retrospective analysis of a one-stage procedure, the mean age of patients was 1.42±0.76 months (Range: 0-6 months) with male predominance. In a study by Osifo OD, all patients were neonates with male to female ratio of 1.5:1[10]. Similarly literature reveals prospective and retrospective studies on single stage procedure for anorectal malformations both in neonatal period and later. Also, there are separate studies about this modality of treatment and its outcome exclusively in male and female patients[6,11].

In our study, the mean operative time was 102 minuets which is close to the operative time experienced by Upadhyaya VD (110 min)[12] though it was just 50 minutes in a study by Ibrahim IA[13]. Hospital stay from the date of admission till discharge was 5.91 days in this study. In other studies, mean hospital stay of 7 to 9 days has been recorded[10,17].

Perianal wound dehiscence in our study was observed in 7.5 % of patients. Among these 3 patients, two were Post PSARP females and 1 post abdominoperineal pull-through male. All these patients were conservatively managed and dehiscence responded to hygiene measures and pyodine wash. Contrary to our finding wound dehiscence was 0% in a study conducted by Menon P[14]. The figure was 5 % in a study published in the July 2010 issue of Journal of Pediatric surgery and about 40 % in a randomized control trial conducted by Gupta A[15,18]. We noticed surgical site infection in 6.25 % of our patients through the percentage was 2 % in a study by Osifo OD and 30 % in that by Amanollahi O[10,16]. The most common early complication was perineal excoriation it was not seen in any patient in a similar study by Albanese CT[17].

Only one patient in our study developed adhesive intestinal obstruction and reported one month after surgery with abdominal distension and bilious vomiting. This was a post abdominoperineal pull-through a male patient with recto urethral fistula. The patient responded to our conservative treatment. Stenosis of the neontal anus and mucosal prolapse are other recognized complications after surgery for ARM[16,17,18]. Two patients developed anal stenosis during initial post-operative months due to non-compliance with the dilatation program. In both cases, dilatation was done under general anesthesia and parents counseled to ensure compliance. One patient reported mucosal prolapse which was surgically trimmed.

The incidence of Congenital anomalies is higher in newborns of parents of low socioeconomic status. The financial aspect is thus an important consideration in developing countries. The total cost of surgical stuff and medicine was calculated from invoices. It was important because in developing countries finances are always a problem for poor parents in public sector hospitals even. The mean spent cost was 22950 Pakistani Rupees exclusive of food and travel expenses. This may vary from country to country and currency to currency but gives a rough idea of its affordability and reference for comparison with three stage procedure. Recent literature favors single-stage procedure over conventional three-stage approach as far finances in a developing country are concerned[16,18].

Parents' satisfaction is a subjective variable but is very important because the child with outcome ultimately belongs to parents and they have definite expectations. We tried to standardize parents' satisfaction by using the Likert scale. The results on this scale at follow-up depicted that parents of 20 children (50% of the total) were fully satisfied and those of 17 children (42.5%) were partially satisfied only. Parents of 3 children (7.5%) were not happy with the surgical and functional outcome. However please note that parents' satisfaction is a subjective measurement and results are highly variable in the literature on the same parameters[19,20].

The functional outcome has always been one of the most important concerns and quality of life determinant in subjects under consideration post-treatment. The stooling pattern in terms of frequency and consistency has been used as a tool to assess the bowel function and continence post-surgical procedures on patients with ARM. Our study revealed formed stools in 70 % of children and a frequency of 0 to 1 time/day in 50 percent of post operative children on follow-up at 6 months. According to literature, a normal stooling pattern is about 3 to 6 times per day at birth which decreases to 0 to 2 times per day by the end of the second month and remains so till 2 years of age[16]. Moreover there are some methods to evaluate any fecal incontinence in a reproducible method after a corrective intervention. Among these standardized methods, Kelly's criteria is the simplest of all scoring systems and is applicable with reproducible results even in a 3-month infant[16,18,21]. Since all subjects were below the age of toilet training, Kelly's criteria suited our study the most to evaluate continence. We found that 25 % of our patients exhibited good continence, 60 % fair continence while in 15 % of patients the continence was poor according to our chosen criteria. Though continence is subject to the type of anomaly and improves with age, our findings of continence six months after primary partially are comparable to those mentioned in literature with acceptable variations[16,18]. Correlation of age at the time of surgery and gender with continence revealed statistically insignificant result ($P<0.05$). Sex of patient has been consistantly declared not related to functional outcome but the relation of age at the time of surgery to continence has been a subject of debate based on evidences[10,16,18,22].

Stratification of the type of anomaly is not done in the study which can affect the results. Randomized control trial of single-stage vs three-stage procedure for ARM should be carried out to compare the outcome variables. Long term follow up of patients after single-stage procedure should be done for better evaluation of functional outcome at the age of toilet training and beyond.

CONCLUSION

Surgical treatment of anorectal malformation via traditional three-stage procedure has been a famous approach, but considering the psychosomatic trauma to the parents and patients, non-reproducible continence and cost of the procedure single-stage procedure may be a good alternative.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Waheed T: Conception & final approval

Ali S: Design,Data collection and proof reading

Uzair M: Design and Statistical analysis

Rehman IU: Proof reading and final approval.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

PREVALENCE OF DIFFERENT DISEASES BASED ON HISTOPATHOLOGICAL FEATURES IN BIOPSIES FROM PATIENTS IN MALAKAND DIVISION, KHYBER PAKHTUNKHWA

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ABSTRACT

Introduction: The main objective of this study was to determine the prevalence of different diseases based on histopathological features in biopsies from patients in Swat, Malakand Division, Khyber Pakhtunkhwa.

Material & Methods: Seventy-three biopsies, as received sequentially in Anwar Clinical Laboratory Swat from 07 January 2019 to 10 April 2019, from different patients who had visited different specialty clinics in public and private hospitals of Saidu Sharif Swat, were reviewed. All the biopsies were reported by trained pathologists and histopathological results were analyzed.

Results: The highest prevalence rate was from diseases belonging to female reproductive system which was 23 %, followed by GIT and dental diseases (19% each), skin diseases (18%), breast and lymph nodes (07% each), male reproductive system (4%) and Thyroid diseases (3%). Total carcinoma cases found were 05 with a prevalence rate of (5/73x100= 6.89) or 07%. The mean age of affected patients was 35.43 (+_19.21) with a peak prevalence in the group between 20 and 39 years. Prevalence gradually decreased after age 40 with a slight surge between 60 and 75 years.

Conclusion: The study concluded that biopsies taken for different diseases are more prevalent to female reproductive system and the prevalence of different diseases is low in male as compared to female.

Keywords: Prevalence, Biopsy, Histopathology, Carcinoma.

This article may be cited as: Khan A, Khattak M, Saleem K, Khan SA, Khan MA. Prevalence of different diseases based on Histopathological features in Biopsies from patients in Malakand Division, Khyber Pakhtunkhwa. J Med Sci 2021 January;29(1):26-29

INTRODUCTION

Histopathology is still regarded as the gold standard/ tool for confirmation of a disease in spite of much sophisticated tests available now adays. Microscopy often puts in a lot of information and it is for this reason that it is more and more performed especially in patients undergoing surgery for various problems[1]. The objective of this study was to determine the prevalence of different diseases based on histopathological features in biopsies taken from patients in Swat, Malakand Division, Khyber Pakhtunkhwa.

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Date received: 24-12-2020
Date revised: 15-01-2021
Date accepted: 12-02-2021

MATERIAL AND METHODS

Malakand Division is an administrative division of the Khyber Pakhtunkhwa of Pakistan. In 1970, Malakand Division was formed from the princely states of Chitral, Dir and Swat (incorporated into West Pakistan in 1969). The total area of Malakand Division is 952 km^2 and has a population density of 720,295 as per 2017 census. It comprises of 09 districts. Basically, this is a retrospective study of a population of patients who had visited different specialty clinics in public and private Hospitals of Saidu Sharif Swat and whose biopsies were reported by Anwar Clinical Laboratory Swat from 07 January 2019 to 10 April 2019, Biopsy specimens as received in 10% buffered formalin, were further fixed in formalin, prepared, stained routinely with hematoxylin and eosin and reported by pathologist.

The results collected were then evaluated in the Microsoft Office Excel.

RESULTS

A total of 73 biopsies, 25 from male patients (34.25%) and 48 (65.75%) from female patients were analyzed. The average age of the sample patients was 35.43 (±19.21). The average age of male patients was 37.91 years (±25.26), and the average age of women was 33.64 years (±16.78).

The result of the biopsies received, examined and reported are shown in table 2. Of the 73 samples, only five (6.88%) turned out to be malignant. The malignant cases reported were found 02 in GIT (2/14x100=14.29%), 02 cases were related to dental (2/14x100=14.29%) and 01 case (1/5x100=20%) in lymph node. The rest of the biopsies were other non-malignant diseases. The highest number of biopsies were from the female reproductive system followed by GIT and dental diseases. Other were from skin, breast, male reproductive system and thyroid.

The highest prevalence rate was from diseases belonging to female reproductive system which was 23 % followed by GIT and dental diseases (19% each), skin diseases (18%), breast and lymph nodes (07% each), male reproductive system (4%) and Thyroid diseases (3%). Total carcinoma cases found were 05 with a prevalence rate of (5/73x100= 6.89) or 07%. The mean age of infected patients was 35.43 (SD:±19.21) with a peak prevalence in the group between 20 and 39 years. Prevalence gradually decreased after age 40 with a slight surge between 60 and 75 years.

Table 1: Distribution of Samples from Patients by Age Group

Age in Years	Sex		Total
0.33 (04 Months) to 09	Male	Female	
10 to 19	03	03	06
20 to 29	02	08	10
20 to 39	02	07	09
30 to 49	05	12	17
40 to 59	00	05	05
50 to	00	05	05
60 to 69	04	04	08
70 to 79	03	01	04
Age Unknown 09	06	03	09
Total	25	48	73

Table 2: Histopathological Findings

S. No	Organ/System affected	Total cases	Male	Female	Malignant Cases
1.	GIT	14	04	10	02
2.	Female Reproductive System Breast	17	0	17	0
3.	Dental	05	01	04	0
4.	Male Rep. Sys.	14	07	07	02
5.	Lymph Nodes	03	03	0	0
6.	Skin	05	01	04	01
7.	thyroid	13	08	05	0
8.		02	0	02	0

DISCUSSION

The highest number of biopsies received in our laboratory were for the disorders of the female reproductive system. The disease can involve any one of the many varied reproductive organs; The ovaries, Fallopian tubes, Uterus, Cervix, and Vagina. Disorders of this system often present during the reproductive years either as altered pelvic pain, menstruation, or infertility[2]. These can be both benign or malignant. However malignant diseases often present in the late reproductive or menopausal years. This is unfortunate that by the time the patient seeks medical help, many have already metastasized and have therefore they often had high mortality rates when they are diagnosed[1]. These disorders can also occur secondary to diseases in other organs whose function affects reproductive organs like the brain, hypothalamus, endocrine glands (pi-

tuitary, thyroid, adrenals) liver and kidney. Typically, these present painlessly. Similarly disorders of the reproductive system can cause disorders in other organs/tissues like osteoporosis (loss of bone mass) due to alterations in the hormones, atherogenesis and alterations in cardiovascular compliance, and an increased risk of some forms of cancer (e.g., endometrial carcinoma as a consequence of estrogen excess and progesterone deficiency)[2]. Among 73 cases studied, highest number of 17 cases (23%) were related to female reproductive system lesions. Some of them were cystic adenofibroma of ovary with follicular cysts of ovary, decidual tissue endometrium, proliferative phase endometrium, late secretary phase endometrium, menstrual phase endometrium, adenomyosis of uterus, mural leiomyomas (fibroids) and mucinous cyst adenoma.

A wide variety of lesions can occur in Gastrointestinal tract (GIT) especially malignant tumors. About 15-25% of all malignancies occur in GIT[3]. Microscopy of the biopsies is basically to provide essential diagnostic and prognostic information for the best clinical management of the patient[4,5]. Amongst 73 cases studied, 14 cases (19%) were related to GI lesions where 02 were polyps (juvenile rectal polyp and adenomatous gastric polyp), 04 were chronic non-specific choleycystitis with cholelithiasis, 01 was peptic ulcer duodenum, 02 were lymphoid hyperplasia Meckel's diverticulum, 02 were non-specific inflammatory mass of appendix and atrophic appendix and two were malignant cases (1 carcinoma of hypo pharynx and 1 carcinoma of ileo-cecal Junction).

Many similarly appearing oral lesions demand confirmation of diagnosis on both clinical and histopathologic grounds[6]. Microscopy plays a pivotal role here. Of the 73 samples that we studied;14 cases (19%) were sent by dental surgeons. Male and female were equally affected i.e., 07 cases each (50% each). Many of the biopsies were diagnosed as cysts of different types (like radicular cyst, dentegrous cyst, aneurismal bone cyst), fibrous epulis upper gingival mucosa, central giant cell granuloma, ossifying fibromas, osteomyelitis, pyogenic granulomas, and two malignant cases [one verrucous carcinoma, (75 years old male) and another well differentiated squamous cell carcinoma of tongue (again a 75 years old male).

The common breast lesions found in retrospective analysis of 3279 breast specimens received at the department of pathology, the Aga Khan University Hospital majority were infiltrating duct carcinoma 37%, followed by fibro adenoma 16.95%, fibrocystic change 13.96%, mastitis 6.83% and duct ectasia 5.33% [7]. In our study, out of a total of 73 cases, 05 were breast specimens (7%). One was male and the rest were female. The common breast lesions included non-specific breast abscess, simple lipoma beast, galactocele with chronic non-specific inflammation, fibrocystic changes of breast and gynaecomastia in male. We observed no malignant cases, although it is commonly encountered in Pakistani females. Breast cancer occurs at a younger age group normally. The skin is a complex organ with many functions and three anatomic components: The epidermis with skin adnexa, melanocytic system, Dermis and subcutis or subcutaneous tissues[9,10].

In countries with low socio-economic back ground including Pakistan, skin diseases prevail as much commonly as are other diseases. However, there is variation in the prevalence of these diseases not only within countries but also within a country[8]. The microscopic diagnosis is used by dermatologists to help in the appropriate management and clinical interventions of patients. Out of a total of 73 cases, 13 cases (18%) were skin specimens. The male to female ratio was 8:5. Majority of the skin cases were benign lesions of the skin like lipoma, dermatofibroma, infiltrating cavernous haemangioma, squamous cell papilloma and pilomatrixoma right cervical area with some inflammatory lesion's chronic folliculitis, pilonidal sinus, non-specific inflammatory sinus and dermatitis herpetiformis. Enlargement of lymph nodes (Lymphadenopathy) is a common clinical problem and to determine the cause of nodal enlargement biopsies are undertaken to rule out benign and malignant cases[11,12]. In this study, we received 05 biopsies (7%) to determine their histopathological spectrum. The male to female ratio was 1:4. Only one case showed malignant changes which was a poorly differentiated carcinoma (axillary lymph nodes) in 65 years old man. The rest were benign like reactive hyperplasia of lymph node, granulomatous lymphadenitis, central giant cell granuloma (maxillary L. node) and suppurative lymphadenitis. Male often encounter reproductive system problems which require biopsies to rule out any malignant pathology. In our study, we receive 03 biopsies (4%) pertaining to this system[16]. One case was of impaired spermatogenesis, non-specific thickening of hydrocele and nodular hyperplasia of prostate. There are different types of thyroid disease, including hyperthyroidism, hypothyroidism, thyroiditis and Hashimoto's thyroiditis and Follicular neoplasms. Follicular neoplasms of the thyroid gland can both benign and malignant and include benign follicular adenoma and follicular carcinoma[13]. A follicular adenoma is a common neoplasm of the thyroid gland. The prevalence of thyroid adenoma was 3 and 4.3% in two autopsy series[14,15]. The 02 biopsies (3%) that we received were follicular adenomas. On cytologic, sonographic, or clinical features a follicular carcinoma cannot be distinguished from a follicular adenoma. Therefore, a histologic confirmation is required for proper management.

This study, although, limited in many respects, like small number of biopsies and limited to a single center, can give an insight into the prevalence of different benign and malignant diseases related to histopathological specimens in the locality of Malakand division of Pakistan. Further large scale studies involving multiple centers and large cohort of population is needed to determine the

prevalence of both benign and malignant diseases in the locality.

CONCLUSION

The study concluded that biopsies taken for different diseases are more prevalent to female reproductive system and the prevalence of different diseases is low in male as compared to female. Histopathological evaluation of biopsies is the gold standard for the early detection of lesions especially malignancies. Hence it helps in their timely diagnosis and correct management.

ACKNOWLEDGMENTS

We are thankful to Professor Dr. Anwar Ali and Anwar Clinical Laboratory (Anwar Hospital swat) for allowing us to access information.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Khan A: Main idea, Practical work (Data collection & preparation).

Khattak M: Literature review, Discussion.

Saleem K: Statistical analysis, Literature search, Conclusion.

Khan SA: Critical review of manuscript.

Khan MA: Bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

FREQUENCY AND DETERMINANTS OF DENTAL CARIES IN LOCAL INHABITANTS OF A RURAL DISTRICT OF KHYBER PAKHTUNKHWA PAKISTAN

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ABSTRACT

Objective: The objective of this study was to assess the frequency and determinants of dental caries in local inhabitants of a rural district of Khyber Pakhtunkhwa Pakistan

Materials and Methods: A cross-sectional survey was conducted in Lower Dir District of Khyber Pakhtunkhwa from September 2018 to February 2019. After taking ethical approval and informed consent from the participants, a total of 149 male adults were assessed regarding the frequency and determinants of dental caries through a self-developed survey tool validated by experts. The study participants were assessed for dental caries by a qualified dental surgeon and data was entered in Microsoft Excel, analyzed, and presented in form of tables.

Results: Our results revealed that 59.73% of the study population was in the age range of 25-45 years, 16.78% had a monthly income of less than Rs. 15000 and 48.99% were illiterate. Moreover, 69.13% were aware of the causes of dental caries, 69.80% used toothbrushes, 25% brushed their teeth twice daily, and 54.36% used fluoride toothpaste. Furthermore, 70.47% had a preference for sweet foods and carbohydrates, and 54.36% had poor oro-dental hygiene.

Conclusions: One-third of the studied population was suffering from dental caries. The different determinants identified in the survey were low socio-economic status, illiteracy, poor tooth brushing practices, and the use of fluoride toothpaste. Moreover, sweet food preference and oral hygiene status were frequently seen in patients with dental caries. Effective preventive, promotive, and curative services are needed to reduce dental caries and their complications.

Key Words: Dental Caries, Toothbrush, Oro-Dental Hygiene.

This article may be cited as: Naeem M, Ishtiaq M, Hussain A, Ijaz B, Iftikhar B, Marwat I. Frequency and Determinants of Dental Caries in Local Inhabitants of a Rural District of Khyber Pakhtunkhwa Pakistan. J Med Sci 2021 January;29(1):30-33

INTRODUCTION

Oral and dental hygiene is one of the significant aspects of body fitness and thus has a strong role in physical, social, and mental well-being[1]. The prevalence of dental caries varied among the countries and showed a strong difference between the developed and developing countries; and ranged from 2% to 20% among developed and up to more than 60% among the developing countries[2, 3]. Dental caries are a widespread disease, affecting billions of people worldwide[4].

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The burden of dental caries varies among different Asian regions and has 35% to 72% prevalence among Eastern, Western, and Southern Asian countries[5]. Dental caries critically impact the health and development of children[6]. Research showed that there is a strong relationship between oro-dental hygiene status and parental knowledge, attitude, and perceptions[7]. Moreover, some etiological factors of dental caries are; fluids with a high quantity of sugar, honey, or sugar used for sweetening purposes, and unhealthy dental and mouth hygiene status[8, 9].

It affects 50% of populations in any country[10]. An international study showed a consistent positive association of dental problems with risk factors like sweet food items[11,12]. There is also a strong relationship between breastfeeding and dental problems, and a study revealed a nonlinear relationship between duration of breastfeeding and dental problems[13].

Dental caries are a common health problem among local communities of Pakistan. This survey aimed to assess the frequency of dental caries and their risk factors among male adults of District Lower Dir, Khyber Pakhtunkhwa Pakistan. The findings of this study will help the clinicians in developing strategies to prevent and treat dental caries in the local population.

MATERIALS AND METHODS

This descriptive cross-sectional survey was conducted from September 2018 to February 2019 in the Lower Dir District of Khyber Pakhtunkhwa. After taking ethical approval from the institute and informed consent from participants, a total of 149 male adults were surveyed regarding the frequency & determinants of dental caries. Only male adults and permanent residents of district Lower Dir were included. The District Lower Dir has a population of 1.44 Million with a total area of 1582km^2. The survey tool was developed and validated by expert discussion and pilot testing among 15 participants. The survey questionnaire comprised of two sections, in which one was related to the demographic variables like age, monthly income, education status, number of children of participants, and home conditions, while the second section had ten survey items, of which six had yes/no responses and the remaining four items had three responses. The study participants were assessed for the presence or absence of dental caries by a qualified dental surgeon with more than five years of clinical experience. Data were analyzed in Microsoft Excel and presented in tabulated form.

Table 1: Demographic Characteristics of the Study Population (n=149) Of District Lower Dir

Demographic Variables	Results	Frequency	%
Age Groups	15 - 25 years	34	22.82
	25 - 35 years	51	34.23
	35 - 45 years	38	25.50
	46 & above	26	17.45
Monthly Income	< 15000	25	16.78
	15000 - 25000	46	30.87
	25000 - 35000	33	22.15
	> 35000	45	30.20
Educational Status	Illiterate	73	48.99
	Middle	35	23.49
	Secondary	27	18.12
	FA/BA & Above	14	9.40
House Structure Made of	Cemented	105	70.47
	Mud etc	44	29.53
No of Children	1 & 2	78	52.35
	3 & 4	43	28.86
	> 4	28	18.79

RESULTS

The demographic characteristic of the study population was shown in Table No 1. The frequency of dental caries among the study population was 31.54%. The determinants of dental caries among the study population are shown in Table No 2.

Table 2: Determinants of Dental Caries among Study Population (n=149) District Lower Dir

S.No	Survey Items	Response	n=149	
			Frequency	(%age)
1	Do you know the causes of dental caries?	Yes	103	69.13
		No	46	30.87
2	Do you have any dental problem currently?	Yes	16	10.74
		No	133	89.26
3	Do you toothbrush teeth?	Yes	104	69.80
		No	45	30.20
4	Frequency of your toothbrush use per day	1 time	71	68.27
		2 times	27	25.96
		> 2 times	6	5.77
5	You use fluoride toothpaste	Yes	81	54.36
		No	68	45.64
6	Frequency of fluoride tooth paste you use per day	1 time	48	59.26
		2 times	27	33.33
		> 2 times	6	7.41
7	Do you prefer carbohydrate and sweets?	Yes	105	70.47
		No	44	29.53
8	Do you consult dentist regularly?	Yes	65	43.62
		No	84	56.38
9	When you consulted dentist for yourself?	For problem	51	34.23
		Regular	14	9.40
		None	84	56.38
10	Status of oral hygiene	Poor	81	54.36
		Satisfactory	48	32.21
		Good	20	13.42

DISCUSSIONS

In our study, the frequency of dental caries was found to be 31.54%, where internationally the prevalence ranges from 20 to 50%[5, 14, 15, 16]. Our study findings are consistent with a study conducted in Saudi Arabia, where the frequency was 30.22% [1].

In our study, 83.22% had a monthly income of more than PKR 15000. This population showed a lower

frequency of caries which is consistent with international studies that highlight the relationship of high income with lower risk of dental caries[17, 18]. Moreover, the education status played a great role in the development of dental caries, as educated families had better opportunities and had less prevalence of dental caries as was reported by our study in which more than half of the study population was educated and thus showed less prevalence [12].

International studies revealed that education plays a positive relationship with improved oral hygiene[3,19]. Moreover, food intake is an indirect tool to determine dental caries in a family or community. In our study, only 29.53% of families were following healthy food diets whereas in an international study, 92% of participants were following healthy foods[1]. Many international studies showed the same significant relationship of sugars-based diet preferences with dental caries[20, 21]. Furthermore in our study, 66.67% of children used fluoride toothpaste, and thus had less frequency as compared to studies which showed 98.5% and 86%[10, 22].

Our study was limited to a single district and had fewer participants which limit its generalizability. Further large-scale multicenter cohort studies are needed to find the causal effects of these determinants in causing dental caries.

CONCLUSIONS

One-third of the studied population was suffering from dental caries. The different determinants identified in the survey were low socio-economic status, illiteracy, poor tooth brushing practices, and the use of fluoride toothpaste. Moreover, sweet food preference and oral hygiene status were frequently seen in patients with dental caries. Effective preventive, promotive, and curative services are needed to reduce dental caries and their complications.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

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Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

FUTURE PERSPECTIVES OF DPT STUDENTS IN PAKISTAN

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ABSTRACT

Objectives: To explore the current trends, challenges and future perspectives of physiotherapy in terms of social awareness, job availability and career orientation in Pakistan

Material and Methods: A cross-sectional study was conducted on 200 physiotherapy students at Rawalpindi Medical University Rawalpindi, Benazir Bhutto Hospital Rawalpindi and Maroof International Hospital Islamabad for 6 months. Non-probability convenience sampling was used. Fresh graduates of physiotherapy and postgraduate students studying physiotherapy were included in this study. All the students having experience of more than 3 years and students other than physiotherapy profession were excluded. Questionnaire was designed with responses according to Likert scale from strongly agree to strongly disagree. Statistical analysis was done using SPSS 21.

Results: The results showed agreement of 49% participants with the fact that social unawareness of physiotherapy field is one of the major factors affecting its scope. Whereas, 33% participants strongly agreed that poor referral by physicians influences this awareness among people.

Conclusion: Physiotherapy in Pakistan is at its developing phase and needs a lot of improvement. There are limited job opportunities and limited education facilities in institutes, leading to increased stress and career insecurity in physiotherapy students.

Key words: Physiotherapy, future perspectives .

This article may be cited as: Yaseen I, Aftab A, Malik R, Sheraz S. Future perspectives of DPT students in Pakistan. J Med Sci 2021 January;29(1):34-37

INTRODUCTION

Physiotherapy, a branch of health sciences, is a profession focused on assessment, diagnosis and function of human movement and functions maximizing its potential[1]. Physiotherapy uses physical techniques to promote, maintain and restore physical, psychological and social well-being, taking into account variations in health status[2].

According to Al-Eisa et al., in the past few years, physiotherapy has been known for the best way of treatment to eliminate dependency and disability, but the field is yet to be recognized in an effective manner[3].

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Presently, there is no regulatory authority in the country to regulate and standardize this profession. Although there is much work done in private sector regarding role and importance of physiotherapy in today's challenging health care environment but in public sector, there is minimal facilitation for professional therapists. The graduates from Pakistan are serving other countries with satisfactory performance but physiotherapists in Pakistan are victims of low wages and lack of jobs specifically on clinical side[4]. Keeping in mind the importance and need of physiotherapy, students decide to adopt this profession but unfortunately, the current situation in the country forces fresh graduates to go abroad for better future.

According to the estimates of health sector and future tendencies of public medicine, the degree in physiotherapy is in the race for a greater future internationally[5]. Though there is an intensive need of specialized people who should provide treatment for physical rehabilitation of human beings, but lack of interest in students due to deficient recognition and job unavailability leads to avoidance of choosing physiotherapy as a profession.

Accordingly, highlighting the challenges faced by fresh graduates, very few researches have been conducted regarding job orientation and social recognition of the field. In 2014, Dahl-Michelsen stated that in developing countries, the future of physiotherapy field is continuously evolving[6]. However, there are few factors which need greater attention of both physiotherapy associations and government initiatives to introduce the field appropriately. Researchers have further stated that lack of professional ethics, insufficient training for graduates, lack of awareness in public and absence in development of rehabilitation measures greatly influence rehabilitation process[7]

Along with other major challenges, inadequate education standards in third world countries are one of the biggest challenges for physiotherapy students. Most of the universities or colleges in developing countries are offering physiotherapy programs without any practical and scientific knowledge, which not only develops deficiency of knowledge among the students but also develops hesitation in healthcare society to recognize them as professional doctors of specific profession[8].

There is a lack of research particular to future perspectives and challenges of physiotherapy faced by students and fresh graduates in Pakistan. Fewer studies have been conducted on social awareness of physiotherapy. In this context, this study was aimed to explore the current trends, challenges and future perspectives of physiotherapy in terms of social awareness, job availability and career orientation.

MATERIAL AND METHODS

A cross-sectional study was conducted at Rawalpindi Medical University Rawalpindi, Benazir Bhutto Hospital Rawalpindi and Maroof International Hospital Islamabad for 6 months. Non-probability convenience sampling was used and a sample size of 200 was selected as calculated by the WHO calculator. Fresh graduates of physiotherapy and postgraduate students studying physiotherapy were included in this study. All the students having experience of more than 3 years and students other than physiotherapy profession were excluded. The survey was conducted after taking participants' consent. Ethical considerations were kept in mind while designing the questionnaire and conducting the survey. Questionnaires among 200 students were distributed to examine the current trends, future perspectives and awareness about physiotherapy. Questionnaire was designed with Likert scale responses (from strongly agree to strongly disagree). Statistical analysis was done using SPSS 21 to analyse findings and interpret the results.

RESULTS

Among these 200 participants in the study, 95 (47%) were male and 105 (53%) were female. One-hundred and eighty seven of these participants had working experience of less than 1 year in physiotherapy field, whereas 13 participants had up to 3 years of experience.

DISCUSSION

Physiotherapy is an emerging field and has been shown to have a positive effect on outcome of physically disabled patients. Physiotherapy is regarded as lucrative white collar profession in western countries. Physiotherapy is among the hall marks of rehabilitation but students have to face a lot of challenges here in Pakistan[9]. Graduates still have fear about their future even after studying for five years because they are hired at low wages which is not sufficient enough. This behaviour is increasing further frustrations among them. Students are being graduated and in the meantime not finding relevant jobs, that leads to stress and career insecurity. In such cases, students get depressed. In 2011, a study conducted by Fisher reported a lack of job structure and well trained teachers[10]. Similar is the case in Pakistan where 87% participants agreed that due to lack of professional mentoring, students have problems performing up to their limits. Unawareness and mentoring is interrelated; people are unaware thus they are not interested towards getting training and guidance in this field. They are unaware of its role and importance and are not guided by professionals appropriately for choosing the right path and building their career in an effective manner. Regarding these challenges faced by graduates, Higgs and his colleagues indicated in their research that physiotherapy field has always been full of challenges for the students and professionals whether getting job or moving ahead in the field[11]. A study conducted in Qatar in 2017, indicated that unfavourable contracts and low pays are two of the major challenges faced by physiotherapists in Qatar[12]. This is similar to the results of current study as 68% participants agreed that limited numbers of jobs are there with low pay rates; however, no such questions were asked regarding employment contracts. Lack of clinical facility leads to job unavailability and disappointment among the students. In 2014, a national study conducted by Babur et al., found that although few universities of Pakistan have introduced this field during recent years and incorporated research at undergraduate level but social awareness and job opportunities have not been up to the mark as compared to other countries[9]. Similar result has been shown by this study as 70% participants agreed that though, physiotherapy education started more than a decade before, but the field still needs recognition. Again, the main point is awareness and recognition whether it is about students or public; if the students are well aware of its importance, they can convey it to the people in the field. Similarly, if people are well aware of it, they can consider it a way of treatment while having related health issues. So, there is a connection between awareness and recognition among students and public that should be considered by the government. It was mentioned in the 8th world

Table 1: Trends among Physiotherapists

No	Questions	Strongly Agreed	Partially Agreed	Neutral	Disagreed
1	Social unawareness of your field is one of the major factors affecting the scope of field	49%	27%	21	3%
2	Poor referral by physicians also influences people awareness related to physiotherapy	33%	38%	17%	12%
3	Government or health administration is taking positive steps to enhance awareness among people	17%	21%	17%	45%
4	Due to long recovery time, people lose interest in therapeutic treatments	28%	37%	11%	24%
5	Though, physiotherapy education started more than a decade before, but the field still needs recognition	22%	48%	12%	18%
6	Overcrowding of private institutes in physiotherapy field can develop the issue of job unavailability due to limited number of vacancies offered by government and private health institutes	28%	23%	15%	34%
7	The limited number of jobs and access to clinical health settings enhance the possibility of social and financial stress to meet career objectives	24%	44%	16%	16%
8	Government and other stakeholders are taking interests to enhance the recognition of physiotherapy field	16%	23%	34%	27%
9	Due to social unawareness and health care lack of interests, the graduates confront difficulties in finding job and private practice	21%	39%	18%	22%
10	Limited access to knowledge acquisition facilities such as clinical facility raises concerns of knowledge deficiency in graduates	16%	45%	14%	25%
11	In order to enhance practical knowledge students must have clinical facility where they can implement the theoretical knowledge and learn by exposure	50%	33%	4%	13%
12	Due to lack of professional mentoring, students have problems performing up to their aptitude	38%	49%	3%	10%
13	Private institutes are offering education at low eligibility standards which ultimately results in production of incompetent resource	14%	49%	11%	26%
14	Due to high fee structure of private institutes, considerable amount of investment for knowledge acquisition is required	28%	43%	17%	12%
15	Recent awareness activities in physiotherapy field are promoting the scope and future perspective	17%	39%	22%	22%

physiotherapists summit conducted in Japan (2018) that physiotherapy across the globe has gone through positive changes with enhanced career opportunities for fresh graduates. Whereas the situation in Pakistan is different as per current findings, 60% participants agreed that due to social unawareness and lack of interests, the graduates confront difficulties in finding job and private practice. This situation is worsening progressively and government must take measures to save this profession. Institutions offering this degree do not meet the requirements except a few ones. Government should ban such type of institutions which are wasting time and money. This is what the current study also refers to; as 63% participants agreed that private institutes offering education at low eligibility standards are ultimately resulting in production of incompetent physiotherapists.

According to the findings, people are less aware of physiotherapy, its role and importance and only 38% participants agreed to this fact that government is taking initiatives to improve awareness among people. Likewise, a study conducted to find awareness among high school students concluded that not much awareness regarding physiotherapy career is there[13]. In addition, it was found that measures are required to improve awareness regarding physiotherapy[14].

DPT is an honoured degree worldwide. It is one of those degrees that will be in demand in coming years. To uplift this field in Pakistan and to open new vistas for national and international cooperation, government and owners of physiotherapy societies should engage themselves whole-heartedly. In this regard, only 39% participants in this study agreed that the government and other

stakeholders are taking interests to enhance the recognition of physiotherapy field.

Although Pakistani government is taking initiative to some extent to promote the scope of physiotherapy, however social unawareness, job unavailability, lack of clinical facilities are yet to be considered. Physical therapy practice has moved to direct access instead of referral of the patients both internationally as well as nationally. This puts a great responsibility on the shoulders of the physical therapists to be well equipped with knowledge and skills to serve the humanity.

CONCLUSION

Physiotherapy in Pakistan is at its developing phase and needs a lot of improvement. There are limited job opportunities and limited education facilities in institutes. Social unawareness and lesser opportunities thus result in increased stress and career insecurity in physiotherapy students and graduates. At the same time, overcrowding of private institutes and lack of clinical facilities are required. However, mass advertisements of the potential benefits of physiotherapy can lead to increased number of job opportunities and better growth of the profession.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

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Sheraz S: Proof reading, bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

ASSESSMENT OF TEACHING OF CLINICAL SKILLS IN PEDIATRIC DEPARTMENT OF A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: The aim of this study was to assess the clinical teaching activities in pediatric department of Khyber teaching hospital by finding the prevailing and preferred teaching methods for year 05 MBBS students.

Material and methods: This cross-sectional survey about teaching methods using a validated questionnaire was conducted in the Department of Child Health Khyber Teaching Hospital Peshawar, Pakistan. The survey was conducted including all the year 05 MBBS medical students who completed their pediatric rotation. Descriptive statistical analysis was applied using SPSS 20.

Results: In pediatric department of Khyber Teaching Hospital 200 students of year 05 MBBS completed their 4 weeks of clinical rotation. Bed side teaching was reported to be most frequently used for psychomotor domain i.e. history taking (43.1%), systemic examinations (47.4%) and procedural skill (35%) while 95% of the students preferred direct observation of their skill performance followed by a debriefing session. Regarding affective domain counselling (66.4%) and breaking bad news (3.5%) was taught by didactic method (48.9%) while students preferred role modelling (21.9%) along with lectures (27%).

Conclusion: Considering the responses given by students they preferred to be actively involved during patient encounters and given feed-back during their year 05 MBBS.

Keywords: Teaching methods, Direct observation of procedural skills (DOPS).

This article may be cited as: Amir S, Munir A, Ahmed F, Mahboob U, Shah IA, Muhammad J. Assessment of teaching of clinical skills in Pediatric department of a tertiary care hospital. J Med Sci 2021 January;29(1):38-41

INTRODUCTION

In the wake of emerging pressures of competency based medical education (CBME), all the institutions are focusing on developing a curriculum to effectively teach knowledge, attitude and skills for safe and effective performance of future physician[1,2,3]. Competencies are descriptors of the skills or a person's performance in the three domains[4]. In Pakistan the road map for undergraduate medical education is a seven star doctor[5].

The educational goal of clinical teachers is to ensure that students are prepared for effective and safe patient-centered care[6]. Thus the traditional system, relies on expert practitioners to pass their knowledge to students. However, there is an increasing awareness of pedagogies and clear-cut teaching strategies that scaffold student learning, rather than relying on transmission of knowledge[7].

Clinical teaching evaluation has been the subject of much discussion among educators, researchers, and administrators in medical schools concerned with the quality of clinical teaching. Students surveys are used evaluate teaching methods and to develop the ones which are more effective[8]. Evaluation through feedback from students regarding the prevailing system of teaching method in pediatric clinical teaching will improve quality of teaching[9].

MATERIAL AND METHODS

This cross-sectional study was conducted in the Department of Child Health Khyber Teaching Hospital Peshawar, Pakistan. The study was conducted from April 2019 till November 2019. The study was approved by the Institutional Ethical research board of Khyber Medical College, Peshawar. All the year 05 MBBS students who completed their 4 weeks rotation in pediatric medicine were

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Date received: 03-11-2020
Date revised: 17-01-2021
Date accepted: 22-02-2021

included. Consent was taken from the students, purpose of the study and any clarification needed about the questionnaire was given to the students at the end of their rotation. The identity of the students was kept anonymous. Non consenting students were excluded

The validated questionnaire consisted of two parts, part 1 was about the prevailing and preferred teaching methods of psychomotor domain (history taking, general physical examination and systemic examination, procedural skills). Four options were given for the prevailing methods used for each skill which were didactic method, bed side teaching, direct observation and any other method used. For the preferred teaching methods 5-point Likert scale was used for the teaching methods of history taking, general physical and systemic examination and procedural skills.

Part 2 of questionnaire was separately used for affective domain. Dichotomous (yes/no) question whether communication skills was taught or not, the topics covered and the preferred teaching methods. The questionnaire was piloted on 44 students year 05 MBBS and their results was not included in the data collection. The data was collected by giving questionnaire to the year 05 MBBS students at the end of their rotation after taking consent and the data collected was analyzed on SPSS version 20.

RESULTS

A total of 200 students from year 05 MBBS were included in the survey, out of which 137 responsed. Regarding the prevailing teaching methods, the survey showed that bed side teaching was the most frequently used method for teaching history taking of 59 students (43.1%), general physical and systemic examination 65 students (47.4%). The procedural skill 48 (35%) was explained at bed side on patient or by didactic lectures.

Teaching affective domain (non-technical skills) was by didactic lectures 52(38%) followed by bed side teaching. Direct Observation of the students while history taking, doing examination and procedural skills was least common. Some of the students reported other teaching methods like directed self-learning, teaching by and learning from residents by observing them. The prevailing teaching methods are shown in table 1, 2 and 3.

The survey showed that 69 students (39.4%) of year 05 MBBS students preferred direct observation of their history taking skill followed by feed-back (figure 1). For procedural skills 61 students (44.5%) preferred direct observation of procedural skills in real life or practice on a mannequin followed by debriefing (figure 2).

For General physical and systemic examination 95 (69.3%) of students preferred direct observation (figure 3). year 05 MBBS medical students reported no formal topic being specified for the affective domain. Counseling and to some extent breaking bad news was taught to them through lectures (table 4, 5). The students were either clueless, or preferred role modelling along with didactic lectures for learning affective domain (table 6).

Table 1: Prevailing teaching methods for history taking in pediatric unit

Teaching method	Number(n) of positive responses	Percentage
Didactic method	21	15.3
bedside teaching	59	43.1
direct observation of the students	25	18.2
others	32	23.4
Total	137	100

Table 2: Prevailing teaching methods for GPE and systemic examination in pediatric unit

Teaching method	Number(n) of positive responses	Percentage
Didactic method	6	4.4
bedside teaching	65	47.4
direct observation of the students	34	24.8
Others	31	22.6
Total	137	100

Table 3: Prevailing teaching methods for GPE and systemic examination in pediatric unit

Teaching method	Number(n) of positive responses	percentage
Didactic method	32	23.4
bedside teaching	48	35.0
direct observation	24	17.5
Others	32	23.4
Total	137	100.0

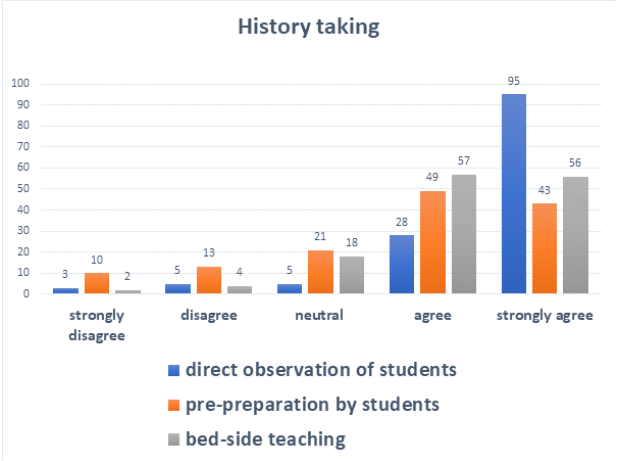

Fig 2: Preferred teaching method by students for history taking.

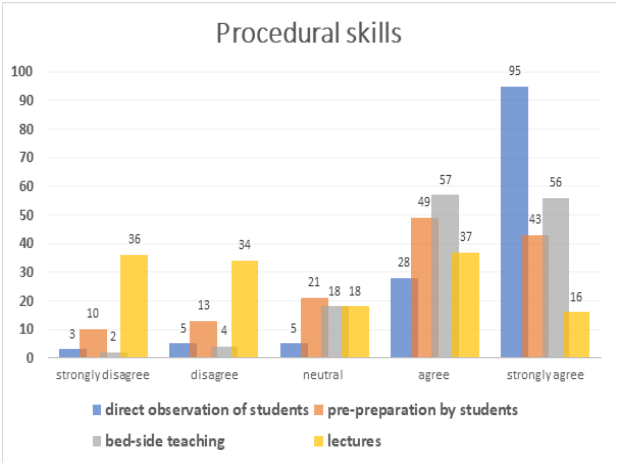

Fig 2: Preferred teaching method by students for procedural skills

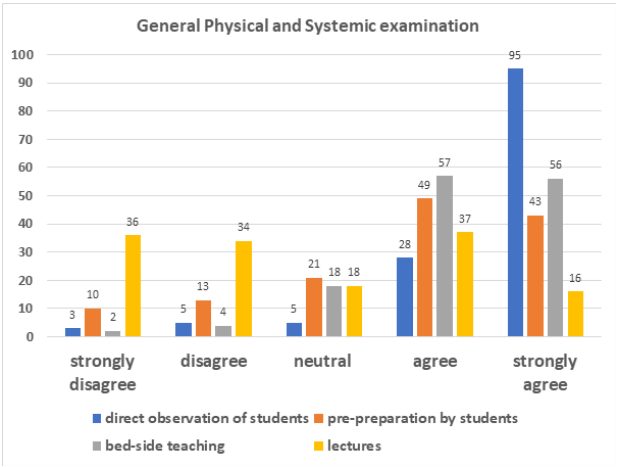

Fig 3: Preferred teaching method by students for teaching General physical and systemic examination

DISCUSSION

Teaching hospitals provide a key learning environment for the education of medical students[7]. In pediatric units, teaching occurs alongside patient care and service delivery. Effective clinical teaching in pediatric setting is multifactorial, exceeding ordinary teaching and is portrayed by motivating, supporting, actively involving, and communicating with students[10].

In our study the students reported that the prevailing teaching method was bed side teaching for history taking, physical examination and procedural skills and didactic lectures for communication skills. Remmen R et al reported that clerkship is usually didactic with passive involvement of the students which affects their performance in residency[11]. While in a systematic review by peter M and Olle ten Cate, though bed side teaching is passive but is favored by students, teachers and even enjoyed by patients. It improves certain clinical diagnostic skills in medical students and residents[12]. Similarly Z Qureshi et al reported that bed side teaching is experiential learning which facilitates teaching/learning of attitudes and skills related directly to the patient who are present during the learning exercise[13]. The decline in bedside skills is because of devaluation by medical students and young doctors as well as inadequate faculty development. Proper planning and removal of barriers to bedside teaching will promote this skill[14]. Modeling of clinical encounters has been shown to improve both physical examination and procedural skills, and can be effective for teaching humanism and professional values[15].

Teaching Procedural skill in a safe environment is an essential component of paediatric clerkship for year 05 MBBS students, but opportunities to teach are limited[16]. The students in our study reported didactic lectures being used in paediatric unit for clinical skills teaching. Remmen R and et al pointed out in a study that passive roles are delegated rather than active participation to undergraduate medical students in their clinical settings as well[11]. J Dehmer et al reported that their students were also given didactic lectures though followed by simulation. Limited exposure to live patients as well as no active participation in procedural skills was also reported in this study[16]. Therefore students are not prepared for their residency and are nervous while performing clinical skills. The students reported that counselling and breaking bad news were the topics taught to them in pediatric unit by didactic lectures. The same is mentioned by Sourya Acharya et al that in the traditional clinical teaching methods, didactic lectures followed by question and answers are used to teach affective domain[17]. The 5th year students preferred direct observation of clinical skills (history, physical examination and procedures). Gozie Offiah et al also stressed that deliberate practice needs to be encouraged by emphasizing on direct observation and focused feedback to reinforce the skills acquired in the simulated setting[18]. For procedural skill the students preferred direct observation of procedure followed by feed-back and practice on mannequin (simulation). Simulation plays a vital role in teaching procedural skill and is a requirement of integrated teaching and CBME. It will ensure students' competency prior to residency. Simulation can never replace actual patient encounters though it reduces anxiety of newly inducted residents[19]. Thus a combination of simulation and actual patient encounter will provide competent physicians who achieve mile stones of entrustable professional activities[16,20].

Teaching affective domain was preferred through didactic lectures and role modelling in our study. By observation of role models, and participation in activities, students develop their attitudes, values and professional competencies[21]. Role modeling is a powerful form of learning and an integral part of medical education. Role modeling as an outstanding educational approach has been recommended for enhancing humanism and professionalism in medical education[22]. Teachers and residents must be made aware of this power teaching strategy and its components for a positive effect[23].

CONCLUSION

The year 05 MBBS students prefer direct observation of skills followed by debriefing session rather than bedside teaching to achieve competencies in psychomo-

tor skills and role modeling for affective domain during clerkship in pediatric department. It is a survey relying on students reporting about the prevailing and preferred teaching methods which may be biased.

Strategies and futuristic plans need to be implemented during clerkship of year 05 MBBS so that as residents the students' competencies can be trusted. An interventional study is required to evaluate the change in attitude, skills and behavior of students after teaching them by the preferred teaching methods.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Amir S: Concept and Design.

Munir A: Acquisition and critical review.

Ahmed F: Analysis and interpretation of data.

Mahboob U: Concept and Design.

Shah IA: Data collection.

Muhammad J: Proof reading.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

ANALYZING PATIENT SATISFACTION WITH REGARDS TO PROVISION OF FREE MEDICINES IN KHYBER PAKHTUNKHWA PAKISTAN

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ABSTRACT

Objective: To measure the association between provision of free medicines and patient satisfaction with regard to new health policy.

Materials and methods: A total of 384 sampled respondents (admitted patients, Male/Female) who visited the OPD for surgical and medical components were selected through random sampling technique from three public teaching hospitals namely, Khyber Teaching Hospital, Hayatabad Medical Complex and Lady Reading Hospital in district Peshawar Khyber Pakhtunkhwa respectively. A conceptual framework consisted of independent variable namely provision of free medicines and a dependent variable patient satisfaction was tabulated and analyzed through chi-square test statistics. The multi-variate analysis of the study intimated a non–significant association between patient satisfaction and provision of free medicines controlling family type and it was found a non-spurious relationship while comparing at bi-variate level.

Results: The findings revealed that any health policy with provision of special attention to patients by taking along the relevant stakeholders does yield the desired results. All these provisions may include the services with a strong mechanism of monitoring, evaluation based on reward and punishment.

Conclusion: At bi-variate analysis, both dependent and independent variable was indexed and a significant association was found between provision of free medicines and patient satisfaction.

Key words: Provision of free medicine, Patients Satisfaction, Age, Family Type

This article may be cited as: Farid N, Shah M, Ali A, Jan D. Analyzing patient satisfaction with reaards to provision of free medicines in Khyber Pakhtunkhwa Pakistan. J Med Sci 2021 January;29(1):42-47

INTRODUCTION

Access to essential medicine is imperative across the world and a well-functioning health care system needs availability of affordable, appropriate and quality of essential medicine as evident from past experiences which could lonely save 10 million lives both in Africa and Asia[1]. However, it's a challenging factor especially in low and middle income countries[2]. Although, the data can be found in fragmented form, low to middle income countries (LMICs) has reported that essential medicine availability is only 35% in public sectors[3]. Accordingly, World Health Organization (WHO) has affirmed that 68% people have no access to essential drugs in India[4] and this enforces public for out-of-pocket expenses for life saving drugs[5]. Nearly 90% public has to purchase medicine through out-of-pockets payments (OOP) in the developing countries[2] including India where 80 % of public has to buy through OOP's[6].

Access to free of cost essential medicines is a critical component of universal health coverage. This is being considered as a key intervention in Government of India's proposed National Health Assurance Mission in 2014[7].Ensuring availability of free essential medicines significantly reduces the burden on private OOP expenditures. Moreover, it provides financial risk protection to population, most vulnerable to pay catastrophic health expenditures[8]. Every Indian state follows an independent mechanism of procurement of medicines. Various drug procurement models have been implemented for achieving the goals of universal health coverage. This has resulted in lower price and better availability of medicines through efficient supply chain management[9,10]. Tamil Nadu follows a mixed procurement system (80% centralized and 20% decentralized) whereas in Kerala it is completely centralized, for

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Date revised: 02-01-2021
Date accepted: 02-02-2021

acquiring medicines. Moreover, the procurement systems in both the states are completely autonomous with minimal interference of state government. The governance structures created in the two states (Punjab and Haryana) are also very similar to the models followed in Kerala and Tamil Nadu. This has also led to similar processes being followed for inviting the suppliers, pricing, selection of essential medicines, setting up of distribution channels etc[9]. In Pakistan, the frequency of government expenses on health at provincial level including rural and urban areas while applying bio impedance analysis (BIA) methodology evaluated in-depth trends of access to health facilities and spending on health care in Pakistan including discrimination in the utilization of health care resources and service provision by the government. The consequences revealed rural areas are the most deprived and disadvantaged regions regarding the provision of health care facilities. Thus, expenditures in rural areas are wide regressive; whereas, only preventive measures are progressive in Pakistan's health care sectors. Public health expenditure is pro-rich in Pakistan[11].

Additionally, shortages and non-availability of fundamental drugs is a prevailing enigma in Pakistan public health sectors. This reason enforces public to contact private sectors instead of public health sector. There is no transparency and public has to receive the prescription according to physician from his mentioned pharmacy. A minor ratio of public has approach and access to health insurance and medicine costs. So it is evident that most of the medicine cost is out of pocket for the population who are graphed below the poverty level[12]. Other side, Chief Minister has ordered to health sector to ensure the provision of free of cost medicines in health sectors[13]. Conforming to this, KP Public Health sector has spent over one billion on the provision of free treatment to the public under the SehatInsaf Card Program, commenced in Jan 2017 and it will cover 150 million deserving people all across the province[14].

Medical charges and high costs affects feeble mass, affects their financial decisions, and pay out of pockets payments, and irritate them even for their life saving drugs. Medicinal cost affects patients' management behavior, intensify disease, use substandard medicines, dose mutation, and will-impoverish for treatment. Communication gap add to the fuel, including paramedic and professional attitudes also provision of insufficient information programs multiply in Patients complications and recline their access to free of cost medicines[15]. All these mistaken premises might cause in epidemic mortality and threaten fair distribution of health care facilities[16]. Relationship between income and forgone are directly proportional to health, thus the cost barriers not only hindrances in access to health care but it also affects the psyche of patients[19]. Due to the prevailing mismanagement & miss-governance; frugalities in drug supply and equipment non-availability, spoilage of drugs, and misuse of facilities as well as communication gap deny public of health care facilities[20]. Pharmaceuticals entice professionals for corruption which in turn intrudes in the system[21]. This study was conducted to find out patient satisfaction with regard to provision of free medicines to the public of Khyber Pakhtunkhuwa province.

MATERIAL AND METHODS

A total of 384 sampled respondents (admitted patients, Male/Female) who visited the OPD for surgical and medical components were selected through random sampling technique from the three public teaching hospitals namely, Khyber Teaching hospital, Hayatabad medical complex, and Lady reading hospital in district Peshawar Khyber Pakhtunkhwa, respectively. Bivariate and multivariate analysis was carried out and a spurious and non-spurious relation was ascertained through the application of chi-square test.

RESULTS

The results regarding provision of free medicines showed that 48.4% of the respondents disagreed that human right act of essential drug provision is strictly ensured in Pakistan. Sixty three (63%) of the respondents opined that public has access to essential medicines without any bias at primary level. Majority (59.4%) of the respondents agreed that cheap prices of medicines are offered to public in Pakistan whereas 49.7% disagreed about the provision of essential medicines at free of cost to the public, while (38%) argued that those medicines which are available at hospital are provided and some may be barrowed. Majority (71%) of the respondents agreed that high drugs expenses affect public access to appropriate health care. About 61.2% of patients were of the opinion that high cost of standard medicines compels people to use substitute and substandard medicines. Mediocre community faces difficulties in access to essential drugs was supported by (48.7%) of the respondents. Moreover, (75%) of the respondents that mostly market offers bigotry prices of essential drugs.

Majority (84.4%) of the respondents agreed with the statement that in Pakistan approach of middle class to life saving is nothing but a nightmare. Around 58.3% respondents agreed that lack of proper information about drug utilization hampers the treatment of patients, (32.8%) disagreed. This information is indicative of the fact that medicine companies have a vivid monopoly pertaining to regulating and controlling the drug prices. Majority (63.3%) respondents were agreed that non registration of pharmacies leads to substandard medicines. Majority (70%) of the respondents agreed that nonprofessional attitude of drug companies lift the flow of benefit to other stakeholders rather patients. Majority (41%) agreed that provision of medicines is ensured based on revenue gen-

eration rather than requisition.

The association between independent variables and dependent variable was determined with the help of chi square test. Table 1 shows association of provision of free medicines with patient satisfaction. Table 2 shows the influence of age grades regarding the association between patient satisfaction and provision of free medicines, indicated a non- significant (P=0.154) for the respondents with the age group till 25 years. Furthermore, the association between the age groups between 25-35 years was also found a non- significant (0.907). Based on the above results, regarding the age of the respondents, the relationship between patient satisfaction and provision of free medicines was found non- spurious for all categories as results prevailed at bi-variate level. Similarly, the association was found non-significant (P=0.323) and spurious for the age group 55-65 years. Similarly, a spurious and non-significant (P=0.305) was also found for the age group above 65 years. Thus, in a nutshell, significant negative association was observed between patient's satisfaction and free of cost medicine provision at public health sectors evidently reveals the lack of quality health services.

Table 3 disclosed the association between patient's satisfaction and provision of free medicines. A non-significant association (P=0.078) was observed between patient's satisfaction and free of cost medicine provision. In addition, a non-significant (P= 0.219) association was found between patient's satisfaction with provision of free medicines while controlling family type, but it was found a non-spurious relationship while comparing at bi-variate level. By comparing these results with the level of significance at bi-variate level, it was found significant (P=0.02) and non-spurious relationship with the aforementioned variables.

Table 1: Association between Provision of Free Medicine and Patient Satisfaction

S. No	Variables		Chi Square P- Value
1	Human right act of essential drug provision	Provision of free medicine	χ^2: 12.034 (.443)
2	Access to essential medicine at primary level		χ^2: 11.368 (.498)
3	Medicines with cheap prices are offered		χ^2: 33.235 (.001)
4	Essential medicine are provided free of cost		χ^2: 12.716 (.176)
5	High Drugs expenses affect public access	Patient satisfaction	χ^2: 16.933 (.152)
6	Standard Drug prices		χ^2: 16.694 (.161)
7	Mediocre community confronts impediments to access essential drugs		χ^2: 33.250 (.004)
8	Market offers bigotry prices of essential medicine		χ^2: 5.511 (.788)
9	Approach to life-saving drugs		χ^2: 13.193 (.154)
10	Lack of information provision		χ^2: 13.433 (.338)

Table 2: Age wise association between Provision of free medicine and Patients satisfaction

Variables			Chi Square P-Value
Age Group	up to 25	Provision of free medicine	χ^2 = .696 P =0.154
	25.1-35		χ^2 = .064 P =0.907
	35.1-45		χ^2 =.696 P =0.339
	46.1-55	Patient satisfaction	χ^2 =1.000 p =0.302
	55.1-65		χ^2 =.833 P =0 .323
	Above 65		χ^2 =1.000 P =0.305

Table 3: Family wise Association between the Provision of free medicine and patient satisfaction

Variables			Chi Square P-Value
Family Type	Nuclear	Provision of medicine	χ^2 = .847 P =0.078
	Joint	Patient Satisfaction	χ^2 =.461 P =0.219

DISCUSSION

In our study, majority of the respondents were disagreed that human right act of essential drug provision is strictly ensured in Pakistan. This is supported by the findings that access of masses to essential medicines is a part of the human right to health. In Pakistan People do not have access to good quality and affordable medicines[22]. Sixty three (63%) of the respondents opined that public has access to essential medicines without any bias at primary level. The data is contrary to the findings that the provision of essential medicines to the masses does not ensure equitable access[23]. Majority of the respondents were agreed that cheap prices of medicines are offered to public in Pakistan. This was supported with the findings that patient's non satisfaction with the provision of medicines was their non-availability at hospital pharmacy[24]. Medicines availability at public hospitals is a very challenging task and patients are not able to get the required medicines from hospitals and ultimately, they borrowed the prescribed medicines from outside[25]. These results disclosed that pharmaceutical have their major focus on

profiting, rather to extend support to patients in economic terms and mobility standard. These findings are consistent by the study that globally, pharmaceuticals are focusing on earning, and little attention is paid to prevent the disease through their medicines[22]. Moreover, most of the essential drugs are not provided to the patients as per the prescribed ways of distribution which results in lack of the essential commodities in the hands of few thus leading to exploitation of poor's in the shape of unjust distribution and more earnings for these pharmaceutical[26,27,28].

The results of chi square test show a non-significant association between human right act of essential drug provision ensured in Pakistan and patients satisfaction. These are consistent with the findings that essential medicines which are not usually affordable, is the pre-requisite on the part of government in the study area. This was also repugnance by the study that international public health organization has placed a top priority on the provision of effective treatment based on unabated supply of the required medicines[22].

A non-significant association was found between public having access to essential medicine at primary level without bias and patient satisfaction. It could be attributed to the study that due to high prices of medicines and treatment, majority of the poor perceives and expects that the cost of medicine and treatment should be borne by the hospital authority. But the situation is not as much satisfactory as is claimed. A common opinion prevailed in the health care department is concerned with the issue of corrupt practices like hoarding, artificial surge in price and shortage which have hindered the supply chain and has resultantly affected the hospital management efficiency. Consequently, hospitals provide only cheaper medicines and costly medicines are available outside the hospitals. This has made people to deduce that there is scarcity of medicine in the hospitals[29].

A highly significant association was found between medicines with cheap prices offered to public in Pakistan and patients satisfaction. These findings revealed that cheap prices of medicines are maintained in hospitals across Pakistan. These could be attributed to a vibrant national health policy that conspicuously defined and explained the domain of each stakeholder in order to attain maximum efficiency. When a patient evaluates the providers and services of health care, their satisfaction can be marked as patient's satisfaction criteria. Performance and health care programs can be effectively measured by Patients satisfaction[30]. These findings revealed that cheap prices of medicines are maintained in hospitals across Pakistan. The index propounded with reference to community health center shows that (96%) patients are satisfied and (4%) of the patients are not satisfied with the services of pharmacy. However, the attributed fact for dissatisfaction was that medicines were not available at pharmacy or the patient did not purchase from CHC (Community Health Center) pharmacy[25].

A non-significant association was found between essential medicines which are mostly provided free of cost at public sectors hospitals and patients satisfaction. Accordingly, global inequities in accessibility to medicines exist between rich and poor countries because of market and government failures as well as huge income differences. The study indicates that the local (study area) prospects are not free from these in Pakistan. Incidentally, multifarious strategic steps are to be taken to fill the medicine gap at global level[22]. A non-significant association was also found between high drugs expenses affect public access to appropriate health care and patient's satisfaction. A non-significant association was also found in record of expenditure of medicines, France government and its national health care services never explored about the percentage of expenditure for costly medicines that are consumed in hospitals[31].

Similarly, non-significant association was also found between the standard drug prices enforce public for substitute and substandard medicines and patient's satisfaction. A highly significant association between mediocre communities that confronts impediments to access essential drugs and patient's satisfaction. Reduction in disability and death from many diseases can only be made possible by improving the strategies to access good quality treatment. It is the part of those organizations that work for human rights to provide necessary medicine to general public. It is also to make sure that general public avails all the opportunities in order to get effective health results at international level[22].

However, non-significant association was explored between market offers bigotry prices of essential medicines or drugs and patients satisfaction. Similarly, non-significant association was found between approaches to life-saving drugs is a nightmare for feeble and middle class and patients satisfaction. An investigation conducted in the KPK province on part of the health care services in 2002, the figures show that a larger part of expenditure on drugs and medicine indicate 90% privately whereas only 60% of drugs and medicine is salaried by the households. Moreover, non-significant association was also found in lack of information provision regarding drug utilization hampering proper treatment of patients and patient's satisfaction[32].

Poorly trained Pharmacy staff is a crucial issue for managing and supplying medicines at health center service delivery. Different public health facilities e.g. medicine management, supply chain function, flow of logistics information, access to essential medicines improve when availability of medicines improves[33]. Non-significant associations were also found between non-professional attitudes of drugs companies lifting the flow of benefits in form of

other stakeholders rather than patients and patient's satisfaction. Likewise, non-significant association was found between provision of medicine which is ensured on the basis of revenue generation instead of requisition and patients satisfaction. Another study reveals that patients and their care takers are not satisfied[34].

CONCLUSION

At bi-variate analysis, both dependent and independent variable was indexed and a significant association was found between provision of free medicines and patient satisfaction.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Farid N: Concept, study design, discussion, manuscript writing.

Shah M: Critical review, Interpretation of results.

Ali A: Planning of the study, Statistical analysis, Bibliography.

Jan D: Critical review, Manuscript writing.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORIGINAL ARTICLE

TRANS-ABDOMINAL PRE-PERITONEAL (TAPP) REPAIR FOR INGUINAL HERNIAS: A FIVE YEARS EXPERIENCE IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To evaluate the efficacy of Transabdominal pre-peritoneal repair in the treatment of inguinal hernias.

Material and Methods: This retrospective study was conducted in Surgical A Unit, Khyber Teaching Hospital from January 2015 to December 2019. A total 114 patients were included in the study. All of the patients underwent Laparoscopic Trans-abdominal pre-peritoneal (TAPP) repair. After six months follow up, their outcome variables were analysed.

Results: Mean age of the study population was 41 (±7.8 SD) years (range 21-67 years). one-hundred and four patients had unilateral while 10 patients had bilateral hernias. Eighty nine (78.07%) patients had primary hernia while 25 (21.92%) patients had recurrent hernia. Mean postoperative hospital stay was 1.21(±0.3 SD) days. Umbilical port infection was noted in 2 (1.75%) patients while no case of deep/mesh infection was noted. Recurrence was noted in one case only. Chronic groin pain was noted in 5 (4.38%) cases.

Conclusion: TAPP is a safe and effective treatment modality for the treatment of primary and recurrent inguinal hernias.

Keywords: Trans abdominal pre peritoneal, TAPP, Inguinal Hernia.

This article may be cited as: Ahmed N, Nadeem M, Aurangzeb M. Trans-abdominal pre-peritoneal (TAPP) repair for Inguinal Hernias: A five years experience in a Tertiary Care Hospital. J Med Sci 2021 January;29(1):48-51

INTRODUCTION

Inguinal Hernia repair is one of the commonest procedures done in the general surgical practice[1]. The lifetime risk of developing a groin hernia (inguinal or femoral) is 27-43% in men, and 3-6% in women[2]. The history of evolution of the surgical procedures over the last two centuries has been an interesting topic, and the repair options continue to be in the process of evolution[3]. With the advent of laparoscopic surgery, surgeons developed a renewed interest in the understanding of mechanics and pathophysiology of hernia and thus led to the development of laparoscopic procedures for repair of the same. Two laparoscopic procedures have found their way into the guidelines for treatment of hernias; the Trans-Abdominal Pre-peritoneal (TAPP) repair, and the Totally Extra-Peritoneal (TEP) repair[4,5]. These procedures have found an established role in the treatment of primary as well as recurrent hernias[1,6]. The outcome of both TAPP and TEP repairs appears to be similar, therefore, the choice between the two procedures depends mainly on the surgeon's preference and expertise[7,8,9].

Whereas the international studies and guidelines have been documenting the efficacy and safety profile of the laparoscopic techniques, the local data about such experience is limited.

In Khyber Teaching Hospital, the TAPP technique has been in practice for more than seven years. In this study an effort is made to objectively determine the outcome of hernia surgery with this technique.

MATERIAL AND METHODS

This retrospective study was conducted in Surgical A Unit, Khyber Teaching Hospital Peshawar, from 1st January 2015 to 31st December 2019. Records of the patients who underwent TAPP repair were examined for admission data, pre operative diagnosis, presence or absence of co-morbids, operative notes and follow up records. All the patients whose records were complete were included in the study; those patients in whom the follow-up visits were not documented were excluded.

All the procedures were performed under general anesthesia in supine position. The surgeon's position was on the side opposite to the hernia while the monitor's position on the side of hernia. Three port technique was used in all the cases. Abdominal entry was done through

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Hasson's technique via a 10 mm supra-umbilical incision. Two additional 5 mm ports were used in the right and left midclavicular lines, aligned horizontally with the umbilicus. The mesh used in all the cases was 10x15 cm polypropylene macro-pore mesh. Fixation of mesh was done to the anterior abdominal wall at minimum three points and to the Cooper's ligament with titanium endo-tacker (mesh fixation device). Peritoneal defect was closed in all the cases with polyglactin 2/0 continuous suture.

Post-operatively, the patients were kept in ward, and their mobilisation and oral intake were encouraged on the same day. The outcome variables studied were; hospital stay, wound infection, mesh infection, inguinal pain and recurrence.

RESULTS

A total number of 129 patients were operated during the 5 year interval by the principal author (single operator). Fifteen patients were excluded from the study because of absence of follow up documentation. All the patients were male, mean age was 42 ($\pm$7.8 SD) with age range from 21 to 67 years. Characteristics of the hernia are described in Table 1

The mean post operative hospital stay in the patients was 1.21 ($\pm$0.3 days). Umbilical port site discharge was noted in 5 (4.38%) patients, among whom infection was documented in 2 (1.75%) patients. No case of mesh infection was noted among our study population. Recurrence at six months follow up was noticed in one patient.

Table 1: Characteristics of Hernia

Type of Hernia	n	%
Laterality		
Right	62	54.38
Left	42	36.84
Bilateral	10	8.77
Primary/Recurrent		
Primary	89	78.07
Recurrent	25	21.92
Hernia Type (Medial/Lateral/Femoral)		
Hernia Type (Medial/ Lateral/Femoral)	73	58.8
Lateral(Indirect)	41	33.1
Medial(Direct)	10	8.1
Medial/Lateral(Pantaloon)	0	0
Femoral		

Chronic groin pain was reported by 5 (4.38%) of the patients, among them one patient developed osteitis pubis. No mortality was observed in our study.

DISCUSSION

Hernia repair has been one of the greatly debated areas of general surgery. The success of surgical treatment of hernia is generally described in terms of recurrence rates. All the historical improvements in hernia surgery have been aimed at reducing the recurrence[10].

In pursuit of this aim, the most successful intervention strategy used till date has been the introduction of prosthetic mesh. The results of using a mesh have been reproducible and the recurrence rates have been minimized. Therefore, the different hernia treatment guidelines recommend placement of prosthetic mesh as the primary modality of treatment[6]. But with the mesh usage, a different type of subset of complications have been added to the measurement of outcome of hernia surgery i.e. mesh infection and chronic groin pain. In our study, the main outcome variables have been recurrence, mesh infection and chronic groin pain.

We noticed umbilical discharge in 5 (4.38%) cases and swabs were taken from the affected wounds for bacterial culture and antibiotic sensitivity. Among those cases Staphyllococcus aureus was isolated in two (1.75%) cases only. Those cases were treated with Amoxicillin-Clavulinic acid successfully. In the literature, the incidence of port site discharge after laparoscopic surgery has been described, and is often attributed to extraction of specimen[11,12]. As in case of hernia surgery, no contaminated specimen is extracted through the port site. Therefore, the frequency of port site discharge is minimal. For prevention of infection, the recommendations include use of disposable trocars where possible[11]. In our series, we used reusable metallic trocars.

Mesh infection has been a dreadful complication of inguinal hernia surgery. Systemic reviews of TAPP repair reveal mesh infection in up to 0.2% cases[13,14]. In our study, no case of mesh infection was noted. Though a rare complication, its treatment can be a tedious task and could require explantation of the mesh[15].

In our follow up period of six months, recurrence was noted in one (0.87%) case. Recurrence rates of less than one percent have been reported in a variety of studies[13,14, 16].

Chronic groin pain can be a troublesome feature after repair of inguinal hernia. With the advent of the Laparoscopic approach, this incidence seems to be significantly less (2.4% cases experienced limitation in daily activities due to pain) as compared to the open mesh techniques[17]. In our series, we observed chronic pain in 5 (4.38%) patients, among those, one patient had a persistent crippling pain in the inguinal region, limiting his mobility to bed. MRI and CT scan were suggestive of osteitis pubis and the patient responded to a course of Fusidic acid and Ofloxacin. In the literature, numerous cases of the same have been

reported, though the exact incidence remains uncertain and is often attributed to fixation of mesh to pubic bone[18,19].

In our series, we operated on 10 cases of recurrent hernias where the initial surgeries performed were either Lichtenstein (n=7), Bassini (n=1), or had multiple and a variety of repairs (n=2). During the course of surgery, it was noted that for such surgeries, the approach from the intra-abdominal side provided a relatively untouched area with minimal fibrosis and thus making the surgery convenient and all the surgical landmarks easily identifiable. The outcome in these cases was excellent. Perhaps for this reason, various guidelines have recommended the Laparoscopic technique for repair of hernia to be the primary modality of treatment in case of recurrent hernias where the initial surgery has been through the anterior approach[1,6].

CONCLUSION

TAPP (Trans-abdominal pre-peritoneal) repair of inguinal hernia is a safe and effective modality for the treatment of primary and recurrent inguinal hernias. It provides an excellent approach to bilateral hernias. Because of the small percentage of complications, studies with a large sample size would be more appropriate to determine the precise outcome. In our opinion, TAPP repair should be considered the primary modality of treatment for recurrent hernias.

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CONFLICT OF INTEREST: Authors declare no conflict of interest

GRANT SUPPORT AND FINANCIAL DISCLOSURE: NIL

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Ahmed N: Concept, Design, Analysis and interpretation of data.

Nadeem M: Data collection and critical review.

Aurangzeb M: Proof reading.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CASE REPORT

PLEOMORPHIC LIPOSARCOMA PRESENTING AS EXTRA-CARDIAC MEDIASTINAL MASS LEADING TO CARDIAC COMPRESSION

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ABSTRACT

A 45-year-old male presented with a 3-months history of fever associated with dyspnea, orthopnea, weight loss, chest pain, and anorexia. Past history was notable for cigarette smoking of 5 packs per year. Examination findings suggested clubbing, raised jugular venous pulse and pedal edema. Characteristic findings on systemic examination were displaced apex beat, sternal heave, bibasilar crepitations, distended abdomen, and the presence of shifting dullness. Echocardiography revealed an extracardiac mass collapsing mostly the right side of the heart. Later, multidetector computed tomography scan (MDCT) was done which detected a mediastinal mass crossing midline, significantly compressing right sided cardiac chambers, adjacent segments of major arteries and veins, and displaced esophagus to the left. An ultrasound guided biopsy confirmed the diagnosis of pleomorphic liposarcoma. The objective of reporting this case of pleomorphic liposarcoma is to keep our differentials broad when we get cases with typical cardiac symptoms. Sometimes the etiology could be extracardiac.

Key words: Pleomorphic liposarcoma; Mediastinal mass; Extracardiac mass.

This article may be cited as: Badshah A, Khattak ZE, Khan I, Naeem A, Humayun M. Pleomorphic liposarcoma presenting as extra-cardiac mediastinal mass leading to cardiac compression. J Med Sci 2021 January;29(1):52-55

INTRODUCTION

Liposarcomas are the malignant tumors of mesenchymal origin, more common in extremities and retroperitoneum, and rarely arise in mediastinum. People aged 20-70 years are most commonly affected with a peak incidence in the fifth decade of life. They are classified based on histological appearance into well differentiated, dedifferentiated, myxoid (common in children), and pleomorphic. Pleomorphic sarcoma is characterized by a varying number of pleomorphic lipoblasts merged in the background of undifferentiated sarcomatous areas[1,2]. It has a prevalence of 5-10% of all of the liposarcomas[3]. and 1-2% of all mediastinal tumors. They are the most malignant and are initially ignored but signs and symptoms of compression or invasion usually follow later as their size increases. Symptoms vary depending upon the location of tumor[4]. Herein, we describe a mediastinal tumor that mimics the signs of right sided heart failure e.g., edema, raised jugular venous pressure (JVP), breathlessness, distended veins, ascites, and pleural effusion. The tumor is difficult to diagnose on imaging and histopathology due to low adipose tissue content. The key to accurate diagnosis is taking adequate tissue samples from adipose and non-adipose tissues. Our patient presented with symptoms attributable to cardiovascular involvement and nonspecific constitutional signs and symptoms, and an extensive workup was done to reach the final diagnosis.

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Date accepted: 16-03-2021

CASE REPORT

A 45-year-old normoglycemic and normotensive male presented to the medical outpatients with a 3-months history of fever associated with rigors and chills. He also complained of shortness of breath on daily activities. He had lost about 8 kg weight and his weight was down from 74 kg to 66 kg during this period. There was also left sided chest pain and anorexia. Personal history was positive for cigarette smoking of 5 packs per year in the past and disturbed sleep due to orthopnea. He denied any changes in bowel and bladder habits. The past medical history, past surgical history and family history were not significant. On physical examination, he looked quite debilitated. He had a blood pressure of 90/60 mm Hg, pulse 90 beats/minute, temperature 98 F, and oxygen saturation of 96 %. Positive findings on examination included anemia, clubbing involving both fingers and toes, raised JVP, distended neck veins (*see Figure 1*), positive hepatojugular reflux, and pedal edema. No cyanosis and lymphadenopathy were appreciated. On chest inspection, there were intercostal

recessions, and the apex beat was visibly displaced and located along the anterior axillary line in the 6th intercostals space. The sternal heave was positive on palpation. A plueropericardial rub was audible on auscultation. Respiratory examination revealed a central trachea and bibasilar fine crepitations although heart sounds could be heard in lower chest zones when auscultated from the back. The abdominal examination demonstrated a distended abdomen, and positive shifting dullness. There was no hepatosplenomegaly. Central Nervous System examination was generally normal. Baseline investigations were sent to laboratory and we had the following results (*see Table 1*)

Abdominal and Pelvic ultrasound showed mild to moderate ascites and mild left sided pleural effusion. Kidneys on both sides were mildly echogenic. There was a predominantly echogenic lesion seen in epigastrium measuring 11 x 12 cm with no vascularity. On echocardiography, left atrium, left ventricle and right atrium were normal in size but right side was collapsed by an extra-cardiac mass especially at the right atrium and tricuspid valve level. Tricuspid valve was compressed giving a 12mmHg pressure gradient while other valves were normal. Extracardiac mass was collapsing mostly the right side of the heart. Inferior vena cava (IVC) was enlarged without respiratory variation, and there was sluggish flow across it. Moderate mitral regurgitation (MR), mild tricuspid regurgitation (TR) and pulmonary hypertension were noted. Left ventricular systolic functions were good and there was a trace aortic regurgitation (AR).

On multidetector computed tomography (MDCT), there was a large, mainly anterior and mid mediastinal right sided heterogenous attenuation mass crossing midline, extending to the left involving pericardium and significantly compressing right cardiac chambers, adjacent segments of superior vena cava, IVC, descending thoracic aorta, left atrium, right sided pulmonary veins, and also compressed and displaced esophagus to the left (*see Fig 2*). There was minimal pleural effusion, and left lower lung ground had glass haze. A small sub centimeter hypodense focus in the left hepatic lobe was found, which was indeterminate on a single phase study. Prominent mildly enlarged mediastinal nodes at sub-carinal aortopulmonary window and perivascular compartment were also noticed. Moreover, limited abdominal sections showed ascites and edematous liver.

Finally, an ultrasound guided biopsy of the mass was carried out that showed cores of fibro adipose muscular tissue showing a high grade sarcoma interspersed with multinucleated lipoblasts, and 10-20 mitoses were seen in a single focus. A diagnosis of pleomorphic sarcoma was made based on the report. *Table 2* enlists the common pathological lesions found in different locations in the mediastinum. A cardiovascular surgeon was involved keeping in mind the clinical picture and after interpreting the imaging scan and biopsy findings. The tumor could not be excised due to the extensive nature of the procedure involved; therefore, the patient was referred to oncology unit for chemotherapy.

DISCUSSION

Liposarcomas are the malignant adipocytic tumours of mesenchymal origin and mediastinum is an uncommon site of such tumours. In the mediastinum, it is thought to arise from adult thymus or from mesenchymal cells capable of lipogenesis. WHO in 2002 classified liposarcomas based on histological types such as well differentiated, dedifferentiated, myxoid (common in children), pleomorphic, and mixed type. five to ten percent of all of the liposarcomas and 1-2 % of all mediastinal tumors are pleomorphic liposarcomas. They are the most malignant and contain variable number of pleomorphic lipoblasts. Areas of lipogenesis differ in different tumours, and sometimes pleomorphic lipoblasts are very scanty in number making it difficult to reach the diagnosis[5]. Prognosis is worse if centrally located, big in size (>10cm), and with high mitotic index[6].

Table 1: Baseline investigations of patient.

Hb	**12.23g/dl (11-16g/dl)**
WBC count	11,200/cmm
Platelets	389,000/cmm
MCV	76fl
Total Bilirubin	0.57mg/dl
ALT	35.8U/l
ALP	257U/l
Creatinine	0.53mg/dl
Serum albumin	2.43mg/dl
ESR	80mm/1st hour
INR	1.3
PT	4 seconds prolonged
APTT	6 seconds prolonged
Serum Electrolytes	WNL
HBsAg (ELISA)	Non-reactive
Anti-HCV (ELISA)	Non-reactive

Hb (Hemoglobin), WBC count (White blood cell count), MCV (Mean Corpuscular Volume), ALT (Alanine Transaminase), ALP (Alkaline Phosphatase), ESR (Erythrocyte Sedimentation Rate), INR (International Normalized Ratio), PT (Prothrombin Time) APTT (Activated Partial Thromboplastin Time), WNL (within normal limits), HBsAg (Hepatitis B surface antigen), anti HCV (anti Hepatitis C Virus)

Table 1: Differential diagnoses of a mediastinal mass

	Lesions	Fluid	Fat	Vascular
Anterior	Thymic Lymphoma Germ Cell Goiter	Thymic Cyst Thymoma Pericardial Cyst Germ Cell Lymphoma	Germ cell-b Thymolipoma Fat pad	Thyroid Cardiac Coronary arteries
Middle	Lymph nodes Duplication Cyst Arch anomaly	Duplication Cyst Necrotic nodes Pericardial recess Retroperitoneal	Lipoma Esophageal Fibro Vascular polyp	Arch anomaly Azygous vein Vascular nodes
Posterior	Neurogenic Bone and marrow	Neuroenteric Cyst Schwannoma Meningocele	Extramedullary Hematopoiesis	Descending aorta
>1 compartment	Infection Hemorrhage Lung Cancer	Lymphangioma Mediastinitis	Liposarcoma	Hemangioma

Fig 1: Distended neck veins and raised JVP

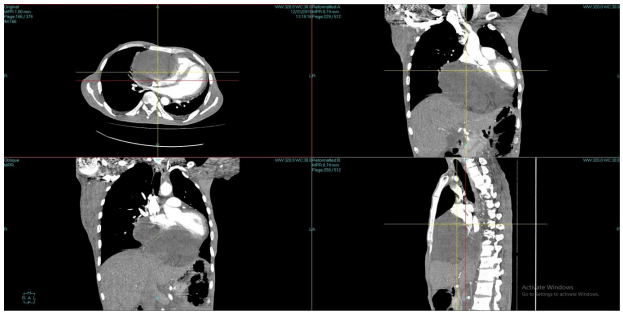

Fig 1: Distended neck veins and raised JVP

Pleomorphic liposarcoma is asymptomatic at the early stage, but compression and visceral invasion develops as the tumor grows. Tumours located in mediastinum present as edema, raised JVP, breathlessness, distended neck veins, ascites and pleural effusion. Pleomorphic liposarcomas recur and metastasize frequently. The five-year survival rate is reported as 60%[5]. Imaging such as CT/MDCT, Magnetic Resonance Imaging (MRI), and ultrasound are important before surgery to stage and grade the tumor[4]. Morphologically, these tumours are defined by the presence of multivacuolated pleomorphic lipoblasts, and immunostaining usually identifies S100 protein as the major protein in lipoblasts. Molecular features comprise of complicated karyotypes, and commonly TP53 and RB1 gene inactivation. To confirm the diagnosis, biopsy samples are taken from adipose and non-adipose tissues.

Complete surgical excision is the mainstay of treatment. Tumours that are unresectable are debulked to relieve symptoms. Recurrence of deep seeded mass is very common after surgery so radiotherapy is also given in some cases[7]. In certain aggressive cases, adjuvant chemotherapy is employed in addition to surgery. However, there is no consensus on the use of routine radiotherapy and chemotherapy, and proper guidelines are not available to date[8].

CONCLUSION

It can thus be concluded that not all patients presenting with symptoms attributable to involvement of cardiovascular system actually have cardiac conditions. Rarely extra cardiac masses can also manifest as dyspnea and chest pain. Advanced investigations and involvement of interventional radiologists for image guided biopsy help in reaching a diagnosis in such cases.

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INSTRUCTIONS FOR AUTHORS

Manuscript Submission

The Journal of Medical Sciences follows the uniform requirements for manuscripts submitted to Biomedical Journals as approved by the International Committee of Medical journal Editors as updated in Oct. 2004 and available at www:icmje.org. Manuscripts are accepted for consideration if neither the article nor any of its contents has been or will be published or submitted elsewhere before appearing in Journal of Medical Sciences.

Manuscript Formatting Guideline

While submitting the document on JMS website, the authors are advised to follow the following guidelines:

1) Always use MS Word format. Don't send any tables in JPG format.

2) Always use Calibri fonts.

3) use 12 size fonts.

4) Double space the manuscript.

5) Justify the margins

6) Keep the main headings bold and in size 14.

7) No extra spaces between paragraphs.

8) Black text on white background only.

Title and Authors Name

The first page of the manuscript must give the title of the article that should be concise and descriptive. Also include on this page the name(s) of the author(s), highest academic degrees, the name of the department and institution in which the work was done, the institutional affiliation of each author, and the name and address of the author to whom reprint requests should be addressed.

Any grant/support that requires acknowledgement should be mentioned on this page. Abstract's word count and article (excluding references) word count should appear at the bottom of this page.

Abstracts

Abstract must not exceed 250 words and the **article must not exceed 3000 words** (excluding references). Articles exceeding the word count or not conforming to "Instructions for authors" will be returned without processing. It is further emphasized that results must not be duplicated in text/tables/figures/graphs.

Key words

Three to 10 key words or short phrases should be added to the bottom of the abstract page. Terms from the Medical subject headings (MeSH) list of Index Medicus should be used.

Introduction, Material and Methods, Results, Discussion, Conclusion, Acknowledgments and references should all start on a separate page from page 03 onwards.

References

The total number of references in an original article must not exceed 40 while in the review articles maximum limit is 100. References must be written double-spaced and numbered as they are cited in the text.

The references must be written in Vancouver style. The style for all the types of references is given in the "Uniform requirements for manuscripts submitted to biomedical journals" at the website of International Committee of medical journal editors. **www.icmje.org**

List all authors when there are six or fewer. If there are more than six, list the first six followed by "et al".

Tables and Illustrations

Each of the tables and illustrations should be on a separate page, must have a title and be on a double space.

Figures should be professionally designed. Symbols, lettering and numbering should be clear and large enough to remain legible after the figure has been reduced to fit the width of a single column. The back of each figure should include the sequence number, the name of the author and the proper orientation (e.g. "top"). If photographs of patients are used, either the subjects should be unidentifiable or their pictures must be accompanied by written permission to use the figure. Duplication of results given in tables and into figures must be avoided.

Ethics

When reporting experiments on human subjects, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (Institutional or regional) and with the Helsinki Declaration of 1975, as revised in 1983. Do not use patients names, initials, or hospital numbers especially in illustrative material. When reporting experiments on

animals, indicate whether the institution's or a national research council is guide for, or any national law on the case and use of laboratory animals was followed. No article will be entertained without prior ethical approval from ethics committee/ board.

Units of Measurements

Authors should express all measurements in conventional units, with System International (SI) units given in parentheses throughout the text.

Abbreviations

Except for units of measurements abbreviations are discouraged. The first time an abbreviation appears it should be preceded by the words for which it stands. However title and abstract must not contain any abbreviation.

Statistics

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible quantify findings and present them with appropriate indicators of measurements error or uncertainty (such as confidence intervals). Avoid relying solely on statistical hypothesis testing, such as the use of ρ values, which fails to convey important quantitative information. Discuss the eligibility of experimental subjects. Describe the methods for and success of any binding of observations. Report complications of treatment. Give numbers of observations. Report losses to observation (such as dropouts from a clinical trial). Specify any computer programs used.

Put a general description of methods in the Methods Section. When data is summarised in the Results Section, specify the statistical methods used to analyse it. Restrict tables and figures to those needed to explain the argument of the paper and to assess its support avoid non technical uses of technical terms in statistics, such as "random" (which implies a randomizing device) "normal" significant, "correlation", and sample.

Define statistical terms, abbreviations, and most symbols.

Drug Names

Only generic names should be used.

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Short report of cases, clinical experience, drug trials or adverse effects may be submitted. They must not exceed 500 words, 5 bibliographic references and one table or illustration. The report must contain genuinely new information. The format is title, abstract, introduction, case report, discussion, references.

Review and Action

All articles on receipt for publication are immediately acknowledged but that does not imply acceptance for publication.

Submitted manuscripts are reviewed for originality, relevance, statistical methods, significance, adequacy of documentation, reader interest and composition. Manuscripts not submitted according to the instructions will be returned to the author for correction prior to beginning the peer review process. All manuscripts considered suitable for review are evaluated by a minimum of two members of editorial board. The manuscripts is then sent to two or more than two reviewers who may take a couple of months time to review the manuscript. The ultimate authority to accept or reject the manuscript rests with the Editor.

Revised manuscripts are judged on the adequacy of responses to suggestions and criticisms made during the initial review. All accepted manuscripts are subject to editing for scientific accuracy and clarity by the office of the Editor. When the manuscripts is deemed fit for publication, letter of acceptance is issued to the author. No article is rejected unless similar comments are received from at least two reviewers.

FOR DETAILS, SEE OUR EDITORIAL POLICY IN THE NEXT SECTIONS

AUTHORS` AGREEMENT

Journal of Medical Sciences (KMC Peshawar pISSN 1997-3438)

ArticleTitle_____

The undersigned author (after reviewing criteria for authorship as defined by International Committee of Medical Journal Editors [ICJME] found at 'http://www/icmje.org/' and have participated reasonably in the intellectual content, analysis of data and writing of the article) jointly and severally, hereby transfer and assign all rights, title, and interest therein, including any and all copyrights in all forms and media now or hereafter known, to the Journal of Medical sciences. The author/s retain the nonexclusive right to use part or all of the article in future work of their own, provided proper credit is given to the Journal of Medical Sciences. In case, the submitted article is not published, the Editorial Board agrees to release its rights therein.

I certify that

A) None of the material in the manuscript has been published previously/currently under consideration for publication elsewhere.

B) The article has not been accepted for publication elsewhere

C) I have not signed any right or interest in the article to any third party

D) I am able/willing to produce the data on which this article is based, should the Editorial Board of the Journal of Medical Sciences request such data.

E) Animal Care Committee/Institutional Review Board approval was granted for this study.

I (including spouse and children), disclose financial interest at the level

a) Nothing to disclose b) Financial interest to the amount of _____

F) I/We confirm to comply fully with the suggestions/critical views of the reviewers/editor, failing which my/our article may be rejected at the sole discretion of the editor. I/we further confirm that if our article is rejected (whihc is the sole discretion of the editor) I/we will have no right to complain against the journal/editor/ representative of the journal/printer in any forum including the court of law.

G) I/we suggest the following two overseas reviewers to review our article.

1) _____	_____	_____
2) _____	_____	_____
Name of reviewer	Postal address	Email address & Telephone No.

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Note: Author agreement form must be signed by each author (one page for each) and submitted with the article.

Author's Checklist:

i) Eliminate nonstandard abbreviation in the titles
ii) Supply full author names (including institutional affiliation and contact informations)
iii) Contribution of individual authors
iv) Nomination of first 3 co-authors by the principal author
v) Abstract: 200 words, Article: 2000 words (excluding references).
vi) Supply references in Vancouver style, accurately cited in the text in numerical order
vii) Cite tables in the text in numerical order
viii) Send 03 Hard copies and on a R/W CD (in MS Word), in a protective envelop, do not use clips
ix) Cite figures in the text in numerical order
x) Author agreement is signed by all authors.
xi) Departmental Permission Letter for the study.
xii) Letter of ethical review of concerned hospital/study place.
xiii) Bank draft for Rs. 5000/- (Rs. Five Thousand) in the name of Journal of Medical Sciences, Peshawar, Pakistan/or deposit in cash with Managing Editor Account No. 4048685170 (3548-9) Can be transferred ONLINE to the Account No. 4048685170 (3548-9) Branch Code 0388 at National Bank of Pakistan, University Campus Branch, Peshawar.

EDITORIAL POLICY

EDITORIAL POLICY OF JOURNAL OF MEDICAL SCIENCES (JMS), KHYBER MEDICAL COLLEGE, PESHAWAR

OVERVIEW

This document highlights the mission, objectives and editorial policy of JMS in regard to publication process by adhering to the guidelines by COPE (Committee in Publication Ethics) and ICMJE (International Committee of Medical Journals Editors). Each component of the editorial policy is explained in the next sections.

A MISSION OF JMS

To publish relevant, scientific and accessible material to help medical students and health professionals in their practice, teaching and learning, and career development

B OBJECTIVES OF JMS

a To publish clinical, epidemiological, public health, educational, translational, and allied sciences research to enable the scientists, clinicians and researchers to learn about developments and innovations in these disciplines

b To publish high quality descriptive and experimental research, review articles, editorials and case reports to enhance the understanding of scientific community regarding clinical practice and education

c To provide a platform for scientific community in promoting their career development through publishing quality research

C EDITORIAL POLICY

1 Open access

JMS is an Open access scholarly literature source that is free of charge and often carries less restrictive copyright and licensing barriers than traditionally published works, for both the users and the authors. However, it complies with well- established peer review processes and tries to maintain high publishing standards.

2 Peer review process

The review process of JMS is following a "triage approach". Upon submission of a manuscript, either online or physical, the document undergoes a preliminary open (un-blinded) review in the office of the chief editor. The document is either accepted for further review, sent for revision back to the authors, or rejected at that time. Further review of JMS is following a blinded approach, where the article is sent to 2 reviewers, a local and international. During this process, all the relevant information about the authors and reviewers is kept confidential. However, we encourage to share reviewers' comments with co-reviewers of the same paper in a blinded manner, so reviewers can learn from each other in the review process. We also encourage the readers to send us the post publication reviews about a research work in the form of letters to the editors, which are then published and shared with the authors of relevant articles. The editorial board has the authority to retract an article if serious violation of credibility or quality of research is found after the article is published.

The journal is under no obligation to send submitted manuscripts for review, and under no obligation to follow reviewer recommendations, favourable or negative at all times. The editor of a journal is ultimately responsible for the selection of all its content, and editorial decisions may be taken by issues unrelated to the quality of a manuscript, such as suitability for the journal. An editor can reject any article at any time before publication, including after acceptance, if concerns arise about the integrity of the work.

3 Authorship

According to the ICMJE criteria, authorship is based on 4 criteria; (1) conceptualization and designing, (2) AND, data collection, (3) AND, writing and critical review, (4) AND, taking responsibility for the authenticity and integrity of all the research process. All those designated as authors should meet all these 4 criteria. The

co-authors should declare their roles and contributions in the research process explicitly. Those who do not meet all 4 criteria should be ACKNOWLEDGED only. If agreement cannot be reached about who qualifies for authorship, the institution(s) where the work was performed, not the journal editor, should be asked to investigate. If authors request removal, addition or change in the sequence of an author after manuscript submission or publication, journal editors should seek an explanation and signed statement of agreement for the requested change from all listed authors and from the author to be removed or added. The corresponding author is the one individual who takes primary responsibility for communication with the journal during the manuscript submission, peer review, and publication process. The corresponding author typically ensures that all the journal's administrative requirements, such as providing details of authorship, ethics committee approval, clinical trial registration documentation, and disclosures of relationships and activities, are properly completed and reported.

4 Submission of manuscript

The manuscript should be submitted through journal website which is using the Online Journal System (OJS) along with the Institution research and ethics board (IREB) certificate. The article should have the following format:

4.1: The abstract should be structured with word count of not more than 250 words. 4.2: The fonts should be Calibri, with size 12, and spacing of 1.5, with justified margins in MS office format.

4.3: The whole document should not be more than 3000 words (excluding references and appendices).

4.4: The number of figures and tables should not exceed 5 in the whole document.

4.5: The pictures and tables should be black and white in color.

4.6: Copied pictures and tables from other sources will not be entertained, unless a written approval from the original researcher and publisher is provided

5 Institutional research and Ethics board (IREB) certificate

Under no circumstances, an article will be accepted if approval from the relevant ethical board / committee is not taken before the start of a research. The board / committee should assess the proposal of a research in both ethical and technical aspects before giving a certificate of approval.

6 Conflict of interest

To ensure transparency in the research conduction, writing and publication, the authors, peer reviewers and editors have to declare conflicts of interest regarding financial aspects, academic competitions, and relationships during writing, reviewing and publishing the manuscripts. Details of sponsors along with their roles and access to data should be clearly stated.

7 Confidentiality

The editorial board in no way should publicize the work of a researcher in any form unless it is published. They should not publicize the comments and critique given by reviewers. Similarly, the reviewers are bound to keep the confidentiality of the work of researchers during and after the review. The work of researchers and the critique should never be discussed or exemplified in forums. The confidentiality of the researchers should be maintained in every possible way when the documents are sent for review. However, our review process is open (non-blinded) in the first phase, as per policy of the journal. In this case, the policy is clearly displayed on journal`s website for the researchers. Reviewers must not retain the manuscript for their personal use and should destroy paper copies of manuscripts and delete electronic copies after submitting their reviews. If a manuscript is rejected, it should be deleted from the editorial system. If an article is published, the manuscript along with its reviews and other relevant documents should be retained for a period of 3 years and then deleted. The only situation where confidentiality needs to be breached is when a situation of fraud or misconduct is found during the review process or after publication. Still, the authors and sometimes the reviewers, have to be notified.

8 Correction and retraction of articles

The guidelines for correction and retraction of articles are as follows:

8.1: A specific page is allocated in the journal (both electronic and printed) that will be used for news related to corrections in articles published in previous journals.

8.2: The editor should also post a new article version in the journal with details of the changes from the original version and the date(s) on which the changes were made.

8.3: Previous electronic versions will prominently note that there are more recent versions of the article (that will be placed at the end of abstract). Similarly, the more recent version should be cited by the authors or others.

8.4: If the error is judged to be unintentional, and the underlying science appears valid, and the changed version of the paper survives further review and editorial scrutiny, then retraction with republication of the changed paper, with an explanation, allows full correction of that research paper.

8.5: If serious violation of credibility or quality of a research paper is found after the publication, the article has to be retracted after approval of at least 3 members of the editorial board in consultation with chief editor. The whole process will follow the guidelines presented by Committee on publication ethics (COPE).

8.6: The retracted article should clearly be notified on the website and the word "retracted" should be mentioned along the title of the article.

9 Correspondence

Correspondence for submitting an article in JMS will be through a corresponding author. The duties of a corresponding author have already been presented in a previous section. Correspondence regarding debating an article is given high value and a separate page for letters to the editors has been allocated. Derogatory and demeaning letters are screened and letters which promote debates and critique are encouraged to be published. However, correspondence about the articles published in the last 1 year will be included only.

10 Fee submission process

The editorial board in a recent meeting has fixed a fee of 7000/- Rs (Pakistani), for local authors and 250 $ (US) for international authors. The fee should be submitted at the time of submission of paper in the office of managing editor, and if the paper is rejected at any stage, and will be non-refundable.

11 Roles of editorial board, editors and members

The editorial board of JMS is following the Higher Education Commission (HEC) policy for research journals. The roles of the editorial board for JMS are mentioned below:

11.1: The roles of the Editorial Board are:

11.1.1: To offer expertise in their specialist area

11.1.2: To review submitted manuscripts

11.1.3: To advise on journal policy and scope

11.1.4: To work with the Editor to ensure ongoing development of the journal

11.1.5: To identify topics for special issues of the journal or recommend a Conference which would promote the journal, which they might also help to organize and/or guest edit

11.1.6: To attract new and established authors and articles

11.1.7: To submit some of their own work for consideration, ensuring that they adhere to Conflict of Interest rules and stating their relationship to the journal. This is very important as the journal cannot be seen to publish only papers from members of the Editorial Board.

11.1.8: It is important that Editorial Boards have a regular communication forum with other boards of similar nature, either face to face in person (depending on their country of origin, funding availability, etc.) or as more journals are doing today, communicating by teleconference, Skype or other web platforms.

11.2: The Patron is usually the Dean of the institute, and is overall incharge of the

journal, who needs to be kept informed of the decisions taken by the editorial board. The patron is the final authority to approve the decisions and policies of the editorial board.

11.3: The Chief Editor:

11.3.1: The criteria for selection of Chief Editor are:

i. Expertise and experience in the specialist field related to the journal

ii. Publication record of a number of articles and /or books (usually in / related to the specialist field)

iii. Being a reviewer for an international peer reviewed journal

iv. Senior research position with equivalent experience in research and scholarship

v. Enthusiasm to undertake the Editor role

vi. Preferably a diploma, master or doctoral degree in Education and Research. It is not necessary to fulfill all the criteria to become a chief editor.

11.3.2: The roles of Chief Editor are:

i. The key role of a journal`s chief editor is to promote scholarship in the specialist field associated with the journal, whilst also promoting the journal as the best journal to publish in. For any journal, the editor will need to encourage new and established authors to submit articles and set up a reliable panel of expert reviewers. Editors are also responsible for offering feedback to reviewers when required and ensure that any feedback to authors is constructive.

ii. An editor should also familiarize themselves with the Committee on Publication Ethics (COPE) 'Code of Conduct and Best Practice Guidelines for Journal Editors'.

iii. Depending on how the journal is managed and how it is structured, an Editor may have to make all the decisions regarding which articles to accept or reject for publication.

11.3.3: Managing editor:

The roles of manging editor are:

i. To help the chief editor to achieve the above-mentioned goals

ii. To communicate with the authors, reviewers, publishers and other agencies for smooth running of the journal

iii. To regularly evaluate the research work

iv. To communicate with funding and regulating agencies (HEC and others) for grants and accreditations.

11.3.4: Executive editor:

The roles of executive editor are:

i. To evaluate the research articles presented for publication

ii. To help the editorial board in policy making

iii. The help the editorial board in smooth publishing

iv. To communicate with reviewers and collaborate with external agencies for relevant purposes

11.3.5: Section editors:

Section editors are allotted different responsibilities. Some of these are mentioned below:

i. Bibliography

ii. Proof-reading

iii. Academic writing reviewing, grammar and spell checking

iv. Dissemination of articles for review

v. Contact with publishers under the supervision of senior editorial team

vi. Training of future reviewers, young members and other faculty members

vii. others

11.3.5: Editorial advisory board:

Editorial advisory board members consist of national and international senior academicians, researchers, clinicians and others to help the current ed-

itorial board in designing, implementing and evaluating policies regarding upgrading the quality of research work. These people also share best practices to help the editorial team to refine their research work.

12- Policy regarding recruitment and continuation of editorial board Policy for recruitment and continuation of the editorial board is based on the guidelines discussed in the previous section. The chief editor, managing editor and executive editors are recruited by the patron in-Chief. Members are then selected by them from amongst the faculty who have an aptitude for research, and their names are endorsed by the patron. The tenure of editorial board is decided by the Patron after a period of 3 years whether to continue or recruit a new team or member. The editorial advisory board members are recruited for indefinite period by the editorial team of JMS.

13 Plagiarism policy

The journal is following the plagiarism policy of Higher Education Commission of Pakistan, and for this purpose, a plagiarism standing and review committee has been established under the chairmanship of Chief Editor of JMS along with 4 members amongst senior faculty. The committee has been given the authority to review research papers and plagiarism complaints related to published work in the journal.

14 Contact information

The office of managing editor or chief editor should be contacted anytime in working hours or can be contacted through their emails for correspondence.

15 Journal funding

Main funding of the journal is from HEC, which provides funds once on yearly basis and it depends upon the category of HEC recognised journals. We also receive funding from our institute on need basis. Another source of funding is through research paper processing fee amounting to Rs: 7000/- or 250 US$ (for overseas researchers). We also receive funding through annual subscription by different national libraries amounting to 5000/- annual (500 US$ for overseas libraries).

REFERENCES

1. ICMJE recommendations
2. COPE guidelines
3. SCOPUS

This document is developed by including the recommendations of ICMJE (2019) and COPE guideline and in case of any conflict, lack of clarity and ambiguity, the recommendations of latest ICMJE recommendation and COPE will prevail.

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