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ETHICAL REVIEW OF RESEARCH PROPOSALS IN KHYBER MEDICAL COLLEGE: AN EYE OPENER

It was the last Thursday of the month and being a member of our institute's (Khyber Medical College/Khyber Teaching Hospital) Institutional Research and Ethical Review Board (IREB), I was attending the meeting. As usual, various research proposals were discussed; some were accepted and some sent for revision. Majority of proposals belonged to postgraduate trainees working in different clinical disciplines. It was during that session that I had a "Penny-Drop Moment", an epiphany. Me and the other members including our chairman have noticed that the quality of research proposals presented by the postgraduate students of College of Physicians and Surgeons of Pakistan (CPSP) are not of adequate standards. It was evident from the proposals that research in public sector hospital is not focusing on implementation of heath programs and their operational challenges. Research in surgical specialties has lost focus on quality clinical trials and students are presentating low quality descriptive studies. The basic science researchers lean on clinical fields, as exploring the basic anatomy, physiology and molecular biology seems like a herculean task.

The studies being conducted were of very low quality and focused on clinical audits and frequency of different diseases. Among the studies discussed, few included "finding frequency of hypokalemia in gastroenteritis" and "finding frequency of anemia in COPD patients". Majority of (about 65) research proposals' titles started with the word "frequency" during the past 2 years of my experience in these meetings. Moreover, studies are directed towards counting the diseases or conditions in individuals rather than exploring the pathophysiology and management aspects of these. No one is interested in the "How" but everyone is chasing the "how many". Probably because the "How" is a harder target to hit, most likely due to lack of research culture in our institutes.

The trinity of research involves the researcher, the journal and the ethical review board. It is the responsibility of the researcher to attain the ethical approval certificate before commencement of research.[1] The ethical boards need to scrutinize the proposal both technically and ethically before acceptance. And lastly, the journals need to make sure that they demand an ethical certificate from the corresponding author at the time of submission of manuscript. A glitch in any of these three may lead to a poor quality product.

So the Institutional Research and Ethical Review Board members had a discussion regarding this issue and we tried to look at the causes. The leading factor, everyone agreed to, was; lack of training in research conduction. Although, the CPSP conducts a mandatory research workshop for trainees,[2]. But the question arises. Is 2-3 days of research training enough? Moreover, trainees of some of the specialties like Gynaecology and Obstetrics are overworked. So due to time constraints, it becomes difficult to come up with good quality research what to say about the research expertise of supervisors. Another reason is the lack of funding on part of the institutes. The trainees and faculty get no financial support whatsoever for completing their research. Hence, research is only done for the sake of fulfilling the CPSP requirements towards obtaining the fellowship and ultimately the standard of research is compromised.

The amusing part here is not only the research conduction but it has come to knowledge of board that, most of the trainees don't even know that after writing a proposal the initial step is to get approval from ethical board. They seek IREB approval after full proposal acceptance by CPSP; hence, leaving the board with no other choice but to accept the proposal due to limitations of stay of postgraduate students in a teaching hospital.

Among the solutions, one can be to increase training duration of workshops on "research conduction ethics and methodology" for all the researchers particularly the trainees, or to probably conduct 2-3 detailed workshops on the same topic. Another solution is to allocate funds for research projects in a competitive manner. Setting up of a much strict standards by CPSP for research conduction can also be an option utilized to promote research. Probably what we need is, something like the Flexner's report of 1910, which suggested to incorporate the scientific research as an essential component of medical curriculum in USA.[3]

Pakistan Medical Research Council (PMRC) now known as the Pakistan Health Research Council (PHRC) was established more than 55 years ago in order to patronize, promote and fund medical research in Pakistan.[4]

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But it has yet to meet the Millennium Development Goals (MDGs) regarding health and in particular research in health which will eventually affect the plan of action to eradicate polio and HIV; to reduce maternal and child mortality; and to curb the outbreak of infectious diseases.[5] It does offer funding up to 200,000 rupees to individual researchers on competitive basis; however, the criteria and proper advertisement is yet to reach the ordinary researchers. And the whole process is so cumbersome that majority of researchers prefer spending from their own pockets on projects or doing low quality research.

In conclusion, whatever may be the cause a little more effort on part of the researchers, cooperation from the institutes and patronage by the government can solve the issues plaguing research in our region.

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CEPHALOSPORIN RESISTANCE IN TYPHOID AND PARATYPHOID INFECTIONS - AN ALARMING SITUATION

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ABSTRACT

Objective: To determine the frequency of resistance to third generation cephalosporins in use i.e ceftriaxone and cefixime in patients with typhoid and para typhoid infections.

Material and Methods: This longitudinal observational study was conducted at Khan Research Laboratories Hospital, Islamabad from June 2019 to Nov 2019. All patients presenting with fever having positive blood culture for salmonella typhi or paratyphi A were included. Patient's febrile period, duration of hospital stay and days of antibiotics given were also recorded. Age, gender, Salmonella serovar and sensitivity to 11 antimicrobial drugs were taken into account. The tested antimicrobial drugs were ampicillin, trimethoprim/sulphamethoxazole, chloramphenicol, nalidaxic acid, ciprofloxacin, ofloxacin, levofloxacin, ceftriaxone, cefixime, imipenem and azithromycin. Data was analyzed using statistical package for social sciences version 22 (SPSS 22).

Results: Out of 125 patients 80 (64.0%) were males while 45 (36.0%) were females. 110 (88%) patients had salmonella typhi on blood culture while 15 (12%) had salmonella paratyphi A. 35 (28%) isolates were resistant to ceftriaxone and cefixime. All isolates were sensitive to imipenem and azithromycin. Majority of patients (68%) stayed in hospital for 8 to 10 days.

Conclusion: Cephalosporin resistance in enteric fever is rising. An earlier blood culture result is mandatory to prevent complications in all resistant cases.

Keywords: Typhoid, Salmonella, Ceftriaxone, drug resistance, Pakistan, azithromycin.

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INTRODUCTION

Typhoid fever is a systemic infection caused by Salmonella typhi and Salmonella paratyphi A. It is a major public health concern in developing nations. Globally, 14·3 million cases of typhoid and paratyphoid fevers occurred in 2017 with estimated 135·9 thousand deaths from typhoid and paratyphoid fever globally in 2017.[1]

South Asia has the highest cases of typhoid fever. Among the 16 countries in Asia where typhoid is prevalent, inhabitants of the Punjab and Sindh provinces of Pakistan were at the highest risk of developing typhoid.[2]

With the development of multi-drug resistance (resistance to ampicillin, chloramphenicol, co-trimoxazole) in Salmonella enterica serovar Typhi and Paratyphi A, Fluoroquinolones were the drug of choice. Subsequently fluoroquinolone resistance was noted in nearly 90% of S Typhi and S Paratyphi isolates.[3] The treatment of ciprofloxacin-resistant typhoid infection is now limited to third- and fourth-generation cephalosporins, azithromycin, tigecycline and penems.[4]

Third generation cephalosporin such as ceftriaxone, cefotaxime and cefoperazone have been used successfully to treat typhoid fever , with courses as short as 3 days showing similar efficacy to usual 10 to 14 days regimens. Excellent response rates have been reported when administred for 5 to 7 days[5,6]

Although ceftriaxone remains the most effective drug for typhoidal Salmonella isolates, with susceptibility of almost 100% over the past 15 years, ceftriaxone resistance was observed for the first time in 2011.[7] Ceftriaxone resistance has remained rare, with <1% of strains resistant during 2009–2014 in Pakistan.[8] Since 2016, outbreaks of extensively drug resistant S Typhi strains that are resistant to ceftriaxone and cefixime have been reported in parts of Pakistan.[8]

The Extensive drug resistant Salmonella Typhi (XDR Typhi) strain is only susceptible to azithromycin and carbapemens. Azithromycin should be used to treat patients with suspected uncomplicated typhoid fever who have traveled to or from Pakistan. Patients with suspected

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severe or complicated typhoid fever (which includes encephalopathy , intestinal perforation , peritonitis , intestinal hemorrhage or bacteremia with sepsis or shock) and who have travelled to or from Pakistan might need to be treated with carbapenem.[9]

Azithromycin, is still active against extensively drug-resistant typhoid; however, further genetic mutation could make typhoid untreatable in some areas.[10]

Azithromycin reduces the clinical failure rate and duration of hospital stay in comparison to fluoroquinolones and relapse rate in comparison to ceftriaxone, when used in the treatment of typhoid fever in populations with multidrug resistant typhoid fever.[11]

Without further understanding of the mechanism of drug resistance and development of strategies to control for resistance, treatment of typhoid and paratyphoid infections are likely to become the real future challenge.

The rationale of this study was to highlight the emerging resistance to cephalosporin which till now was the standard to treat typhoid and paratyphoid infections in Pakistan.

MATERIAL AND METHODS

This longitudinal observational study was conducted at Khan Research Laboratories Hospital, Islamabad from june 2019 to Dec 2019. All patients presenting with fever having positive blood culture for salmonella typhi and paratyphi A were included. Patient's febrile period , duration of hospital stay and days of antibiotics given were also recorded. Age, gender ,Salmonella serovar and sensitivity to 11 antimicrobial drugs were taken into account.The tested antimicrobial drugs were ampicillin, trimethoprim/sulphamethoxazole,chloramphenicol, nalidaxic acid, ciprofloxacin, ofloxacin, levofloxacin , ceftriaxone ,cefixime, imipenem and azithromycin. Data was analyzed using statistical package for social sciences version 22 (SPSS 22).

RESULTS

Out of 125 patients 80 (64.0%) were males while 45 (36.0%) were females. This is shown in table 1. Table 2 shows pattern of bacterial growth. Table 3 shows emerging resistance to third generation cephalosporins . All isolated pathogens were sensitive to imipenem and azithromycin. Table 4 shows hospital stay of patients

Table 1: Gender distribution

Gender	No of Patients & % ages
Male	80 (64.0)
Female	45 (36.0)
Total	125 (100.0)

Table 2: Patteren of bacterial growth

Salmonella serovar	Frequency & % ages
Salmonella typhi	110 (88.0)
Salmonella Paratyphi A	15 (12.0)
Total	125 (100.0)

Table 3: Cephalosporin resistant

Antibiotics	Frequency & % ages
Ceftriaxone, cefixime sensitive.	90 (72.0)
Cetriaxone, cefixmie resistant.	35 (28.0)
Total	125 (100.0)

Table 4: Hospital stay of patients

Hospital stay	No. of patients with %ages
Upto 7 days	%25.6) 32)
8 to 10 days	%68.0) 85)
11 to 14 days	%6.4) 08)

DISCUSSION

Extensively drug resistant (XDR) typhoid fever is emerging in Pakistan, raising the fear of antibiotic failure globally. The cause of drug resistance can be attributed to misuse of antibiotics which are available over the counter and their uncheck use without proper prescription.In our study salmonella typhi was positive in 88.0% patients and paratyphi 12.0%. No other strains were identified. These results were comparable with other studies. S. typhi vs. S. paratyphi A (57.8% vs. 41.6%)[12], (77.3% vs. 22.4%)[13] and(83.8% vs 16.2%).[14] In this study 28% patients were resistant to ceftriaxone and cefixime. All were sensitive to imipenem and azithromycin.

In a study from Agha Khan University including 101 cases , all cultured isolates were resistant to ampicillin, chloramphenicol, cotrimoxazole, ciprofloxacin, and exhibited ceftriaxone MICs of >64 μg/mL but remained sensitive to azithromycin, imipenem, and meropenem.[15]

In another study from India ceftriaxone resistance was present in 12.1%.[16] In a 10-month period between 2016 and 2017, health authorities in Pakistan detected more than 800 cases of extensively drug-resistant typhoid in the city of Hyderabad alone.[17,18] The Pakistan Health Authorities documented the outbreak of XDR typhoid fever cases from 2016 to 2018 in the province of Sindh, citing 5,274 cases of XDR typhoid of a total of 8,188 typhoid fever cases.[19] A study conducted among children with enteric fever revealed 28% resistance to ceftriaxone.[20]

LIMITATIONS

Main limitation of this study is that it is a single centric study.

CONCLUSION

Cephalosporin resistance in enteric fever is rising. An earlier blood culture result is mandatory to prevent complications in all resistant case.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Ali A: Concept, Design, Analysis, interpretation of data.

Naeem F: Literature Review, Bibliography.

Syed RI: Data Collocation.

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.

ENLARGED ADENOIDS AND ALLERGY IN OTITIS MEDIA- AN EXPERIENCE AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Objectives: To estimate the incidence and association of allergy in pediatrics with enlarged adenoids and Otitis media with effusion (OME).

Material and Methods: All pediatric patients admitted to the ENT department for adenoidectomy or tympanostomy tube placement with OME were examined for any history of allergic diseases from January 2017 to June 2017. Patients were allocated according to the allergic disease and investigated for allergic rhinitis, asthma and eczema. Details about adenoid was also taken from each patient.

Results: A total of 132 patients were reviewed during study period. Of these, male patients (n=91, 68.9%) were more than female (n=41, 31.1%) with mean age of 6.52 years (±3.8 SD). The most common presenting complaint was ear ache (24.2%). Majority of patients (93.9%) had type B tympanogram. Allergic diseases such as, allergic rhinitis (60%) was commonly observed followed asthma (28.8%) and eczema (15.5%). Adenoid was observed in 103 children and majority experienced nasal obstructions adenoids (37.9%) followed by nasal discharge adenoids (30.3%). A statistically significant association was also observed between allergy and enlarged adenoids in this study ($p < 0.05$).

Conclusion: There was a close relationship of allergy with enlarged adenoids presented with otitis media with effusion.

Keywords: Pediatrics, allergic rhinitis, otitis media, effusion, adenoids.

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INTRODUCTION

Otitis media with effusion (OME) is a frequent otological illness in paediatrics.[1, 2] It is characterized by the existence of middle-ear effusion with symptoms including discharge from ear (otorrhoea), earache (otalgia), irritability and fever.[3] It is reported that, nearly 80% of pediatrics are affected due to OME during their first five years of life span and a global cumulative incidence rate of OME is 10.85% (709 million cases/year) and out of which, 51% occur in pediatrics.[4, 5]

It is evident that pediatrics with allergy are more vulnerable to OME.[6] There are several contributing factors such as, the Eustachian tube (ET), which is responsible for balancing middle ear pressure might become mechanically blocked due to adenoid enlargement or nasal mucosal swelling. A nasal swelling in allergic rhinitis (AR) patients cause ET dysfunction and which ultimately leads to OME.[7,8] Adenoid enlargement may also a reason of ET blockage and then leads to the OME condition. According to the previous published studies, pediatrics with allergic diseases have higher chances of adenoid enlargement than others.[6,9,10]

The most significant factor responsible for the pathogenesis of OME is ET dysfunction.[11] Et obstruction leads to increased pressure in middle ear and invasion of bacteria or viruses from the nasopharynx and caused adenoidal infection. Furthermore, the inflammation, mucosal oedema, and increased secretory activity of the middle ear mucosa, leads to effusion formation.[11,12]

The OME is the most common disease in reported among ENT pediatric department in Pakistani hospitals.[13, 14] According to the previous published studies allergy can be a risk factor for adenoid hypertrophy in pedriatrics.[6, 15] The details about the allergy and its increased incidence in OME or adenoid enlargement remain scarce.[6] These types of data are important for policy makers to understand both the public health burden and the potential economic impact of the disease. However, despite its importance, the detail about allergy in children with enlarged adenoids and OME is poorly explored in our setting. Furthermore, no similar investigations were carried out in selected tertiary care teaching hospital. Therefore, this study

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was carried out to estimate the incidence and association of allergy with enlarged adenoids in otitis media with effusion in pediatrics.

MATERIAL AND METHODS

A prospective cross-sectional study was carried out from January 2017 to June 2017, in a tertiary care hospital, Peshawar, Pakistan. The selected setting was a government funded hospitals and main referral hospitals of selected area. The study was carried out according to the ethical research principles of Helsinki declaration and approved by the Bio- Ethical/Institutional review boards (ERB/IRB) of selected hospitals. A written and oral informed consent was taken from all participants.

All pediatric patients admitted to the ENT department for adenoidectomy or tympanostomy tube placement with OME were examined for any history of allergic diseases during study period. A detailed ENT examination and hearing test was performed by the physician at admission. Portable tympanometer was used to examined each pediatric OME patient. The character of the tympanic membrane was determined as appearance (normal, dull or retracted), presence of fluid in the middle ear and the tympanic membrane color (yellow, grey, blue or amber). A modified Jerger's classification as A, As, B or C were used to interpret tympanometry curve results.[16] The result of no middle ear effusion was interpreted as type A, while type B, type C, and type As as predictive of middle ear effusion. Patients were allocated according to the allergic disease and investigated for allergic rhinitis, asthma and eczema. Details about adenoid was also taken from each patient.

Different statistical tools were applied for the data analysis. Descriptive statistics (like mean, frequency, and percentages) and inferential statistics (like chi-square test) were used to analyze and present data. The analysis was performed by using statistical tool SPSS. v22 (SPSS Inc., Chicago, IL, USA). The statistically significant p value was considered as less than 0.05.

RESULTS

A total of 132 patients were included in this study. Of these, male patients (n=91, 68.9%) were more than female (n=41, 31.1%) with mean age of 6.52 years (±3.8 SD). The most common presenting complaint was ear ache (24.2%) followed by ear blockage (15.2%). The otoscopic and tympanogram findings observed that the position of tympanic membrane (TM) was retracted (76.5%) in most of the patients. Furthermore, about 93.9% (n=124) pediatric patients had type B tympanogram (Table 1).

In this study, 34.1% (n=45) patients suffered from allergy. Of these, allergic rhinitis (60%) was commonly observed followed asthma (28.9%) and eczema (15.5%) (Table 2).

Adenoid was observed in 103 (78%) children and majority experienced nasal obstructions adenoids (37.9%) followed by nasal discharge adenoids (30%). Further details are listed in Table 3.

A statistically significant association was also observed between allergy and enlarged adenoids in this study ($p < 0.05$) (Table 4).

Table 1: OME History and types of tympanometry (n=132)

Variables	outcomes	Frequency & %ages
Blocked Ear	Yes	20(15.2)
	No	112(84.8)
Ear Ache	Yes	32(24.2)
	No	100(75.8)
Position of tympanic membrane	Bulging	12(9)
	Retracted	101(76.5)
	Others	19(14.3)
Type of Tympanometry	Type B	124(93.3)
	Type C	8 (6)

Table 2: Frequency of allergic diseases in pediatric patients

Allergies	Outcomes	Frequency & %ages
Allergy Rhinitis	Yes	25(55.5)
	No	18(40)
Asthma	Yes	13(28.9)
	No	32(71.2)
Eczema	Yes	7(15)
	No	38(84.4)
Total	Yes	45(34.1)
	No	87(65.9)

Table 3: Details about types of adenoids

Adenoids	Outcomes	Frequency & %ages
Nasal obstructions	Yes	39(37.9)
	No	64(62.1)
Nasal discharge	Yes	31(30)
	No	72(70)
X-ray postnasal space	Yes	13(12.6)
	No	90(87.4)
Mouth Breathing	Yes	12(11.6)
	No	92(89.3)
Adenoid Facies	Yes	8(7.7)
	No	95(92.2)
Total	Yes	103(78)
	No	29(22)

Table 4: Association of Allergy and Adenoids in OME

		Adenoids		Total	P-value
		Absent	Present		Fisher Exact test
Allergy	Absent	26(89.7%)	61(59.2%)	87(65.9%)	0.0018
	Present	3(10.3%)	42(40.8%)	45(34.1%)	
Total		29(100%)	103(100%)	132(100%)	

DISCUSSION

Otitis media with effusion (OME) is a common disorder in the pediatric and a common reason of visits to the primary care department. Most of the children with OME recover spontaneously within 3 months and sometimes did not require any medical therapy. However, it is reported that in up to 10% of the children, the exudates will last for a year or even longer and leads to serious consequences.[17] Pediatrics with allergic diseases have higher chances of adenoid enlargement than others and it is evident that pediatrics with allergy are more vulnerable to OME.

Moreover, recurrences of OME are more often present in allergic patients with an enlarged adenoid as compared to non-allergic patients. Allergy is among one of the most disputed factors predisposing to OME. In current study, 34.1% pediatric patients suffered from allergy. The relationship between increased susceptibility to OME and allergic diseases was also highlighted by previous published studies. These findings were supported by the studies conducted in Poland[6] and Japan.[18]

Majority of patients (93.9%) admitted for adenoidectomy with had type B tympanogram. Patients with type B tympanogram was also higher in studies of Adamczyk P et al. (51%)[6] and Varsak YK et al. (56.3%).[9] The observed higher proportion of type B tympanogram in current study means patient with enlarge adenoids experience middle ear effusion problem more than ET dysfunction, which is more related to severe hearing impairment.[11,19] Such type of findings reveals the necessity for prompt hearing assessment and management in patients with enlarge adenoids.[20]

Adenoid enlargement is a common cause of upper-airway obstruction in pediatric patients. About, 78% of pediatric patients experienced enlarge adenoid in this study. Nasal obstruction was the most common symptoms in study population. Similar findings were also reported by Sharifkashani S et al.[21] however, deviated from the study of Maheswaran S et al.[22] which reported that rhinorrhea (nasal discharge) commonly seen in their study population.

This study found a significant association between allergy (e.g. allergic rhinitis) and adenoids in OME pediatric patients and confirms that allergic rhinitis is main form of allergy in children. Studies conducted by Adamczyk P et al.[6], Kreiner-Møller E et al.[23], Tomonaga K et al.[24], Lack G et al.[25], and Bozkurt G et al.[26] also reported similar finding. Previous literature also confirmed the relationship between increased risk of OME and allergic rhinitis pediatric population.[23, 27-29] Therefore, it is crucial to prevent the aggravation of allergic rhinitis by managing risks systematically in order to prevent complications.[29] The evidence based guidelines recommend the usage of intranasal topical steroid drops in OME patients with allergy to reduce the inflammatory response.[30,31]

LIMITATION

The current study had access to well-reported data on frequency of allergy in pediatric with enlarged adenoids in otitis media with effusion and was adequately powered. Some limitation must be acknowledged. Patients were recruited from one hospital hence; findings of this study may not be representative of the entire country. However, these findings add a piece of useful information, particularly around occurrence of allergy with enlarged adenoids in pediatric and enlarged adenoids in pediatric OME population and health care system.

CONCLUSION

There is a strong association between allergic rhinitis and enlarge adenoids in OME pediatric patients

RECOMMENDATIONS

Large number of multicenter studies are also needed to find the accurate rate of allergy in pediatric with enlarged adenoids at national level in Pakistan.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Khan AA: Main idea, Data Collection, Interpretation of Data, Bibliography.

Khan AR: Overall supervision, Final approval.

Junaid: Data Collection.

Alam M: Bibliography.

Qasim A: 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.

FREQUENCY AND SOCIO-DEMOGRAPHIC DETERMINANTS OF DEPRESSION AMONG ADULT WOMEN

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ABSTRACT

Objective: To determine the frequency and socio demographic determinants of depression among adult women.

Materials and Methods: Cross sectional study through purposive sampling was conducted after approval from institutional review board from April 2018 to September 2018 on calculated sample size of n=132 adult women, aged 18 -60 years from Public and private sector hospital and residents of steel town, Karachi, Pakistan. Sample size was calculated by open ended software. Questionnaire consists of demographic variables information and Beck Depression Inventory Scale (BDI). Cut-off scores for BDI are: 0–9, indicates minimal,10–18: mild 19–29: moderate and 30-63 for severe depression. SPSS Version 20. Mean, standard deviation, frequency, percentage, Chi square test and multiple logistic regressions were applied for statistical analysis.

Result: Mean age was 33±10.66. Mild depression was (22.7%), moderate(15.9%), and severe depression was (5.3%), Normal or exhibited with some up and down mood disorders were (56.1) %. Significant association of depression was noted with education, domestic abuse, duration of domestic work and domestic workload, and sleep/ rest hours.

Conclusion: Higher frequency of depression seen among Pakistani women especially where several socio demographic risk factors are involved. Multiple roles and responsibilities make them more pressurized and frustrated.

Keywords: Frequency, depression, socio-demographic determinants, adult women, Beck Depression Inventory(BDI).

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INTRODUCTION

Depression is the major cause of the disease burden and the primary reason of morbidity.[1] The lifetime existence of depression ranges from 20% to 25% in females and 7% to 12% in males.[2] Risk factors for many common mental disorders are greatly associated with social disparities, whereby the greater the inequality the higher the risk. The poor and needy undergo disproportionately, but those in the middle of the social gradient are involved as well.[3] Depression is much more common among women than men, with female/male risk ratios roughly 2:1.[4] It is an affective disorder, characterized by low mood, reduced energy and aversion to usual activities of interest.[5]

It is closely related with change in appetite, sleep, problem in concentration, making decisions, aches and pains and constipation or suicidal tendency.[6] Greater prevalence of depression is associated with hormonal changes in women during different stages of their life such as adolescence, pregancy and menopause.[7] Depression has been predicted to be the leading cause of disease burden in 2030 by the World Health Organization (WHO).[8]

In Pakistan the prevalence of anxiety and depression among women ranges from 30-66 %.[9] World Health Organization's Global Burden of Disease (GBD) estimated that major depression is the leading cause of disease-related disability among women in the world today(Murray and Lopez, 1996).The Purpose of the current study is to detect socio demographic risk factors and frequency of depression among adult women of Karachi, Pakistan.

MATERIAL AND METHODS

Current cross sectional study through purposive sampling was conducted during April 2018 to September 2018 among adult women. Sample size was calculated by open epi, one sample continuous outcome taking mean and SD of depression 22.47±12.34 and 95% confidence level=1.96 and 5% margin of error. The calculated sample size was 24, which has been raised to132.[10]

Ethical approval was obtained from the Institution Review board. Informed consent was also taken from the participtants. Data was collected from home surveys and

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public and private sector hospital of steel town, Karachi. BDI Scale was administered on a sample of n=132 women n= 71 employed and n=61 unemployed women aged 18 -60 years up to the age of retirement.

Questionnaire consists of demographic variables to meet the study objectives and Beck Depression Inventory Scale (BDI) to measure depression. Information on age, marital status, domestic work, education, household utilities, employment status was obtained. BDI consists of 21-item, self- report rating inventory that measures characteristic attitudes and symptoms of depression (Beck, et al., 1961). Internal consistency for the BDI ranges from .73 to .92 with a mean of .86. (Beck, Steer, &Garbing, 1988). Questionnaire was translated in native language for the participant's convenience. The BDI takes approximately 10-15 minutes to complete. Standard cut-off scores for BDI are: 0–9: indicates minimal depression, 10–18: indicates mild depression.19–29: indicates moderate depression and 30 t0 63 for severe depression.[11]

SPSS Version 20. Mean, standard deviation, frequency and percentage were used for descriptive analysis. Chi square test (independent test) and multiple logistic regressions used to determine the relationship between demographic variables and depression symptoms in the participants. Statistical significance was less than 1.00.

RESULTS

Presents the frequency of socio demographic determinants among adult women. Mean age of women was 33±10.66. . Mild (22.7%), moderate (15.9%), and severe depression was (5.3%), Normal or exhibited with some up and down mood disorders were (56.1)%. Table 2.Presents the association of depression with related factors.Significant association was found among education, domestic work load and duration domestic work domestic abuse,sleep/rest hours. Table 3: The Univarate logistic Regression model for predicting the depression among adult women

The Univarate logistic Regression Analysis was used to predict the depression among adult women. In marital status, single women showed 1.35 times more depression as compared to married women {OR=1.351,-CI=(0.678-2.691)p=0.393). Comparison of education, Primary (OR=2.894,C.I=(1.151-7.280)p=0.024)and secondary level of educated women (OR=1.312,C.I=(0.338-4.442)p=0.662) seem to be more depressed than highly educated women. Empowered women such as, women who drive a cars showed more depression (OR=2.298C. I=(0.915-5.770)P=0.077) than who are not driving. Women who have own home are also seemed to be more stressed (OR=1.955, C.I=(0.924-4.133)p=0.079) than who are living in rental house. Female who having affected family relationship with husband and in laws revealed more depression (OR=2.652,C.I=(0.917-7.671)P=0.072} than females living with good family relationship. Sleep and rest hours increases (OR=0.841, C.I= (0.749-0.94) P=0.003) symptom of depression was decreases in women.

MULTIVARIABLE ANALYSIS

The odds of depressed was less {AOR=0.996, C.I= (0.957-1.037) P=0.853} when women age increase, domestic abused women remained statistically significant effect at multivariable regression phase. Attribute drive a car, having own home, doing job work, not satisfied with family relationship, addicted and (rest & sleep) hours were not associated with depressed symptom among women after adjusting the others covariates.

Table 1: Frequency of socio demographic determinants among adult women (n=132)

Socio demographic determinants	Women	
Factors	**Frequency**	**Percentage**
Age	33±10.66	
Marital status		
Single	65	49.2
Married	67	50.8
Education		
Primary	82	62.1
Secondary	21	15.9
Higher Secondary	29	22.0
Income	37,170.73±15,724.03	
Do you drive car		
Yes	23	17.4
No	109	82.6

Home		
Own	87	65.9
Rent	45	34.1
Domestic work		
Maid	52	39.4
Non Maid	80	60.6
Duration of domestic work	4.38±4.1	
Psychiatric history		
Yes	7	5.3
No	125	94.7
Family relationship		
Satisfied	115	87.1
Not satisfied	17	12.9
Sole breadwinner		
Yes	21	15.9
No	111	84.1
Domestic abuse		
Yes	9	6.8
No	123	93.2
Addiction		
Yes	3	2.3
No	129	97.7
How much time you get rest & sleep	8.42±3.62	
BDI		
None	74	56.1
Mild Depression	30	22.7
Moderate Depression	21	15.9
Severe Depression	7	5.3

Table 2: Association of different factor with the levels of BDI n=132

	DEPRESSION				
	No (n=74)		**Yes (n=58)**		**P-value**
Factors	Frequency	Percentage	Frequency	Percentage	
Age	34.39±11.48		31.24±9.31		0.092
Marital status					0.392
Single	34	52.3%	31	47.7%	
Married	40	59.7%	27	40.3%	
Education					0.039
Primary	39	47.6%	43	52.4%	
Secondary	14	66.7%	7	33.3%	
Higher Secondary	21	72.4%	8	27.6%	
Do you drive car					0.072
Yes	9	39.1%	14	60.9%	
No	65	59.6%	44	40.4%	
Home					0.077
Own	44	50.6%	43	49.4%	
Rent	30	66.7%	15	33.3%	

Domestic work					0.003
Maid	21	40.4%	31	59.6%	
Non Maid	53	66.2%	27	33.8%	
Duration of domestic work	5.66±4.81		2.67±2.21		<0.001
Psychiatric history					0.132
Yes	2	28.6%	5	71.4%	
No	72	57.6%	53	42.4%	
Family relationship					0.286
Satisfied	68	59.1%	47	40.9%	
Not satisfied	6	35.3%	11	64.7%	
Physical activity	3.31±2.68		2.44±2.67		0.069
Sole breadwinner					0.286
Yes	14	66.7%	7	33.3%	
No	60	54.1%	51	45.9%	
Domestic abuse					0.005
Yes	1	11.1%	8	88.9%	
No	73	59.3%	50	40.7%	
Addiction					0.422
Yes	1	33.3%	2	66.7%	
No	73	56.6%	56	43.4%	
How much time you get rest & sleep	9.29±3.79		7.32±3.07		0.002
Depression yes (0-9), No (>10)					

Table 3: Univariate and multivariable analysis of depression among women

Determinants	OR	95% CI for OR	P-value	AOR	95% CI for AOR	P-value
Age (years)	0.971	(0.939-1.005)	0.094	0.996	(0.957-1.037)	0.853
Married (Single)	1.351	(0.678-2.691)	0.393	-	-	-
Education (Secondary)	1.312	(0.338-4.442)	0.662	-	-	-
Education (Primary)	2.894	(1.151-7.280)	0.024	-	-	-
Drive a car (yes)	2.298	(0.915-5.770)	0.077	1.428	(0.510-4.003)	0.498
Home (own)	1.955	(0.924-4.133)	0.079	1.702	(0.653-4.438)	0.277
Maid (Yes)	2.898	(1.407-5.966)	0.004	2.053	(0.784-5.377)	0.143
Domestic Work (< 4 hours)	3.345	(1.612-6.942)	0.001	1.591	(0.639-3.960)	0.318
Psychiatric history (Yes)	3.396	(0.634-18.18)	0.153	-	-	-
Family relationship (Not satisfied)	2.652	(0.917-7.671)	0.072	1.978	(0.581-6.735)	0.275
Domestic abuse (Yes)	11.68	(1.416-96.31)	0.022	18.304	(1.944-172.37)	0.011
Addiction (Yes)	2.607	(0.231-29.48)	0.439	-	-	-
Rest & sleep (hours)	0.841	(0.749-0.94)	0.003	0.912	(0.792-1.051)	0.203
For univariate p-value consider <0.1significance						

COR = Crude Odds Ratio

CI = Confidence Intervals at 95%

P-vale = taken Significant at 0.1

DISCUSSION

Current study discovered the frequency and determinants of depression among adult women. A greater frequency of depression shown among women who face severe stressful circumstance, pressures and issues.The study results revealed that single women were much more depressed than married women. The profession or working conditions are not the solitary issue but there are other issues and socio demographic risk factors which play significant role. Close relationship is seen between age, education, marital status occupation, rest hours, domestic abuse domestic helper, family relationship, domestic work load. However it is known that educated employed women can be able to manage their families, pressure and melancholy in a better way than housewives.

Women faced more pressures in our social and cultural set up. This higher frequency of depression in females may be due to the added responsibility of the role of caretaker of the whole family (Tareen, 2000)

According to data from Eurostat (extracted in January 2017), in 2014 at EU-28 level 3.5 % of the population in Bulgaria reported having chronic depression.[12]

Current investigation supported by previous research evidence conducted by Freudenberg (1992) who revealed that women with combined role experienced more stressful.Munaf and Ali (1999) reported that although Pakistani women do accomplish their two fold duties, however they face troubles to come out from their tensions. Female sex itself is a risk factor of depression. (Danesh, 2007; Norozi, 2006; Genaabadi, 2010; Rahmani, 2007),

Matching results for depression among women. Husain and colleagues revealed that the frequency of depressive illness was 44%, out of which 25.5% were males as compared to 57.5% females. In general, low education level, multi gravidity, chronic health problems, accommodation worries and economic problems were significantly associated with depression.[13-14]

Contrary to Soomro et al findings that housewives were much more depressed as compared to working women, (14) Sanlier demonstrated that total stress score of working women is higher as compared to non-working women. This is again in line with our results.Sanlier and colleagues results suggest that increased stress was associated with working status of Turkish women.[15]

Current discussion can help to hypothesized that women develop more depression resulting from family conflicts. Women are more likely to experience work overload and conflicts (13). A study conducted in India revealed that major depression was present in 2.9% working and 2.3% in housewives respectively.[16]

Freedheim and colleagues investigated that females with combined responsibilities experience additional stress.[17] Bardwick argue that multiple roles and the exertion to overcome overall responsibilities of house, parenthood, and work seem more likely to put the females under pressure.[18] A indigenous study reported that although Pakistani working women do justify their multiple performance however strive to manage their pressures.[19]

STUDY LIMITATIONS

Study can be generalizable to a representative population only

CONCLUSION

A higher frequency of depressive symptoms among women, especially where several socio demographic risk factors are involved was seen, which make them more pressurized, isolated and miserable.

RECOMMENDATIONS

To develop strategies for early identification, management councilling and availability of stress management therapy at work place at community and government level. Similar study can be conducted in diverse locations of societies and other institutions. Comprehensive screening tools for diagnosing depression might facilitate its early detection.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Mirza N: Idea and write up manuscript and final approval of article

Sheikh SI: Review of literature

Rahim M: Proof Reading,

Ali A: Result writing and statistic analysis,

Khan NUS: Introduction writing,

Bibi Z: Method 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.

EFFECTIVENESS OF LOW DOSE KETAMINE AND LIGNOCAINE IN PREVENTION OF PROPOFOL INDUCED PAIN

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ABSTRACT

Objective: To prove that low dose ketamine is more effective than lignocaine in prevention of propofol injection pain.

Materials and Methods: This randomized controlled trial study was conducted in the central operation theatre of Khyber Teaching Hospital ,Peshawar-Pakistan, from July 2018 to December 2018. A total of 174 patients were randomly allocated in two groups by lottery method. Patients in group A (n=87) received Ketamine 0.5 mg/kg and patients in group B (n=87) received 0.5 mg/kg of 2% Lignocaine for prevention of propofol induced pain. Pain scores were calculated through visual analogue scale (VAS).

Results: The mean VAS score in group A was 2.264±0.990 and in group B was 4.540±1.070. There was statistical difference between the two groups ($p<0.05$).

Conclusion: Ketamine is more efficacious than lignocaine in reducing injection site pain caused by propofol.

Keywords: Pain, Lignocaine, Propofol, Ketamine.

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INTRODUCTION

Propofol is a renowned intravenous anesthetic that is used to induce general anesthesia. It has fast, smooth induction with fast recovery and antiemetic properties.[1] However 70% of patients complain that propofol is used to induce sharp and burning pain at the injection site during anesthesia.[2] Propofol (2,6-diisopropylphenol) is available in 1% aqueous solution as an oil in water emulsion containing soybean oil,glycerol and egg lecithin.This formulation often causes pain during injection. The initial vascular pain may be due to the direct irritation of skin, mucous membrane and venous intima, while the delayed pain which occurs after 10-20 seconds is supposed to be because of the indirect effect of kallikrein-kinin cascade activation.[3,4]

Pain is defined by International Association for study of pain (IASP) as"an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage." Numerous methods have been used to ease the pain of propofol injection, such as choosing a larger vein,increasing the injection speed, cooling the propofol solution, diluting it with 5% dextrose, and occluding the vein before injection.[5,6] In addition to these many drugs have also been tried to reduce this pain with different successes, such as lignocaine,tramadol, dexamethasone, butorphenol, ketorolac, ondansetron, magnesium sulfate, metoclopramide, thiopentone.[7,8,9]

In our study, the efficacy of lignocaine is compared with ketamine.Lignocaine is commonly used for propofol caused pain and acts by its local anaesthetic action and stabilization of kinin cascade.Ketamine (a phencyclidine derivative) can be used as a general anaesthetic in a dose of 1-2 mg/kg intravenously.Ketamine has analgesic and local anaesthetic effects. Ketamine given as pretreatment acts as preemptive analgesic preventing sensitization of local nerve endings by noxious inputs. By antagonism of N-methyl-D-aspartate receptors it acts as a local anesthetic and therefore can prevent propofol induced pain.[10]

MATERIAL AND METHODS

After approval from hospital's ethical and research committee this randomized, single-blind, controlled trial study was conducted in Khyber Teaching Hospital Pesha-

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war, Pakistan from July 2018 to December 2018. A total of 174 patients were included who underwent elective surgery using propofol for induction of general anesthesia. There was no gender discrimination between the American society of anesthesiologists (ASA) grade 1 and grade 2, 15-60 years age groups. Patients allergic to the study drugs, suspected of having difficult intubations, requiring rapid sequence induction or belonging to ASA grade 3 and 4 were excluded from the study.

A pre-operative evaluation of the patients was performed to assess their fitness for anesthesia. The process explained to patients and they were educated about how to label the VAS scale and written informed consent obtained. Each patient received the same standard preoperative protocol and data were collected in proformas. Patients advised to remain nil orally for 6 to 8 hours before surgery.

After reaching the operating room monitoring of baseline pulse, blood pressure, and oxygen saturation were performed before induction. The study drug was prepared by a non-participating anesthesiologist in a volume of 2 ml in identical syringes. A 20G cannula was placed in the dorsum of the patient's non- dominant hand without local anesthesia and flushed with normal saline. All patients were randomly divided into two groups by lottery. Inj.Ketamine (0.5mg / kg)2ml was given to patients in group A and patients in group B received 2ml 2% lignocaine(0.5mg/kg). Venous blockage was achieved by using a rubber tourniquet on the upper arm which was raised by systolic pressure above about 50 mm Hg for 60 seconds. After 60 s occlusion was released and 2 mg per kg of propofol was administered through the same cannula at a rate of 0.5 ml / sec. Anesthesia resident physician who did not know the assigned patient group asked the patient about the injection pain 15 seconds after 25% dose of propofol was injected. Induction anesthesia was completed with the remaining calculated dose of propofol (2 mg / kg). Any adverse effects were noted. Visual analogue scale is a tool to assess pain. It consists of a straight line with a length of 0-10 cm(zero indicates no pain and 10 indicates maximum pain). The patient was educated to mark his or her pain level on the line between the two endpoints. This distance from zero (considered no pain) to the length marked by the patients were taken as the patients pain intensities and recorded in form.

RESULTS

Data were analyzed using SPSS version 10.0.Categorical variables like gender were described in terms of frequencies and percentages while quantitative variables such as age and pain were described as mean+-SD. Regarding pain, it was significant to use independent student t-tests to keep p values ≤0.05. The average pain score was calculated. The results were presented in the form of tables, and the two groups compared for any statistical differences with each other. Student's t-test was applied. The calculated p-value was< 0.001. The results were statistically significant, suggesting that ketamine is superior to lignocaine and can reduce pain caused by propofol.

Table 1: Sex Distribution

Group	Male n(%)	Female n(%)	Total n(%)	p-Value
A(Ketamine)	49(56)	38(44)	87(100)	0.18
B(Lignocaine)	48(55)	39(45)	87(100)	
P> 0.05 (not significant)				

Table 2: Age Distribution

Age	Group A n(%)	Group B n(%)	p- Value
15-20	16(18.4)	18(20.7)	>0.01
20-30	24(27.6)	22(25.3)	>0.01
31-40	25(28.7)	23(26.5)	>0.01
41-50	14(16.1)	15(17.2)	>0.01
51-60	8(9.2)	9(10.3)	>0.01
Total	87(100)	87(100)	>0.01
Mean ± SD	34.56 ± 9.81	32.36 ± 8.63	>0.05
Range	17-60	18-59	

Note: As p-Value is > 0.05 therefore the difference in age is not significant.

Table 3: Incidence and Intensity of Pain on Injection of Propfol in Ketamine and Lignocaine groups along with VAS score

Pain Score	Ketamine group		Lignocaine group	
	Number (n)	Frequency (%)	Number (n)	Frequency (%)
No Pain (0)	53	60.91%	25	28.79%
Mild (1,2,3)	3	3.49%	3	3.49%
Moderate (4,5,6)	20	22.99%	23	26.44%
Severe (7,8,9,10)	11	12.64%	35	40.23%
Distribution of patients by visual analogue score (n=174)				
VAS	Group A (Ketamine)		Group B (Lignocaine)	
Mean±SD	2.264±0.990		4.540±1.070	
P.Value<0.001				

DISCUSSION

The most common drawback of propofol that causes distress to patients is pain on injection. It is ranked as the seventh most important clinical problem by anesthesiologists worldwide.[11] Propofol is one of the most common intravenous anesthetic agent, especially for short-term surgery,total intravenous anaesthesia(TIVA), when the laryngeal mask airway(LMA) is used and sedation in the intensive care unit.[12] Lignocaine reduces pain due to propofol injection by its local anaesthetic action and stabilization of kinin cascade and is mostly used for this purpose, but it has a failure rate of 13 to 32%.[13] According to recent researches ketamine pretreatment is more effective at reducing propofol pain than lignocaine pretreatment.[14]

Our study found that 60.91% patients were pain-free with ketamine pretreatment (average VAS score 2.264±0.990)and with lignocaine 28.75% did not complain of pain (average VAS score 4.540±1.070) demonstrating the superiority of ketamine over lignocaine to prevent propofol-induced pain. Further it was observed that intensity of pain was severe 12.64% with ketamine pretreatment while it was 40.23% with lignocaine pretreatment. There were no adverse hemodynamic effects as we have used sub-anaesthetic dose of ketamine. In a study performed by OzKocak I et al. the average pain score with low-dose ketamine (0.5 mg / kg) was 2.1 ± 3.1. They used VAS like we did in our study.[15] Mohsin and associates evaluated the effect of low-dose ketamine (0.25 mg / kg) to reduce pain from propofol injections in 130 female patients undergoing cesarian section. They observed that 83.1% of women were painfree and only 16.9% women suffered from pain with ketamine pretreatment which is supportive for our study.[16]

A study conducted by Elsayed and Rayan compared ketamine 0.5 mg / kg, 1% lignocaine 0.5 mg / kg and acetaminophen 2 mg / kg and found that the incidence of pain was 16% with the use of ketamine and 40% with lignocaine for propofol associated injection pain. None of the patients had severe pain in the ketamine group, while 8% of patients had severe pain in pretreatment with lignocaine thus favoring the current study.[17] A single sub-anaesthetic dose of ketamine was used in our study, Zahedi H and colleagues conducted a research to determine the correct dose of ketamine that can alleviate pain caused by propofol. They concluded that ketamine is better than lignocaine and that increasing the dose of ketamine reduces the frequency of pain because in their study the incidence of pain was 60% with 50mcg / kg, 55% with 75mcg / kg, and 45% with 100mcg / kg. Although it was 65% with lignocaine.[18]

Mahmood and Yasmin used a 4-point verbal scale instead of visual analog scale to compare lignocaine and ketamine, and observed that 4% patients complained of severe pain with use of ketamine and 12% with lignocaine, but 40% of patients had no pain with ketamine while 60% were pain free with lignocaine.So they proved that ketamine reduces the intensity, but not the frequency of propofol induced pain.[19] Bano and associates while studying the effects of 1% lignocaine 20mg and ketamine 0.5mg / kg pretreatment on injection pain found that the intensity and incidence of pain after propofol administration was lower in the ketamine group in accordance with our research.[20]

In another study completed by Patilbuwa and Yarramalle an average VAS score was investigated for lignocaine, ketamine and metoclopramide, and it was observed to be 1.560 ± 0.712 for lignocaine and 2.320 ± 0.945 for ketamine, metoclopramide was 3.120 ± 1.666.

This implements that lignocaine is better than ketamine in reducing pain (p value<0.01). Similarly P value (p value <0.05) between ketamine and metoclopramide indicates that ketamine is better than metoclopramide, contradicting our study. This may be due to the small dose of ketamine in their study, and also a small number of patients in each group were n = 25, which they have taken to cause different result.[21] Polat and Aktay demonstrated that 100 mcg / kg of ketamine, 40 mg of lignocaine, 10 mg of metoclopramide, and remifentanil were equally effective for pain caused with propofol. It may be that the small dose of ketamine (100 micrograms / kg) used by them in contrast to our study dose (500 micrograms / kg) of ketamine was responsible for the difference from our study.[22]

Visual analogue scale is a useful clinical tool which reflects human response, experience and perception. Itssimple to use and seems sensitive to smaller changes in effect over time than are categorical measures.[23] That is the reason for using VAS in our study, some researchers have preferred to use the verbal rating scale which is based on subjective feelings. The patients respond to pain as mild, moderate and severe varying from patient to patient.[24]

LIMITATIONS

it was not a double blind study. Moreover we did not include control group in our study which could give us the exact incidence of propofol induced pain without any pretreatment in our setup.

CONCLUSION

For prevention of pain during injection of propofol the use of ketamine could significantly reduce pain score compared to lignocaine. Pretreatment with low dose ketamine should be administered at the time of induction of anaesthesia with propofol.

RECOMMENDATIONS

Multicenter trials should be performed in large populations to recommend their use in routine settings.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Naz U: Planning of Study

Wadood F: Data Analysis

Auranzeb: Manuscript writing

Ilyas M: Data management

Ullah AS: Statistics

Bangash R: 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.

PILONIDAL SINUS EXCISION UNDER LOCAL ANESTHESIA: A DAY CASE EXPERIENCE

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ABSTRACT

Objective: To assess the outcome of pilonidal sinus disease excised under local anesthesia

Materials and Methods: This was a prospective study conducted in the department of surgery Khyber teaching hospital after approval from the ethical board and after fully informed written consent from April 2018 to April 2019, 1 year in duration carried out on 40 patients. They were followed for minimum period of 6 months post operatively. Age, presentation, inpatient stay, and complications were recorded.

Results: A total of 40 patients were diagnosed with PND. All patients were male with a mean age of 23.04 +- 2.43. The mean operative time was 40 min (range 22-45 min). The duration of hospital stay ranged from 4 to 8 hours. Healing time was 14-21 days. 5 cases (12.5%) presented with wound pain, which was treated with better combination of painkillers. One patient (2.5%) presented with wound infection without disruption, which was treated with repeated dressing. One patient (2.5%) patient presented with recurrence after 6 months which was again excised.

Conclusion: Complication rate can be kept surprisingly low if PND is excised minimally under local anesthesia and left for secondary intention healing.

Keywords: Pilonidal sinus disease, wide local excision, secondary wound healing, day case surgery

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INTRODUCTION

Pilonidal sinus (PS) is referred to a condition when sinus contains midline hair in the natal cleft.[1] An above average recurrence rate along with the probability of becoming infected and abscess formation are associated with this disease.[2] Therapeutic method has been emphasised by previous studies, however, it is mainly associated with recurrence risk. Prevention, obviously, is preferred to therapeutic method mainly because of cost-effectiveness of preventive strategies over therapeutic ones.[3]

In general practice, pilonidal sinus disease is encountered quite often in adult population with male predominance at a ratio of 3:1 to females. In about 15% of cases, it can present as an abscess. The age range is found to be 15 to 30 years with incidence of about 0.07% in the United States.[4]

The disease has caused morbidity in young age population with its chronic inflammatory nature. The most common affected area is sacrococcygeal or “tail bone” followed by the umbilicus which is hub for hair impaction and thus chances of penetration into the skin.[5]

Long ago, Karydakis proposed three factors for the formations of PNS: the foremost comes the invader which is the presence of hair in the area, secondly; it’s the force of insertion and 3rd, the proneness of skin to the penetration of hair. These factors along with patient factors such as negative suction of loose hair, overweight patients, moist areas, hairy people and prolonged sitting at one place will exaggerate the formation of such sinuses.[6]

There are multiple treatment modalities for the management of PND from non-invasive methods such

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as regular shaving of the area, to minimal invasive procedures like incision and drainage, phenol application or cryosurgery. More radical approaches can be adopted to deal with chronic recurrent sinuses, the techniques being are wide local excision with primary closure, wide local excision with marsupialization, wide local excision and leaving the wound open to secondary intention healing and wide local excision with flap closure.[3]

The rationale of this study was to see whether the wide local excision with secondary wound healing can be a good choice of procedure as a day case as it can be done under local anesthesia and hence can be a future guideline modality of treatment for such sort of diseases. This can effectively minimize the cost burden on hospital as well as the patients can return to their routine lives at earliest. The complications rate can be brought down and dealt with accordingly.

MATERIAL AND METHODS

This was a prospective study conducted in the department of surgery Khyber teaching hospitalafter approval from the ethical board and research committee of the hospital and after fully informed written consent signed by patients, from April 2018 to April 2019, 1 year in duration carried out on 40 patients. They were followed for minimum period of 6 months. All consecutive patients who presented to surgical OPD meeting the inclusion criteria which included males only aged 15-45 years with complaint of pain in the natal cleft or discharge, and subsequent diagnosis of PND made on clinical examination. All patients were examined by a consultant surgeon with a complete history taken by the trainee medical officer in the OPD.

All patients had midline pits, and only three patients had an additional lateral sinus opening due to a branched tract.All patients were treated with surgical excision under local anesthesia and wound left for secondary intention healing. The patients were then followed for 6 months post operatively.

Age, presentation, inpatient stay, and complications were recorded. Data was analyzed by using SPSS version 20 on computer. Standard Deviation was computed for numerical variables like age.Frequency and percentages were computed for categorical variables(post op complications such as seroma formation, infection, pain, recurrence).Mean was calculated for continuous variables like operative time and hospital stay.Strict exclusion criteria was followed to control the confounders and bias which included females, any patients with comorbid conditions such as diabetes, hypertension, recurrent PNDs and those not within age range (15-45 years). The data was plotted in form of charts and tables.

Table 1: Clinical presentation

Clinical presentation	n (%)
Pain	32 (80%)
Discharge	10 (25%)
Lateral pits	3 (7.5%)

Table 2: Operative time

Operative time	40 min (22-45 min)
Hospital stay	4-8 hours
Healing time	15 days (14-21 days)
Wound seroma	0 case (0 %)
Infection	1 (2.5%)
Pain	5 (12.5%)
Recurrence	1(2.5%)

RESULTS

A total of 40 patients were diagnosed as PND. All patients were male with a mean age of 23.04 +- 2.43. The mean operative time was 40 min (range 22-45 min). The duration of hospital stay ranged from 4 to 8 h. Healing time was 14-21 days. 5 cases (12.5%) presented with wound pain, which was treated with abetter combination of painkillers. One patient (2.5%) presented with wound infection without disruption, which was treated with repeated dressing. One patient (2.5%) patient presented with recurrence after 6 months which was again excised.

DISCUSSION

Long ago in 1833, hair containing sinus has been named by Herbert Mayo. With the advent of time, Hodge coined the term pilonidal (Latin: pilus= hair and nidus = nest) in 1880. Under certain conditions in sacrococcygeal area such as presence of hair, contamination with sweat and maceration, pilonidal sinus is formed. Furthermore, the grinding movement of the hips encourages the loose hair to make its way into the sinus.[7] In World War 2, the disease was rightly named as “jeep disease” as it prevailed most commonly in jeep drivers.[8]

Various managements have been devised for pilonidal sinus in the form of minimal approach such shaving the natal cleft and incision and drainage of the affected area. However, more radical approach is more in fashion

to reduce its recurrence, in the form of wide local excision only. At times, the defect needs to be reconstructed with certain methods of flaps. So far, the non-elimination of recurrence regardless the procedure poses a challenge to the surgeon and thus no ideal method has been recommended. Any procedure can be regarded as ideal if it causes minimum pain to the patient, more cost effectiveness, less hospital stay, the approach to operate is relatively simple and last but not the least, the recurrence rate should be kept at minimum.[3,9-11]

Once opted to excise the wound, the management of wound needs special attention. The defect left after wide local excision can either be closed or left open for secondary intention healing. The primary closure can impose certain problems to the wound by being under tension which could compromise the blood supply of the healthy tissue as well as can inflict pain to the patient.[10,12,13] It can give rise to wound infections and the disruption of wound.[14] In our patients, we opted to leave the wound open to secondary healing, thus minimizing the complications arising from primary closure of wound.

The basis of flap reconstruction is to eliminate the risk of wound being under tension but still reserved to be performed in more complex cases.[11] So in our experience of wide local excision with secondary intention healing, we adopted the perspective of minimal invasive approach as a day case surgery to be performed and hence make it more cost effective. The technique needs to include two basic principles; whole of the diseased tissue excision and making the tissue tension free.[10]

Moreover, the technique is simple to carry out with preservation of healthy tissue and it can be carried out under local anesthesia. Without any doubt, this approach makes it a perfect day case surgical procedure with very few complications as compared to those done under spinal anesthesia or General anesthesia.[12,15]

In our study, as the wound was left open, there had been no cases of seroma in follow up which occurs in primary closure, we encountered only one patient (2.5%) with minor wound infection which was addressed with regular change of dressings only and we faced one case(2.5%) recurrence after 6 months which was again excised in the similar fashion. They only major complaint we dealt with mostly was post op pain which was effectively treated with good but simple combination of oral analgesics.

Although many procedures such as Karydakis technique, Bascom's cleft excision, simple drainage, and open excision with midline closure have reportedly low recurrence rates which are 1-4%, 10% ,25% and 3.5-4.2% respectively, our recurrence rate was exclusively low (2.5%) which is an achievement for such a simple and office approach in comparison to already established techniques.[16]

LIMITATIONS

The study being conducted on small number of cohort and its validation can be processed further on large number of patients. Furthermore, the recurrence follow up time was not adequate enough to include the long term recurrence rates hence more prolonged follow up time would be required to validate that.

CONCLUSION

Complication rate can be kept surprisingly low if PND is excised minimally under local anesthesia and left for secondary intention healing. It causes less financial burden to health system if diseases like these are treated in such manner.

RECOMMENDATIONS

We recommend performing the Pilonidal sinus disease to be excised under local anesthesia and experience the low complication rates as compared to more sophisticated techniques.

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ANALYSIS OF CLINICAL AND HEMATOLOGICAL PROFILE IN PATIENTS HAVING MONONUCLEAR INFILTRATION IN BONE MARROW

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ABSTRACT

Objective: To analyze the pattern of clinical features and haematological parameters in patients having mononuclear infiltration as diagnosed through bone marrow aspirate and trephine biopsy examination.

Material and Methods: This chart review was conducted using record of bone marrow biopsy done in Khyber Teaching Hospital during January 2016 to June 2019 .The patients of both genders and all ages having mononuclear infiltration in the bone marrow aspirate and trephine biopsy were included in the study. The demographic data , clinical features and basic hematological parameters of patients were noted in a Proforma. Standard deviation and mean were used to analyze quantitative variables. Percentages and frequency were used to analyze qualitative variables.

Results: Out of 556 bone marrow biopsies, about 30 cases were diagnosed as having mononuclear infiltration . Age range of those patients ranged from 6 months to 78 years. Mean age was 29.35±7.3 years. There were 22(73%) males and 8 (27%) females. Male to female ratio was 2.7:1. The commonest clinical features observed in patients of mononuclear infiltration included fever (seen in 50% cases), and pallor (seen in 56% cases). The commonest indication for bone marrow were pancytopenia and bicytopenia (see in 40% and 33% cases respectively). The significant findings in hematological parameters were low hemoglobin i.e anemia (seen in 86.6% cases) and thrombocytopenia (seen in6% cases). The trephines were not available in 17 cases, while in the remaining 13 cases, 7(53%) trephine samples had atypical infiltrate , while 6 (47%) trephines were hypocellular.

Conclusion: Patients with mononuclear infiltration in their bone marrow present as fever pallor, a low hemoglobin and a low platelet count on their blood count . So constellation of these findings should prompt the physician to keep mononuclear infiltration in differential diagnoses and bone marrow biopsy should be advised to rule out this entity.

Keywords: Mononuclear, bone marrow, aspiration, biopsy, thrombocytopenia.

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INTRODUCTION

Mononuclear infiltration in the bone marrow is referred to the metastasis or spread of non hematological tumor cells into the bone marrow from primary tumor site.[1] It is very rare to detect metastatic abnormal cells in the bone marrow smears before the clinical presentation of the primary tumour itself.[1,2,3] Most of the times, patients with metastasis to the bone marrow have already presented to the clinician with sign and symptoms of the underlying primary tumour. But in certain rare cases, the patients have no specific symptoms of the underlying primary tumour , and the presence of atypical non hematological tumour cells in the bone marrow is the first thing to be identified.[1] This prompts the physician to search for the primary tumour.[1] Patients having metastatic involvement of the bone marrow may be symptomatic or asymptomatic.[4,5,6] In symptomatic cases , patients present with bone pains, fractures and symptoms related to primary tumour site.[6] In rare cases, patient may be asymptomatic.[6] Such asymptomatic cases may have anemia or pancytopenia as detected on blood complete count analysis.[5] In such cases, the blood counts do not improve by the use of multivitamin and iron supplements.[5,7,8] In certain very rare cases, basic haematological parameters are near normal despite presence of abnormal metastatic cells in the bone marrow.[5] Bone marrow aspiration biopsy is a valuable tool to determine presence or absence of atypical cells

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in the bone marrow.[9] It also helps differentiate leukemias and lypmpomas from non hematological tumour cells that has metastatized from some other primary site.[9] Both the bone marrow aspiration and trephine biopsy are essential because sometimes ,tumors are associated with fibrosis of the bone marrow.[2] This causes the suppression of the normal hematopoiesis , leading to a dry tap or hypocellular aspirate.[2] In such cases, bone marrow trephine biopsy proves to be a useful tool in diagnosis.[2] Very few studies have been done in Pakistan about clinical and hematological profile in patients diagnosed with mononuclear infiltration via bone marrow aspiration examination as the first presentation.[8,9,10] So, the present study was done in order to determine the clinical presentation and patterns of changes in haematological parameters in cases where mononuclear infiltration id first detected on bone marrow aspiration examination .

MATERIAL AND METHODS

It was a chart review using bone marrow biopsy record. It was done in Khyber Teaching Hospital Peshawar, Pakistan. The study was done from January 2016 to june 2019. Patients presenting to the Pathology department were subjected to the bone marrow aspiration biopsy. All patients of both sexes and all ages having metastatic infiltration in the bone marrow aspiration and biopsy were included in the study. Data regarding age, gender, indication for biopsy, clinical features and hematological parameters were collected on a proforma and analysed. Percentuges and frequencies' were used for qualitative variables. Standard deviation and mean were used for quantitative variables.

RESULTS

Age range of the population was 6 months- 78 years. Mean age was 29.35±7.3years.There were 22(73%) male patients and 8 (27%) female patients. Thus the ratio of the male to female population was 2.7:1. Clinical features and signs of the study sample having mononuclear infiltration are shown in figure 1 and 2 respectively. The indication of bone marrow is shown in Table 1. The hematological parameters in cases of mononuclear infiltration is shown in Table 2.

DISCUSSION

In this study, mononuclear infiltration was found to be common in young adults. Similar findings were reported by ChauhanK in 2016 from India and Syed NN from Karachi.[2,11] However a higher age was reported by Kumar

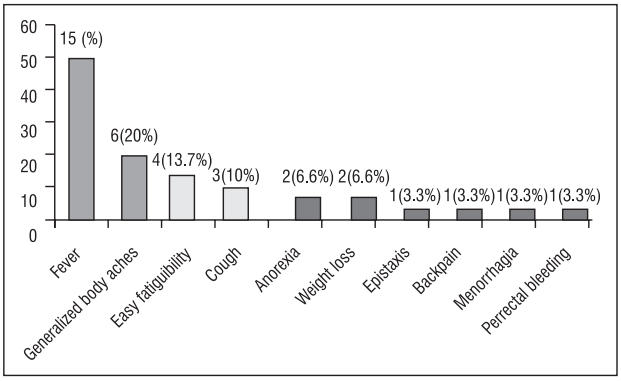

Figure 1: Clincal features of cases with mononuclear infiltration (n=30)

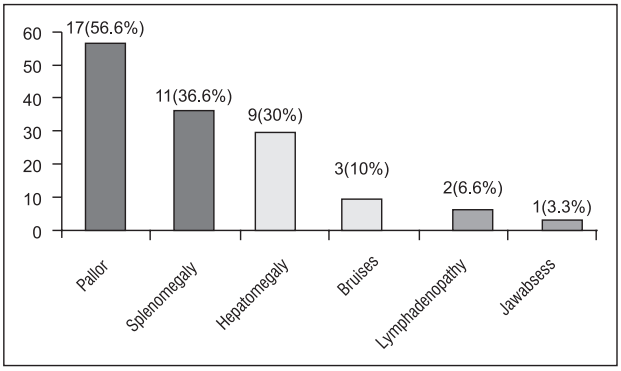

Figure 2: Clincal signs in cases with mononuclear infiltration (n=30)

Table 1: Indications / Suspected diagnosis of bone marrow in cases having mononuclear infiltratio-in(n=30)

Indications of Bone marrow(suspected diagnosis)	No of Patients and % ages
Pancytopenia	12(40%)
Bicytopenia	7(23.3%)
Suspected Leukemia	2(6.6%)
Workup anemia	2(6.6%)
Suspected Lymphoma	2(6.6%)
Suspected Multiple myeloma	1(3.3%)
Miliary Tuberculosis	1(3.3%)
Rule out malignancy	1(3.3%)
Suspected Immune thrombocytic purpura	1(3.3%)

Table 2: Hematological parameters in patients with mononuclear infiltration (n=30)

Hematological parameters	Mean ±SD	Normal n (%)	Range	Decreased n (%)	Increased n (%)
Total leukocyte count (x103/d L)	10.6 ±2.65	13(43.3%)	0.3 - 84	14(46.6%)	3(10%)
Hemoglobin (gm/dL)	8.67±2.16	4(13.3%)	3-14	26(86.6%)	0 (0%)
Platelet count (x103/dL)	115.4±28.8	6(20%)	0-877	23(76.6%)	1(3.3)

V in 2019 from India, Meenai FJ in 2018 from India, Akhter S in 2018 from Kashmir, and Tyagi from Iran, and Qureshii A from Lahore.[1,6,9,5,8] This data suggests that there is a wide range of age distribution in cases with mononuclear infiltration .

In this study, it was seen that mononuclear infiltration is common in males as compared to females. Similar male predominance is reported by Chauhan K from India and Syed NN from Karachi.[2, 11] Similar male predominance is reported by different studies done so far.[1,8,9] However, Meenai FJ from India has reported that female population was more as compared to males. [6]

In the present study, the commonest symptom were fever, generalized body aches and easy fatiguibility while the the common signs were pallor, splenomegaly and hepatomegaly. Similar findings are suggested by, Syed NN from Karachi, Kumar V from India, Meenai FJ and Chauhan k From India.[11,1, 2,6]

In the present study, the significant changes in hematological parameters included a low hemoglobin level and a low platelet count. Same findings were reported by a Chinese study done by Wang W et al in 2017.[10] Same data is presented by Akhter S from Kashmir, Syed NN from Karachi, Kaur G from India, Zhou MH from China and Kilickap S from Turkey.[9,12,11,13,14] Kumar V, Meenai FJ, Mehdi SR and Chauhan K from India and Filanovsky presented same data.[1,2,6,15, 16] The changes in hematological parameters are because of that the metastatic cells replace the megakaryocytes and erythroid precursor cells in the bone marrow.[17,18,19] The anemia that is caused due to metastatic infiltration of bone marrow is called myelophthisic anemia. [1,5,20,21,22,23] It is suggested that thrombocytopenia in cases of mononuclear infiltration is associated with poor outcome.[16] A lowhemoglobin and platelet count are related to the morbidity and mortality of the patients.[1]

As far as the role of pathologist is concerned, it is possible to find the origin of the metastatic tumour with the help of immuno histochemistry.[8] There are specific immuno markers which when positive can confirm the origin of these cells in the bone marrow. [8] But unfortunately, we could not perform it due to unavailability of immuno histochemistry in our department.

LIMITATIONS

It was done in a single hospital. So, there is a need to do bigger studies in which patients from different hospitals should be included in order to generate more accurate data. Secondly, we did not use immuno histochemical stains to find origin of metastatic cells owing to the non availability of this facility in our institute.

CONCLUSION

Patients with mononuclear infiltration in their bone marrow present as fever and pallor, amd have a low hemoglobin and a low platelet count. So constellation of these findings should prompt the physician to keep mononuclear infiltration in differential diagnoses and bone marrow biopsy should be advised to rule out this entity.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Khan MI: Main Idea.

Waqar S: Literature review, discussion, data analysis

Khan SA: Critical Review, result, compilation.

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.

CONVENTIONAL DIAGNOSIS FOR TUBERCULOSIS VERSUS LATEST MODALITIES AT A TERTIARY CARE SETTING OF PESHAWAR

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ABSTRACT

Objective: To evaluate and compare the performance of Ziehl Neelsen (ZN) smearing, Lowenstein–Jensen (LJ) culture and real-time PCR analysis to detect Mycobacterium tuberculosis in pulmonary and extra-pulmonary specimens.

Materials and Methods: A descriptive study conducted from January 2016 through December 2018, on a total of 293 clinical samples of patients suspected with pulmonary and extra-pulmonary tuberculosis at a tertiary hospital of Peshawar, Pakistan. Specimens were processed by ZN smearing, LJ culture and Real-time PCR technique for the detection of M.tuberculosis. The target for the amplification was a segment of IS6110 in the M.tuberculosis chromosome. Specificity and sensitivity were derived for each test and Fishers exact test was performed to examine significance of association between specimen types and each test.

Results: Of the 293 samples, 165(56.3%) were from males and 128(43.7%) females. Mean age was 44 years (2-85 years). Specimen types included: CSF (30.4%), pleural fluid (4.1%), sputum (15%), urine (2.4%), synovial fluid (2.4%), other fluids (33.1%) and biopsies (12.6%). Using PCR as gold standard, ZN microscopy correctly identified 20.5% of total M.TB positive specimens and LJ culture detected 47.7%.Certain specimen types showed higher positivity rates of M.TB detection: synovial fluid (42.9%), pleural fluid (41.7%)by PCR analysis. ZN microscopy was associated with the low positivity rates for all specimens, the highest being 18.2% for sputum samples.

Conclusion: Tuberculosis PCR is a more rapid and reliable test in the diagnosis and management of tuberculosis. Both Pulmonary and extra-pulmonary specimens exhibit greater positivity rates by PCR analysis than by LJ culture and ZN smearing.

Keywords: Real-time, polymerase chain reaction, Mycobacterium, tuberculosis, pulmonary, extra-pulmonary, sensitivity, specificity.

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INTRODUCTION

Tuberculosis is an infectious disease and global burden with significant mortality and morbidity. TB is one of the top ten causes of death and millions of people suffer from TB each year. In 2017, an approximate 1.3 million died among HIV-negative population and an additional 300,000 deaths among HIV-positive individuals.[1] In 2015, over 10 million new cases of TB were reported globally. Among them 1.8 million resulted in deaths and over 95% were of poor countries.[1] In United States during the year 2018 the prevalence of pulmonary tuberculosis (PTB) was lowest ever according to an article published in the Centers for Disease Control and Prevention's (CDC) Morbidity and Mortality Weekly.[2] Pakistan ranks fifth globally among the 22 high-TB burden countries and contributes an estimated 63% of the disease towards the Eastern Mediterranean region. Annually around 430,000 people including 15,000 children contract tuberculosis in Pakistan and every year no less than 70,000 deaths can be attributed to the disease in the country. Pakistan is also estimated to have the fourth highest prevalence of multi-drug resistant tuberculosis (MDR-TB) globally.[3]

Accurate and rapid diagnosis is critical to reducing such high infection and mortality rates. Diagnosis relies on a combined approach of clinical symptoms, chest X-ray, sputum smear microscopy, mycobacterial culture, and more recently, molecular methods.[4] Smear microscopy and culture are dependent on high numbers of mycobacteria for detection.[4] Smear microscopy is easy and simple test to perform; but it has low specification and sensitivity.[5,6] Mycobacteria culture usually takes 4-8 weeks, is prone

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to contamination and gives 20-30% of false negative results. [7,6,4]

Nucleic acid amplification tests (NAATs) are increasingly considered as the standard diagnostic tool for TB and MDR-TB conferring improved sensitivity and rapid analysis.[6] Among NAATs real-time polymerase chain reaction give cost-effective results even in TB-negative patients.[8,9]

Extra-Pulmonary TB (EPTB) compromises of 15% to 20% of all cases of TB. Its global incidence has been increasing annually in the last decade with the rate of EPTB being >50% in HIV-coinfected patients. Because of the pauci-bacillary nature of EPTB it has always been difficult to demonstrate M. tuberculosis with routine tests. In 35% to 65% of the patients ZN staining or LJ culture are negative.[10]

According to Amin et al. PCR could be a method of choice for identification of both pulmonary and extra-pulmonary tuberculosis.[11] PCR detects tuberculosis within few hours and it is very useful tool in diagnosing pauci-bacillary tuberculosis. Real time polymerase chain reactions are much better option than conventional PCR because of decreased risk of contamination and results become available in short time as compared to conventional PCR.[12]

Early detection of Mycobacterium tuberculosis (MTB) DNA in clinical specimens consists of DNA extraction, amplification of target sequence. Different nucleic acid-based amplification techniques are used, commonly targeting the gene sequence of IS6110. IS6110, which is present as multiple copies in M.tuberculosis chromosome.

The amplification of multiple copies gives more sensitive results as compared to amplification of single gene.[4] However, few studies from different geographical regions of the world have reported that some clinical isolates have either a single copy or no copy if IS6110 which leads to false negative results.[7] In this study, we evaluate the efficacy of ZN smear, LJ culture to real-time PCR of IS6110 sequence as gold standard in the detection of M. tuberculosis in respiratory and non-respiratory specimens.

MATERIAL AND METHODS

The study was conducted from January 2016 through December 2018 at Microbiology Department, of a tertiary care hospital of Peshawar, Pakistan. Ethical approval was sought from Research Ethics Review Committee. After a written informed consent, patients aged 2 to 85 years irrespective of gender with suspected TB based on history, clinical and radiological examination were registered for the study. Respiratory clinical specimens (including sputum, pleural fluid) non-respiratory samples (CSF, urine, synovial fluid, other fluids and tissue biopsies) were collected. Patients already diagnosed with pulmonary TB, repeat sample of the same patient, improperly collected samples and patients already on anti-TB treatment were excluded. All respiratory specimens were processed by the standard N-acetyl-L-cysteine and sodium hydroxide method with final concentration of NaOH as 2%.

Tube containing digested and decontaminated specimens was centrifuged (3000 × g) for 15-20 minutes after which the supernatant was discarded and deposit was used for ZN staining, fluorescent staining and culture. ZN Staining: 2-3 drops from specimen were placed on a glass slide to prepare a smear before it was inoculated into MGIT 960 system. The smear was then placed into an oven at a temperature of 56ºC for about 5-6 minutes for drying, followed by the ZN staining. The number of AFB present was reported as; 1-9 bacilli/100 fields = 1+, 1-9 bacilli/10 fields = 2+, 1-9 bacilli/field = 3+ and more than 9 bacilli/field = 4+.

Culture: All the specimens after being digested and decontaminated processed were inoculated into Lowenstein-Jenson Media and ZN staining was done for the confirmation of the presence or absence of AFB. LJ medium (HI media M168) was prepared as per manufacturer's instructions. M. tuberculosis H37Rv was inoculated on LJ as positive controls for M. tuberculosis. The media were incubated aerobically at 370 °C.

They were inspected daily for contamination for period of 10 days. After a week of incubation, the MB medium was tilted on alternate days for one week for first two weeks and thereafter once a week for inoculating the slant. Recovery of M. tuberculosis was the time of visible growth after inoculation. LJ medium showed the growth of typical buff colored, raised colonies of M. tuberculosis with rough surface

PCR: Primers and probes were synthesized on the ABD394 DNA synthesizer (Applied Biosystems). Primers were derived from regions of the 16S rRNA gene that are conserved among mycobacterial species. The M. tuberculosis specific probe KY172-T3 (59-GGTGGAAAG-CGCTTTAGCGGT-39) was chosen from a hypervariable region within the 16S rRNA gene.

PCR amplifications were carried out in 100-ml reaction mixtures by adding 50 ml of template DNA or lysate to 50 ml of a premade amplification master mixture. Target DNAs were amplified in a GeneAmp PCR system 9600 thermal cycler (Perkin-Elmer) as follows. A 2-min incubation at 50°C was followed by two cycles, each cycle consisting of 20 sec at 98°C, 20 sec at 62°C, and 45 sec at 72°C. This was followed by 35 cycles, each cycle consisting of 20 sec at 94°C, 20 sec at 62°C, and 45 sec at 72°C, for a total of 37 cycles.

A final incubation at 72°C for ≥5 min was included to allow for completion of strand synthesis. Amplification products were detected by agarose gel electrophoresis

or hybridization to probe KY172-T3 in microwell plates. In the microwell plate assay, amplicons were denatured with 100 ml of denaturation solution. Denatured amplicons (25 ml) were added to wells of a microwell plate coated with probe KY172-T3. Hybridization was carried out at 37°C for 90 min in the presence of 100 ml of hybridization buffer. Detection of hybridized duplex was completed by using an avidin-horseradish peroxidase conjugate tetramethylbenzidine substrate system. Data were analyzed using computer statistical package of social sciences (SPSS) version 22.0. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of each test was calculated. Fisher exact test was used to determine statistical significance of any association present between the variables.

RESULTS

Of the 293 samples, 165(56.3%) were from males and 128(43.7%) were of females. Mean (± SD) age was 44 (±20) ranging from 2 years to 85 years. Specimen types included: Cerebrospinal fluid, pleural fluid,sputum, urine, synovial fluid and other body fluids and biopsies (n=37). Frequency distribution is given in table 1. Only 3.1% (n=9) of specimens were ZN-smear positive for (MTB). LJ culture identified 7.2% (n=21) whereas PCR method detected (MTB) in 15% (n=44) of the total specimens. Smear microscopy correctly identified 20.5% of total (MTB) positive specimens whereas LJ culture detected 47.7%. Neither ZN microscopy nor LJ culture identified a truly negative patient as a positive patient therefore exhibit 100% specificity (see Table 2). Both tests did not give false positive results and thus exhibit 100% PPV. However smear microscopy failed to detect 34 true positive patients and LJ culture also failed to detect (MTB) in 23 specimens thus both have low sensitivity and low NPV as opposed to PCR method.

Fisher exact test was performed to detect significance of association between specimen type, laboratory test and gender. LJ culture medium and ZN microscopy showed higher positivity rates for specimen types pleural fluid (41.7 %) and sputum (18.9%) respectivelyas opposed to other specimens (p-value =0.001). Positivity rates of specimen types showed significant association with PCRanalysis (p-value = 0.002). Synovial fluid (42.9%), pleural fluid (41.7%) and urine (28.6%) samples exhibit greater positivity rates for (MTB) as opposed to CSF, other bodily fluids and biopsies. There is no significant difference between males and females in the detection of (MTB) by any test or specimen type (p-value >0.05).

Table 1: Frequency distribution of subjects and specimens.

Gender	Male	165(56.3%)
	Female	128(43.7%)
ZN smear	Positive	9(3.1%)
	Negative	284(96.9)
LJ culture	Positive	21(7.2%)
	Negative	23(92.8%)
PCR	Positive	44(15%)
	Negative	249(85%)
Specimen types	CSF	89(30.4%)
	Pleural fluid	12(4.1%)
	Sputum	44(15%)
	Urine	7(2.4%)
	Synovial fluid	7(2.4%)
	Other fluids	97(33.1%)
	Other biopsies	37(12.6%)

Table 2:Sensitivity, specificity and PPVs AND NPVs for each test:

	Sensitivity	**Specificity**	**Positive predictive value (PPV)**	**Negative predictive value (NPV)**
PCR	100%	100%	100%	100%
ZN staining	20%	100%	100%	88%
LJ culture	47%	100%	100%	91%

Table 3: Positivity rates of each specimen type:

		PCR Result		**LJ**		**ZN**	
		Positive	Negative	Positive	Negative	Positive	Negative
Specimen type	CSF	12(13.5%)	77(86.5%)	4(4.5%)	85 (95.5%)	0	100%
	Pleural fluid	5(41.7%)	7(58.3%)	5(41.7%)	7(58.3%)	0	100%
	Sputum	10(22.7%)	34(77.3%)	6(13.6%)	38(86.4%)	8(18.2%	36(81.8%)
	Urine	2(28.6%)	5(71.4%)	0	100%	0	100%
	Synovial fluid	3(42.9%)	4(57.1%)	2(28.6%)	5(71.4%)	0	100%
	Other fluids	11(11.3%)	86(88.7%)	4(4.1%)	93(95.9%)	1(1%)	96(99%)
	Other biopsies	1(2.7%)	36(97.3%)	0	100%	0	100%

DISCUSSION

In the local population where TB prevalence is high, our study has shown PCR performed better than the current routine diagnostic processes of ZN smear microscopy and LJ culture in detecting Mycobacteria tuberculosis in various specimen.

In this study, ZN showed least sensitivity (20%) of the 3 diagnostic methods concurrent with previous studies. Chakravorty et al found conventional smear method to have lower sensitivity (3.9%) which was increased to 21.1% by universal sample processing technique.[13]

Lydia et al reported ZN smearing to have higher sensitivity (50%) stating that ZN sensitivity being directly influenced by the HIV status of the patient on the type and quality of the specimen.[14] This is similar finding to our study as ZN mostly detected (MTB) in sputa as opposed to other specimens (p value <0.05). One of the reasons for low sensitivity is reported to be due to the fact that 104/ml is required for AFB to be seen using smear microscopy.[15,16]

In this research, LJ culture method demonstrated sensitivity of 47%. Chakravrty et al reported that conventional culture detected zero cases of MTB but universal sample processing culture method demonstrated 7.9% sensitivity.[14,13] In the past (MTB) culture as a gold standard with estimated sensitivity and specificity rates of 96% and 81%. However, a meta-analysis carried out in 2009, states (MTB) culture has limited value in clinical diagnosis as its sensitivity specificity rates have varied significantly from study to study.[11] A previous study in Pakistan reported a sensitivity rate of (MTB) culturing to be 15%-20% on over 50,000 specimens received from different geographical areas of the country.[17]

Our data revealed that PCR analysis showed 100% specificity and sensitivity. Bainomugisa et al showed PCR to have 100% sensitivity and 99% specificity.[18] A study conducted in Lusaka, using low-cost in-house one –tube nested PCR which showed 55% of sensitivity.[19] Cheng et al reported TB PCR to have overall sensitivity of 78.3% and a specificity of 100 %.[20]

In our study PCR positivity rates were higher in specimens such as synovial fluid and pleural fluid as opposed to other specimens. This is a statistically significant with a p-value of < 0.05. This may be because of larger volume of bodily fluid as opposed to that of sputa or other tissues specimens. This is similar finding to another study in Karachi where Amin et al reports PCR assay to demonstrate positivity rates of 70% in Bronchoalveolar lavage, Pleural fluid specimens.[11] This is concurrent with study by Chakravorty et al where PCR efficiencies were significantly high in samples of pleural fluid.[13]

CONCLUSION

Tests like ZN smear, culturing and PCR methods are used in diagnosis of TB. ZN staining is simple and fast test but has low sensitivity and specificity. Culturing tuberculosis has greater sensitivity but is time consuming, it takes many weeks to give results. PCR facilitates prompt detection of infectious agent in various specimen types, thus is appropriate for both pulmonary and extra pulmonary tuberculosis.

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AUTHOR'S CONTRIBUTION

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PREVALENCE OF WORK RELATED UPPER BACK PAIN AMONG PHYSIOTHERAPISTS OF LAHORE

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ABSTRACT

Objective: To find out the prevalence of work related upper back pain among physiotherapists of Lahore.

Materials and Methods: It was a cross sectional study. Data was collected by 140 physiotherapists from different physiotherapy setups and hospitals of Lahore over a period of six months from January 2019 to June 2019. Physiotherapists with rheumatoid arthritis and congenital disorders were excluded. Data was collected by modified Nordic based questionnaire to evaluate the upper back pain among physiotherapists. SPSS version 21 was used to analyzed the data.

Results: Out of 140, 22(15.7%) physiotherapists had upper back pain and 109 (77.86%) had no upper back pain.

Conclusion: Physiotherapist had significant prevalence of work related upper back pain, which is mainly due to their work pattern of prolonged standing, faulty posture and physical demanding nature of their work.

Keywords: Musculoskeletal disorders, prevalence, upper back pain.

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INTRODUCTION

Work related musculoskeletal disorders are describe as the most common and notorious cause of chronic pain and physical disability that effects millions of people around the world.[1] In work related musculoskeletal disorders, pain is the most common symptom and it is due to some musculoskeletal injuries like joint stiffness, muscle tightness, swelling or redness of the affected area. While some workers also feel numbness, changes in skin color and decreased sweating of the hand.[2] Previous researches shows that physiotherapists and occupational therapists are at the higher risk of musculoskeletal disorders.[3] The studies also shows that the 91% of physiotherapists have work related musculoskeletal disorders.[4] The physical demanding nature of work in physiotherapy is the common cause of musculoskeletal injuries among physiotherapists.[5] Most common areas which are involved in the musculoskeletal disorders among physiotherapists are low back and neck. Usually, physiotherapists don't pay attention on their ergonomics and posture, which leads them to different musculoskeletal problems. Work tasks which may lead the physiotherapists to musculoskeletal injuries are lifting and carrying the patient which are dependent, having worked in the same posture for a long period of time, treating too many patients for the whole work day, maintaining the restrictive posture during manual therapy techniques, and performing same task multiple of time in same posture including maintaining and twisting of the trunk.[6]

The life prevalence of work related musculoskeletal disorders among physiotherapists which was reported as 68% in United Kingdom[1] 91% in Australia[4] and 85% in turkey[2]. Upper back pain among physiotherapists is one of the most common problems which usually physiotherapists complaint. It may happen due to musculoskeletal injuries like muscle tightness or muscular spasm in the area of upper back. Thoracic cage play an important role to holding the body in upright position. The vast majority cases of upper back pain among physiotherapists are due to poor posture, muscular irritation and joint dysfunction. Upper back pain happens mostly due to lack of muscle

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strength or maybe due to repetitive injuries like repetitive motions. In physiotherapy, mostly the work load of the patient is on the body of therapist. Physiotherapists ignore the ergonomics and did not maintain their posture while treating the patients. Because of faulty posture of physiotherapists, their body muscles lead to spasm and due to over work in bad posture it further leads to musculoskeletal injuries. As the upper back pain among physiotherapists was common so the aim of this research was to evaluate the prevalence of upper back among physiotherapists in Lahore (Pakistan). By finding the prevalence of upper back pain from this study one can introduce prevention strategies to overcome the prevalence in future.

MATERIALS AND METHODS

It was a cross sectional study. Data was collected from both Government and Private setups of Lahore-Pakistan. The duration of this study was six months from January 2019 to June 2019, after the approval of synopsis. Sample size was 140 which was collected by using formula ($n = z^2\ p(1-p)/e)2$. Convenience sampling was done. Physiotherapists who were included in this study were those who had at least 12 months of clinical experience, less than 40 years in age, both male and female work at least 36 hours in a week. Physiotherapists who were not included in this study were those who were not working in clinical setups, more than 40 years of age and had any accidental or trauma injury. Data was collected by modified Nordic questionnaire to check the prevalence of upper back pain. The questionnaire was given to 140 physiotherapists and there response was 100%. (The physiotherapists could be male or female and having at least 12 month of experience). Before given the sheets all the information about the sheet and the study was given. The questionnaire took 5 minutes to be completed and was return back immediately after completion. After receiving each sheet was examined to check any error and mistake. The questionnaire was based on 1 sheet with demographic characteristics about the prevalence of upper back pain. (The study populations of 140 physiotherapists were qualified and also currently working physiotherapists). For data entry and analysis, SPSS 21 software was used. SPSS 21 software also used for analysis of qualitative variables percentage, frequency and also make charts for desired variables results. The correct results were formed using SPSS 21 software in form of Table, Percentage (%) and Bar charts. Using tools like SPSS 21 results were drawn from the analysis of the data and discussion were made to summarize and conclude findings.

RESULTS

In this study the total no. of participant were 140. 51 were Male with percentage of 36.43% and 89 were female with percentage of 63.57%. In this study 131 physiotherapists were those whose age lies in between (20-30) and their percentage was 93.6% and 9 were those whose age lies in between (31-40) and their percentage was 6%. Those who works 36hr/week their frequency was 57 and their percentage was 40.7%.

Those who work 42hr/week were 15 and there percentage was 10.7%. Those who work 48hr/week were 68 and their percentage was 48.6%.118 replies (no) to this question and their percentage was 84.3% percent and 22 replies (yes) and their percentage was 15.7%.

Table 1: Frequency and percentage of gender.

Gender	Frequency and %ages
Male	51(36.4)
Female	89(63.6)
Total	140(100.0)

Table 2: Frequency and percentage of age.

Age	Frequency and %ages
20-30	131(93.6)
31-40	9(6.4)
Total	140(100.0)

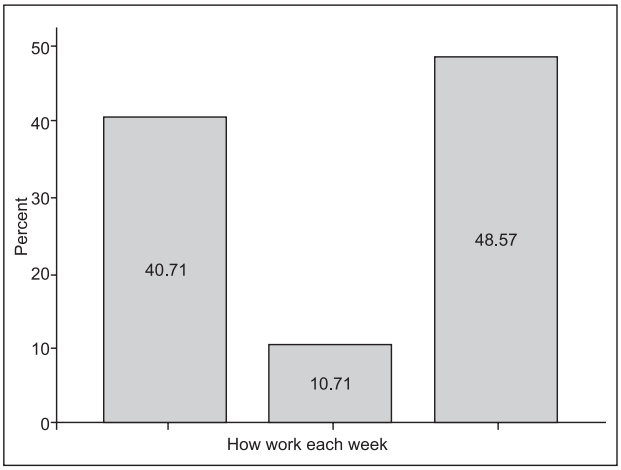

Figure 1: How many hours do you work each week?)

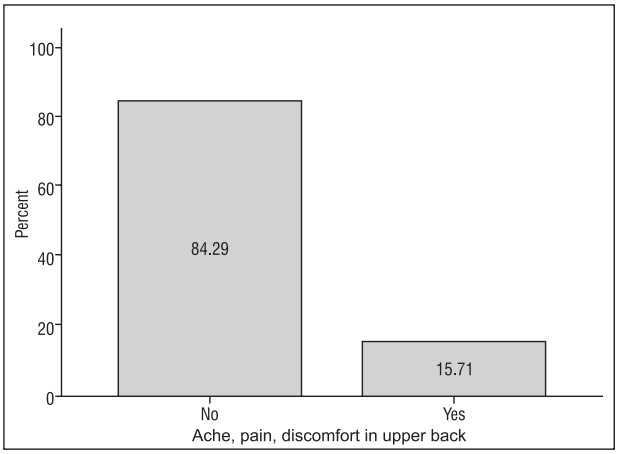

Figure 2: Have you at any time during last 12 month had trouble (ache, pain or discomfort) in upper back.

DISCUSSION

The study aim was to evaluate the prevalence of work related upper back pain among physiotherapists of Lahore who had minimum 12 months of experience in the clinical field. 140 physiotherapists participate in this study. Out of them 22 reply that they had work related upper back pain in the last 12 months of experience and the percentage was 15.7%. A cross-section study was held in Rawalpindi and Islamabad by Madiha et al. In this study the prevalence of upper back pain was 0.9 percent. As comparing this result with our study the prevalence in Lahore was 15.7%. There was a great difference among these cities as it may be due to increase demand of physiotherapists in Lahore or may due to more patients as compare to the Rawalpindi/Islamabad.[7] A cross-section survey was conducted in Nigeria (2008) by Babatunde et al. The prevalence of upper back pain was 14.3%. In our study the percentage of upper back was 15.7%. This study shows similar results with our study.[3] A literature-review and pilot study on physiotherapists was conducted by E Bork et al (1996). The prevalence of work related upper back pain among physiotherapists was 28.7%. In our study the percentage of upper back was 15.7% and by comparing this study we found the difference of 13%.[6]

A cohort study was conducted by Marc Campo et al (2008) on 1-year follow-up. Those who had work related upper back pain were 2.4% in one year follow-up. In our study the no. of physiotherapists who had worked related upper back pain were 22 and the percentage was 15.7% because the sample size varies.[8] A survey was conducted by Campo M et al. (2008) to find out work related musculoskeletal disorders in physical therapists. 12.2% having work related upper back pain. In this study the percentage of upper back pain was 15.7% and it's close to this study, which was 12.2%.[8] A research was conducted by Nicole L et al. (1999) on PTs and PTAs. The prevalence of upper back pain was 23% in PTs and 28% in PTAs. In our study the prevalence of upper back pain was 15.7% and it shows that it was also one of the most common injuries which were associated with physiotherapists in relation with their work.[9] A study was conducted by Rugelj (2003) in which the prevalence of upper back pain was 6.0%[10] by comparing the percentage of this study was 15.7% which shows the high prevalence of upper back pain. A study was conducted by Al-Eisa (2012) on Saudi physiotherapists, where the prevalence of upper back pain was 29.3%[11]. This shows that upper back pain was a common factor. Edge ramos et al (2016) which gave a systemic review in which Cormie et al show 11.1% of upper back pain disorders among physiotherapists. As show that it was also a big problem in physiotherapists.[12] Wilhelmus et al (2011) Shows that percentage of upper back pain which was 20.8% as in our study it was 15.7% by comparing it shows that upper back pain was also highly prevalent among physiotherapists.[13] Glover et al. (2005) had 23.0% of upper back pain percentage in his study so it means that the upper back pain commonly hit physiotherapists like other occupational injuries[1]

CONCLUSION

Physiotherapist had significant prevalence of work related upper back pain, which is mainly due to their work pattern of prolonged ,standing, faulty posture and physical demanding nature of their work.

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Khan U: Data analysis, Discussion

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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.

UTILITY OF ELECTROENCEPHALOGRAM AMONG PATIENTS PRESENTING TO PSYCHIATRIC FACILITY

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ABSTRACT

Objective: To determine the utility of EEG and its association with both normal and abnormal results among patients presenting in a private psychiatric facility

Materials and Methods: A total of 15950 patients were seen from June 2013 to June 2016 in a private psychiatric facility in Peshawar and about 1714 patients who underwent EEG investigation for diagnosis and on demand with no prior or current medical history were included in the study using a cross sectional study design. The data was collected in a standardized manner, recorded in a private clinic's database and evaluated on the basis of international classification of diseases (ICD-10) and international classification of headache disorders (ICHD-III).

Results: A total of 1714 patients were identified who had gone through EEG either to confirm their diagnosis or to satisfy patients on their demand regarding the diagnosis. The participants comprised of majority of females (F=1143, 66.6%) and males almost half of the females (M=571, 33.3%) with majority of age ranges between eighteen to thirty years. Electroencephalograms done for assistance in diagnosis was associated with abnormal results while Electroencephalograms done on demand was associated with normal results.

Conclusion: This study determined the incremental value of electroencephalogram in order "to increase the probability of correct diagnosis" among people with psychiatric conditions by showing more abnormal results.

Keywords: Electroencephalogram, utility, psychiatric facility.

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INTRODUCTION

Electroencephalogram (EEG) is a test which detects electrical activities and abnormalities in individual's brain in the form of waves.[1] Although EEG is often used in multiple disciplines of medicine however, it is frequently used in psychiatry to evaluate several brain disorders particularly seizure disorders, neurological disorders, neurodegenerative disorders, sleep disorders and certain forms of psychoses.[2] The purpose of electroencephalograph is mainly to monitor potential complications such as anesthetic patterns or ischemia, help in early diagnosis of seizure disorders and assist in overall treatment plan.[1-5]

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Due to relative similarity in presentation of symptoms of psychogenic non-epileptic and epileptic seizures, EEG due to its incremental value is often recommended by clinicians to objectively confirm the nature of seizure and consequently the diagnosis.[3, 4]

Psychogenic non-epileptic seizures (PNES) in response to conversion or dissociative disorder superficially get manifested as epileptic seizures however, no brain activity is observed in the former type of seizure.[6] Psychogenic seizures are paroxysmal events in which individual experiences lack of self-control, apparent loss of consciousness with impaired sensory-motor functioning in response to emotional and psychological distress.[7] In contrast to psychogenic seizures, epileptic seizures display heightened brain activity with more profound impairment in consciousness and sensory-motor functioning.[7]

In the light of literature review, there is lack of awareness regarding the actual purpose of number of clinical investigations among general population while EEG is not an exception in this regard.[8] Electroencephalogram is often considered as diagnostic tool however;

the dire need is to make general population understand about the only incremental utility of EEG along with who and when this investigation needs to be done.[5]

This current study also emphasizes on patients and their family members' misconception about electroencephalogram as a much-needed investigation for their satisfaction regarding diagnosis. It is, therefore hypothesized that all those electroencephalograms which are conducted by a psychiatrist in order to increase the probability of a particular diagnosis will be positively associated with abnormal results. However, those EEGs which were conducted on demand by a patient or family members will show positive association with normal results.

MATERIAL AND METHODS

The present study was conducted using cross-sectional research design. Data was collected retrospectively from the computerized database of a private psychiatric facility of the first author between 2013 and 2016 where patients record is maintained through a software specifically designed for the purpose. A data of each patient is recorded in computer software that includes categories of basic demographics, mental status examination, physical examination, investigations and detailed psychiatric history with most of the diagnosis based on international classification of diseases (ICD-10) with few exceptions where guidance was taken from international classification of headache disorders (ICHD-III).

Moreover, for the purpose of current study, data from a category of "Investigation and Result" was imported from server's database to Microsoft excel by the use of filter option including EEG-DX referred to EEG done for diagnosis and EEG-D referred to EEG on demand for patient's own satisfaction. The data was then finally transferred to SPSS 21 software for statistical analysis.

Total number of 15950 patients were seen and about 1714 patients who underwent EEG investigation for diagnosis and on demand were included in the current study. The inclusion criteria comprised patients who underwent investigation of EEG along with detailed psychiatric history by excluding those who went through any other form of investigation (e.g. CT scan) and had any medical condition.

RESULTS

Socio-demographic variables which were useful for describing the selected data were assessed. A total of 1714 patients were identified who have gone through EEG either to confirm their diagnosis or to satisfy patients on their demand regarding the diagnosis.

The participants comprised of majority of females (F=1143, 66.6%) and males almost half of the females (M=571, 33.3%) with majority of age ranges between eighteen to thirty years. This suggests the sample comprised more of young female individuals than middle aged and elderly male individuals. Moreover, a significant interaction was found between gender and conducting EEG investigation which suggests more female were approached for their mental health conditions in comparison to males.

Table 1 shows chi square test results to determine the differences between types of investigation and its outcome (Results) among people with psychiatric conditions. The results reveal a statistically significant difference among investigation and results. The results indicate that patients whose EEG was done for diagnosis tend to have more abnormal results as compared to those whose EEG was done on demand since the later ensued normal results.

Table 1: Cross tabulation of Investigation (EEG) and its components with Results (Normal and Abnormal) among individuals with psychiatric conditions (N=1714):

Variables	Categories	Result		X^2P	P
EEG		Normal	Abnormal		
	EEG-DX	258	439	275.96	.001***
	EEG-D	782	235		
		1040	674		

DISCUSSION

In order to evaluate the entire picture emerged on the basis of selected data in the database; a chi square statistics was applied on the data. The relationship was statistically significant for gender and age group where young female participants tend to have more abnormal results than males which are suggestive of a particular gender (female) to suffer and approach more for their mental health issues than males.[10]

It was found that overall EEG done for assistance in diagnosis gave statistically significant abnormal results whereas EEG done on demand produced statistically significant normal results among people with psychiatric conditions (Table 1). In current study, the association of abnormal results for diagnostic purposes can be explained

by a number of factors. It expounds mental health professionals being cognizant for competently assessing patient's ongoing psychiatric condition and the importance of much needed investigations to objectively validate their clinical judgment based on patient's subjective experiences and physical examination.[11]

This study findings are consistent with previously conducted studies where EEG act as a supportive measure in diagnosing epilepsy and seizure disorders[12] and abnormal patterns were mainly observed as well as positively associated among patients highly suggestive of epilepsy[13-15] Since EEG is one of the effective tools in identifying potential diagnostic condition like epilepsy[13-16] and number of studies supporting its significant role ranges from detecting artifacts and seizures among newborns,[17] to elderly individuals.[18] However, the most crucial point is that electroencephalogram cannot be used to make or refute any diagnosis because abnormal patterns can be caused by number of various other neurological diseases.[18-20]

Moreover, there has been significant number of unnecessary and unneeded EEG's done only "on demand" due to patients' lack of proper knowledge about mental health issues and without any indication of organicity hence confirms the association of normal results based on demand investigation. It also pointed towards the increased clinician's burden to review prolonged recordings of unnecessarily done EEG where number of other patients could be given assistance.[11] This result points towards "the need of satisfying patients and their family members" through non-invasive yet important and often overlooked means like counseling, psycho-education and psychotherapies than unnecessary investigations.[9-20] Taking such initiative would bring awareness among the general population and insight among health professionals regarding the grave concern for sufferer's informational needs and the role of psychological interventions in saving time, money and human resource by consequently scaling up mental health services in community.

CONCLUSION

This study determined the incremental value of electroencephalogram in order "to increase the probability of correct diagnosis" among people with psychiatric conditions by showing more abnormal results. Large number of normal EEGs conducted on demand reflects upon a general population's mindset of more investigations means more certainty and more competencies over one's field of knowledge.

RECOMMANDTIONS

It therefore, necessitates bringing awareness among general population regarding an important difference between psychiatry and other fields of medicine along with significant role of relational attributes, adequate psychological evaluation and efficient non-invasive interventions in psychiatry.

LIMITATIONS

The data for the current study was collected from the private psychiatry facility of the first author. Broader scale data collection by incorporating government and private sector hospitals would presumably have given different and generalizable results.

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Following authors have made substantial contributions to the manuscript as under

Ahmad B: Study Panning, Data Collection.

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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.

FREQUENCY OF VITAMIN D DEFICIENCY AND HYPOCALCEMIA IN PATIENTS PRESENTING WITH LOW BACK PAIN TO A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Vitamin D is a prohormone and responsible for various functions such as balance of serum calcium levels, regulation of immune system and anti-inflammatory activities. Among other factors, serum Vitamin D level imbalance is also considered as important factor in pathogenesis of low backache.

Objective: To determine the frequency of Vitamin D deficiency and hypocalcaemia in patients of lower backache.

Material and methods: This descriptive cross sectional study was carried out in 182 patients with low backache for less than month duration. The study duration was from January 2018 to December 2018 at Khyber Teaching hospital, Peshawar. Non probability consecutive sampling technique was used. After selection of patients as per inclusion and exclusion criteria, an informed consent was took from the patients. The demographic and clinical findings were recorded on a pre-designed Performa. The serum from patients' blood was separated and analyzed for vitamin D and serum calcium on eletro-chemiluminescence based immunoassay.

Results: The mean age of patients included in study was 48.2 years (SD±15.7) with a range of 9 to 76 years. Out of 182 patients, 64% were male and 36% were female. The age groups of 16 to 45 years and >45 years, were almost equally suffered from low back pain i.e. 53% and 44% respectively. Hypocalcaemia was present in 26 (15%) patients with low back pain while 154(85%) patients have normal serum calcium levels. Most of the patients have sub-optimal level of vitamin D with 20(11%) patients having deficient levels of vitamin D, out of which 6(3%) were male and 14(8%) were female. Similarly 132(74%) patients have insufficient level of vitamin D, having 29% male and 45% female patients with complaint of low backache while 28(15%) have normal levels of vitamin D, having 4% male and 11% female. On comparison, the results of serum levels of vitamin D and calcium were statistically insignificant.

Conclusion: The deficiency of Vitamin D and hypocalcaemia is present in most of the patients and mainly affecting female gender. It is a contributing factor to idiopathic low back pain, the cause of which must be identified and dealt with.

Keywords: Low back pain, Vitamin D, hypocalcaemia.

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INTRODUCTION

Vitamin D is a hormone precursor involved in various functions such as calcium homeostasis, immune modulation and anti-inflammatory process.[1] Vitamin D is essential for calcium absorption and bone health. Inadequate vitamin D intake can result in softening of bone surfaces, or osteomalacia, that causes pain. The lower back seems to be particularly vulnerable to this effect.[2] Backache is a common problem in any community, mostly it's not given due care or may be labeled as idiopathic. A strong back lies in strengthening the bones. Vitamin D, calcium, phosphorus and other essential trace minerals are required for healthy bone.[3] Hypovitaminosis D is common in general medical inpatients, including those with vitamin D intake exceeding the recommended daily amount and those without apparent risk factors for vitamin D deficiency.[4] It has been estimated that 1 billion people worldwide have vitamin D deficiency or insufficiency.[5] A study done claimed that vitamin D deficiency was found to be 57% in non-selective indoor patients of general medicine. Backache is one of the common ways of vitamin D deficiency presentation.[4]

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Vitamin D3 supplementation prevents bone loss, but this supplementation needs to be supported with increased calcium intake otherwise only vitamin D3 does not affect bone density nonproves fractures risk by osteoporosis.[6] Vitamin D deficiency causing bone disease is linked with serum 25(OH) vitamin D levels of < long /ml worldwide.[7] Most of the data from Pakistan has reported a deficiency as <20ng/ml. Sub optimal levels 10-30 ng/ml of vitamin D are termed as vitamin D insufficiency. Optimal levels of vitamin D are more than or equal to 30 ng/ml. since every age group has its own vitamin D requirements therefore, it is possible that optimal levels might differ.[8,9,10] Scientists describe worldwide that "population reference ranges for vitamin D vary widely depending on the ethnic background, age, geographic location and the sampling season". [7] In northern latitude locations in particular, the level of vitamin D in 73% of population is less than 20ng/ml during winter season.[11]

There are two possible reasons for relation between vitamin D deficiency and lower backache. First possible reason is that vitamin D deficiency in lower backache causes diffuse pain in muscle and bone.[12,13] Second is there is decreased in anti-inflammatory cytokines and increase in pro inflammatory cytokines leading to increased inflammation in endplates of vertebrae.[14-16]

MATERIAL AND METHOD

This was a descriptive cross sectional study conducted on 182 patients presented in outpatient department with low backache for less than month duration. This study was carried out between Jan 2018 to Dec 2018 at Khyber Teaching Hospital, Peshawar. The sampling was done via non-probability consecutive technique. The radiological studies were performed to rule out structural pathology of spine. In case of mechanical or neurological causes of low back pain, the patients were excluded from study. Similarly, the patients with osteoporosis, and chronic liver and renal disease were also excluded form study. Pregnant or lactating women as well as those receiving vitamin supplements were not included in study. After obtaining informed consent from the patient, the demographic and clinical findings were recorded.

5cc blood was drawn from each patient. After separating the serum, the specimen was analyzed for Vitamin D and serum calcium on Electro-chemiluminescence based immunoassay analyzer Cobas e411 (Manufacturer Roche Diagnostics, North America). The following categorization was adopted from the clinical practice guidelines of endocrine society[17]

Deficient	<20 ng/dL
Insufficient	20-50 ng/dL
Sufficient	>50 ng/dL

The serum calcium was categorized18 as below

Low	<8.5 mg/dL
Normal	8.5-10.2 mg/dL
High	>10.2 mg/dL

The demographic, clinical and lab data was analyzed by Statistical Package for Social Sciences (SPSS) version 22; SPSS Inc. Chicago, IL, USA. The quantitative variables were expressed as mean and standard deviation while the qualitative variables are presented as frequency with percentages. The p-value was calculated where applicable.

RESULTS

The mean age of patients included in study was 48.2 years (SD±15.7) with a range of 9 to 76 years. Out of 182 patients, 64% were male and 36% were female (fig 1). In our study, the age group of 16 to 45 years and >45 years were almost equally suffered from low back pain i-e 53% and 44% respectively(table 1). In this study, 26 (15%) patients with low back pain have hypocalcaemia while 154(85%) patients have normal serum calcium levels (table 1).

Most of the patients have sub-optimal level of vitamin D with 20(11%) patients having deficient levels of vitamin D, out of which 6(3%) were male and 14(8%) were female. Similarly 132(74%) patients have insufficient level

Table 1: General features of patients presented with low back pain.

Features		Male	Female	Total
Age groups	Below 15 years	2 (1%)	4 (2%)	6
	16 to 45 years	36 (20%)	60 (33%)	96
	More than 45 years	28 (15%)	52 (29%)	80
Serum Calcium	Hypocalcemia	14 (8%)	12 (7%)	26
	Normal	52 (29%)	102 (56%)	154
	Hypercalcemia	0	2 (1%)	2
Vitamin D	Deficiency	6 (3%)	14 (8%)	20
	Insufficiency	52 (29%)	82 (45%)	134
	Optimal	8 (4%)	20 (11%)	28

Table 2: Comparison of Serum Calcium and Vitamin D levels in patients presented with low back pain.

Vitamin D	Serum Calcium			p-value
	Hypocalcemia	Normal	Hypercalcemia	
Deficiency	2	8	0	0.957*
Insufficiency	9	57	1	
Optimal	2	12	0	

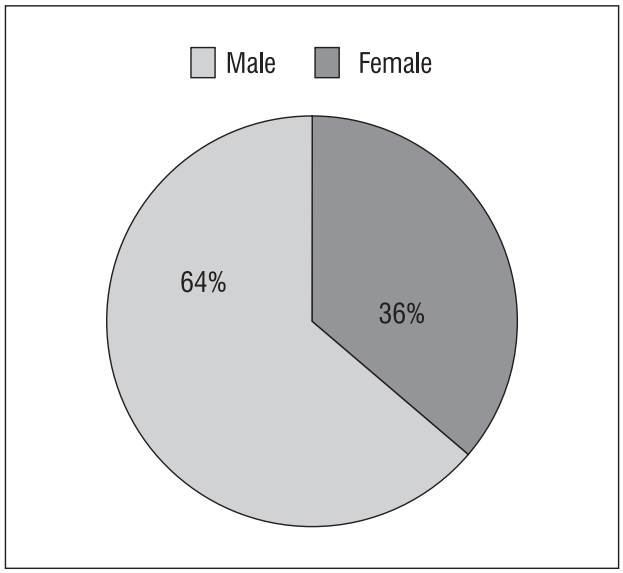

Figure 1: Gender Distribution of patients

of vitamin D, having 29% male and 45% female patients with complaint of low backache while 28(15%) have optimal levels of vitamin D, having 4% male and 11% female (table 1). On comparison, the serum level of vitamin D and calcium, the results were not found statistically significant (table 2).

DISCUSSION

In present study a total of 182 patients were investigated for vitamin D and serum calcium levels, who presented with low back pain, the mean age of patients included in this study was 42.8 years with 64% male and 36% female. Vitamin D deficiency was seen in 20(11%) of patients, out of which 6(3%) were male and 14(8%) were female. Similarly 132(74%) patients have insufficient level of vitamin D, having 29% male and 45% female patients with complaint of low backache while 28(15%) have optimal levels of vitamin D, having 4% male and 11% female. A similar study was conducted by Yasir Iqbal et al, in which a total of 400 patients were tested for vitamin D levels who presented with body aches the mean age of patients was 33 years with 43.5% male and 56.5% female, vitamin D deficiency (<20ng/ml) was seen in 80.25% insufficiency (20-30ng/ml) in 12.75% and adequate level were found (30-115ng/ml) in only 7% of patients. Overall 93% patients were having inadequate levels of vitamin D.[19]

The results of our study were also in concordance with the results of study conducted in Saudi Arabia, which reported that 83% of the patients attending spinal and internal medicine clinics in Saudi Arabia over six years who had experienced low back pain with no obvious cause for more than six months were found to have an abnormally low levels of vitamin D.[20]

Another study conducted at Aga Khan University in apparently healthy adults, showed deficient vitamin D in 69.9% and 21.1% insufficient serum vitamin D levels.[21]

A recent study aimed to provide insight on vitamin D's role in chronic low back pain in India in which they compared 200 patients with low back pain with 200 healthy controls. Research found that patients with chronic low back pain had significant diminished vitamin D levels when compared with healthy controls P<0.0001. Half of the patients with low back pain were vitamin D deficient.[22] The results of these studies were also similar to the results of current study.

In one study of 360 patients with chronic low backache were found to have inadequate levels of vitamin D. After taking vitamin D supplements for 3 months, symptoms were improved in 95% of the patients.[2] Most of the interventional studies reported a positive effect of supplementation with calcium and vitamin D on bone and muscle health.[23] In another study in patients with low backache vitamin D levels were determined and 88.4% patients had below normal vitamin D levels, while 10% had normal.[24] while on comparison of serum level of vitamin D and calcium, the results were not found statistically significant in the present study.

A study conducted by Shahjee at el determined the frequency of vitamin D defining in patients of low back ache and it was found to be 81% in which 83.3% were female and 16.7% male while 34.5% patients had reduced serum calcium also.[25] while in our study 85% of patients had normal serum calcium levels. All patients with persistent, musculoskeletal pain are at high risk of the consequences of unrecognized and untreated vitamin D deficiency. Current clinical guidelines for management of low back pain should include assessment of vitamin status together with advice on appropriate vitamin D supplementation in those found to be deficient.

CONCLUSION

Vitamin D deficiency and hypocalcaemia affected mainly female gender and is a contributing factor to idiopathic lower back pain, the cause of which must be identified and dealt with.

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FREQUENCY OF NEEDLE STICK INJURIES (NSI) AMONG HEALTH CARE WORKERS OF PRIVATE SECTOR HOSPITALS IN PESHAWAR

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ABSTRACT

Objective: To determine the frequency and causes of needle stick injuries (NSI) among health care workers of private sector hospitals in Peshawar.

Material and Methods: This was a descriptive cross-sectional study of health care workers in private sector hospitals of Peshawar from April 2019 to June 2019. Health care workers meeting the inclusion criteria for the study were given questionnaires personally about needle stick injuries (NSI).

Results: The total numbers of healthcare workers enrolled were 100, but 87 responded the questionnaires. The sample size had 32(36.7%) doctors, 44(50.5%) nurses and 11(12.6%) laboratory technicians. The frequency of needle stick injuries in nurses was 28(70%), Laboratory technician 6(54.5%) and doctors 12(37.5%). Majority 24(60%) of the nurses had needle stick Injuries while passing intravenous lines and cannulas.

Conclusion: The frequency of needle sticks injury (NSI) in health care workers in private hospitals is higher. Nurses performing duties in emergency and intensive care units are more prone to needle stick injuries while passing intravenous lines and cannulas.

Key words: Needle sticks injuries (NSI).

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INTRODUCTION

Needle stick injuries (NSI) are punctured wounds, cuts or scratches inflicted by a medical instrument like disposable syringes, lancets etc.[1] These injuries not only put the health care worker at risk to blood-borne infections; like Hepatitis B, Hepatitis C and Human Immuno Deficiency Virus (HIV)[2], but also predisposes them to psychological stress[3] and poses an additional burden on the economy of already weakened health sector.[4] According to WHO safe injection global net work report, about 90% of needle stick injuries occur in developing countries. A recent report by National Health Service (NHS) claims about 1800 needle stick injuries (NSI) occur among health care workers in the last 5 years with a prevalence rate of 67% in pakistan.[4] Doctors and nurses working as a first line, in operation theatres, intensive care units and emergency departments are more prone to get needle stick injuries.[5,6] The frequency of needle stick injuries in doctors and nurses is 73.7% and 19.1% respectively in literature.[6] These health care workers therefore, are at a higher risk of developing blood borne infections.[7] In Pakistan the frequency of needle stick injuries are higher in nursing staff than other health care workers and the possible reasons for needle stick injuries in nurses are lack of knowledge and practices, more interaction with patients and procedures, long working hours, inappropriate working conditions and recapping of the needles.[8,9] Fingers are the most likely site to get injured due to needle stick injuries.[10] Besides being getting infected with Hepatitis B, Hepatitis C and Human Immuno Deficiency Virus (HIV), the long term outcome of health care workers suffering from NSI includes substantial psychiatric morbidity such as depression, post traumatic stress disorder (PTSD) and adjustment disorder(AD) resulting in missed working days which directly affects the health care services and resource.[11] This study

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was undertaken to know the frequency and causation of (NSI) needle stick injuries among health care workers of private hospitals in Peshawar.

MATERIAL AND METHODS

A quantitative cross-sectional study was conducted in small private hospitals with 10-15 beds capacity of Peshawar from April to June 2019. A total of 100 health care workers were selected through simple random sampling technique. Our study population included doctors, nurses and laboratory technicians, working in the hospital for the last six months while those persons who were involved in administrative duties were excluded. Those who were willing to participate in the study and were present on day of data collection were included in study population. Informed verbal consent was taken and confidentiality was ensured. Face to face interviews were conducted using a structured questionnaire containing close ended questions. The questionnaire included demographic information about the study population, when needle stick injury occurred, the circumstances under which they had occurred. Post exposure response i.e. Reporting of needle stick injuries, status of vaccination of the health care worker, protocol followed in case the injury occurred previous knowledge from any training in preventing needle injuries and also their perception and attitude towards needle stick injuries, and suggestions how such injuries could be avoided. Data was analyzed in SPSS (version 20). Frequency and percentages were calculated for health care workers sustained needle stick injuries. Data was represented in table form.

RESULTS

The total response rate was 87%, among which majority were nurses and mostly belonged to surgical and allied departments see table 1 for details. The frequency of

Table 1: Factor Analysis of NSI in Different Categories of Health Care Workers in Private Hospitals of Peshawer.

Factor Analysis oF NSI	Different Categories of Health Care Workers			
Factors		Doctors N=32	Nurses N=44	Lab Technicians n=11
Gender of participant	Male	10	0	11
	Female	22	44	0
Age in years	Less than 35 yrs	23(52%)	36(81%)	9(81%)
	More than 35 yr	9(28%)	8(18%)	2(18%)
Medical discipline	Surgical	26(81.25%)	33(75%)	5(45.5%)
	Medical	6(18.7%)	11(25%)	6(54.5%)
Work experience (years)	Less than one yr	14(43%)	27(61.3%)	3(28%)
	More than one yr	18(56.2%)	17(38.6%)	8(72%)
Number of patients attended daily	Less than 35 patient	13(41%)	16(36.3%)	4(36.3%)
	More than 35 patient	19(59.3%)	28(63.63%)	7(63.6%)
Working night shifts	Yes	22(68.7%)	27(61.3%)	4(36.3%)
	No	11(34.3%)	17(38.6%)	7(63.6%)
Reasons of needle prick	Operation theater	18(58.33%)	10(22%)	0
	Exhaustion	8(25%)	16(36.3)	0
	Recapping needles=	6(16.66%)	18(40%)	3(27.3%)
	Blood Test samples			8(72.7%)
Use of gloves	Yes	19(59.3%)	34(72.2%)	10(90.9%)
	No	13(41%)	10(22.7%)	1(9%)
Washing of hands	Antiseptic	21(66.66%)	22(57.14%)	4(36.3%)
	Soap and water	10(31%)	14(35.71%)	5(45.5%)
	No action	1(3%)	2(7.14%)	2(18.18%)
Reporting about NSI	Yes	15(41.66%)	17(39%)	2(18.18%)
	No	17(53.44%)	27(61.3%)	9(81.8%)
Perceived risk related to NSI	Yes	32(100%)	43(97.7%)	10(90.0%)
	No	0	1(2.2%)	1(9.09%)
Vaccination status	Yes	24(78.12%)	24(59%)	6(54%)
	incomplete	6(18.75%)	13(32.5%0	3(33.3%)
	No	2(6.25%)	7(16%)	2(18%)

NSI in the last 6 months was 12(37.5%) amongst doctors, 31(70%) in nurses and 6(54.5%) in laboratory technicians.

REASON OF PRICK

Most of the injuries occurred in operation theaters follow by needle sticks.

ACTION

After needle stick injuries majority of health care workers washed their hands with anti-septic lotion. while a small number did not take any action after injury.

REPORTING

Although health care provider perceived NSI a health risk only 53(60.91%) health care reported it to the concerned authorities.

VACCINATION

54(62.06%) had completed their vaccination against Hepatitis B, 22(25.2%) had incomplete vaccination. While the remaining had not done any vaccination.

DISCUSSION

The frequency of needle stick was 49(56.3%) in the last 6 months in health care workers of private hospitals. The findings are consistent with an Irani study where it was (54%) and also Malaysian teaching hospital reported 52.9%[6] incidents of NSI. But our findings were inconsistent with Geravandi which accounts the frequency to be 76.7%[12] in 12 months which was too high then our findings. While on other hand Zeighami accounts the incident to be 10%[13] and Khalooei describe it to be 33%. [14] The difference may be due to demographic difference or socio-economic status and self reporting behavior of people of these countries. Other possibilities may be the differences in health care facilities infrastructures and the categories of sample participants selected from i.e nurses or all health care workers. NSI, is major occupational health and safety issue affecting health care workers around the world, mainly involving the nursing staff [15,16,17] mostly due to recapping, overworked, poor safety measures[18,19] lack of sleep due to long working hours.[18] Some interesting demographic factors were also noted to play some role in increasing burden of NSI i.e. with less experience in relative field and age less than 35 years, may be at this age group most of health care workers are young and enthusiastic and as they are new and careless they are more prone to prick themselves. As working in emergencies and surgeries in frontline, doctors (n=26, 81.25%), nurses (n=33, 75%) get more pricks in comparison to lab tech (n=5, 45.5%); as one is also exposed to each type of needle prick threats in the time of haste and hurry. These results were comparable to other national and international studies.[5, 6,7,8,9] Negligence was also noted with the usage of personal protective measures and first aid box. Heavy work loads i.e. more than thirty five patient dealing single handedly, working with more than one year of experience and exhaustion were main reason in doctors and nurses where in emergencies doctors are more prone to prick themselves as compared to nurses. It is very strange to know that more experienced health workers doctors (18, 56.2%) nurses (27,6 1.3%)and lab technicians (72%) get more injuries may be they are not taking the matter seriously or they consider themselves more experienced that's why they get more pricks or other reasons may be the exhaustion and their socio–economic status. In this study, it was concluded that needle stick Injuries are still high in health care workers mainly due to handling of syringes and I/V cannula especially in emergencies and working in their first year of duty, behavior of recapping of used needles and excessive workload with working in night shifts in noisy environment. Other reason included were not taking PPE measures seriously and lack of proper training and non availability of effective referral system for reporting. From this research it is shown that most of the health care workers did not report their injuries to the concerned authorities after knowing that the patient was Hepatitis B negative and due to their vaccinated state against Hepatitis B, Occupational exposure to blood borne diseases is high among health care workers.[20] Decreasing workloads, proper training and implementation of a working reporting system for needle stick injuries were few of the factors playing key role in causation of needle stick injury. NSI is known to be a reason for contracting hazardous diseases during patient dealing. These infections can be avoided by the use of improved Instruments, protective gears and new better methods.[21] Most of the injuries were not reported in our study as there is no uniform standard reporting system in our hospitals. Therefore reporting system should be made easy and simple.[22,23] A record of those injured should be maintained and vaccination against Hepatitis B should be available to all health care personnel.[23,24] Legislation should be made to ensure the betterment of care takers of health and number of patients per nurse be reduced. Moreover the burden on economy from these injuries can be lessen by practicing safety-engineered devices[25] instead of traditional old methods. Our sample size was small, we therefore recommend further studies with larger sample size to confirm our findings.

CONCLUSION

The frequency of needle stick injury (NSI) in health care workers, in private hospitals, was higher. Most of these injuries happened in staff nurses working in emergency or intensive care units during recapping of the needles and when they were tired or overworked. Lack of proper working environment, knowledge, protective measures, and work load are the most common factors in the causation of NSI.

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Rehman R: Research Conception Design, Introduction discussion.

Gul R: Research Conception Design, Final Approval.

Nooreen S: Results.

Rehman ZU: Data Analysis Interpretation methodology.

Musa N: Data Acquisition

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THE EFFECTIVENESS OF TOPICAL INTRANASAL STEROIDS VERSUS SYSTEMIC ANTI-ALLERGIC DRUGS IN ALLERGIC RHINITIS: A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

Objectives: To compare efficacy of mometasone furoate topical intranasal therapy alone and combination of oral anti-histamine and anti-leukotriene therapy in seasonal allergic rhinitis.

Methods: A randomized control trial at Department of Otorhinolaryngology, Head and Neck surgery, Pakistan Institute of Medical Sciences, Islamabad, and Khyber Teaching Hospital, Peshawar-Pakistan, was done in 1 year, from 25th Oct 2016 to 24th Oct 2017. A total of 146 patients were selected and divided into group A & group B (each group have 73 patients). The treatment given was topical Steroid (Mometasone) to Group A and oral antihistamine (loratadine 10mg), antileukotriene (Montelukast 10mg) to Group B. All patients who were included in our study were examined on three consecutive occasions, i.e. at zero presentation day, at 2 weeks and 4 weeks. Patient nasal symptom score was recorded and improvement noticed.

Results: All146 patients were selected and were divided into two groups with each group consists of 73 (50%) patients. Male to female ratio was 1:1.8 and mean age was 27.93±7.8. Out of all patients 124 (84.9%) were responders and 22 (15%) were non-responders. 69 (94.5%) patients of group A were responders while 4 (5.5%) were non-responders. On the other hand, in group B, 55 (75.3%) were responders and 18(24.7%) were non-responders

Conclusion: Intranasal Mometasone furoate spray as a first line therapy was more effective than combined oral anti-histamines and leukotriene receptor antagonistsin allergic rhinitis.

Keywords: Allergic Rhinitis, intranasal glucocorticoids, intranasal steroids, Mometasone furoate spray, antihistamine, anti-leukotrienes.

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INTRODUCTION

Allergic Rhinitis is an inflammation of the nasal mucosa, which is characterized by nasal obstruction, rhinorrhea, sneezing, itching in the nose, eyes and throat. The most appropriate allergic rhinitis management is a combination of educating patient and symptomatic pharmacotherapy. The main goals of this treatment are to relieve symptoms of the patient and quality of life improvement Rhinitis is defined as inflammation of the membranes lining the nose & paranasal sinuses and is characterized by one or more of the following nasal symptoms: sneezing, itching, rhinorrhea and nasal congestion. Rhinitis is frequently accompanied by symptoms that involve the eyes, ears and throat.[27] Allergic rhinitis (AR) is a chronic disorder with high prevalence leading towards quality of life impairment. The most appropriate AR management is a combination of educating patient to avoid specific allergen and symptomatic pharmacotherapy.[4] The main goals of this treatment are to relieve symptoms of the patient, improve individual's quality of life and to modify the immune response of the allergic disease.[6]

Although AR is a mild disorder, but it is seemed more as irritation rather than a disease. Mostly, AR is under diagnosed, sometimes misdiagnosed leading towards mistreatment. [7] Children are found to be more effected with AR in terms of sleep quality, social activities, daily school

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performance and health status (physical & emotional).[9]

The symptoms of Allergic rhinitis results from an interaction between IgE antibodies on mast cells located in the upper airway[10] and inhaled allergens, it is possible to achieve quick relief of symptoms by direct application of topical medication to the nasal mucosa. Topical Intra-nasal steroids are the most effective drugs associated with improvement in Allergic rhinitis, more effectively covering allergic symptoms, with the benefits, such as better patient compliance, cost-effectiveness, and with less side effects. Specific topical medications include mometasone furoate, triamcinolone, beclomethasone, fluticasone propionate, fluticasone furoate. Topical steroids improve mucociliary clearance,[11] which results in modification of nasal mucosal environment. The use of antihistamines such as loratadine (10mg) and montelukast (10mg) in combination has generally resulted in greater efficacy than when these agents were used alone. Montelukast has a favorable safety profile it decreases nasal mucosal congestion and mucus production. According to recent study loratadine-montelukast combination therapy causes decrease in nasal obstruction.[12,13] But add on topical mometasone furoate to Montelukast and loratadine is the most effective treatments of all to AR.

Nasal congestion is most common and bothersome symptom among patients of AR. Evidence exist that sleep related issues are also reported among AR patients including sleep breathing disturbance, snoring, sleep apnea, sleepiness and day time fatigue.[14] Topical nasal corticosteroids had high efficacy as anti-inflammatory agents in AR patients. It is a routine practice of ENT practitioners to prescribe steroids and antihistamines as AR treatment modality.

Multiple studies done i.e.Teet Pullerits, Marcy Detineo, Fuad M Baroody, Sandra M, Gawichik, Price D, they assessed and compared the effects of nasal steroids, anti-leukotriene, and a combination of anti-leukotriene and antihistamine for seasonal AR treatment. Result of their study showed that mean symptoms score with topical steroid nasal spray and combined anti-leukotriene and antihistamine, 1.1+0.5 and 1.5+0.4 respectively. So, they have concluded that intranasal steroids are much better than combined anti-leukotriene and antihistamine in controlling allergic rhinitis.[15]

In his two studies Gill MZ, concluded that intra-nasal steroids improve mucociliary clearance and improves the patient quality of life. In our study we will compare the efficacy of topical intranasal steroid with oral antihistamine and antileukotrienes. This study results may recommend better management of patients in future and decrease morbidity accordingly. Allergic Rhinitis is one of very common allergic diseases round the world and also in Pakistan.

MATERIAL AND METHODS

A Randomized Control Trial at Department of Otorhinolaryngology, Head and Neck surgery, Pakistan Institute of Medical Sciences Islamabad, was completed in 1 year from 25/10/2016 to 24/10/2017. All patients presenting to PIMS OPD in ENT department with symptoms of allergic rhinitis, both male and female, age between 15 to 50 years were included while patients with perennial allergy, patients taking immunotherapy, patients not willing for the study, lactating and pregnant females, patients allergic to cats and dogs' fur and patients with chronic medical conditions were excluded. Patients OPD numbers were recorded. Randomly patients were divided into two groups i.e. group A and B by lottery method. All patients were assessed clinically for allergic rhinitis (sneezing, nasal obstruction, rhinorrhea, nasal itching). After clinical diagnosis of seasonal allergic rhinitis informed written consent for study was taken.

The patients were examined at first presentation to OPD and were assessed by symptoms of allergic rhinitis by nasal symptoms score. Each patient was given a diary in which he/ she had to rate the severity of symptoms i.e. nasal obstruction, rhinorrhea, nasal itching, sneezing. The sum of all four nasal symptoms rating constitute the total nasal score. To group A treatment given was Mometasone Furoate nasal spray 110 mcg once daily i.e. 2 sprays in each nostril were prescribed for 2 weeks and to group B tablet loratadine 10mg plus tablet Montelukast 10mg once daily were prescribed. Then patients of both groups were assessed for improvement in symptoms at first follow up visit according to nasal symptoms score at 2 weeks.

Again, treatment was given to both Group A and Group B for next 4 weeks duration. At last visit (6 weeks of treatment) improvements of symptoms were compared for both groups according to nasal symptoms score. On every follow-up visit total nasal symptoms scores were entered on questioner. Improvement was considered significant when nasal symptoms score improved by at least 1 unit. Data was written/recorded in questioner. Sum of the nasal symptoms score were calculated on every visit. Final outcome was measured on last visit. The patient's response of both groups was compared by using the chi square test and the P value was turned out to be 0.001.

RESULTS

All146 patients were selected and were divided into two groups i.e. 73 in each group. Out of all patients 53(36.3%) were male and 93 (63.7%) were female, male to female ratio was 1:1.8. In this study the minimum age of patient was 15 years and maximum age was 48 years and the mean age was 27.93±7.8.

Out of all patients 124 (84.9%) were responders and 22 (15%) were non-responders. 69 (94.5%) patients of group A were responders while 4 (5.5%) were non-responders. On the other hand, in group B, 55 (75.3%) were responders and 18 (24.7%) were non-responders. The patient's response of both groups was compared by using the chi square test and the P value was turned out to be

Table 1: Age of patient

Patient's age	N	Minimum	Maximum	Mean	Std. Deviation
	146	15.00	48.00	27.93	7.893

Table 2: Sex of patient.

Sex of Pt	Frequency & %ages
Male	53 (36.3%)
Female	93(63.7%)
Total	146

Table 3: Comparison of patient's response of both groups using chi square test.

GROUPS	RESPONSE		P-value*
	Responder	Non- Responder	0.001
A	69 (94.5%)	4 (5.5%)	
B	55 (75.3%)	18(24.7%)	
Total	124 (84.9%)	22 (15%)	

0.001.

DISCUSSION

There are different authors who have conducted studies on treatment of allergic rhinitis i.e. Juel-Berg N[5] and his colleagues did a meta-analysis included five randomized controlled trials with a total of 990 patients and found that intranasal steroids were superior to oral antiallergic drugs in improving total nasal symptoms score.[5] Feng S, et al[16] conducted a study to perform a systematic review and meta-analysis of randomized controlled trials to compare the symptomatic management of corticosteroid nasal spray plus antihistamine (local spray or oral) with that of either therapy given alone, or placebo in patients with allergic rhinitis and found that intranasal corticosteroid plus oral antihistamine have similar efficacy to intranasal corticosteroid alone, greater efficacy than oral antihistamines alone or placebo in reducing nasal symptoms for AR patients.[16] Another study done by Teet Pullerits and his colleges done a study on allergic rhinitis in Sweden. They compare topical nasal steroid (Fluticasone Propionate) and oral antihistamine and antileukotriene in the treatmentof seasonalallergic rhinitis. This study shows that topical steroid have much better effect in lowering seasonal allergic rhinitis symptoms i.e. the mean symptoms score at start of treatment with oral antihistamine and antileukotriene 1.9±1.5 and after 6 weeks of treatment 1.5±0.4 and the mean symptoms score at start of treatment with topical steroid 1.5±1.4 and after 6 weeks of treatment 1.1± 0.5, with the P value of p-0.003.

In a study by Jia MH[8] and colleagues evaluated the effect of nasal glucocorticoid combined with second-generation antihistamines or leukotriene receptor antagonists on the treatment of moderate severe allergic rhinitis, and came up with conclusion that, nasal glucocorticoid alone or combined with second generation antihistamines or leukotriene receptor antagonists can effectively control nasal symptoms of moderate to severe allergic rhinitis.[8] Another study by Price D and his collegeson allergic rhinitis in UK. They compare topical nasal steroid (Mometasone) and oral antihistamine in the treatment of seasonal allergic rhinitis. According to this study topical steroid has much more better effects in lowering seasonal allergic rhinitis symptoms i.e. Percent reduction in allergic rhinitis symptoms after 4 weeks of treatment fortopical steroid is 75.2 % versus oral antihistamine treatment is 65.3%. The P value of 0.04.

Disease burden is increasing due to its immediate effect on job performance of patients. Clinically, AR which is the most common type than non-allergic (NAR) rhinitis and it is IgE mediated. It is estimated that 40-45% of western population are affected by rhinitis. However, evidence proved that 20-40% of rhinitis occurrence is associated with non-allergic rhinitis. Literature showed that frequency of upper respiratory diseases and associated risk factors may be influenced by climatic and environmental conditions.[2]

Other study by Sandra M, Gawchik and his colleges done on seasonal allergic rhinitis in USA. They compare topical nasal steroid (Triamcinolone Acetonide) and oral antihistamine in the treatmentof seasonal allergic rhinitis. This study shows that topical steroid is better in

lowering seasonal allergic rhinitis symptoms i.e. Percent reduction in seasonal allergic rhinitis symptoms after 4 weeks of treatment fortopical steroid is 70% versus oral antihistamine treatment is 55%. The P value is 0.002.

Mercy Detineo, Fuad M Baroody and his colleagues done a study on allergic rhinitis in USA. They compare topical nasal steroid (Fluticasone Propionate) and oral antihistamine and antileukotriene in the treatmentof seasonal allergic rhinitis. This study shows that topical steroid has much more good effects in lowering seasonal allergic rhinitis symptoms i.e. the mean symptoms score at start of treatment with oral antihistamine and antileukotriene is 2.6±0.2 and after 2 weeks of treatment is 1.7±0.2 and the mean symptoms score at start of treatment with topical steroid 2.8±0.2 and after 2 weeks of treatment 1.4± 0.2. The P value is p-0.01.

In the study of these authors, some consider day or only night symptoms of allergic rhinitis because their treatment would improve sign and symptoms of only day or night time while others consider pollen allergy and took some of their patients to the site of pollen, where the patient to be exposed to specific allergens, some others consider only one symptom of nose and not all, some consider a specific session.

The benefit of our study is that it was carried out in Islamabad and here there are multiple allergens including pollen allergy, so there was no need to take patient to any specific site to have him exposed to that specific allergen especially pollen. In this study all symptoms of nose that occur in AR were considered. In this study we also looked for all symptoms of nose which occur both day and night and seasonal relation was taken into consideration too.As with symptoms, treatment with a nasal steroid also provide significantly better protection against the pollen induced development of nasal eosinophilia compared with that of other treatment groups.

CONCLUSION

Intranasal Mometasone furoate spray as a first line therapy was more effective than combined oral anti-histamines and leukotriene receptor antagonists in allergic rhinitis.

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Following authors have made substantial contributions to the manuscript as under

Junaid M:	Write-up of manuscript data collection, data compilation.
Muhammad N:	Conception, data collection.
Umair M:	Proof Reading, helping in writing manuscript.
Arif AU:	Bibliography.
Din I:	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.

SAFETY AND EFFECTIVENESS OF TRANSABDOMINAL CHORIONIC VILLOUS SAMPLING FOR PRENATAL DIAGNOSIS OF β-THALASSEMIA

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ABSTRACT

Objectives: To assess safety and effectiveness of trans abdominal, chorionic villus sampling(CVS) for pre-natal diagnosis of B-thalassemia.

Material & Methods: This is prospective observational study conducted over a period from Jan 2018 to Dec 2018 in Rehman Medical Institute of Peshawar-Pakistan. Total of 50 patients were recruited in study. All couples who were carriers of thalassemia trait or had previous child with thalassemia major were included. Patients with multiple gestation, active vaginal bleeding before procedure, gestational age > 16 weeks, recurrent unexplained abortions, medical disease such as overt diabetes, chronic hypertension and patients who refused termination in case of positive diagnosis were excluded from the study A written consent about the CVS procedure, its complications and decision for termination in case of positive diagnosis was taken from all couples. Period of gestation was calculated by booking ultrasound and LMP and procedure was performed between 10-14 weeks. The procedure was conducted in interventional radiology unit of RMI through Trans abdominal route under aseptic technique and local anesthesia (5-10ml of 2% xylocaine).

Results: DNA analysis of chorionic villus sampling showed that 17(34%) fetuses had thalassemia major, 10 fetuses (20%) thalassemia trait and 23 (46%) had no Beta Thalassemia mutation. Twentyeight (56%) couples had consanguineous marriages. Only one patient (2%) had procedure related spontaneous miscarriage. None of sample was reported as insufficient or in adequate.

Conclusion; Trans abdominal approach for chorionic villus sampling is a safe and effective tool for prenatal diagnosis of thalassemia major provided done with skilled hands.

Key words: Thalassemia, CVS, transabdominal.

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INTRODUCTION

Beta thalassemia is the most common heterogeneous autosomal recessive hereditary disorder in Southeast Asian, African, and Mediterranean descent. More than 270 million persons worldwide are heterozygous carriers of hereditary disorders of hemoglobin (Hb), and at least 300,000 affected homozygotes or compound heterozygotes are born every year.[1] The annual incidence among Asian populations is 1: 1000 birth.[2] The approximate prevalence of β-thalassemia trait in Pakistan is around 5-7%, (around ten million people are carriers in total population) and every year about 5000 new cases are born.[3] Dr Yasmeen Rashid, Health Minister Punjab mentioned this figure up to 6000/year in thirteenth national thalassemia conference which means 17 affected children are born each day.[4] The only treatment available is supportive with regular blood transfusions and iron chelation, with definitive treatment of bone marrow transplant only a possibility and hope for few. This high prevalence may put huge burden on our existing health resources and psychological stresses on families. The only way out is to prevent birth of thalassemia children by following RCOG and ACOG recommendation which includes carriers screening, genetic counselling and pre-implantation genetic diagnosis (PGD).[1,5]

Prenatal diagnosis by DNA analysis can be performed using fetal cells obtained by chorionic villus sampling (CVS) or amniocentesis[6] and cell-free fetal DNA (cffDNA) from maternal plasma.[7,8] The advantage of non-invasive cff DNA technique over other invasive (CVS, Amniocentesis) procedure is that it can be performed at

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early stage of 6 weeks gestation and so termination of pregnancy can be offered at early stage with less maternal complications and less mental stress but it is expensive. [9] Likewise, CVS can be offered in first trimester (10-12weeks) in comparison to amniocentesis, which cannot be performed before 16 weeks, which is too late to decide for termination of pregnancy. Both CVS and Amniocentesis being invasive are also associated with fetal complications like miscarriages (0.5%–1.0% of CVS and 0.25%–0.50% for amniocentesis), preterm delivery and fetal limbs deformity.[10] The additional disadvantages of CVS are: difficult cytogenetic analysis, the possibility of contamination with maternal cells and the risk of mosaicism. CVS is also acceptable in our religious fatwa which states, if continuation of pregnancy becomes life threatening then abortion can be carried out within 120 days of the pregnancy but no later than that.[11,12] In the background of risk factors, the invasive procedures are offered to only high-risk group after primary screening testing. CVS can be performed both through trans abdominal(TA-CVS) or transvaginal approach depending upon operator comfort. Initially we use to send our patients to Islamabad and Lahore for CVS as no center in KPK was offering this service, but since 2018 Rehman medical institute has started this procedure. The aim of this study is to evaluate the risk of fetal loss, fetal malformations and other post procedure adverse outcomes in patients undergoing TA -CVS.

MATERIAL & METHODS

This is prospective observational study conducted over a period of one year from Jan 2018 to Dec 2018 in Rehman Medical Institute of Peshawar-Pakistan. Total of 50 patients were recruited in study. All couples who were carriers of thalassemia trait or had previous child with thalassemia major were included. Patients with multiple gestation, active vaginal bleeding before procedure, gestational age > 16 weeks, recurrent unexplained abortions, medical disease such as overt diabetes, chronic hypertension and patients who refused termination in case of positive diagnosis were excluded from the study A written consent about the CVS procedure, its complications and decision for termination in case of positive diagnosis was taken from all couples. Period of gestation was calculated by booking ultrasound and LMP and procedure was performed between 10-14 weeks. The procedure was conducted in interventional radiology unit of RMI through Trans abdominal route under aseptic technique and local anesthesia (5-10ml of 2% xylocaine). Before procedure ultrasound was performed to confirm fetal viability, number of fetuses and placental localization. A Co-axial Chorion Biopsy needle set with an outer guide and an inner aspiration needle was used. A special chorionic biopsy double needle was used to obtain sample. The outer needle (20G) was introduced through the abdomen into the uterine wall with the right hand while holding the USG probe in the left hand to visualize the needle tip. As soon as the needle entered the placenta, the stilette was then removed and inner needle (18 G) was introduced through the outer needle. A 20 ml disposable syringe containing 1ml sterile normal saline was attached to inner needle and its plunger pulled half way back to create suction, the chorionic villi were aspirated by agitation of the aspiration needle and by applying suction force through a syringe. The inner needle was then removed and villi flushed into a sterile petri dish containing normal saline. The outer needle was left in place because in case of inadequate specimen a second or a third attempt could be made. Once sufficient sample was obtained, the outer needle was removed and the puncture site sealed with bandage. Patients were kept under observation for one hour after procedure and then discharged home with instructions to report in case of warning signs like abdominal cramps, vaginal bleeding or leaking. Regular outdoor follow up was done. Specimens were sent to Armed Forces Institute of Pathology (AFIP), Rawalpindi, Punjab for DNA analysis for β-thalassemia. Chorionic villi were investigated by genomic amplification of B-globin gene by polymerase chain reaction (PCR). Results were collected in 7 days. Data were collected in terms of age, parity, and complication like miscarriage, result of chorionic villous sample and need for termination and entered in SPSS 20 for descriptive analysis. The purpose was to assess the safety in terms of procedure related mischarges and effectiveness in terms of adequate tissue sampling.

RESULTS

A total of 50 patients were included in study. 36(73%) patients were less then 30 years of age. Parity was more than 4 in 33 (66%) ladies (Table1). Chorionic villus sampling showed that 17 (34%) fetuses had thalassemia major, 10 fetuses (20%) were diagnosed to have thalassemia trait and 23 (46%) had no Beta Thalassemia Mutation (Table 2, fig-1). Twenty-eight (56%) couples had consanguineous marriages (Table 3, fig-2). 25 (50%) patients were lost to follow up.11(22%) reached term pregnancy and delivered healthy babies. Out of 17 major thalassemia patients, 5 (29.4%) refused termination of pregnancy and 12 (70.6%) accepted it (Table 4). Only one patient had spontaneous miscarriage after the procedure. All patients had single successful attempt and no sample was reported as insufficient or inadequate.

Table 1: Demographic Data.

AGE	Frequency & % ages
<30	36(72%)
>30	14((28%)
Total	50(100%))
PARITY	
<4	17(34%)
>4	33(66%)
Total	50(100%)

Table 2: DNA Analysis.

	Count of S. NO	%Age
Beta Thalasemia Major	17	34%
No Beta Thalasemia Mutation	23	46%
Trait	10	20%
Grand Total	50	100%

Table 3: Marriage status for consanguinity.

Marriage status for consanguinity	No of Patient	%Age
consanguineous marriages	28	56%
Nonconsanguineous marriages	22	44%
Grand Total	50	100%

Table 3: Follow up and outcome of patients after CVS.

Follow up status	No of Patients	%Age
Continued Pregnancy	5	10.00%
Delivered	11	22.00%
Lost Follow up	25	50.00%
Top	12	18.00%
Grand Total	50	100.00%

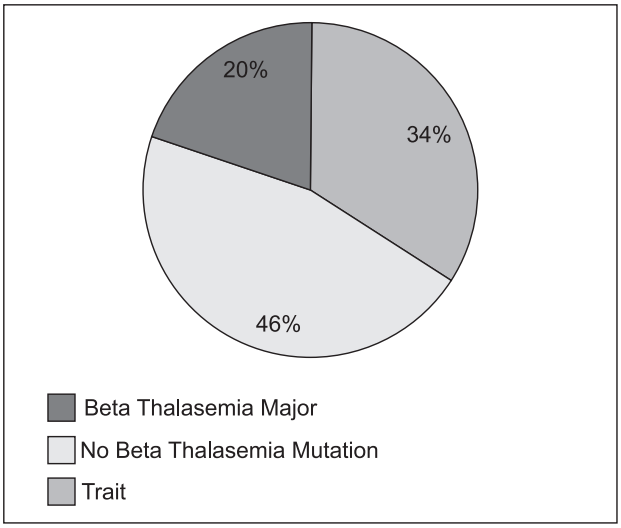

Figure 1: DNA Analysis.

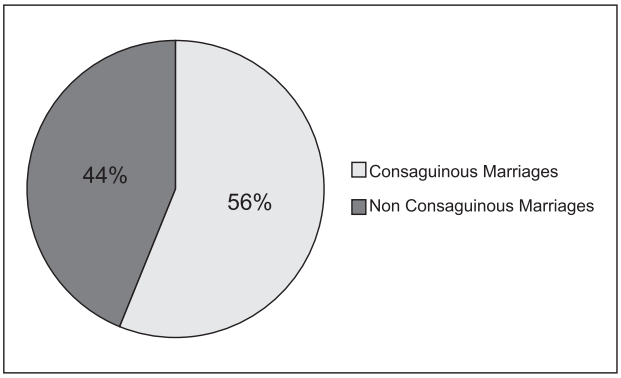

Figure 2: Consanguineous Marraiges.

DISCUSSION

Beta Thalassemia is most common hematological disorder, with approximate prevalence of 5-7% in Pakistan. The mean age of a thalassemia child in Pakistan is 10 years.[13] Just to live these 10 years their supportive therapy like blood transfusion, chelating agent is putting a lot burden on our health resources. The definitive treatment of bone marrow transplant is a hope for only few fortunate, who can afford it, so the only way to stop it is to offer carrier screening and prenatal genetic diagnosis for at-risk couples and to reduce birth of thalassemia major. Countries like Iran and Cyprus have observed a reduction of 96% in incidence through adaptation of these recomendation.[14]

The Total number of patients in our study were 50 with 73% patients <30 years comparable to one study where (77%) of patients were less than 30 years[15] Consanguineous marriages were observed in 28(56%) couples (including first and second degree relative), which is very much comparable with same figure of 56% to a study conducted on Muslim majority community of Pakistan.[16] Another study reported it to be 75%.[15]

One study detected no thalassemia mutation in 24 cases, heterozygote for thalassemia having a single mutation in 8 cases and 28 fetuses were homozygous for beta-thalassemia, which were subjected to termination.[17] These results are very much comparable to our study.

Procedure related spontaneous miscarriage was observed in only one out of 50 patients (2%). One study reported three patients with pregnancy loss of 1.9% in first trimester TA-CVS.[18] A Chinese study on 1355 women with first trimester TA-CVS, reported the fetal loss in 1.54%.[19]

CONCLUSION

Trans abdominal approach for chorionic villous sampling is a safe tool for prenatal diagnosis of thalassemia major provided it is done in skilled hands.

RECOMMENDATIONS

As Beta thalassemia is common problem of Pakistan with low health resources and where consanguineous marriages are normal, carrier screening and chorionic villous sample should be offered to all at-risk couples.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Shams S: Main Idea, Write up.

Raza F: Data Collection.

Nawaz A: Data interpretation, 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.

CROSS SECTIONAL SURVEY OF STRESS AMONG DOCTOR OF PHYSICAL THERAPY (DPT) TEACHERS IN LAHORE

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ABSTRACT

Objective: To determine the level of stress among the academic side in Doctor of Physical Therapy teachers and also to identify the age and gender specific patterns of stress in the target population.

Material and Methods: Data was collected from different Physical Therapy institutes of Lahore, Pakistan. The study period was from February 2016 to August 2016. The results were calculated from 61 participants as per response rate of teachers. The study time period was seven months. The age range was 22 to 50 years including 20 male and 41 female teachers. Stress questionnaire of NUT (National Union of Teachers) was used for this study with demographic data. The qualitative variables were demonstrated through frequency tables and graphs where needed.

Results: The results showed that out of 61 respondents who were willing to participate in this study 78.7% (n=48) had moderate level of stress at their job, while 21.3% (n=13) had low level of stress at their university/college.

Conclusion: A large number of Doctor of Physical Therapy teachers have moderate level of stress. With the increasing age the stress related to teaching increased and there was no strong correlation between the gender and stress.

Keywords: Physical, therapy, stress, teachers.

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INTRODUCTION

Stress at job ensuing from increased complications of drudgery and its different demands are becoming a noticeable feature of recent establishments. Stress at work place has touched almost all the professions in the world.[1] Stress is a state of affair which involves demands of physical and mental energy which in turn influences and changes normal physiological and psychological well-being of an individual. There are numerous situations in the work life like, over burden, low pay, leg pulling plus poor boss and members' relationships, all these factors ultimately increase stress of an individual.[2] If the stressors are ranked the behavior of students is on the top of list of stressful factors.[3]

Teaching profession was being considered as low stress occupation but during last few decades, it has become a stressful job. Teaching is becoming more and more challenging field. According to a study conducted on German teachers, 22% were found to be tensed and maximum section fell into great stress class.[4] Worldwide 70% teachers are under recurrent stress, including student's manners problem being most common. Teachers' job satisfaction level depends on number of factors and stress is one of the greatest factor which influences this level.[5]

Occupational stress can be defined as, experiencing unpleasant negative emotions like, tension, anxiety, frustration depression and anger resulting from aspects of work. Some major causes of stress are intrinsic factors of job, relationships at work place, career development, organizational climate and role in the organizational climate.[6]

Strain disturbs the entities physiologically, fervently and mentally. Occupational stress is a specific element in the current era that is on upsurge. In the present world the stress related to workplace ensues serious health concerns.[7] Generally, it is the ineffective management of job burdens due to the incapability to fit the surroundings or situations. A study stated that mental and body conditions effects one's output and also the well being to do excellent work.[8]

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A study undertaken in universities in UK, it was found that university staff was highly stressed particularly by work related relationships, lack of control and resources, communication and work overload. Occupational stress level in 955 university teachers from 9 state universities of South India was measured. It was revealed that 74% of the lecturers were suffering from moderate to high level of stress.[6] One more study regards teacher proficiency as having the information and expertise necessary for the teaching profession, to complete the learning needs of pupils, developing a high-level obligation to the teaching profession, possessing an adequate level of self-sufficiency in the decision-making procedure.[9]

One literature studied the professional stress among teachers of Kerala, teaching the higher secondary school level. The results suggested that 48% of the faculty of one of the districts had low stress levels, where as in another state stress was 80%.[10] Another survey investigated the effect of professional stress on the psychological health of the school teachers. Female teachers have more nerve-racking positions when compared with male colleagues.[11] A survey was conducted on Professional Teachers' by Union of Hong Kong on teacher's strain and stress. 1,100 questionnaires were sent by this union to its members through random sampling method and got a return rate of 45% respondents. Results were calculated and was concluded that 61% of the teaching staff was under stress and they found their job hectic mentally challanging.[12]

Most of the researches targeting the stress accountability in work related environments have been conducted in developed countries, the developing countries have not yet contributed in this regard. And also in the recent time, there is increased frequency of people picking teaching as a profession, which suggests an immense need of study to investigate the stress occurrence in the target population. The current study determined the level of stress among the academic side in Doctor of Physical Therapy teachers in institutions of Lahore and also identified the age and gender specific patterns of stress in the target population.

MATERIAL AND METHODS

A cross sectional survey was conducted in Lahore. Data was collected from different Physical Therapy institutes of Lahore, Pakistan. The samples were collected from February 2016 to August 2016. Inferential study was performed for this cross sectional survey in faculty teaching DPT students among educational institutes in Lahore. Non probability convenience sampling was done with the volunteer participation of teachers and the sample size was calculated according to the Single proportional formula.[13] $n= Z_1- \alpha/2^2 P(1-P))/d^2$ where confidence level was kept 95%, anticipated population proportion being 0.20, absolute precision required and margin of error was kept 5%, sample size was calculated to be 184.

Due to sensitive information involved and in security of University prestige to be tempered, there was less response rate. That is why the results were calculated for 61 participants as per response rate of teachers. The study time period was seven months. The age range was 22 to 50 years including 20 male and 41 female teachers. The data was included of the HEC recognized institutions and the teachers who were appointed on temporary basis or as visiting faculty were excluded from the study. Informed consent was taken in written form to participate in the study. Stress questionnaire of NUT[14] (National Union of Teachers) was used for this study with demographic data added in it. The tool consists of 100 scores, the higher the score the greater is the level of well-being of individuals. 51 to 100 scoring depicts moderate evidence of stress, upto 50 scoring depicts high level of stress. The quantitative variables of the data were described through mean and standard deviations whereas the qualitative variables were demonstrated through frequency tables where needed.

RESULTS

Out of 61 respondents that were interviewed for the level of stress at their job place, 78.7% (n=48) had moderate level of stress at their job, while 21.3% (n=13) had low level of stress at their university/college. Hence, larger number of teachers has moderate level of stress as shown in table 1.

The mean age of the respondents calculated was 26.86± 3.28. Mean score of results of stress came out to be 90.64±13.51. From the total of 61 participants that were interviewed for the level of stress at their job place, 36.1% (n=22) felt mostly that their job is satisfying, while 36.1% (n=22) felt sometimes satisfied and fulfilled with their job. Only 18% (n=11) were not much satisfied with their job at university/college.

Through cross tables of respondents' age and stress scores; it was found that the value was -0.56 which means it is negatively correlated. Hence, increase in age factor has a decreasing effect in stress scoring. But as this value is not less than 0.05 so it is not highly significant (table 3). Through cross tables of respondents' gender and stress scores result; it was evaluated that for males value is -0.230 and for females 0.213 as per pearson correlation which means that male gender is negatively correlated with stress score while female is positively correlated (table 2). Since both values are greater than 0.05 so these are not significant values and there is not much relation between gender of respondents and stress scoring.

Out of 61 respondents that were interviewed for the level of stress at their job place, 78.7% (n=48) had moderate level of stress at their job, while 21.3% (n=13) had low level of stress at their university/college For males value is

Table: 1 Level of stress among Physical Therapy teachers

Level of Job Stress	Frequency	Percentage
Moderate Evidence of Stress	48	%78.7
Low Evidence of Stress	13	%21.3
Total	61	%100

Table: 2 Gender of Respondents * Score.Category Crosstabulation

			Score.Catagory		
			Moderate Evidence of Stress	Low Evidence of Stress	Total
Gender of Respondents	Male	Count	16	4	20
		% of Total	%26.2	%6.6	%32.8
	Female	**Count**	**32**	**9**	**41**
		% of Total	**%52.5**	**%14.8**	**%67.2**
Total		**Count**	**48**	**13**	**61**
		% of Total	**%78.7**	**%21.3**	**%100.0**

Table: 3 Correlations of age and gender of the respondents

Gender of Respondents			**Age of Respondents**	**Score.Category**
Male	Age of Respondents	Pearson Correlation	1	-.230
		Sig. (-2tailed)		.328
	Score.Category	Pearson Correlation	-.230	1
		Sig. (-2tailed)	**.328**	
Female	**Age of Respondents**	**Pearson Correlation**	**1**	**.213**
		Sig. (-2tailed)		**.182**
	Score.Category	**Pearson Correlation**	**.213**	**1**
		Sig. (-2tailed)	**.182**	

-0.230 and for females 0.213 as per pearson correlation which means that make gender is negatively correlated with stress score while female is positively correlated.

Since both values are greater than 0.05 so these are not significant values and there is not much relation between gender of respondents and stress scoring.

DISCUSSION

The current study targeted the investigation of stress levels and the gender and age specific factors among teachers of Physical Therapy Institutes in Lahore. The results of the study showed that there are moderate levels of stress among the teachers of Physical Therapy institutes.

One of the study examined the occupational stress of secondary school teachers and evaluated the differences between the occupational stress related to gender, year of experience in the states of India. There were significant differences in the male and female teachers with minimum experience and that of having greater than five years' experience. It was concluded that males undergo more stress than female teachers. It was also further explained that teachers with greater experience had lower level of stress related to job than the teachers with less experiences. The results did not explain the level of stress among the private or government school teachers.[15]

Another study concluded that female teachers had more nerve-racking positions when compared with male colleagues. The study considered that the male community perceives the sources of strain less as compared to the females. The study also explained the relationship between the gender and the mental health.[8] The current study adds in the evidence with the results showing greater stress related to job in females as compared to the male teachers with a minor difference. As the scoring is greater than 0.05 so these are not significant values and there is not much relation explained between gender of respondents and stress scoring.

The results of the current study showed high level of stress among the older age population, and these findings are not correlated to results of the studies which had concluded that young age teaching staff are more under

the stress as they do not have much experience[16,17] However, another study had the similar results as the current study, showing that old age teachers have greater amount of stress.[18] The older age teachers adjust very often in the changing environment with new responsibilities of current era. As experience increases with the age concurrently the population of this age expect high pay scale according to their experiences. And also the physical demanding environment acts as a burden to this age group as compared to the active young teachers. These specific stress sources should be considered for the future research topics and also this age population groups should be engaged in stress management programs for better outcomes.

A study reported that job related stress is strongly related with the working environment and the specific individualized characteristics of the employee, and this is an obvious thing when the demands of the job surpasses the employee's capabilities.[19] The results of this study are in line with our findings. Some other studies[20,21] are also in the favor of the results of the current study, reporting that mental, physical and the awareness of teachers to the environment has a positive impact on the job productivity. A study conducted in the Khorasan public schools explained that job related stress is higher in the teaching staff.[22] Similar result outcomes also apply to the present study.

Earlier literature finding reported that institutes with an open organizational environment the employees and the teaching staff remain contended, satisfied and confident. Whereas the teachers who are working in the closed environment complains more and have higher rate of stress. These findings are in favor of our study results.[23] Another study indicated that closed working environment causes low mentality, low level of efficiency and stability and also disinterest in work, high burden of productivity and the all factors in the end contributing to the stressful environment. The chronicity of this stressful environment results in depression, anxiety related issues and work fatigue.[24]

In the view of above mentioned findings, it is essential to target the stress related factors in a teaching job environment. The teachers working in open climates are more confident and efficient in their tasks, and further the organization get positive results in management and surveillance. Finally, the top identified stressors described by the teachers were insufficient wages, highly physical demanding environment and disobedient students. The results of the study suggested to have policies related to stress coping strategies in Lahore Physical Therapy institutes, that can in return improve the quality of life of the teachers.

CONCLUSION

There is moderate level of stress among the study population. The levels of stress experienced by physical therapy teachers was explainable through age and gender of the participants. With the increasing age the stress related to teaching increased and there was not strong correlation between the gender and stress. Moreover, complex correlations have been explained between various stressors and characteristics of population.

RECOMMENDATIONS

The study findings have future implications to make public policies targeting the stress reduction methods and improving quality of life among the teachers of physical therapy in Lahore.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Munir M: Conception and design ,Collection and article of data and final approval.

Khan I: Drafting of the final approval and guarantor of the article.

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FREQUENCY OF HEPATITIS B VIRUS INFECTION IN HEMODIALYSIS PATIENTS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objectives: To determine the frequency of hepatitis B in hemodialysis patients in Lady Reading Hospital Peshawar Khyber-Pakhtunkhwa

Material & Methods: The study design was cross sectional and carried out in the department of Nephrology Lady Reading Hospital Peshawar Khyber Pakhtunkhwa from February 2018 to July 2018. All eligible patients who were on hemodialysis were enrolled in the study through consecutive non probability sampling.

Results: In our study 177 participants were included, 73.4% males and 26.6% females. The participants mean age was 41.8 ± 8.6 years. Mean number of hemodialysis sessions were 15.2 with standard deviation of 5. Hepatitis B virus was present in 27.1%.

Conclusion: Hepatitis is highly prevalent in our population which is subjected to repeated hemodialysis. More robust screening techniques should be used to detect these at an early stage.

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INTRODUCTION

Chronic Kidney disease (CKD) may be defined as "A condition frequently associated with uncontrolled hypertension and diabetes" it has become a major economic and public health problem both locally and globally.[1] The term Chronic Renal Failure (CRF) means the last stage of chronic kidney disease (CKD) in which there is decline of glomerular filtration rate (GFR) below 0.25 ml/s.[2] Chronic Renal Failure (CRF) is a globally serious economic and public health issue with an increasing prevalence-and incidence.[3] The most important risk factor for renal and caridiovascular diseases is hypertension, till now approximately 1 billion adults worldwide are suffering from hypertension.[4] Glomerular hyper-filtration and systemic hypertension are the major factors leading to progressive nephron damage. If blood pressure is controlled effectively then progression of renal disease in adults will be delayed.[5] Over 2 billion people are affected with Hepatitis B globally and 350 million people are affected from chronic hepatitis B virus infection.[6] Its infectivity is more thanthe other blood-borne pathogens and a single needle prick injury indicates a risk of 300 hepatitis B virus infection (the risk is 30%), 30 hepatitis C virus infection (the risk is 3%) and[3] Human Immunodefeciency virus (HIV) infection (risk is 0.3% per 1000 respective.[7] The patients on Hemodialysis (HD) are more at risk of getting hepatitis B virus (HBV) infection,the main reason of which is frequent contact with blood supplies and surfaces containing these viruses.[8]

As a result of this the prevalence of Hepatitis B virus (HBV) infection in hemodialysis patients is very high, although it is different among countries and among different hemodialysis units of the same country.[9] The established risk factors for HBV infection are duration of hemodialysis and number of blood transfusions. The prevalence of HBV infction have decresed by the use of blood product screening in blood banks and erythropoirtin treatment, inspite of this outbreak of HBV still occurs.[10] The reported prevalence of HBV among dialysis patients is 11.2% and 8% in Asia.[11]

Our study is designed to determine the frequency of HBV in patients on chronic hemodialysis(HD). As mentioned above, the patients on HD are at increased risk of

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viral infection due to their continuous exchange of body fluids and other blood related products. Moreover, it is also mentioned in literature that the burden of HBV varies from one hemodialysis settings to another due to variation in resources and expertise. This study will give us local evidence of magnitude of HBV in patients on chronic HD. Our study results will be distributed to local health authorities to make them aware about the severity of the problem and future research recommendations to prevent the enhancing burden of HBV among HD dependent patients.

MATERIAL & METHODS

This descriptive cross sectional study was carried out in the department of Nephrology, Lady Reading Hospital, Peshawar Khyber Pakhtunkhwa from Feburary 2018 to July 2018. Sample size was 177 and technique used was consecutive (non-probability) sampling. All patients with either gender having age 18-65 years on chronic HD with minimum of five HDs done in the past 3 months were included in the study. Patients who were already diagnosed with HBV on medical records with history of any type of treatment received for Hepatitis B in the past were excluded from the study.

The study was done after approval from hospital research and ethical committee. All patients fulfilling the inclusion criteria (i.e. patients presenting to the dialysis unit for their routine dialysis and with history of at least 5 sessions of dialysis in the past 3 months) was included in the study. The benefits and purpose of the study and associated risks were explained to the patients. An informed consent was taken from all the patients and detailed history and clinical examination was done. 10cc of blood was obtained from all patients and was sent to hospital laboratory immediately to detect HBV. All the laboratory procedures were conducted from single hospital laboratory under supervision of single expert pathologist having minimum of 5 years experience. A pre designed proforma was used that comprised of demographic data and frequency of HBV.

The data was analyzed on SPSS version 23. Percentage and frequency were calculated for categorical variabls like gender and HBV. Mean and standard deviation was calculated for continuous variables like age and Number of hemodialysis in the past. Frequency of HBV was stratified among the age, gender and number of dialysis sessions to the effect modifiers using chi square test with p value of ≤ 0.05 taken as significant.

RESULTS

The mean age of our sample was 41.7 years with a standard deviation of 8.6 years with a minimum age of 25.5 and maximum age of 55 years in our study. We divided the patients in 3 different age groups i.e. > 25 to 35 years, > 35 to 45 years and > 45 to 55 years. (Table 1). Out of 177 participants, there were 73.4% males and 26.6% females (Table 2). Mean no of HD sessions were 15.2 with SD of 5. Table 3 elaborates the categories wise distribution of HD sessions. All patients were subjected to screening of HBV and found that it was present in 27.1%. (Table 4)Stratification of HBV was done on the basis of age, gender and categories of HD sessions as elaborated in table 5-7 after applying chi square test.

Table 1: Age-Wise Distribution of Participants (n=177).

Age in years	Frequency & % ages
25 to 35	49 (27.7)
> 35 to 45	48 (27.1)
> 45 to 55	80 (45.2)
Total	177 (100.0)

Table 2: Gender Wise Distribution of Sample (n=177)

Gender	Frequency % ages
Male	130 (73.4)
Female	47 (26.6)
Total	177 (100.0)

Table 3: No of Hemodialysis Sessions (n= 177)

HD Sessions	Frequency % ages
5 to 11 sessions	61 (34.5)
> 11 to 17 sessions	58 (32.8)
> 17 to 23 sessions	58 (32.8)
Total	177 (100.0)

Table 4: Frequency of HBV (n = 177)

HBV	Frequency % ages
Yes	48 (27.1)
No	129 (72.9)
Total	177 (100.0)

Table 5: Age Groups Wise Stratification of HBV

		HBV	
		Yes	No
Age Groups	25 -35 years	13	36
		26%	74%
	> 35-45 years	24	24
		50%	50%
	> 45-55 years	11	69
		14%	86%
Total		48	129
		27%	73%

Table 6: Gender Stratification of Patient with HBV (n = 177)

Gender of the patient	HBV		P value
	Yes	No	
Male	48	82	<0.001
	36.9%	63.1%	
Female	0	47	
	0.0%	100%	
Total	48	129	
	27.1%	72.9%	

Table 7: Hemodialysis Sessions Wise Stratification of HBV (n = 177)

No of Dialysis session in Categories	HBV		P value
	Yes	No	
5 to 11 sessions	13	48	0.032
	21.3%	78.7%	
> 11 to 17 sessions	23	35	
	39.7%	60.3%	
> 17 to 23 sessions	12	46	
	20.7%	79.3%	
Total	48	129	
	27.1%	72.9%	

DISCUSSION

WHO has categorized Pakistan as intermediate HBV prevalence region.[12] Over the past 15 to 20 years the prevalence of HBsAg has been decreased in Pakistan, as shown by earlier reports to 8[13] and 10 to 15 percent[14] in the healthy adult population. The decrease in HBV positivity may be due to testing by more specific HBs Ag Elisa kits with few false-positive results and is due to use of vaccination and increased awareness against hepatitis B. Recently, Pakistan has included hepatitis B vaccine in routine immunization schedule of neonates. The immunization coverage of which was 65 percent in 2004.[15] In Armed Forces personnel large-scale hepatitis B vaccination was done in the past 10 years and among health care professionals, with vaccination status of 86 to 98 percent.[16] The other risk factors which seems to be unchanged, are repeated use of potentially contaminated razors by barbers, reuse of disposable glass, syringes,improper dental practices[17] and other risk factors seem to be unchanged.

The established risk factors for HBV infection are duration of hemodialysis and the number of blood transfusions.[18] The prevalence of Hepatitis B infection has been decreased by the use of erythropoietin treatment and screening in blood banks. However, outbreak of HBV still occurs.[19] Hospital acquired infection may play a role in such outbreaks which is supported by the association between risk of infection with this virus and hemodialysis duration.[20]

In Our study, the prevalence rates of HBV infection among hemodialysis patients was more or less higher as compared to developing countries and it was higher than developed countries.[21-23] The reason for high prevalence may be attributed to the prevalence of Hepatitis B infection in general population. In Pakistan the rate of Hepatitis B virus infection ranges from moderate to high endemicity. As a result prevalence of HBV among hemodialysis patients has increased in recent years. Developing countries need implementation of infection control programs. Our study showed a higher prevalence of HBV infection. The results might be influenced by differences in the specificities and sensitivities of the procedures used, they revealed that the current infection-control techniques has not decreased the prevalence of HBV infection. In these situations, hospital transmission of infection might play an important role.

CONCLUSION

HBV is highly prevalent in our population which is subjected to repeated hemodialysis.

RECOMMENDATION

More robust screening techniques should be used to detect these at an early stage. Moreover, more research is recommended for a possible source of infection to the HD patients so that future preventive mechanisms may be described.

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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.

EFFICACY AND SAFETY OF CROSS TECHNIQUE WITH 100% TCA AND DERMAROLLER TECHNIQUE IN THE TREATMENT OF POST ACNE SCARS

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ABSTRACT

Objectives: To compare the effectiveness and safety of Dermaroller with TCA CROSS technique for the management of post acne scars.

Material and methods: This comparative study was conducted in Dermatology unit, Lady Reading Hospital Peshawar, Pakistan from April 2019 to December 2019. A total of 98 patients with post acne scars fulfilling the inclusion criteria were included in the study and were divided into two groups with 49 patients in each. Informed consent was taken. Patients of group 1 underwent four session of Dermaroller therapy while patients of group 2 were treated with 100% CROSS TCA with each session four weeks apart.

Results: A total of 98 patients were included in the study. Mean age was 29.55 year ±5.0 SD. There were 30 (30.6%) male and 68 (69.4%) female patients. Forty two (42.9%) patients had ice pick scars, 38(38.8%) had box scar and 18(18.4%) patients had rolling type of acne scars. Efficacy of treatment in Group 1 was excellent in 15(30.6%) patients, 18 (36.7%) patients showed good response, 9(18.3%) patients showed fair and 7 (14.28%) patients showed poor response. While in group 2, 15(30.6%) patients showed excellent response, 16(32.65%) patients showed good, 13(26.5%) patients showed fair and 5(10.2%) patients showed poor response to treatment. There was no statistically significant difference found in the efficacy of treatment in both groups (p-value of 0.758).

Conclusion: Both the techniques i.e CROSS TCA and Dermaroller are effective and comparable in the treatment of post acne scars.

Keywords: CROSS TCA**,** Dermaroller**,** post acne scars, efficacy

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INTRODUCTION

Acne vulgaris is a chronic disorder of pilosebaceous unit, which usually occurs in adolescent age group. The etiology of formation of atrophic acne scars is not completely understood.[1] There is no correlation between the incidence and severity of acne and the degree of scarring.[2,3] That is the reason some patients of acne develop scars while other do not. Scarring can develop at any stage of acne and is usually permanent. It is generally understood that early treatment of inflammatory and nodulocystic acne generally helps in preventing the development of post acne scarring.[4-6] Post acne scars types are considered to be related to the severity of acne and the delay in intervention. They are classified into three types: Ice pick scars, box scars and rolling scars. Ice pick scars are less than 2mm in width, punctiform, 'v' shaped scars, with narrow infundibulum and wider opening. Rolling scars are distensible scars, with gentle slopping edges and centrally depressed. Boxcar scars are 'u' shaped punched out, shallow or deep scars that may be round, polygonal or linear.[7,8] Atrophic acne scars have been treated by multiple treatment modalities. These include subcision, dermabrasion, ablative and non-ablative laser resurfacing techniques. These treatment modalities are associated with morbidity and longer downtime. They also are of no help in treating ice pick scars, which extend deeply into the dermis and sometimes to the subcutaneous tissues.[9] Dermaroller and microneedling processes help in inducing the new collagen formation and thus help in treating acne

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scars. The standard dermaroller is a drum shaped rolling device which has 192 fine microneedles which are of different lengths (0.5-1.5 mm) with a diameter of 0.1 mm, they are arranged in eight rows.[10] In procedure of TCA CROSS focal application for acne scars, trichloroacetic acid of 70% concentration is pressed hard with sharpened wooden applicator on the depressed area of atrophic acne scar.[11] As acne scars are polymorphic and different types of acne scars may be present in same patient at the same time, no single effective technique is available for the various types of scars, and so multiple techniques will be used in the same patient.[12] There is a need for the treatment options that are both effective and safe. The primary objective of this study was to compare the effectiveness and safety of Dermaroller with TCA CROSS technique for the management of post acne scars.

MATERIAL AND METHODS

The study was conducted in Department of Dermatology, Lady Reading Hospital Peshawar, from April 2019 to December 2019. Prior approval of hospital ethical committee was taken for the study. A total of 98 patients having post acne scars were included in the study. Lottery method was used to divide the patients into two groups, with 49 patients in each group. Patients on oral retinoids treatment, patients with active acne, patients with herpes labialis and keloidal tendency were excluded from the study. Written informed consent was taken from all the patients before the procedure. The grading of post acne scars was done clinically and by serial photographs before every treatment session. Group I patients underwent four sessions of dermaroller therapy four weeks apart. While using a Dermaroller for post acne scars, the device with needles of different lengths ranging from 1.5 to 2.5mm was rolled across the skin with pressure in multiple directions until the area showed pint point bleeding from multiple punctured sites. Prior to the treatment, topical anesthetic was applied for one hour. After the procedure, the area was cleansed with saline-soaked gauze and an occlusive ointment was applied. Group II patients were treated with four sessions of trichloroacetic acid CROSS technique four weeks apart. Topically, 100% TCA concentration was applied on the post acne scars area using a specially designed applicator. After CROSS technique, patients were advised to apply topical emollients in order to avoid drying effect of the procedure. Strict sun protection and application of sunscreen lotions were advised. The adverse effects were noted in both the groups. The improvement of the patients was categorized according to Quartile grading scale (table1)

RESULTS

A total of 98 patients were enrolled in the study. There were 30 (30.6%) male and 68 (69.4%) female patients as shown in table 2. Age range was from 20 to 39 years (table 3). Mean age was 29.55 (±5.0) years. Maximum number of patients belonged to the age group of 25-29 years with female to male ratio of 2.2:1 Maximum number of patients in study had ice pick scars. A total of 42(42.9%) patients had ice pick scars, 38(38.8 %) had boxcar and 18(18.4%) patients had rolling type of acne scars (table 4).

Efficacy of treatment in Group 1 was excellent with >75% improvement in 15(30.6%) patients. 18 (36.7%) patients showed good response to the therapy, 9 (18.3%) patients showed fair and 7 (14.28%) patients showed poor response to treatment in group 1, as shown in table 3. On the other hand, 15(30.6%) patients in group 2 showed excellent response to treatment. 16(32.65%) patients showed good, 13(26.5%) patients showed fair and 5(10.2%) patients showed poor response to treatment in group 2 (table 5). There was no statistically significant difference in the efficacy of treatment in the two groups (p-value of 0.758).The most common side effect noted in patients after the both procedures was hyperpigmentation. Thirty five patients developed hyperpigmentation. Seventeen of them belonged to group 1 and 18 patients in group 2. Twenty two patients developed erythema with 16 patients treated with 100% TCS CROSS technique. Nineteen patients developed hypopigmentation which was more in group 2 patients. Seventeen patients had post procedure burning and stinging sensation, 4 patients had flare of herpes labialis. Only one patient had no side effects after the procedure in group 2, (table 6).

Table 1: Quartile grading scale for level of improvement of post acne scars.

Improvement level	Percentage of improvement
Excellent	>75%
Good	51-75%
Fair	26-50%
Poor	<25%

Table 2: Gender wise distribution of patients with post acne scars (n=98).

Gender	Frequency & % ages
Male	30(30.6%)
Female	68(69.4 %)
Total	98(100 %)

Table 3: Age wise distribution of patients with post acne scars (n=98).

Age in years	Frequency & % ages
20-24	15(15.3%)
25-29	41(41.8 %)
30-34	22(22.4 %)
35-39	20(20.4 %)
Total	98(100 %)

Table 4: Frequency and percentage of types of post acne scars in patients (n=98).

Scar type	Frequency & % ages
Ice pick scars	42(42.9 %)
Boxcar scars	38(38.8 %)
Rolling scars	18(18.4 %)

Table 5: Results of the study.

Efficacy	Group 1	Group 11	Total
Excellent>75%	15	15	30
Good 51-75%	18	16	34
Fair 26-50%	9	13	22
Poor <25%	7	5	12
P-value 0.758			

DISCUSSION

The treatment of post acne scars is a challenge. As post acne scars are polymorphic, their treatment required combination of many techniques in a single patient.[13,14] The combination of techniques like subcision, punch excision, punch grafting, dermabrasion, chemical peels and ablative and non-ablative procedures are used for various types of post acne scars. [6,15] The most difficult type of acne scar for treatment is ice pick scar, as it extends deep into the dermis and can reach upto subcutaneous tissue.[16]

A total of 98 patients having acne scars of different types were included in the study. In our study, the maximum number of patients belonged to the age group of 25-29 years which is consistant with the study conducted by Puri et al. Mean age of patients in our study was 29.5$\pm$5 years, with female to male ratio in our study was 2.2:1, which was consistent with Puri et al in which female outnumbered males in the study.[11]In another study by Puri et al, the female to male ratio was also high.[17]

The treatment efficacy with 100% TCA CROSS technique was excellent in 30.6% in our study, while in Puri et al marked improvement was seen in 60% patients after 100% TCA CROSS technique. Similarly, 30.6% patients in group 2, treated with dermaroller in our study showed excellent response to treatment. In Puri et al, there was marked improvement in 40 % of the patients after the procedure of dermarolling in the post acne scars.[11] In study conducted by Agarwal N et al, the response to 70% TCS CROSS technique was more that 50% in 60% of the cases.[18] Leheta et al showed that improvement was seen in all the patients enrolled in the study. The study showed that the response to treatment by dermarolling technique is more than in the group treated with TCA CROSS technique. Statistically, the response to treatment in both group was significant, but the level of improvement between the two groups was not significant. This was consistent with this study where the p-value was statistically insignificant on stratifying the difference in the efficacy to the treatment in two groups.[19]

The efficacy of treatment by 70 % TCA CROSS technique was excellent in 15 (30.6%) of 49 patients. Lee et al reported good clinical response in 81% of patients with 65% TCA and 93% good clinical response in 93.7% of patients by using 100% TCA, which was contrary to our study where 36.7% patients showed good clinical response to treatment by 70% TCA Cross technique.[2] In a study conducted by Aust MC et el showed that response to 100% TCS CROSS applied twice at 12 weeks intervals in split face gave better response in ice pick scars.[20]

Majid et al used the microneedling technique for treating the atrophic post acne scars. It was found that 80 % of patients assessed their treatment as excellent with this technique. In this study, however, 63% of the patients showed more than 50% improvement in their post acne scars after treatment with the dermarolling technique.[21]

Most common side effects in the study in both groups was hyperpigmentation (34.6%, 36.7%). This was followed by post procedural erythema (32.6%) in group 1 and hypopigmentation (30.6%) in group 2. In another study, maximum number of patients on treatment with TCA CROSS developed hyperpigmentation(13.3%), while 20% patients on dermaroller treatment developed erythema after the procedure. Transient erythema is one of the most common adverse effect of the procedure according to Iriarte et al.[22] Pain and edema was present in only 6.7% cases.[11] Puri et al showed that only one patient developed hypopigmentation after the procedure which was again contrary to our study where 4 patients developed post procedural hypopigmentation.[2] Lee et al also shows that hypopigmentation is one of the significant side effect of the TCA peel used for treating post acne scars.[23]

LIMITATIONS

In our study the sample size was small so further studies with large number of patients are indicated to validate the long term result of these techniques.These techniques were not applied on the patients having history of photosensitivity.

CONCLUSION

For the treatment of post acne scars, both CROSS TCA technique and Dermaroller are effective but CROSS TCA technique is minimally invasive and cost effective for the treatment of post acne scars. It has got lesser side effects as compare to Dermaroller. Beside these techniques there are many other ways to treat post acne scars but no single technique is fully effective. Therefore, multiple technique can be used to achieve the desired goal.

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Following authors have made substantial contributions to the manuscript as under

Ullah I:	Study idea, concept, design and statistical analysis
Paracha MM:	Study supervision and drafting and critical revision
Zahoor H:	Data collection

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.

FREQUENCY OF DIFFERENT TYPES OF ABDOMINAL MALIGNANCIES IN CHILDREN AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To determine the frequency and types of various abdominal malignancies in pediatric patients, presented to Khyber teaching hospital, Peshawar.

Material and Methods: This retrospective review of data was conducted in Khyber Teaching Hospital, Peshawar. Study population was children, presenting to emergency or outpatient department (OPD) with verified abdominal cancers during Jan 2017 to June 2019.Abdominal tumors were broadly divided into 6 groups. Patients with primary tumor outside abdominal cavity and age above 14 years were excluded. Age-specific frequencies were designed by age and sex.

Results: The study included 51 children, aged 0-14 years, with various types of abdominal cancers. Twenty nine patients were male (56.2%) and 22 were female (43.8%).Mean age was 2.5year.The most frequent abdominal malignancy was lymphoma which was about 34 %(18).It was followed by neuroblastoma 28%(14) and Germ cell tumors15%(8).

Conclusion: Most common abdominal malignancy was Lymphoma. Neuroblastoma and germ cells tumors were also common.

Key words: Malignancies, Childhood, Frequency.

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INTRODUCTION

Worldwide, cancer is a major health problem that lacks a universal solution. It is the second most common cause of mortality in the world. Valid data plus Implementable solutions are required to deal with growing cancer problem. It is best done in National Cancer Control Plans (NCCPs). Unfortunately only 29% of developing countries have NCCPs and that are still inefficient. In Pakistan there are regional centers (e.g. Punjab Cancer Registry, PCR) and institutes providing local cancer data. Pakistan has no national cancer registry.

The frequency of abdominal malignancies varies nationally[4] as well as internationally. Generally, developing countries have lesser frequency of childhood abdominal cancer than developed countries. This may be due to problems associated with patient registration and data collection. Still the developing countries stand the greatest burden of childhood abdominal cancers.

In the United States, childhood abdominal cancer frequency fluctuates between racial and ethnic groups. In 2006-2010, the incidence rate was lowest for an American Indian/native Alaskan group and highest in a non-Hispanic White group. This racial/ethnic variation may be due to changes in genetics, diet, environment, migration, education level, infections as well as geographical factors. Some developed countries like Australia Switzerland,[10] USA shows an incidence rates of 140-160 per million for various abdominal cancers. The identification of an abdominal mass in a child, either accidental or symptomatic, may be due to an abdominal malignancy. Most common abdominal malignant tumors are non-Hodgkin lymphomas, renal tumors, and Hodgkin lymphomas. Abdominal tumors in infants and teenagers can present intra-abdominally or in the retro peritoneum.[14] The most common clinical presentations of tumor were palpable abdominal mass (41%) and peripheral lymphadenopathy (33%).[14] Pakistan has many racial and ethnic groups. Different racial and ethnic groups show marked variation in cancer distribution and frequency from one area of the country to another on.[14] A huge number of cancer patients are not registered in our country.[14] Both of these factors definitely lead to statistically significant variation in cancer data. This study aims to find the frequency and types of abdominal cancer in children. In these circumstances, it is very im-

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portant that high-quality local data is collected that contributes to national cancer data.

MATERIAL AND METHODS

This was retrospective review of data, which was done in Khyber Teaching Hospital (KTH), a 1200 bedded tertiary care hospital in Peshawar, Khyber Pukhtoonkhwa. Duration was from January 2017 to June 2019. it was conducted after approval from institution research and ethical review board (IREB). The study population was children aged 0-14 years that presented to emergency or OPD of Khyber Teaching Hospital, with histologically verified or newly diagnosed abdominal cancer. The primary sites of cancers were identified and coded for abdominal portion, into 6, age wise groups. All patients with abdominal malignancies between 0 to 14 years admitted through outpatient department (OPD) and emergency were included. Patients with metastatic tumor with primary somewhere else and individuals of age above 14 year were excluded. Data about socio-demographic characteristics such as name, age, sex, age at diagnosis, date, site, nationality, residence, and type of cancer was collected according to a special form designed for the purpose of the study. Recorded data was summarized on a data sheet excel program. To ensure completeness and accuracy, the data was check on and reviewed several times both manually and electronically. Duplication of data was avoided by using the patient's full names (patient & father).

The data was typed on an excel sheets. Then was transformed into an SPSS (Statistical Package for Social Sciences) program version 23 (IBM, Chicago, Illinois, USA) for statistical analysis. Children were classified by age at time of cancer diagnosis. Frequency was calculated based on the estimated total admission during the period.

RESULTS

Among 51 patients,29 patients were male (56.2%) and 22 were female (43.8%). Mean age was 2.5year (slandered deviation, SD 2).Age wise patient were grouped as ;< 1year, 6 (12.5%), 1-4 years, 14 (28.12%), 5-9 years, 13 (25%), 10-14 years,18 (34.3%).The most frequent abdominal malignancy was lymphoma (group 1) which was about 34%(total 18) in both genders. it was followed by neuroblastoma (group 2) 28 %(total 14), germ cell tumors (group 5), 15%(total 8), renal tumors (group 3), 9%(total 4) hepatic tumors(group 4), 5%(total 3) & others (group 6), 8%(total 4), see table 1for gender wise distribution.

Higher abdominal cancer frequency was observed in males (male/female ratio, 1.2; $p < 0.05$). The greater rate among males was due to a substantially higher frequency of 'lymphomas (group 1). The highest frequency was observed in children 4-5 years old, followed by those aged 1-4 years, 10-14 years , and <1 year (see Table 1).The higher rate among children 4-5 year old was largely due to a substantially higher frequency of lymphomas (group 1), 'neuroblastoma (Group 2) and renal tumors (group 3).

Table 1: Gender wise frequency of abdominal tumors.

Diagnostic group	Male	Female	Total	M/F ratio
Lymphomas	11	7	18	1.8
Neuroblastoma	7	7	14	1.0
Renal tumors	1	3	4	0.9
Hepatic tumors	2	1	3	1.1
Germ cell tumors	4	4	8	1.0
Other and unspecified malignant neoplasms	2	2	4	1.1

DISCUSSION

We attempted to find out frequencies and types of abdominal malignancies in pediatric patients. Recognition of childhood abdominal malignancies are difficult .It is because of low incidence and similarity in clinical presentation. Literature shows various average ages for various tumors. For lymphoma mean age was [11.0 (±5.1) years] in USA,while we had 4.5 years. For neuroblastoma mean age was 19 months, this was less than average 3 years of our results. Renal cell tumors (4.3 years), germ cells (5.8 years) and other nonspecific tumors were (10 years) in India.All 3 had lower average ages in our study. Average ages were also less than Kenya and Nigeria.

In our study, the frequency of childhood abdominal malignancy subtypes markedly fluctuated in age related groups. In first (aged < 1 year) and 2nd group (1 -4years), the most common malignancy was neuroblastoma. In group 3 (5-9 years) and 4 (10-14 years), lymphoma was the most frequent cancer. The most common tumors in this study were lymphomas (34%), comparable to a study in Basra, Iraq. its frequency was more in male gender.it was followed by neuroblastoma and germ cell tumors. These results were also comparable to those reported previously for Korea during the period 1993-2011. Renal tumors frequency showed marked variation from international data, such as those reported for Argentina, both in age groups and gender.

Our study showed that frequency of abdominal malignancy was higher than other countries like China or Taiwan. However, our frequency was lesser than in countries in Europe. The reason for this international inconsistency in childhood abdominal cancer incidence is uncertain. By determining the age distribution of abdominal cancer, we can trace the likely period of onset of numerous malignancies, which can provide details about causative factors. Likewise, a child may be more susceptible to environmental exposures because their body parts

are growing rapidly.

LIMITATIONS

This was a single center study with limited number of patients. We need multi center studies to find out exact frequency and burden of abdominal tumors in children.

CONCLUSION

Most common abdominal tumor in children was lymphoma. Neuroblastoma and germ cells tumors were also common. In infants neuroblastoma is the most common tumor.

RECOMMENDATIONS

A National cancer registry is urgently required, for both pediatric abdominal and other malignancies.

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Kabir M:	Conceptualized and designed the study, literature search, did the statistical analysis ,contributed to the writing of the manuscript
Uzair M:	Conceptualized and designed the study
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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.

EFFECT OF PREGNANCY AND DEMOGRAPHY ON SUSCEPTIBILITY PATTERN OF AZOLE ANTIFUNGAL AGENTS AGAINST CLINICAL ISOLATES OF CANDIDA SPECIES RECOVERED FROM VULVOVAGINAL CANDIDIASIS PATIENTS

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ABSTRACT

Objective: To determine the in vitro susceptibility of vaginal Candida species isolates retrieved from both pregnant and non-pregnant vaginal candidiasis patients belonging to urban and rural areas of Peshawar against commonly used azole antifungal agents.

Material and Method: Susceptibility assays were performed on isolates collected and differentiated.40 isolates were recovered from 50 pregnant and 50 non-pregnant (urban=25 and rural=25) vulvovaginal candidiasis patients, 28 isolates from pregnant women (urban=22 and rural=6) and 12 isolates from non-pregnant women. (urban=10 and rural=2) were retrieved.

Results: Overall susceptibility order of test agents in urban population was clotrimazole>ketoconazole=fluconazole>itraconazole. In rural population it was clotrimazole>itraconazole>ketoconazole however fluconazole showed highest resistance. Overall susceptibility order of test agents in pregnant patients was clotrimazole>ketoconazole>fluconazole>itraconazole. While in non-pregnant patients it was clotrimazole>itraconazole>fluconazole, whereas ketoconazole showed highest resistance.

Conclusion: All strains from urban as well as rural population were susceptible to clotrimazole. Isolates from urban and rural areas showed extreme resistance against itraconazole andfluconazole respectively. The most susceptible drug in pregnant vaginal candidiasis patients was clotrimazole while itraconazole remained highly resistant. While in non-pregnant patients C.albicans was mildly susceptible to clotrimazole, however, ketoconazole and fluconazole remained highly resistant.

Keywords: Candida, albicans, glabrata, krusei, Clotrimazole, Fluconazole, Ketoconazole, Itraconazole.

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INTRODUCTION

The yeast Candida is normal commensal microflora in healthy individuals. However, sometimes it becomes opportunistic and causes candidiasis. [1] About 75% of the women experience vulvovaginal candidiasis (VVC) at some point in their reproductive age[2] of which 60% is due to Candida albicans while the rest is due to non albican speicies.[3] Vertical transmission of VVC can occur. [4] The abnormal vaginal discharge (ranges from a slightly watery to thick white chunky), dysuria, vulvovaginal soreness and itching are pathagnomic of VVC.[5]

Naturally a balance in the microbiota of the vagina is maintained by the Candida and other normal flora like lactobacilli[6] yet conditions like diabetes mellitus[7, 8], gestation[8, 9] obesity[7], immunodeficiency[8] oral contraceptive pills[10] and use of antimicrobials[8] predispose to VVC. Lactobacillus prevents VVC by keeping vaginal pH low and is found in natural food products like yogurt and cheese[11]. Rural population consume more natural dairy products as compare to people of urban and sub urban areas[12]. Use of IUCDs predispose to VVC in urban areas.[13]

Data regarding the antifungal susceptibility of Can-

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dida Species plays an important role in predicting the possible efficacy of consequent treatment. Candida species have been reported to be susceptible to many antifungal agents, of which clotrimazole is most effective.[14] Resistance of Candida species against azole antifungal agents has become a major health issue due to their indiscriminate use. [15]

Varied antifungal use, difference in diet and life style and unpredictable susceptibility patterns of Candidain both pregnant and non-pregnat women of rural versus urban population, has made it indispensable to carry out antimicrobial susceptibility testing, to prevent resistance and make data available to clinicians regarding the appropriate antifungal treatment.

MATERIAL AND METHODS

This descriptive study of six months duration (Feb-Jul 2013) was carried out on samples collected from patients fulfilling the inclusion criteria at Khyber Teaching Hospital, Peshawar, and processed at Pharmacology laboratory, PMC, Peshawar and Microbiology Laboratory, Sarhad University. Equal number of samples were obtained from both pregnant as well as non-pregnant females (50 each) and rural as well as urban population (25each).The Ethical committee of PMC approved the study. Married and sexually active either pregnant or non-pregnant women between (18-45) years of age who presented to the tertiary health care centre with self-reported symptoms of vaginal discharge and/or genital itching and/or dysperunia during the study period were included. Women who were immunocomprimised, diabetic, using antibiotics, corticosteroids and/or oral contraceptive pills, sexually menstruating, never been sexually active or had a hysterectomy were all excluded. Written informed consent along with detail history proforma was taken by all subjects.

Sterile high vaginal swab was taken from each participant by a trained gynaecologist.[16] The swabs taken from the patients labelied and kept at temperature (2–8°C), were transported to Microbiology laboratory, Sarhad University, within 2 hours of collection for culturing. The collected samples were streaked on Sabouraud's Dextrose agar supplemented with 0.005% (w/v) Chloramphenicol (MM1067, HiMedia Lab. Ltd, India). After incubation period of 48 hrs at 37°C plates were observed for presence of fungal growth. Positive cultures were differentiated tospecies level by germ tube test [17] and HiCrome candida differential agar (M1297A, HiMedia Lab. Lt, India). [18]

The suspensions of isolated Candida spp were prepared by suspending them in sterile saline and adjusted to match the turbidity of 0.5 McFarland. [19] Test antifungals included Clotrimazole, Ketoconazole and Itraconazole (Janseen, Beerse, Belgium) and Fluconazole (Pfizer, Surrey, UK). The stock solutions were diluted, such that six dilutions for each antifungal agents; Fluconazole (256–16μg/ml), Ketoconazole (16–1μg/ml), Clotrimazole (0.24–0.015μg/ml) and Itraconazole (4–0.25μg/ml) were obtained. The MIC of each isolate was determined by broth micro dilution method recommended by NCCLS M27-A guide lines. [19] Data analysis was conducted with statistical software (SPSS) version 20. Susceptibility of the antifungal agents was determined by descriptive median statistics.

RESULTS

Among 50 urban patients 32 isolates were retrieved (22 pregnant and 10 non-pregnant). Out of these 32 isolates, C.albicans(n=16) was predominant followed by C.glabrata(n=11) and C.krusei(n=5). However in case of 50 rural patients 8 isolates (6 pregnant and 2 non-pregnant) were retrieved of which C.albicans(n=5), C.glabrata(n=2) and C.krusei(n=1).

Good susceptibility of clotrimazole was observed as fifteen isolates of C.albicans, from urban patients while, five isolates of C.albicans from rural patients were susceptible to it. High resistance against itraconazole was observed in isolates retrieved from urban patients however ketoconazole susceptibility was fair to pooron the basis of the MIC value of each isolate which was determined by broth micro dilution method recommended by NCCLS M27-A guide lines.

In case of isolates retrieved from rural population ketoconazole and itraconazole susceptibility was fair to poor however all the isolates were resistant to fluconazole as shown in table I. C.albicans (n=15) was predominant in pregnant VVC patients followed by C. glabrata(n=7) and C.krusei(n=6). In non-pregnant patients 6 cases each of C.glabrata and C.albicanswere retrieved.Clotrimazole susceptibility was very good in pregnant vaginal candidiasis patients as all the fifteen C.albicans, five C.kruseiand four C.glabrata showed sensitivity to it while, in non-pregnant patients its susceptibility was less than 50%. C.glabrata and C.krusei from both pregnant and non-pregnant were highly resistant to itraconazole while C.albicans showed poor susceptibility to the drug. Ketoconazole susceptibility was fair in case of pregnant VVC patients whereas high resistance in case of isolates retrieved from non-pregnant VVC. Fluconazole susceptibility was also poor in both cases as shown in Table II

DISCUSSION

In this study prevalence of VVC was 70% in pregnant while 30% in non-pregnant patients. Out of 70% preg-

Table 1: Susceptibility pattern of Candida isolates recovered from urban as well as rural population against test azole antifungal agents.

Candida Species	Area	Clotrimazole		Ketoconazole		Fluconazole		Itraconazole	
		Sensitive	Resistant	Sensitive	Resistant	Sensitive	Resistant	Sensitive	Resistant
C.albicans (n=16)	Urban (n=32)	15	1	3	13	5	11	8	8
C.glabrata (n=11)		4	7	4	7	4	7	0	11
C.krusei (n=5)		4	1	4	1	2	3	0	5
Total		23	9	11	21	11	21	8	24
C.albicans (n=5)	Rural (n=8)	5	0	0	5	0	5	2	3
C.glabrata (n=2)		0	2	0	2	0	2	0	2
C.Krusei (n=1)		1	0	1	0	0	1	0	1
Total		6	2	1	7	0	8	2	6

Table 2: Susceptibility pattern of Candida isolates recovered from pregnant as well as non-pregnant vaginal candidiasis patients against test azole antifungal agents.

Candida Species	Area	Clotrimazole		Ketoconazole		Fluconazole		Itraconazole	
		Sensitive	Resistant	Sensitive	Resistant	Sensitive	Resistant	Sensitive	Resistant
C.albicans (n=15)	Pregnant (n=28)	15	0	2	13	3	12	6	9
C.glabrata (n=7)		4	3	4	3	4	3	0	7
C. krusei (n=6)		5	1	5	1	2	4	0	6
Total		24	4	11	17	9	19	6	22
C.albicans (n=6)	Non-pregnant (n=12)	5	1	1	5	2	4	4	2
C.glabrata (n=6)		0	6	0	6	0	6	0	6
C. Krusei (n=0)		0	0	0	0	0	0	0	0
Total		5	7	1	11	2	10	4	8

nant patients 53.5% were Calbicans positive while 47.5% had vaginitis due to non-albicans species. In non-pregnant vaginitis patients 50% isolates were C.albicans while remaining 50% were C.glabrata. This finding is in conformity to the earlier finding in which VVC is significantly higher in pregnant than non-pregnant patients. [20]

In our study the prevalence of C.albicans and non-albicans species in urban population remained about 50% each, in contrast to the Chinese study in which C.albicans (80.5%) was common specie while non-albicans species were 19.5% causing VVC. [21] In present study 62.5% isolates from rural area were C.albicans positive while 37.5% were non-albicans that is in contrast to an Indian study that give prevalence of 60% non-albicans infections and 40% C. albicans vaginitis. [22]

Susceptibility to Clotrimazole was 71.8% and 75% in VVC urban and rural patients respectively. 63.6% isolates of C.glabrata from urban area and 100% from rural area were resistant to clotrimazole, a finding in conformity with Japanese data that gives more susceptibility of C.albicans for Clotrimazoleas compare to C.glabrata.[23] Results of the rural area are in favor of this study yielding 90.4% susceptibility of clotrimazole against C.albicans while in contrast to the same study as far as the susceptibility of clotraimazole against C.glabrata (78.2%)[24]

In this study, 34.3% patients from urban area and 12.5% patients from rural area showed response to ketoconazole. Both C.albicans and C.glabrataisolates from rural patients showed complete resistance while 18.7% C. albicans and 36.3% C.glabrataisoaltes retrieved from urban patients responded to it. All isolates of C. krusei from rural patients and 80% from urban patients responded to

this drug. This finding is contrary to an Iranian study which states that 90.6% urban isolates to be sensitive to ketoconazole. [25] The resistance rate of this agent forC.glabrata isolates was 15% and that of C.albicans was 9.6%[25], which is contrary to our report. In a study done in rural area both C.albicans and non-albican species were found to be highly susceptible toketococnazole which is in contrast to our study. [22] 34.3% isolates retrieved from urban VVC patients responded to fluconazoole while allisolates from rural patients showed resistance, contrary to Brazalian study reporting 93.6% susceptibility of C.albicans while 81.8% of C.glabratato fluconazole[26] In present study resistance to Fluconazole in all species from rural patients is in contrast to the report yielding 100% susceptibility of fluconazole to all candida isolates from VVC patients visiting a rural primary health care centre in north India.[27]

Fifty percent of C. albicans from urban patients were susceptible to itraconazole while all isolates of C. glabrata and C. krusei showed resistance to it. So in urban area the drug susceptibility was 25%, in contrast toa finding reported that 10% of C.albicansand 88% C.glabratato be resistant against Itraconazole.[28] 85.7% pregnant VVC patients showed susceptibility for Clotrimazole of which 100% of C.albicansand 57.1% of C.glabrata were found susceptible to it which is in favor of a study done in Uganda presenting resistance of 0.61% and 36.67% againstC. albican and C.glabrataspecies respectively.[29] However 83.3% non-pregnant VVC patients responded to this agent and only C.albicanswere susceptible to clotrimazole while C. glabrata were highly resistant to it which is in favor of a Japanese study yielding high resistance of C.glabrata against clotrimazole. [23]

In case of pregnant VVC patients, 39.3% were susceptible to Ketoconazole which is contrary to a studyreporting highest sensitivity of ketoconazole against C.albicans in pregnant patients.[30]

In our study out of all isolates from pregnant vulvovaginal candidiasis patients only 32.1% were found susceptible to fluconazole which is in favor of another study done in Peshawar yielding 33.3% of candida isolates sensitive to fluconazole. [31]

CONCLUSION

This study demonstrated the importance of specie identification and antifungal susceptibility testing as the results were different among urban and rural population, showing high resistance against itraconazole and fluconazoe in urban and rural population respectively.

The high prevalence of VVC with multiple species in pregnant patients was found to be most susceptible to clotrimazole while highest resistance was observed against itraconazole.

In case of non-pregnant patients high resistance was observed against ketoconazole and fluconazole.

RECOMMENDATIONS

If a similar study is done on a large sample size with better study design it will give more clear picture as one study can provide grounds for other researches.

CONFLICT OF INTEREST:

This study is a part of my M.Phil thesis in which clotrimazole, fluconazole, ketoconazole and itraconazole susceptibilities of candida species recovered from vulvovaginitis patients in a tertiary care hospital of peshawar, Pakistan was established. The seminal paper has already been published. This auxiliary data has some more insight results and is reported in this article. I am thankful to my supervisor, co. supervisor and my colleagues for their support.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Zafar S: Main idea.

Javaid A: Data collection.

Salman F: Searching relevant article.

Khan AZ: Laboratory work.

Haq M: Data entrance.

Khurram M: Supervised the whole project.

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.

STUDENTS' PERCEPTIONS OF EARLY CLINICAL EXPOSURE IN A RESPIRATORY CARE PROGRAM

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ABSTRACT

Objective: To evaluate the perceptions of respiratory care program students on early introduction of clinical skills teaching.

Material and Methods: Seventy-one respiratory care students who completed their ECE course successfully were asked to fill a questionnaire using a Likert-scale. The questionnaire was developed based on the main themes that emerged from the focus group discussion.

Results: Majority of respondents agreed that “it was good to introduce clinical skill since the early years of the curriculum". On the other hand, students were not satisfied with some aspects of the organization and structure of ECE. An overall degree of agreement with ECE was found to be good, although the degree of agreement varied between the different themes of ECE and was found to be greater in males than in females.

Conclusion: The introduction of ECE in respiratory care program can be useful and has a positive impact on student learning and on their attitude toward the profession.

Keywords: Clinical, education, instructors,exposure, Respiratory care , Student, perception.

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INTRODUCTION

Respiratory Care (RC) is an allied health profession concerned with the evaluation and treatment of patients who have breathing problems. Respiratory Care Practitioners (RCP) exercises a considerable degree of independent clinical judgment in patient care. Students start their Early Clinical Exposure (ECE) in the bachelor’s degree in RC at Imam Abdulrahman Bin Faisal University (IAU) from the second year. Contents covered during ECE are specified in the ECE Manual consisting of physical assessment, history taking, and certain respiratory care modalities. The performance of students during ECE is carefully monitored according to a specific set of continuous assessment criteria by full time clinical instructors. Traditional allied health programs in the Kingdom of Saudi Arabia (KSA) have been based on lectures and laboratory sessions throughout the four-year program with minimal clinical exposure. Clinical exposure in such traditional programs is introduced in the last semester towards the end of the program. For decades, most clinical teaching occurred at the bed side during the last two years of medical education, while the early years were devoted to basic sciences. This model is now changing health profession education must respond to rapid changes in health care delivery systems. RCP at IAU responded to such changes and introduced the ECE in respiratory care since the inception of the program in 1999. Literature shows abundant research about the implementation, outcome, usefulness, and perception of ECE on medical students, for example, ECE has been evaluated at 10 medical schools of the Interdisciplinary Generalist Curriculum (IGC) project, the result showed that the majority of students in this study described ECE as important validation of their decision to go to medical school and gave them the opportunity to integrate basic sciences with their patient encounter experiences.[1] To the best of the investigator’s knowledge, there

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has been no study to evaluate the impact, usefulness, and perception of ECE on RC students. This study aims to evaluate the ECE of the RC profession in KSA from student's perspective. Evaluation of ECE by students forms an essential aspect of quality improvement and assurance to the Respiratory Care education program. Furthermore, student satisfaction with ECE will be a useful indicator of the quality of the program and will help to introduce changes or improvement that could be made to satisfy both students and stake holders at IAU. Three research questions were raised: What are student perceptions of the implementation of ECE? To what extent does clinical instructor performance affect student perception of ECE? To what extent does organization and structure of ECE affect student perception of ECE?

A review of the literature shows evidence that supports the positive outcomes of ECE. As a result, several institutions are switching from traditional discipline-based curricula to integrated curricula.[2] Duban found that ECE facilitates integration of basic and clinical sciences and improves student attitude towards basic sciences.[3] Eric et al studied some of the concerns of students in ECE and found that first-year medical students know little about clinical medicine. Students did not have a role in patient care and usually had no on-going relationship with the patient.[4] As a result, this detachment made students feel inferior, inadequate, and depressed because they think that they will be perceived as intrusive, and possibly a source of discomfort to the patients. It is extremely important to conduct clinical education with quality to produce competent health care professionals. One way to improve the quality of medical education is to improve the relationship between medical students and instructors; also, development of a good advisory relationship can help students cope with feelings of inadequacy, anxiety, or fear.[5] To improve educational quality, schools should seek and reward the best clinical instructors, according to Knowles teachers are a valuable resource to facilitate learning, teachers (Clinical instructors) can improve the retention of knowledge and experience by adhering to several educational concepts and principles.[6] Educational theories on adult learning support the use of ECE, the cognitive approach addresses how a learner processes information using it to create useful knowledge in a domain, the humanist and constructivist approaches may clarify the development of clinical judgment and professionalism where each learner must assemble a variety of learning experiences and forge them into a meaningful whole.[7]

To get the most benefit of ECE and to have integration between basic sciences and clinical practice so that students become motivated, there is need to develop a system to put the whole picture of basic sciences and clinical practice together.[8]

MATERIAL AND METHODS

This research is a descriptive study to determine the perception of respiratory care students at IAU of their ECE. The questionnaires were administered in September 2018. The questionnaire was given to respiratory care students who completed the ECE course between the years 2016 and 2018. Four different batches of students were designated for this study.

A student survey was conducted using a self-developed questionnaire. The focus group discussion was used to identify the key factors in the ECE. These factors guided the development of the questionnaire. A discussion guide contained several distinct sections related to themes of ECE was used to guide the focus group discussions. The self-developed questionnaire was used after minor modifications based on the literature review and was piloted to identify any unclear or difficult wording or statements so that the questionnaire could be modified before conducting the study. The reliability of the questionnaire was assessed using Cronbach's alpha which was 0.877. The validity was determined by the face validity through consultation with the respiratory care program faculty at IAU and with senior respiratory care practitioners at different designated clinical facilities. To secure the validity of the questionnaire, independent expert opinions were sought.[9] The data from the questionnaire were analyzed using Statistical Package for Social Science (SPSS version 22).

RESULTS

The overall perception of ECE is 854 (63%) in agreement, 238 (18%) undetermined, and 258 (19%) disagreement. Five items were included in the questionnaire to study the perception of students about the organization and structure of ECE, the results for this theme as a whole were that 48% of respondents perceived ECE as well organized and structured, 79 % and 69% of respondents agree that the group size was appropriate and that the objectives of ECE were clear, respectively, very few respondents agreed that ECE was well conducted, the manual was helpful, and the time allocated for ECE was adequate (Table1). Three questionnaire items were introduced to seek the perception of students about the implementation of ECE, the results for this theme were that 59% of the students perceived that ECE was well implemented, 61% and 59% of the respondents agreed that the skills taught in ECE were appropriate and that they had an adequate opportunity to practice the skills taught, respectively (Table 2).

Respondent opinions about the advantages of ECE were elicited through six different questionnaire items. The study showed that most respondents see advantages to ECE (Table3). Five questionnaire items were designed to perceive students' opinions about the compe-

tency of clinical instructor during ECE, the results of this theme were 57% of respondents perceived the competency of clinical instructors of ECE to be appropriate. The study also showed that 72% of students agreed that the clinical instructor was available when students were performing clinical skills. The rest of the items had agreement percentages around 50% (Table4).

Overall difference in agreement between males and females for all themes was very highly significant ($p<0.000$), for each theme the agreement among the male and female students was higher among male and was highly higher for all themes except for theme 3 (Advantages of ECE) (Table 5). Overall degree of agreement among student batches was a very highly significant ($p<0.000$), batch IV was very highly significantly different from all other batches ($p<0.000$), batch II was significantly different from batch III ($p<0.02$), there was no difference between batches I and II ($P<0.15$) and batches I and III ($p<0.55$).

DISCUSSION

The result of the survey showed that overall agreement with ECE was calculated to be 67%. However, the degree of agreement varied between the different themes of ECE. The degree of agreement for the advantages of ECE was the highest (80%), while the degree of agreement for the organization and structure of ECE was the lowest (56%). Our results support the view that students found ECE to be valuable in their curriculum. However, many of them were not satisfied with ECE organization and structure; the manual was not helpful, and time allocated for ECE was inadequate. Student dissatisfaction with some aspects of the organization and structure of ECE could be explained on the basis that clinical instructors were not well prepared in terms of choosing appropriate cases related to their level or matching the specific objectives.[10] Students thought that cases introduced or patient's they were supposed to see did not match with the curriculum objectives they were studying and because there was no previous arrangement or specific preparation with such

Table 1: Frequency Distribution of Organization and Structure of ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
The objectives of ECE were clear	5	7	17	24	49	69
The ECE sessions were well conducted	24	34	30	42	17	24
The group size was appropriate	6	8	9	13	56	79
The student clinical manual was helpful	40	56	14	20	17	24
The amount of time for ECE was adequate	32	45	8	11	31	44
Organization and Structure of ECE	107	30	78	22	170	48

Table 2: Frequency Distribution of the Implementation of ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
The skills taught in ECE were appropriate	9	13	19	27	43	61
There was adequate opportunity to practice the skills	16	23	13	18	42	59
The ECE enhanced my ability to communicate with patients	5	7	26	37	40	56
Implementation of ECE	30	14	58	27	125	59

Table 3: Frequency Distribution of the Advantages of ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
I enjoyed the ECE skills sessions	5	7	8	11	59	83
The ECE sessions were useful	8	11	7	10	56	79
The ECE stimulated my interest in basic sciences	3	4	7	10	61	86
The ECE stimulated me to be an active learner	2	3	5	7	64	90
The ECE helped me to understand concepts and principles relevant to curriculum	10	14	5	7	56	79
It is good to introduce ECE in the early years of curriculum	6	8	3	4	62	87
Advantages of ECE	34	8	35	8	358	84

Table 4: Frequency Distribution of Clinical Instructor Competency in ECE

Items	Disagree		Undetermined		Agree	
	Freq	%	Freq	%	Freq	%
The clinical instructor helped me learn effectively	23	32	13	18	35	49
The quality of observation from the clinical instructor was appropriate	17	24	15	21	39	55
The quality of feedback from the clinical instructor was appropriate	19	27	16	23	36	51
The clinical instructor was available when students where performing clinical skills	14	20	6	8	51	72
The clinical instructor effectively communicated knowledge	14	20	17	24	40	56
Clinical Instructor Competency of ECE	87	25	67	19	201	57

Table 5: Comparing the Degree of ECE Theme Agreement between Genders and Themes

Themes of ECE	Gender	N	Mean	%	SD	P
The organization and structure of ECE	M	40	3.50	63	1.17	<0.001 **
	F	31	2.89	47	1.21	
The implementation of ECE	M	40	4.01	75	0.94	0.007 *
	F	31	3.61	65	1.18	
Advantages of ECE	M	40	4.19	80	0.98	0.95
	F	31	4.18	80	0.89	
Clinical instructor competency of ECE	M	40	3.66	67	1.06	<0.001 **
	F	31	2.95	49	1.15	
Overall agreement with ECE	M	40	3.84	71	1.08	<0.001 **
	F	31	3.43	61	1.23	

M=Male;F=Female;*=Highlysignificant(HS);**=veryhighlysignificant(VHS)

patients. It is plausible that both these factors may have created an atmosphere of uncertainty, stress, and unease to students. The result of this study agrees with a study done in which he concluded that it is worth investing some time and energy in planning bed side training rounds.[11] Recent systematic review also concluded that teaching sessions be divided into before, after and round activity due to importance of clinical rounds in learning of the students.[12] Students in our study agreed that the ECE program objectives were clear (69%),but some of them were confused about the extent of mastery they were expected to achieve for each skill. Furthermore, students felt that the time was inadequate to accomplish what was expected from them as specified in the manual. It is important to realize that it was not the length of time spent in ECE that mattered but that the quality of time spent in clinical teaching is more important. Based on the student comments, it can be inferred that the time spent in clinical teaching was not well utilized which gave them the impression that the overall time designated for ECE was not enough. This supposition was also supported by the free responses of students. Such student perceptions about the inadequacy of time agrees with a previous study in which students expressed their dissatisfaction due to improper time management and the lack of high-quality tasks spent in the learning/ teaching situation during the allocated time.[13] The implementation of ECE as perceived by the students in our study was reasonable, students get the opportunity to meet patients and they are to some extent involved with the patient in terms of interviewing, physical assessment, and observing some of the RC procedures performed. Students felt that clinical instructors were not familiar with the curriculum taught at IAU and they lack training in bed side teaching. This student perception agrees with an earlier study where he emphasized that faculty training in clinical skills and teaching methods is an important stage of preparation for implementing effective clinical teaching.[14, 15]

In general, students enjoyed the ECE a great deal and they were very enthusiastic and satisfied with this instructional method. They felt it was an interesting change from traditional class room teaching. They also felt that ECE facilitated integration between basic and clinical sciences and improved their interest and attitude towards basic sciences. In a recent study the importance's of integration between basic and clinical sciences were highlighted in improvement of bridging the academic knowledge to clinical scenario.[16] They also perceived ECE to stimulate their active learning and to be very useful and enjoyable. Some of the students 'comments indicated that they felt like a real RCP which made them satisfied with their choice of the profession. These findings are consistent with other studies done earlier on medical students.[5, 17-19] It is important to recognize that clinical instructor performance

and attitude directly influence student perception of ECE. If the clinical instructor lacks understanding, knowledge, and enthusiasm, a negative impression will be perceived by the student towards ECE. A recent study suggested that instructors knowledge, enthusiasm as well support as the most looked-for characteristic for students which are in agreement with our study.[20]

Only half of the students agreed that the clinical instructor was helpful in effective learning. Most of the comments were revealing a negative perception concerning knowledge and competence of clinical instructors. Some of the comments showed that clinical instructors were not supportive. It is clear from those comments that it is important to improve the relationship between clinical instructors and respiratory care students. This will improve the quality of education and subsequently, health care. Clinical instructors also need to familiarize themselves with clinical curriculum in action. These findings are consistent with other studies done by different researchers. A study by Atack L found that both staff and students described staff characteristics and the work environment as important factors influencing relationships and student learning.[21] Another study concluded that for clinical instructors to be effective as teachers, they should have clinical knowledge of medicine, patients, the context of practice, as well as awareness about the knowledge level of learners, and general principles of teaching.[22, 23] One reason for such negative comments concerning clinical instructors encountered in our study could be due to the language barrier; English language proficiency of both the students' and clinical instructors were sub optimal. Most clinical instructors were non-native English speakers. These views are supported by a previous study on 99 international graduate medical students in an internal medicine program concluded that patient satisfaction and faculty/ peer evaluations were found related to English language proficiency.[24] To the overall difference in agreement between males and females for all themes was very highly significant ($p<0.000$). For each theme the agreement was highly significant except for theme 3 (Advantages of ECE) which was non-significant ($p=0.95$). This suggests that there are differences between males and females' students in the way that they perceive the advantages of ECE. In general, degree of overall agreement for all themes was greater among male than among female students. This could be since the extent of involvement of males in the clinic is greater than the female students because of cultural barriers and because all instructors were male. These findings are consistent with a study which confirmed that gender equity is important in facilitating successful learning by students.[25] "Gender takes up the questions of how educational opportunity differs for female and male students and how school scan foster gender equity". It is important to note that clinical instructors remain the same for all batches. Furthermore it is also important to note that batches-I and-IV comprised of female students in contrast with batches–II and III of male students. Thus, the confounding effect of gender also should be considered. In addition, there call bias of respondents from different batches needs to be considered in comparing the differences in perceptions between the batches.

Our study also has some limitations; it was based on self-applied questionnaire. Another limitation was inclusion of study subjects from one institute; in future more universities can be included. It is vital to highlight that proper structuring and organization of ECE components, proper training and orientation of clinical instructors, setting clear objectives for clinical sessions, and proper time management are important factors and are pre-requisites for successful implementation of early clinical exposure program. Further studies using qualitative research techniques are required for an in-depth understanding of student perceptions about early clinical exposure.

CONCLUSION

The findings of our study could be concluded as

1. ECE can facilitate effective learning in respiratory care program.
2. Students found ECE more stimulating than traditional class room teaching.
3. Planning of bed side rounds or patient cases are important and should be harmonious with the objectives of the curriculum.
4. Students felt ECE integrated basic and clinical sciences which not only improved their interest but attitude towards basic sciences.
5. For effective clinical teaching, faculty needs to be trained in teaching methods as well as clinical skills.

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Yadak M: Main Idea, Literature review, article writing, overall supervision

Farooqi FA: Data analysis, article writing and formatting.

Ansari K: Literature Review, final draft, proof reading bibliography

Ali S: Article writing, final draft, proof reading, bibliography

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TONSILLECTOMY BY HARMONIC SCALPEL: A SYSTEMATIC REVIEW OF EVIDENCE FOR POSTOPERATIVE HEMORRHAGE

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ABSTRACT

Objective: To review the literature systematically on tonsillectomy by harmonic scalpel with a view of comparing its postoperative hemorrhagic rate with the conventional methods for tonsillectomy.

Data Sources: Cochrane Library, Medline, Embase, CINAHL, INAHTA, CRD (Centre for Review and Dissemination, York, UK), and related databases. papers were considered irrespective of language of publication.

Review Methods: Inclusion and exclusion criteria were applied independently by two reviewers with a third reviewer available for adjudication. The papers were quality assessed using Chalmers' criteria. Eleven randomized controlled trials (RCT) were included in the final review with 5 RCTs comparing harmonic scalpel tonsillectomy with "cold steel" tonsillectomy and 6 RCTs comparing harmonic scalpel with "hot" tonsillectomy techniques.

Results: All studies were underpowered to detect a significant difference in the postoperative hemorrhagic complication between harmonic scalpel and the comparator tonsillectomy techniques. The heterogeneity of studies made quantitative combination of results impossible.

Conclusion: The evidence reviewed is of low quality and does not support any significant difference in postoperative hemorrhage rates when harmonic scalpel is compared with other tonsillectomy techniques. As studies have numerous methodological flaws and incorporate biases and confounding factors, these results need to be interpreted with caution. Larger and better-conducted studies would be needed in order to compare the safety of harmonic against conventional tonsillectomy methods. The need for a large sample size might make an RCT impractical; therefore a large, well-controlled cohort study could be more suitable.

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INTRODUCTION.

Tonsillectomy is one of the most common surgical procedures in ENT. The number of tonsillectomies has varied considerably over time, with a drop in numbers possibly being attributed to advances in antimicrobial therapy after the 1950s. Despite the relative decline of tonsillectomy, the numbers of patients undergoing such surgery are still large. In the UK, a national audit between July 2003 and September 2004 enrolled 40,514 patients.[1] In excess of this number of tonsillectomies are performed yearly in the UK (either as a single procedure or in combination with adenoidectomy), at least 5000 in children younger than 5 years and 20,000 in those under 16 years of age. In the United States as many as 259,000 tonsillectomies are performed annually.[2] A range of competing surgical techniques are available for tonsillectomy: cold steel, monopolar or bipolar diathermy (electrocautery), coblation, and harmonic scalpel. Traditionally, "cold steel" tonsillectomy dissection is performed with a combination of scissors and other metal instruments. Bleeding is controlled by applying pressure using temporary packs, then by ligatures; some surgeons use diathermy hemostasis instead of or as well as ligatures. Tonsillectomy by means of diathermy for both dissection and hemostasis is referred to in this paper as "hot" technique. Diathermy uses radiofrequency energy applied directly to the tonsil, and can be bipolar, when the current passes between the tips of the forceps, or monopolar, when the current passes between the tip of the forceps/blade and a plate on the patient's body. The coblator generates a field of plasma or ionized sodium particles that cut the tissue by vaporization. It also acts as a weak bipolar cautery that coagulates small blood vessels. The harmonic scalpel uses ultrasonic energy for both cutting tissue and coagulating the blood vessels.

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The tonsil is cut using a disposable blade, which vibrates at 55 KHz per second. This vibration transfers energy to the tissue and leads to superficial denaturation and coagulation of protein by heating the tissue to temperatures between 55°C and 100°C. The purpose of this study was to systematically review the literature on harmonic scalpel tonsillectomy and rates of postoperative hemorrhage with comparison to conventional tonsillectomy techniques; harmonic scalpel (HS) was compared with cold steel dissection, bipolar forceps and bipolar scissors, monopolar cautery, electrocautery, and coblator

MATERIAL & METHODS

Databases systematically searched included Cochrane Library, Medline, Embase, CINAHL, INAHTA, CRD (Centre for Review and Dissemination), and related databases. Conference proceedings were searched on NLM Gateway, medicalconferences.com, and Zetoc. The date of the last search was September 19, 2019; no language restrictions were imposed. The search strategy began with "tonsillectomy, harmonic scalpel, ultrasonic scalpel." Keyword strategies were developed based on terms identified in the scoping search, professional experience, and key words provided by the papers retrieved. Manufacturers of harmonic scalpel technology (Ethicon Endo-Surgery) were contacted for product specifications and information about unpublished trials. Bibliographies of identified studies were manually searched for relevant references. One unpublished trial[3] was identified in the National Research Register in the UK, comparing bipolar diathermy, KTP laser, coblation, and harmonic scalpel. After contacting the authors it became apparent that the trial was stopped before completion. Foreign language publications were scanned using an English abstract where available. In the absence of an English abstract the full text paper was retrieved. Inclusion and Exclusion Criteria While devising inclusion/exclusion criteria, the authors initially proposed the exclusion of studies where patients had adenoidectomy as well as tonsillectomy. It became apparent that by using these stringent criteria a large number of studies, especially those including children, would have to be excluded. In practice, as many as a third of children undergo adenoidectomy and tonsillectomy at the same time;[4] disregarding these studies would bias the review by excluding a large and important patient population. By including these studies the authors believed that the external validity of the review would be enhanced and its results become more applicable to day-to-day clinical practice. The following inclusion/exclusion criteria were applied:

STUDY DESIGN: Only randomized controlled studies were included.

POPULATION: Adults who underwent bilateral tonsillectomy for indications such as recurrent or chronic tonsillitis, quinsy, or obstructive symptoms were included. Studies where patients underwent harmonic scalpel tonsillectomy as part of an uvulopalatoplasty, tonsillectomy for malignant disease, or unilateral tonsillectomy for histological diagnosis were excluded.

INTERVENTION: Harmonic scalpel tonsillectomy (ultrasonic scalpel tonsillectomy).

COMPARATOR: Tonsillectomy by cold steel dissection, cold steel dissection with added diathermy for hemostasis, bipolar or monopolar diathermy tonsillectomy, laser tonsillectomy, electrocautery, microdebrider tonsillectomy, coblation. Studies on tonsillotomy or radiofrequency tonsil reduction were excluded.

OUTCOME: Postoperative bleeding either primary (first 24 hours) or secondary (day 1 to 14 postoperatively). Studies that did not report any numerical data were excluded from analysis. Decision to include or exclude a study was made independently by two reviewers independent of each other. An inter-observer Kappa score (a measure of chance-corrected agreement) was calculated, indicating excellent agreement at 0.9. Where disagreement existed it was resolved by discussion. A third reviewer was available for consultation if agreement could not be reached but adjudication was not necessary. A quality assessment was performed by two independent reviewers in order to determine a minimum quality threshold for selection of studies; to explore quality difference as an explanation for heterogeneity of results; to guide the interpretation of findings and aid in determining the strength of inferences; and to guide recommendation for future. Data extraction was performed independently by two reviewers. A method described by Chalmers[5] (qualitative instrument) in 1990 was used in order to assist with the interpretation of results. The criteria used are: Is the randomization adequate? Is there potential for selection bias after allocation to study group (ie, losses to follow-up, intention-to-treat analysis)? Were assessors of outcome blinded to patient allocation? What was the quality of outcome assessment? For postoperative hemorrhage a set of criteria were considered important in assessing the quality of measurement: clear definition of primary (occurring within 24 hours of surgery) and secondary bleeding (occurring from day 1 to 14 postoperatively); clear definition of what was recorded as bleeding (ie, any bleeding; primary bleeding that delayed discharge, needed transfusion, needed return to theatres for stopping; secondary bleeding requiring admission for observation after the patient was discharged). Another important aspect is whether follow-up was long enough for outcome to occur, ie, at least 14 days for secondary bleeding. Studies were graded A, B, or C for their overall methodological quality as follows: A: minimization of bias in all categories (1, 2, 3, and 4), ie, adequate randomization, few losses to follow-up, blinding of assessors, high-quality outcome assessment; B: all the above of the criteria partially met; C: one or more of the criteria in A not met. The standard of reporting was poor; results of the quality

assessment are presented in Table 1. Using the Chalmers criteria for quality, two RCTs were awarded a B grade;6,7 the rest of the RCTs included were grade C.8-16

RESULTS

After the described quality assessment,[11] RCTs were included in the review; As cold steel dissection and "hot" tonsillectomy techniques have a different rate of postoperative hemorrhage,[4] studies were analyzed separately for the two types of surgical techniques. A sample size calculation for each study was undertaken in the review in order to detect the role chance might have played in the results. The sample size needed in each arm of study to detect the reported differences in bleeding rates with a power of 80% and a significance of 0.05 is presented in Tables 1 and 2. All studies were underpowered. Studies included in the review were extremely heterogeneous not only in terms of population (different ages and indications for tonsillectomy), but also in terms of comparator techniques, added hemostatic procedures (see Tables 1 and 2), definitions of postoperative hemorrhage (see Tables 1 and 2), and surgical expertise of the operator (see Tables 1 and 2). The clinical heterogeneity of studies precluded any quantitative combination of results with a view to improve power. Numerous confounding factors were identified. In the selection of patients eligible to participate, some studies have excluded patients who have a history of peritonsillar abscess.[6] Previous peritonsillar abscess is a likely risk factor for postoperative hemorrhage and conversely patients with a history of obstructive sleep apnea are probably at lowest risk of postoperative hemorrhage.[4] It is likely that fibrosis and scarring that may result from severe or repeated infection contributes to difficulty of tonsillar dissection and potentially higher risk of subsequent hemorrhage. Age of patients is also likely to substantially influence the rate of postoperative hemorrhage as this has been reported more frequently in adults when compared to children.[4] Three of the studies included adults only,[8,11,14] Four RCTs included children and adolescents [6,7,15,16] and [4] RCTs included both children and adults.[9,10,12,13] No separate analysis of results was undertaken for different age groups in any of the studies. A number of studies reported the use of "hot" hemostatic techniques such as bipolar diathermy, monopolar diathermy, or suction diathermy added to either the harmonic scalpel or the comparator technique or both (see Table 1). If the effect of using such techniques (including the dose administered) is not adjusted for in the analysis of results.

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polar diathermy. In the majority of studies an added hemostatic procedure was needed with the harmonic scalpel. The results for harmonic scalpel vs "hot" techniques where patients are the unit of randomization are summarized in Table 2. Bipolar Scissors Leaper6 did not find any difference between harmonic scalpel (at 40% power) and bipolar scissors (at 15 W) in the rate of secondary hemorrhage (23% vs 21% respectively). For the purposes of the study, bleeding of any quantity was noted, which could explain the relatively high rate recorded. The authors did not encounter any primary bleeding. Monopolar Cautery and Coblator In comparing harmonic scalpel with monopolar cautery and coblator, Parsons[13] did not record any difference in postoperative bleeding. The authors fail to

Table 1: Harmonic scalpel vs cold steel postoperative hemorrhage.

S.No	Study Year Chalmers grade Country	Randomization unit Number of patients	Postoperative bleeding	Comments Sample size needed
1	Haegner 2002 Chalmers C Germany	Patients 25HS/25CS Adults	No primary hemorrhage Secondary hemorrhage HS-7 patients 28% CS-3 cases 12% No return to theatres P 0.28	Any bleeding taken into account Bipolar diathermy added to both techniques Surgeons experience not stated
2	Kamal 2006 Chalmers C UK	Patients 180HS/100CS Adults and children	No primary hemorrhage Secondary hemorrhage HS-2 patients 1.7% CS-7 patients 7% P 0.01	Bleeding recorded only if needed admission Bipolar added to both techniques Surgeon experience variable
3	Oko 2005 Chalmers B UK	Patients 61HS/61CS Children	No primary hemorrhage Secondary hemorrhage HS-8 patients 13% CS-6 patients 10% P 0.77	Haemorrhage not defined bipolar Diathermy used in both groups Two surgeons, year 3-4 Senior Specialist
4	Akural 2001 Chalmers C Finland	Tonsil side 28 patients Adults	Primary hemorrhage HS-1 patients Secondary hemorrhage CS-1 patients	Hemorrhage not defined.Electrocautry used in both groups.Three surgeons familiar with HS.
	Collison 2004 Chalmers C USA	Tonsil side 28 patients Adults and children	No primary hemorrhage Secondary hemorrhage HS-3 patients, 1 return to theatre.CS-0 patients	Hemorrhage not defined Suction cautery used in both groups Surgeons' experience not stated

HS:Harmonic Scalpel, **CS**:Cold Steel, **BD**:Bipolar diathermy.

Table 2: Harmonic scalpel vs"hot" tonsillectomy postoperative hemorrhage—patient randomized.

Author Year Country Chalmers grade	Unit of randomization Patient characteristics Surgery	Number of patients Age	Intervention /comparator	Bleeding postoperatively	Comments
AlBeeka 2003 Australia Grade C	Patient randomized Adults and children	25/25 No baseline data	HS/MD HSand-MCsettingsnot started	No primary bleeds. 1 in each group secondary bleeding	Randomized on the base of surgery day Sample size not calculated
Parsons 2006 USA Grade C	Patient randomized Adults and children		HS+MC coblator Settings not stated	1 patient in each group had primary bleeding	secondary bleeding Surgeons year 3-4 residents Sample size needed 3379
Walker 2001 USA Grade C	Patient randomized Children	Age mean and SD	HS/EC HS setting not stated EC setting 20W to dissect and 30 W to cauterize	No primary bleeds. 14 delayed bleeds. 1 HS returned to theatre	bleeding apart from return to theatre Sample size needed 1601
Willging 2001 USA Grade C	Patient randomized Childrenand adolescent	Age mean 95% CI) HS6.3(5.6-7.0) EC6.9(6.1-7.8	HS/EC HS setting3 EC setting10W to dissect and15 W to cauterize	1 primary bleeding 3 returns to theatre No significant difference of quantity of bleeding noted	Patients with previous peritonsillar abscess, bleeding tendency,or NSAID intolerance excluded
Leaper 2006 New-Zeeland Grade B	Patient randomized Children	103/101 mean age SD 102.8/92.6	HS=silk ties/bipolar scissors BS HS setting 40% power Bipolar scissors setting 15W Silk ties needed for 48% of HS group	No primary bleeds Secondary bleeds HS 24 cases 23% BS 21 patients 21% P0.8	Two surgeons experince not stated No separate group reporting for bleeding

define bleeding and both the harmonic scalpel group had monopolar cautery added for hemostasis. Electrocautery Walker[15] and Willging[16] compared harmonic scalpel with electrocautery in children. Both studies fail to report the rate of bleeding separately for each group randomized but report no difference in the rate of return to theatre for secondary hemorrhage between groups. Bipolar Diathermy No primary hemorrhages were recorded by Sheahan[14] when comparing tonsil sides operated with either harmonic scalpel or bipolar diathermy in 21 patients. In the harmonic scalpel group hemostasis was achieved by bipolar diathermy and ties with 18 patients needing rescue hemostasis on HS side. One secondary tonsillar bleed was recorded in each group.

DISCUSSION

The included studies were found to be heterogeneous in terms of population, comparator, outcome, and quality and this unfortunately precluded any quantitative combination. Quality issues center on poor reporting in the studies and small study size. In a particularly small study, postoperative hemorrhage, the main outcome of interest may not have been reported in either of the groups. Any potential difference in hemorrhage rates between tonsillectomy techniques then remains unidentified and the low sample size introduces bias, as results in this case could be due to chance alone rather than the techniques being of equivalent safety. This review includes both studies randomizing patients (both tonsils operated with the same technique) and studies randomizing tonsil side (each tonsil operated with different technique). In a study with patient randomization the chances of postoperative hemorrhage are theoretically doubled in comparison with a study where tonsils are randomized. While the RCT is regarded as “gold standard” in study design, it may still produce results that are not representative of the population. Some studies included either children [15,16,17,18] or adults;[19-21] others had a mixture of patients,[22,23.13] without separately reporting results for the different ages. Indications for tonsillectomy may easily vary from country to country as the clinician’s threshold for offering surgery. We incorporated studies from several countries and some where more than one surgeon operated. Some surgeons excluded patients with recurrent tonsillitis, chronic tonsillitis, and quinsy, which results in a selected population that has a smaller risk of postoperative bleeding.[24-28] Other surgeons operated on patients with acute peritonsillar abscess, which can account for higher postoperative bleeding rate in their sample.[29-34] The intervention of interest, harmonic scalpel tonsillectomy, was uniformly applied, with very small variations in settings of the generator, but the studies varied widely in the choice of added hemostatic technique. Some studies used ties while others used bipolar diathermy, monopolar diathermy, or suction diathermy to stop the bleeding when the harmonic scalpel may have failed to do so.[35-37] Cold steel tonsillectomy required additional hemostatic technique in all studies reviewed; the choices for hemostasis were similar to the ones in the harmonic scalpel group. The addition of supplementary hemostatic measures to both the harmonic scalpel and comparator technique introduces an element of confounding that was not accounted for in analysis in any of the studies reviewed. An additional problem was that of failure to separately analyze cases where adjunctive surgery took place.

UNCORRECTED PROOF

Additional surgical procedures may easily impact on pain, return to normal diet or activity, bleeding, and operative time. Follow-up rates were reported in a minority of studies and some authors failed to report it separately for each of the groups considered. Most studies failed to give a clear definition of what was considered a primary and secondary hemorrhage. This may explain to a large extent observed differences in hemorrhage rates reported. Many studies failed to report the rate of hemorrhage separately for primary and secondary hemorrhage. Methodological Limitations As detailed, this systematic review is based upon evidence that incorporates biases and many confounding factors. The populations in the studies included are heterogeneous in terms of patient age and indication for tonsillectomy. Our application of inclusion/exclusion criteria and data extraction in the review was not blinded to the author and institution affiliation. Conference proceedings reporting on harmonic scalpel vs other tonsillectomy techniques, although identified in the search, were not included in the final review. The authors have decided to exclude these studies as the information presented was insufficient in order to assess the quality of the studies. No attempt to contact authors of studies with missing data was possible due to time and resource limitations. Implications for Future Practice and Research As revealed by the sample size calculations, large randomized studies will be needed in order to assess with confidence the rate of postoperative hemorrhage in harmonic scalpel tonsillectomy. This could make an RCT impractical and too expensive to run; therefore a large, well-controlled cohort study might be more appropriate and of greater power in providing data on relatively rare hemorrhagic complications. Cold steel dissection with ties for hemostasis and no use of hot techniques remains the comparator of choice and appears to have the lowest overall hemorrhage rate. The follow-up period should be at least 14 days to ensure that late post-tonsillectomy bleeds are captured. A clear definition of what is considered primary and secondary hemorrhage would need to be established to ensure accurate reporting. The experience of the surgeons performing tonsillectomy with both harmonic scalpel and comparator should be stated, irrespective of the outcome of interest in the study. A study design that incorporates economic endpoints would ease the burden of collecting cost-effectiveness data at a later date and could assist decision makers

in adopting or refuting harmonic scalpel as an alternative to conventional tonsillectomy.

CONCLUSIONS

Data reviewed is of low quality and does not support any significant difference in postoperative hemorrhage rates, either primary or secondary, when harmonic scalpel is compared with other tonsillectomy techniques. The studies were underpowered and have methodological flaws; therefore these results need to be interpreted with caution. As no obvious reduction in hemorrhagic complications associated with the use of harmonic scalpel could be demonstrated in comparison with conventional tonsillectomy, at present the additional costs involved may not be justified without further research. Other patient-related outcomes such as postoperative pain and return to normal diet and normal activity, along

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Khan AR: Main Idea, Critical review

Hafeez M: Data Interpretation, Data analysis

Arif AU: Data Collection,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.

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.

It should be typed in double space on one side of the A-4 size paper with clear margins on both sides. **Abstract must not exceed 200 words** and the **article must not exceed 2000 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.

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

The second page of the manuscripts must contain an abstract of not more than 200 words. The abstract should consist of four paragraphs, labelled, as Objective, Methods, Results and Conclusion.

It should briefly describe respectively, the problem being addressed in the study, how the study was performed, the salient results and what the authors conclude from the results.

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, Acknowledgements 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.

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.

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Review and Action

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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_____

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

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

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

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

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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
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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.

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.