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REVIEWER'S LIST

The editor of JBUMDC extends gratitude to the following scholars for reviewing the manuscripts for current issue, Volume-8 No 3 of JBUMDC

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Fight against Childhood Malnutrition - A Must Win Battle

Shakeel Ahmed

Child growth is internationally recognized as an important indicator of nutritional status and health of the nation by which the nutritional status of the population can be assessed. Nutritional imbalance results in under nutrition (underweight, wasting and stunting) and over nutrition (overweight & obesity).

Malnutrition is defined as not having enough energy or nutrients to live a physically active life that allows for optimal health. Malnutrition is one of the most amendable threats to global health and child survival especially in poor and under developed settings. Pakistan positions highest in the world in childhood malnutrition and plays a substantial role in the country's elevated child morbidity and mortality. Is still the leading contributing cause of deaths in less than five years of age that directly or indirectly contributes to almost 55% of all under-5 deaths in the country consequently affecting the future health and socioeconomic progress and creative potential of the community.

For last many decades we have been fighting a battle against the threat of malnutrition but there has been little change in the prevalence of malnutrition in the country over the last two decades, despite adequate food availability and an improvement in the overall socioeconomic status. According to a recent report issued by UNICEF, Pakistan ranks 22nd in under five mortality with the rate of 81 per 1000 live births and the infant mortality rate is 66 per 1000 live births with minimal improvement in last twenty years. In most of these deaths besides the primary illness, malnutrition is an additional contributing factor. Despite a multitude of programs in place, the country's nutrition gauges seem to be at a standstill. If it still the same for next few years then there are high probability that we reach to the point where national nutrition emergency will be declared.

The last National Nutrition Survey (NNS), which was conducted in 2011, revealed the alarming burden of malnutrition in children, with high prevalence in children under five years of age. About 44 per cent of Pakistani children suffer from stunting (very low height for age), indicating chronic malnutrition. 15 percent suffer from wasting, indicating acute malnutrition, while: 31.5 percent are underweight which exceeds the international emergency threshold. 63 percent of children are anemic. Only 38 percent of children are exclusively breast fed for first 6 months.

The Community-based Management of Acute Malnutrition (CMAM) programme assesses and provides malnourished children and mothers with supplementary foods for home-based care. UNICEF supported the dissemination of new CMAM guidelines in 2015 and trained over 12,000 health care providers. UNICEF initiated a stunting reduction program in Sindh targeting 800,000 children and women. In 2015, a national Infant and Young Child Feeding (IYCF) strategy was developed and endorsed with UNICEF support, with guidelines and a communication strategy in development. This will help ensure that mothers and caregivers are aware of, and follow, good feeding practices, and thus reduce malnutrition in Pakistan.

Moreover, a main reason of malnutrition in our children is generally the poor state of feeding practices. Pakistan is evident for being the lowest rates for the exclusive breastfeeding and timely commencement of initiation of soft diet to young infants. Data from the Pakistan Demographic and Health Survey (2012-2013) suggests that early initiation of breastfeeding is observed only in 18 percent of all births, whereas exclusive breastfeeding is carried out for only 38 percent of infants younger than six months. The free marketing and promotion of infant formulas is a recognized obstacle for exclusive breastfeeding. Despite the existence of legislation to discourage such practices in the country; many health providers still breach the code for exclusive breastfeeding. Moreover, low literacy rates among women, lack of their empowerment, early marriages, large family size, and poor access to healthcare facilities are other contributing factors of malnutrition among our children.

We strongly feel that investment in health and nutrition is considered to be a moral responsibility of the policy makers. More often than in every field of life everyone has to play their role in this battle. Government and policy makers have a pivotal role in this battle. As Pakistan is on a dangerous downward route; we need to look outside the traditional models and to leverage new and innovative projects already in place for greater impact. This is a high time to adopt both short and long terms strategies through public/private partnership so that we as a nation can get rid of this hazard.

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Correlation Of Serum YKL-40 With Anthropometric Measurements And Spirometric Indices Between Healthy Individuals And Asthamatics In A Tertiary Care Hospital

Syeda Nargis Fatima, Fatima Ali Khan, Jawed Iqbal

ABSTRACT:

Objective: To correlate serum levels of YKL-40 with anthropometric measurements and spirometric indices between normal individuals and asthmatics.

Methodology: The case control study was conducted in Department of Chest Medicine, JPMC, Karachi from the month of August 2015 till March 2016. The study recruited sixty participants after satisfying the inclusion and exclusion criteria; among those 30 were normal healthy individuals (PEF > 80% and pulse rate of 60 – 80 beats per minutes); while equal were cases of mild to moderate asthma (PEF more than 50% and pulse rate of 100 – 120 beats per minutes) matched for age and gender. Vitallograph compacta and peak flow meter was used for spirometric indices. Moreover, anthropometric measurements were age, gender, weight (kg), height (m) and body mass index (kg/m^2). Ykl-40 Elisa kit was used for serum YKL 40 levels. The data was entered and analysed using SPSS version 21 (IBM, Chicago, IL).

Result: In comparison of Spirometric Evaluation (FEV1, FVC, FEV1/FVC% and PEFR) between control and patients with mild to moderate asthma. significant difference was found in the mean values of FEV1, FVC, FEV1/FVC and PEFR between cases and controls. Significant inverse correlation was found between YKL-40 with FEV1, FVC, FEVI/FVC% and PEFR among Controls. YKL-40 was found to be significantly correlated with only FEV_1/ FVC (%) among cases with correlation co-efficient as – 0.510 (p-value < 0.004).

Conclusion: There is an inverse correlation between serum YKL-40 levels and spirometric evaluation thus as the inflammation in asthma increases, YKL-40 level upsurges and causes decrease in lung function tests.

Key Word: Asthma, YKL-40, anthropometric, spirometric, FEV1, FVC, PEFR.

INTRODUCTION:

Asthma is a chronic lung disease of airways characterized as bronchial hyper responsiveness and inflammation as main phenomena[1-2]. Asthma is a result of multi factorial interaction in which both genetic and environmental factors plays a major and significant role[3-5]. Factors responsible for triggering or worsening the asthma symptoms including allergens (i.e. mite, dust, pollens etc.), tobacco, exercise and stress[6-7]. The asthmatics mainly complain about cough, wheezing, chest tightness, and difficulty in breathing[7].

The disease carries high morbidity and has been reported to have a high prevalence around the globe having affected people of all ages[8-9]. Approximately 300 million people are currently suffering from asthma, and it is anticipated that this count will rise up to 400 million by year 2025[10]. It has been estimated that the sufferers of asthma in Pakistan are over six million people and its prevalence is estimated to be 5% of the total population[11]. Moreover, in Karachi the biggest metropolitan city of Pakistan, about 8-10% of population which are suffering from long term asthma and approximately every 250th death is the result of severe asthma exacerbations[12].

Considering the prevalence of asthma, number of hospitalizations, emergency room visits and mortality rate as a result of severe asthma have increased in recent years, researches have been carried out to better understand the pathogenesis, the early diagnosis and clinical efficacy of treatment modalities have been carried out. Since last two decades, global and national initiatives directing on the treatment and prevention of asthma have been established carrying out the same goals described earlier[13-14]. Spirometry is the lung function test of great importance to diagnose asthma and to monitor the effects of treatment. FEV1 (forced expiratory volume in first second) and FVC (forced vital capacity) are the most important measurements can be done from spirometry along with, monitoring the PEFR that is useful in detecting changes in a patient's asthma control on disease severity[15-16].

YKL-40 is an N-terminal amino acids, and 40 shows its molecular mass, which is in kilodaltons (KDa)[17]. It is a heparin, collagen, and chitin binding plasma glycoprotein which belongs to the chitinase protein family. Serum YKL-40 is a quantifiable serum kitinase - like protein, which down/up regulates the innate immune reactions in inflammatory and tissue remodeling conditions, Normal range is below 40ng/ml in serum[18]. YKL-40 is now thought

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to be a novel biomarker of severe disease activity in patients having diseases related to the extent of inflammation, pathological tissue remodeling, and ongoing fibrosis[18]. In the present study it was investigated that whether the serum YKL-40 is associated with anthropometric measurements and spirometric indices between healthy and asthmatic individuals.

PATIENTS AND METHODS:

In the present case control study 60 individuals were recruited in the department of Chest Medicine, Jinnah Post Graduate Medical Centre (JPMC), Karachi from of August 2015 till March 2016. Among those 30 were normal healthy individuals; while equal were cases of mild to moderate asthma matched for age and gender. The normal healthy individuals had PEF > 80% and pulse rate of 60 – 80 beats per minutes while cases with mild to moderate asthma had PEF more than 50% and pulse rate of 100 – 120 beats per minutes. Cases and controls of age 18 to 60 years, of either gender were enrolled. The exclusion criteria followed were recurrent cough not due to asthma, patients of upper airway obstruction, emphysema, airway embolism chronic obstructive pulmonary disease, congestive heart failure, pulmonary embolism, post transplant patients, and having confirmed diagnosis of diabetes and hypertension. Similar exclusion criteria were followed for both cases and controls.

Spirometry was performed to assess the lung functions by vitallograph compacta. Forced expiratory volume (L) in first second, forced vital capacity (L) and ratio of forced expiratory volume to forced vital capacity was determined by vitallograph and peak expiratory flow rate (L/ min) was determined by conventional peak flow meter. Moreover, 5 cc of blood was drawn from cubital vein of all the enrolled subjects by using aseptic techniques and serum level of YKL-40 was determined through Elisa kit. Importantly, the anthropometric measurements i.e. age, gender, weight (kg), height (m) and body mass index (kg/m^2) were recorded on a pre-designed proforma.

For the present study ethical approval was granted by the ethical committee of BMSI, JPMC, Karachi, Pakistan for conducting the research. Written informed consent was obtained from all participants prior to recruitment having explained comprehensively the process involved and benefits/ risks of being the part this research. It was ensured that anonymity and confidentiality of enrolled participant's data was maintained throughout the research and no unauthorized person had an access to the data.

The data was entered and analysed using SPSS version 21 (IBM, Chicago, IL). The data was validated twice for incorrect entries. The quantitative variables were presented as mean ± standard deviation, while the qualitative variables were presented as frequency/ percentage. The anthropometric measurements i.e. age, weight (kg), height (m) and body mass index (kg/m^2) were compared between cases and controls using independent t – test. Moreover, chi square was used to compare proportion of gender between cases and controls. Furthermore, the FEV_1 (L), FVC (L), ratio of FEV_1/ FVC (%) and PEFR (L/min) and serum YKL levels were also compared between cases and controls. Importantly, separately the correlation was performed for both cases and controls between serum YKL-40 with anthropometric and spirometric evaluations. For all inferential statistics, the p-value < 0.05 was considered significant.

RESULTS:

The table 1 gives details of the comparison of anthropometric measurements between controls and cases. Among anthropometric measurements (age, weight, height and body mass index) significant difference was only found in height between the two groups. Cases with mild to moderate asthma had significantly higher mean height as compared to controls (1.63 Vs. 1.67; p-value = 0.025). Moreover, significant difference in proportion of family history of asthma was also found between controls and cases (20% vs. 56.7%; p-value = 0.007). Significant difference was found in the mean values of FEV1 (2.19 ± 0.5 Vs. 1.76 ± 0.79; p-value = 0.013), FVC (2.51 ± 0.57 Vs. 2.15 ± 0.62; p-value = 0.022), FEV1/FVC (88.41 ± 7.17 Vs. 69.92 ± 9.99; p-value = 0.001) and PEFR (327.83 ± 80.52 Vs. 198.00 ± 60.14; p-value = 0.001) between control and cases.

The table 2 gives details of the correlation of YKL-40 and spirometric evaluations (FEV1, FVC, FEV1/FVC% and PEFR) among controls. None of the anthropometric measurements (age, weight, height and body mass index) were significantly correlated with YKL-40. However, among controls YKL-40 was found to be significantly correlated with the following spirometric parameters FEV_1 (L), FEV_1/ FVC (%) and PEFR (L/min). The correlation between YKL-40 and FEV1 was negative with correlation co-efficient as – 0.565 (p-value < 0.001). The correlation between YKL-40 and FEV1/FVC% was negative with correlation co-efficient as – 0.408 (p-value = 0.025). The correlation between YKL-40 and PEFR was negative with correlation co-efficient as – 0.633 (p-value < 0.001)

The table 3 gives details of the correlation of YKL-40 and spirometric evaluations (FEV1, FVC, FEV1/FVC% and PEFR) among cases (patients with mild to moderate asthma). The YKL-40 was not found significantly correlated with any of the anthropometric measurements (age, weight, and body mass index) except height. The correlation between YKL-40 and height (m) was positive with correlation co-efficient as 0.404 (p-value < 0.027). However, among spirometric parameters YKL-40 was found to be significantly correlated with only FEV_1/ FVC (%). The correlation between YKL-40 and FEV_1/ FVC (%) was negative with correlation co-efficient as – 0.510 (p-value < 0.004).

DISCUSSION:

The present study conducted that aimed to identify whether

Anthropometric and Spirometric parameters	Controls (n = 30) n (%) OR Mean ± SD	Cases (n = 30) n (%) OR Mean ± SD	P-value
Age (years)	36.87 ± 7.87	39.10 ± 13.09	0.427
Gender			
- Male	12 (40)	11 (36.7)	0.791
- Female	18 (60)	19 (63.3)	
Weight (Kg)	65.13 ± 10.40	70.33 ± 14.04	0.108
Height (meters)	1.63 ± 0.05	1.67 ± 0.09	0.025*
Body Mass Index (Kg/m^2)	24.51 ± 3.79	24.90 ± 3.53	0.687
Family History of Asthma			
- Yes	6 (20)	17 (56.7)	0.007**
- No	24 (80)	13 (43.3)	
FEV_1 (L)	2.19 ± 0.50	1.76 ± 0.79	0.013*
FVC (L)	2.51 ± 0.57	2.14 ± 0.62	0.022*
FEV_1/ FVC (%)	88.40 ± 7.17	69.92 ± 9.99	0.001**
PEFR (L/min)	327.83 ± 80.52	198.00 ± 60.14	0.001**

Table 1. Comparison of anthropometric measurements and spirometric evaluations between controls and cases (Mild to moderate asthmatic patients)

Anthropometric and Spirometric parameters	Correlation co-efficient	P-value
Age (years)	0.115	0.546
Weight (Kg)	-0.231	0.219
Height (meters)	-0.288	0.122
Body Mass Index (Kg/m^2)	-0.137	0.472
FEV_1 (L)	-0.565	0.001**
FVC (L)	-0.322	0.082
FEV_1/ FVC (%)	-0.408	0.025*
PEFR (L/min)	-0.663	0.001**

Table 2. Correlation of YKL-40 with anthropometric measurements and spirometric evaluation among controls

Anthropometric and Spirometric parameters	Correlation co-efficient	P-value
Age (years)	0.164	0.386
Weight (Kg)	0.329	0.076
Height (meters)	0.404	0.027*
Body Mass Index (Kg/m^2)	0.138	0.468
FEV_1 (L)	-0.287	0.124
FVC (L)	-0.238	0.205
FEV_1/ FVC (%)	-0.510	0.004**
PEFR (L/min)	-0.344	0.063

Table 3. Correlation of YKL-40 with anthropometric measurements and spirometric evaluation among cases (Mild to moderate asthmatic patients)

the serum YKL-40 is associated with anthropometric measurements and spirometric indices between healthy controls and asthmatic individuals considered as cases. The results of the present study highlighted that cases with mild to moderate asthma had significantly higher mean level as compared to controls. There was significant difference between mean values of spirometric evaluations FEV_1 (L), FVC (L), ratio of FEV_1/ FVC (%) and PEFR (L/min) between controls and cases. Moreover, among controls YKL-40 was found to be significantly correlated with the following spirometric parameters FEV_1 (L), FEV_1/ FVC (%) and PEFR (L/min). Importantly, positive correlation was identified between YKL-40 and height (m) and YKL-40 was negatively correlated with FEV_1/ FVC (%) with correlation co-efficient as – 0.510 among cases.

Asthma is a disease, which is not only significant in terms of morbidity, mortality and quality of life of the patient being affected but also places an economic burden on scarce health resources[19-20]. This disease has multidimensional aspects and asthma exacerbation impact both patients and their families[21].

The present study also reported the significant difference in the mean FEV1, FVC, FEV1/FVC and PEFR between control and cases. Similar results were reported by Saba et al. (2014) showing significant difference in FEV1, FEV1/FVC between control and asthmatics[22]. Another study reported a decrease in the FEV1/FVC ratio as asthma severity increases[23]. A study also reported that severe asthma

exacerbation may result in an accelerated loss of pulmonary function as patients who frequently experienced asthma exacerbation showed a greater annual decline in FEV1 than those with infrequent exacerbations[24].

In the present study conducted we observed significant negative correlation between YKL-40 with FEV1, FEV1/FVC and PEFR in asthmatics[25]. The study conducted by Duru et al. (2013) also showed significant negative correlation between YKL-40 and FEV1, FEV1/FVC.[25] Another study reported a significant negative correlation between YKL-40 and PEFR among asthmatic patients[26].

The study has certain limitations. Firstly, the patients with severe asthma were not enrolled as it was not possible to perform spirometric evaluations due to critical health conditions. Secondly, it was difficult to find patients having asthma (cases) without any additional diseases. Thirdly, the present case control study had limited sample size with thirty cases and controls. Increasing the sample size would increase the generalisibility of the research findings.

CONCLUSION:

The study concluded that there is an inverse correlation between serum YKL-40 levels and spirometric evaluation; FEV_1 (L), FEV_1/ FVC (%) and PEFR (L/min) showing that, as the inflammation in asthma increases, YKL-40 level upsurges and causes decrease in lung function tests.

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Maxillary Intermolar Width Of Pakistanis With Untreated Normal Occlusion

Muhammad Azeem, Arfan ul Haq, Javed Iqbal, Asif Iqbal, Waheed ul Hamid

ABSTRACT:

Objective: Intermolar width is a key measurement which assists in treatment planning of orthodontic patients requiring expansion as an alternate to premolar extraction. The present research was aimed at determining the mean value of intermolar arch width (IMW) of untreated normal arch Pakistani patients visiting tertiary care dental hospital

Material & Methods: This cross sectional study was carried out using IMW measurements on plaster model of 120 untreated normal occlusion patients, at Department of Orthodontics, Faisalabad Medical University and de'Montmorency College of dentistry, from 15-12-2016 to 15-10-2017. The non probability consecutive sampling technique was used in this study. Data analysis was done using SPSS software 21.0.0.

Results: The mean age of the subjects was 18.23±3.75 years. The mean value of IMW in selected subjects was 45.33±3.42 mm.

Conclusion: Study results concluded that in Pakistanis, ideally align maxillary arch and occlusion can be achieved with upper intermolar distances of 45.33±3.42 mm

Keywords: Intermolar; Dental arch width; Occlusion.

INTRODUCTION:

In determining the normal dental arch width of a population, intermolar width (IMW) is a key measurement which assists in diagnosis and treatment planning of orthodontic patients, especially in patients requiring expansion as an alternate to premolar extractions in a patient having narrow dental arches[1-3]. Dental arch importance in orthodontic diagnosis, treatment planning and post treatment stability is well understood.

Numerous dental arch indices have been proposed, such as, Pont and Schwarz proposed numerical indices. Howe concluded that ideal IMW are 37.4 mm in boys and 36.2 mm in girls. However all indices gave poor estimation of maxillary arch width. For index validity, actual upper arch width should be as close as possible to predicted arch widths, in normal occlusion subjects.

There exist certain racial differences in terms of norms of mean IMW width. IMW in Kuwait residents was 51.32 mm ± 2.61[10], in Colombian subjects mean IMW was found to be 45.9±3.9, in Karachi population it was 45.6 mm±2.3, and in Nepalese it was 47.94±3.34. In general, IMW dimension remains very stable with some degrees of sexual dimorphism present. The findings of one study indicated that maxillary dental arch width measurements were significantly narrower in the Class III group as compared to normal occlusion group ($P < .001$)[14].

This study was designed with aim to measure the mean IMW of subjects visiting Department of Orthodontics, Faisalabad Medical University and de'Montmorency College of dentistry, In orthodontics change of 1 mm is crucial while treatment planning decisions for extraction verses non-extraction orthodontic cases.

The Objective of current study was to measure the mean dental arch width i.e. IMW in our population.

MATERIAL AND METHODS:

This cross sectional study was conducted at Faisalabad Medical University and de'Montmorency College of Dentistry, from 15-12-2016 to 15-10-2017. 120 untreated normal occlusion patients was estimated as sample size, using 95% confidence level, d=1 with an expected IMW = 47.23 mm±2.65.[10] Non probability consecutive sampling was employed. Following are the inclusion criteria:

- No history of Ortho-treatment
- Untreated normal occlusion patients
- 12 to 25 year age, both genders
- Patient having permanent dentition from 16 to 26

The exclusion criteria are:

- Partially erupted posterior teeth
- Grossly carious maxillary posterior teeth
- Rotations of upper posterior teeth
- Incisor irregularity

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After ethical review committee (ERC) approval, sample of 120 untreated normal occlusion patients were included according to inclusion and exclusion parameters. IMW was calculated on plaster models by single investigator, as the distance from upper one side first permanent molar to the same on other side at distobuccal cuspal tip on the occlusal surface, using digital caliper. Ideal occlusion patients were those who got following features[10]:

- Lack of crowding, spaces, cross bite, CO-CR shift, midline discrepancy in anterior or posterior part of either arch
- Normal overjet and
- Normal overbite

Data analysis was done with SPSS software version 21.0.0. Mean and standard deviation (S.D) was calculated for mean IMW, frequency and percentage for gender. Effect modifiers of age and gender were stratified. Following stratification chi square test was applied. p value =0.05 was taken as significant.

RESULTS:

The mean age of selected sample was 18.23±3.75 years**.** The minimum age of the patient was 12 years while the maximum age was 25.60(50%) patients were boys and 60(50%) patients were girls**.** Overall mean value of IMW was 45.33±3.42 mm**.** The minimum IMW in the patient was 40 mm while the maximum IME was 50 mm (Chi value 1.92 p - value 0.165).

≤20 years age subjects were 82, in which 45 mm IMW was calculated in 46 cases, similarly >20 years patients were 38, in which 45 mm IMW was found out to be in 7 cases only. There was insignificant differences of IMW for different age and gender groups (Table 1).

DISCUSSION:

Inter molar width is one of the key calculation for measuring and access the posterior maxillary arch normality[15,16]. As per Moorrees et al.[17] mandibular IMW usually increased in late mixed dentition and early permanent dentition but remained constant following permanent dentition.

In present research, the mean IMW of selected sample was 45.33 mm±3.42, which is different from the studies conducted elsewhere. In Norwegian sample, mean IMW was found out to be 46.11 mm[18]. Measured mean IMW in Kuwait population was 51.32 mm ±2.61, in Colombian sample mean IMW was 45.9 ±3.9, in a study done in Karachi it was 45.6 mm ±2.3, and in Nepalese population it was 47.94 mm ±3.34. The upper IMW at the distobuccal cusps of the first molars of the Pakistanis were narrower than Chinese and Caucasians[19,20,21]. Comparison of IMW values of current study with different local and international studies is difficult, due to the fact that most of the conducted studies on IMW measurement used different landmarks for measuring the intermolar width.

		Mean	SD	
Inter molar width	**≤20 years**	44.83	3.22	t-value -1.26 p-value 0.127
	>20 years	46.42	3.65	
	Male	44.37	3.53	t-value -1.70 p value 0.094
	Female	46.30	3.06	

Table 1: Comparison of inter molar width with Age & Gender

In present research, IMW values were greater in girls (46.30 ±3.06 mm) than in boys (44.37 ±3.53 mm), which is not in agreement with previous studies where IMW values were greater in males than in females[11,22-28]. In present research, there was no statistically significant difference of IMW values for different ages, which is again not in agreement with previous studies[17,29-30]. These differences may be due to the racial, genetic and dietary differences among various populations, as all of these factors play important role in development of arch length width and other dimensions.

Because of the lack of reference data for Pakistanis and the limited validity of existing methods to predict IMW widths, the purpose of this research was to calculate the mean IMW of upper arch in Pakistanis. However further large scale studies are suggested with improved sample size and multi-centric approach.

CONCLUSION:

Study results concluded that in Pakistanis, ideally align maxillary arch and occlusion can be achieved with upper intermolar distances of 45.33±3.42 mm.

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Awareness And Behavior Of Dental Students Towards Infection Control Measures In Karachi, Pakistan

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ABSTRACT:

Introduction: A dental operatory is an area for easy and quick transmission of infections. Infections like TB, Hep B, Hep C, HSV and HIV can be readily transmitted among patients and to the operating staff if proper measures are not taken. The aim of the present study was to assess self-perceived knowledge and practices of the dental students and graduates about infection control measures.

Method: The study was conducted using a self-administered questionnaire, comprising of 12 basic questions to judge the knowledge and practices of students in the dental OPDs. A total of 360 dental students and house officers participated voluntarily in the survey.

Results: The results showed that there did not exist sufficient knowledge among dental students and fresh dental graduates about infection control measures.

Conclusion: There is thus a dire need to fulfill the gap between the ideal practices protocol knowledge and practices that are being followed by the students.

Key words: Awareness, Behavior, Infection control, Dental students, Karachi.

INTRODUCTION:

The dental facility is a domain where disease transmission happens rapidly[1]. Aversion of disease transmission in the dental center is along these lines a significant part of dental OPD, and dental facility employees must embrace certain essential protocols while in their dental practices. Dental health care professionals (DHCPs) are more prone to diseases caused by several pathogens like Mycobacterium tuberculosis, hepatitis B and hepatitis C viruses, staphylococci, streptococci, herpes simplex virus types 1, human immunodeficiency virus (HIV), mumps, influenza, and rubella. Diseases might be conducted in the dental workplace via a few courses, including immediate interaction with blood, oral liquids, or different discharges; incidental contact with used instruments, operatory equipment, or surrounding areas; or interaction with aerial pollutants in either spatter or mist concentrates of oral and respiratory liquids[2,3]. Wearing of gloves by dental work force has been considered as a basic component of cross-disease control protocol in dental surgery[4,5]. Hands are thought to be a noteworthy source of disease transmission[6], and conceivably contaminated blood might be held underneath the nails till five days. It is hard to expel debased material from hands, especially from the subungual and under the nails, until there is fastidious mechanical cleaning[7].

Foremost to the aversion of infections is the tight adherence to standardized safety measures for all dental specialists. This incorporates, however not restricted to, eye protection with horizontal shields, facemask, and defensive apparel. Regardless of the extensive emphasis on standardized disease control techniques, it creates an impression that some of the dental specialists are not using these systems in their clinical routine practice[8-13]. Indeed, even in dental schools, future dental practitioners are not generally following these strategies[14-21].

Professional exposure has been guaranteed to be an essential means by which HBV contamination is transmitted, and are therefore, thought to be at high risk[22,23] due to exposure to saliva and gingival crevicular fluid (GCF)[10,11]. Furthermore, the microorganisms remain active for more than twenty-four hours under characteristic conditions and for over one week in plastery casts, there exists a huge plausibility of HBV transmission in dental settings[22].

Dental knowledge plays a vital role in dentists' learning, assisting them to acquire sufficient information and behaviors about cross infection control methods. Keeping this in view, the reason of this study was to evaluate the self-perceived behavior of dental students regarding infection control in Karachi, Pakistan.

MATERIAL AND METHODS:

A questionnaire based study was conducted among dental under-graduate students (third year, final year and house officers) at Dow University of Health Sciences, Karachi, Pakistan. Students were briefed about sterilization and cross infection protocols when they started working in the dental OPD (constantly updated if need be).

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Non probability convenient sampling was done and 360 third year and final year dental students and house officers, were included. House officers were graduates from the same dental institute, with rotations equally divided in all departments during the set time period of one year of house job. Students and house officers, who refused to voluntarily participate in the study were excluded.

The students and house officers willingly filled a questionnaire comprising of twelve questions. The percentages of students in third year, fourth year, and house job who responded were 29% percent, 36% percent, and 35% percent, respectively.

The questionnaire was designed with the aid of field experts. The study group was kept in mind and questions were designed according to the syllabus regarding infection control that was taught to the students during graduation. A structured self-administered questionnaire was used for gathering of data. Questionnaires were distributed to the students after lectures finished and they were asked to fill them without discussing with each other. Questionnaires were given to the house officers in their respective OPDs. The questionnaire comprised of questions about knowledge, attitude and practices of the population about infection control practices.

RESULTS:

The selection of 4th year student is that they are supposed to have best theoretical and practical background knowledge among all undergraduate students related to spread of infection and its preventive measures in order to be a skilled dentist. Moreover, evaluations at this stage might be demonstrative of the potential of dental courses in consolidating sufficient knowledge with respect to contamination control among future dental specialists. An essentially higher level of 5th year understudies (58.9%) demonstrated conducive states of mind toward the treatment of patients with infectious illnesses, when contrasted with 4th year understudies (31.0%).

There can be marked contrasts between what undergraduates say they would do, and what they really do in clinical practice in light of this study there is a strong indication that an expert dynamic and pro-active approach all through the course is required. So this study also suggests fabrication of legislative criteria as part of curriculum to seed-in the cross infection controls. 54.44% of dental graduates and house officers believed that disinfection of dental chair and dental office is important. Surprisingly, 16.94% responded that improper sterilization will not lead to communicable diseases. This shows the knowledge gap that needs to be filled.

DISCUSSION:

Following study explains the current student behavior regarding protection against spread of infection at 3 dental schools the Dow University of Health Sciences, Karachi. All students having human interactions with various kinds of fluids related to it, either secretory or non-secretory (saliva, blood, sweat, sputum, sneeze droplet, hepatitis or tuberculosis infected instrumentation) are responsible to protect themselves and patients, by abiding to the protocols of international cross infection control. Authoritarian and inflexible directives must be introduced and assessed persistently among students at the level of administration and management.

Reason that selection of 4th year student is that they are supposed to have best theoretical and practical background knowledge among all undergraduate students related to spread of infection and its preventive measures in order to be a skilled dentist. Moreover, evaluations at this stage might be demonstrative of the potential of dental courses in consolidating sufficient knowledge with respect to contamination control among future dental specialists. An essentially higher level of 5th year understudies (58.9%) demonstrated conducive states of mind toward the treatment of patients with infectious illnesses, when contrasted with 4th year understudies (31.0%)[26]. Only 66.94% respondents in the current study replied that they separate the instruments of HIV and hepatitis patients from other routine patients.

There can be marked contrasts between what undergraduates say they would do, and what they really do in clinical practice in light of this study there is a strong indication that an expert dynamic and pro-active approach all through the course is required. So this study also suggests fabrication of legislative criteria as part of curriculum to seed-in the

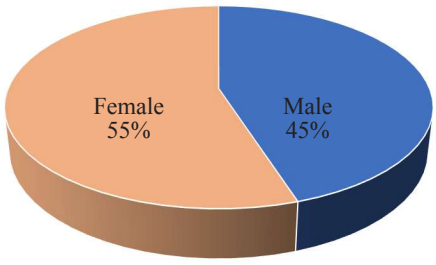

Fig.1 Gender distribution of the sample

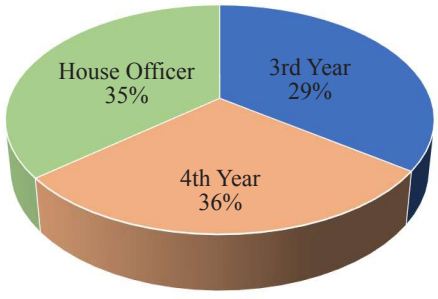

Fig.2 Academic year-wise distribution of sample

Question	Response	Number	%
Q1. When do you wash hands?	before seeing each patient	115	31.94%
	after seeing each patient	182	50.56%
	before and after seeing each patient	63	17.50%
Q2. With which of these do you prefer to wash your hands?	antiseptic soap	124	34.44%
	Antiseptic hand-wash solution	65	18.06%
	Only water	171	47.50%
Q3. Is Isolation (preventing saliva and water from entering working site) is important during performing dental procedures?	Yes	285	79.17%
	No	59	16.39%
	Don't know	16	4.44%
Q4. Have you been vaccinated for hepatitis B ?	Yes	185	51.39%
	No	175	48.61%
Q5. Which method is used in your dental opd to clean reuseable instruments?	Autoclave	223	61.94%
	Boiling	96	26.67%
	Washing	41	11.39%
Q6. Which of these diseases can be easily transmitted through saliva?	Hepatitis B	69	19.17%
	AIDS	173	48.06%
	Tuberculosis	89	24.72%
	Don't know	29	8.06%
Q7. What action should be taken right after accidental contact with the blood of HIV infected patient?	Anti-HIV immunoglobulins	62	17.22%
	Medicines	118	32.78%
	Blood tests	149	41.39%
	Don't know	31	8.61%
Q8. When working in a dental OPD, what protections do you take to prevent yourself from getting infected?	Face mask and gloves	148	41.11%
	Protective clothing	112	31.11%
	All the above	100	27.78%
Q9. What do you with used gloves in your dental operatory?	Dispose them	343	95.28%
	Reuse them if not stained with blood/saliva	13	3.61%
	Reuse them after sterilization	4	1.11%
Q10. Do you agree that improper sterilization in a dental OPD can lead to transfer of infections among patients?	Yes	193	53.61%
	No	61	16.94%
	Don't know	132	36.67%
Q11. Is the cleaning/ disinfection of dental chair, clinic, dental office is important?	Yes	196	54.44%
	No	78	21.67%
	Don't know	86	23.89%
Q12. Do you separate the instruments of HIV/Hepatitis patients from other patients?	Yes	241	66.94%
	No	119	33.06%

cross infection controls. 54.44% of dental graduates and house officers believed that disinfection of dental chair and dental office is important. Surprisingly, 16.94% responded that improper sterilization will not lead to communicable diseases. This shows the knowledge gap that needs to be filled.

Another study indicated that 44.4% of 5th year and 68.5% of 4th year students did not bother to treat any infectious disease as a consequence 61.9% of 5th year candidates found more exposed to non-sterile transcutaneous and mucus membrane infliction compared to 44.6% of 4th year student. Effective efforts are necessary to encourage aptitude, practical

approach and incent the student in positive manner and routine utilization of infection protocol[27].

Whilst, study among Jordanian dental students has shown that low standard of understanding regarding cross-infection protocol and recognition of blood-borne morbidity risk exist among pre-clinical students as compared to those doing clinical rotations along with theory interaction[28]. Thus knowledge , attitude and practice related to cross infection protection is staunchly followed by undergraduate students subjected to study and practice, this in accordance to curriculum in comparison to those performing clinical duties only as in house job. Similarly in a recent study from Nigeria has shown surprising findings that 11.3% of 3rd year and 7.9% of 5th year students knew the approximate time for seroconversion of HIV virus, this deduces that if candidate is un aware of minor details for high risk morbid condition will consequently lead to dis-respect of infection spread protocol eventually[29]. Similar attitude is observed in the results of current study.

In support to this study, it could be suggested that after completion of each progressive year there must be an exam based on evaluation of disease-spread control competency, and consequently get eligible to appear in 3rd clinical training year, this will inculcate step wise knowledge and shall improve their attitude and practice in the direction of infection control protocols as other alike studies have shown amazing output in progressive manner for such introductions in the five year curriculum[30].

CONCLUSION:

Practice of standardized isolation protocol is overall not satisfactory among dental students at Dow University of Health Sciences. The current survey depicted that knowledge regarding infection control measures and a positive response towards them alone does not imply that a practitioner is abiding by the recommendations. Therefore, awareness programs are needed for continuously educating the dental team about cross infection control protocols. Further studies should be conducted to evaluate the differences and improvement in knowledge and practices between different academic years.

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Antibiotic Prophylaxis In Preventing Surgical Site Infection In Patients Undergoing Lichtenstein's Hernioplasty

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ABSTRACT

Objective: To determine the antibiotic prophylaxis in preventing surgical site infection in patients undergoing Lichtenstein's hernioplasty.

Study design: Observational study

Place and Duration: Department of surgery, ISRA University Hospital, Hyderabad. from December 2015 to March 2017.

Materials and Methods: 120 cases of inguinal hernia planned for Lichtenstein's hernioplasty were selected according to exclusion criteria and divided into control and antibiotic group. Pre- operative patient history, physical examination and inguinal hernia examination was performed. Prophylactic antibiotic ceftriaxone (1000 mg) was given over night of surgical procedure. Statistical software SPSS 21.0 was used for data analysis at 95% CI (P <0.05).

Results: Mean± SD age was noted as 39.51 ± 7.56 years (15 – 61 years). Of 120, who underwent Lichtenstein's hernioplasty the direct and indirect hernias were noted in 35 (29.16%) and 33 (27.5%) & 25 (20.83%) and 27 (22.5%) of control and antibiotic groups respectively. Of 120 subjects, the SSI was noted in 17 (14.1%) in control and 5 (4.16%) in antibiotic group. Cumulative SSI in 120 cases was 22 (18.33%).

Conclusion: The present study reports low incidence of surgical site infection with antibiotic prophylaxis in Lichtenstein's mesh repair in open inguinal hernioplasty.

Key words: Antibiotic Prophylaxis, Surgical site infection, Lichtenstein's mesh repair, Inguinal Hernia

INTRODUCTION:

Inguinal hernia is a common surgical problem. Its incidences rise with age. Male predisposition is common. An incidence of 368/100,000 for male and 44/100,000 for female has been reported[1]. The incidence changes to 194 to 648/100,000 for male and 28 to 108/100,000 for female in older age group[1,2]. Weakness of anterior abdominal wall muscles and raised intra-abdominal pressure are contributing casues. Constipation, chronic cough and benign prostate hypertrophy raise the abdominal pressure. Inguinal hernia causes swelling in inguinal area and distress[2]. Sole therapeutic option for inguinal hernia is a surgical repair. This prevents the hernia complication of bowel strangulation and intestinal obstruction[3]. Surgical repair of inguinal hernia repair is one of most common surgical procedure performed throughout the World[4]. Clinical trials have conceded the Lichtenstein's hernioplasty as the "gold standard" surgical procedure for the inguinal hernia[5-7]. Inguinal hernia repair is considered to be a clean surgical procedure so antibiotic prophylaxis is not indicated. Contrary to this the surgical site infection (SSI) is most common complication of inguinal hernia repair. This is because of mesh which is used in hernia repair that functions as foreign body, hence needs prophylactic antibiotics pre- peratively[8]. Role of antibiotic prophylaxis in Lichtenstein's mesh repair is a controversial area. A Cochrane meta- analysis concluded the antibiotic prophylaxis is neither recommended nor discarded in Lichtenstein's mesh repair. In developing countries the SSI is a common surgical problem which cost a lot despite poor economy. Irrational use of antibiotics in Lichtenstein's mesh repair increases the financial burden. This is of particular concern in developing countries like Pakistan where hospitals have limited funds, patients are non- affording and are treated free of cost. On the contrary, post procedure SSI creates more financial burden on the patients[8,9]. As the current knowledge has created confusing results with conflicting views, hence the topic needs further research. The present prospective study was planned to define the role of prophylactic antibiotic in Lichtenstein's mesh repair in open inguinal hernioplasty at our tertiary care hospital.

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PATIENTS AND METHODS:

Ethical approval for the present prospective observational study was taken from the institute. The study was conducted at the surgical wards of Isra University Hospital. It covered duration from December 2015 to March 2017. A sample of 120 inguinal hernias was selected according to the inclusion and exclusion criteria. Purposive sampling was used to

collect sample. Patients with unilateral inguinal hernia planned for Lichtenstein's hernioplasty were selected. Age >15 years and <60 years, healthy male with unilateral inguinal hernia and planned Lichtenstein's hernioplasty were included in the study protocol. Patients with recurrent inguinal hernia, bilateral inguinal hernia, antibiotic intake, female gender, and those with pulmonary tuberculosis and chronic liver disease were excluded. 120 subjects were divided into 2 groups; control (not received prophylactic antibiotic) and antibiotic group (received prophylactic antibiotic). Prophylaxis antibiotic ceftriaxone (1000 mg) was given over night of surgical procedure. Control group was administered normal saline as placebo. Surgical site was examined on 2nd post operative day. Follow up was followed on 10th, 20th and 30th day. Surgical site infection was noted in both groups. Pre- operatively, a written consent was signed by volunteers and they were informed that the antibiotic will be provided by the hospital, and there will be no extra burden on their pockets. A pre- structured proforma was designed for collection of data from volunteers. Statistical software SPSS 21.0 was used for data analysis (IBM, incorporation, USA). Gaussian distribution of continuous variables was checked by "Kolmorgov- Smirnov test". Continuous and categorical variables were analyzed by "Student t- test" and "Chi square test" respectively. All statistical analysis was calculated at 95% CI (P <0.05) for significance.

RESULTS:

Mean± SD age of study population was noted as 39.51 ± 7.56 years (15 – 61 years). Majority of subjects were found in 3rd, 4th and 5th decades of life (P>0.05). In controls and antibiotic groups 17 (14.1%) and 15 (12.5%) were noted in 3rd decades, 19 (15.83%) and 20 (16.66%) in 4th decade, and 11 (9.16%) and 10 (8.33%) were noted in 5th decade respectively. Table 2 shows the frequency of types of inguinal hernia in the control and antibiotic groups. Of 120, who underwent Lichtenstein's hernioplasty the direct and indirect hernias were noted in 35 (29.16%) and 33 (27.5%) & 25 (20.83%) and 27 (22.5%) of control and antibiotic groups respectively. Majority of subjects, both control and antibiotic group show right inguinal hernia. Of 120 subjects, the SSI was noted as 17 (14.1%) in control and 5 (4.16%) in antibiotic group. Cumulative SSI in total study population was 22 (18.33%) as shown in table 3.

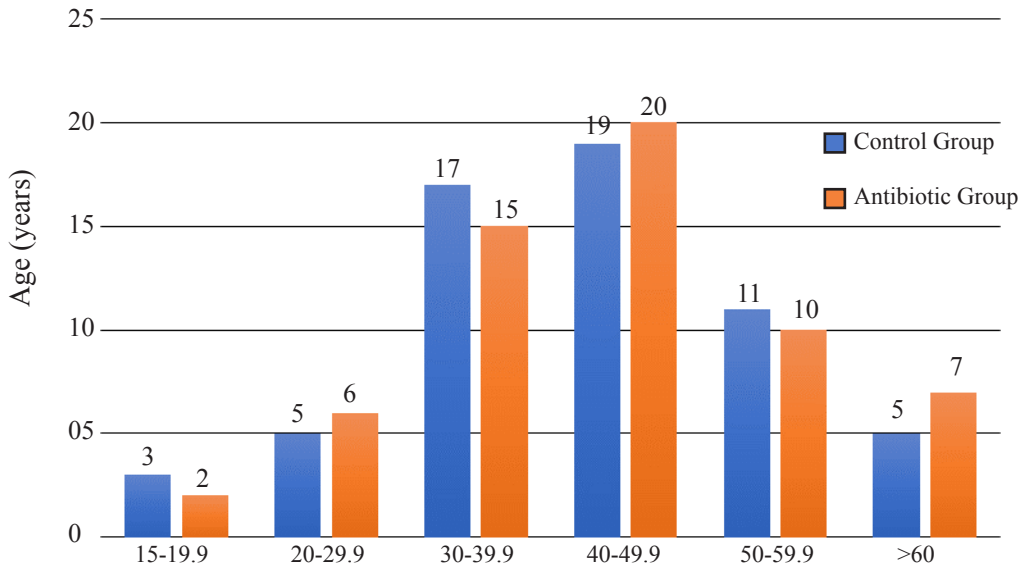

Fig 1. Age distribution of study subjects

Types	Control Group	Antibiotic Group	P-value
Direct	35 (29.16%)	33 (27.5%)	0.093
Indirect	25 (20.83%)	27 (22.5%)	
Total	60 (50%)	60 (50%)	

Table. 2. Types of Inguinal Hernia in study subjects (n=120)

SSI	Control Group	Antibiotic Group	P-value
Yes	17 (14.1%)	5 (4.16%)	0.093
No	43 (71.66%)	55 (45.83%)	
Total	60 (50%)	60 (50%)	

Table. 3. Surgical site infection (SSI) in study subjects (n=120)

DISCUSSION:

The present prospective study reports on the SSI in Lichtenstein's mesh repair in open inguinal hernioplasty. Mean± SD age in total study population was noted as 39.51 ± 7.56 years (15 – 61 years). Majority of subjects were found in 3rd, 4th and 5th decades of life (P>0.05). These findings are supported by previous studies.[10,11] In controls and antibiotic groups 17 (14.1%) and 15 (12.5%) were noted in 3rd decades, 19 (15.83%) and 20 (16.66%) in 4th decade, and 11 (9.16%) and 10 (8.33%) were noted in 5th decade respectively. These findings are in keeping with previous reports[12,13]. Of 120, who underwent Lichtenstein's hernioplasty the direct and indirect hernias were noted in 35 (29.16%) and 33 (27.5%) & 25 (20.83%) and 27 (22.5%) of control and antibiotic groups respectively. These findings are supported by previous studies[9,12,13]. In present study, SSI was 17 (14.1%) in control and 5 (4.16%) in antibiotic group. Cumulative SSI in total study population was 22 (18.33%) as shown in table 3. The findings are in agreement with previous study[9] that reported 12% incidence of SSI. Our incidence of 18.33% is slightly higher. While other previous studies have reported incidence of SSI of 8.33% and 8.7% respectively[14,15] which is in disagreement with the present study. It has been said there is no reliable data regarding the SSI infection rates in hospitals in the developing countries. The present study is a contribution of SSI in inguinal hernioplasty which enlightens the reality in developing countries. A previous study reported SSI incidence following mesh repair of inguinal hernia ranges from 0% to 9%[16]. This much difference of SSI incidence is probably due to the health provision facilities which are different in developing and developed countries. Other factors could be contributing such as the study design, different geographical areas, different study populations, physical status, nutritional status, operation theaters sterilizations, duration of follow-up and surgical procedure (mesh repair versus non-mesh repair)[17]. In present study, the association of incidence of SSI was not analyzed with other risk factors such as the hospital stay, age, operation theater environment, instrumental autoclaving facilities, etc. In the present study, incidence of SSI in Lichtenstein's mesh repair in open inguinal hernioplasty was low in antibiotic group 5 (4.16%) compared to 17 (14.1%) in control group. The total incidence of 18% of SSI is slightly higher that previous studies[19,20]. This could be due to different study populations, surgical facilities and small sample size. The findings of present study are in disagreement with previous study[19] that reported SSI incidence of 1.8% in the control group and 1.6% in those received prophylactic antibiotics. This previous study[19]concluded the prophylaxis antibiotic do not protect against SSI that is in contrast to the observations of present study. The findings are also in disagreement with previous studies[20,21] who reported SSI incidence of 3.3% and 1.7% in the control and antibiotic group respectively. The reason is clear that these studies have been reported from developed countries where health facilities are available at the climax. The present study is a contribution to the surgical site infection in Lichtenstein's mesh repair in open inguinal hernioplasty and enlightens the reality in developing countries. The present study suggests the prophylactic antibiotic therapy decreases the chances of surgical site infection.

CONCLUSION:

Surgical site infection incidence was high in present study. The present study reports low incidence of surgical site infection in Lichtenstein's mesh repair in open inguinal hernioplasty with antibiotic prophylaxis from the evidence based findings of present study the routine use of prophylactic antibiotic decrease the incidence of SSI in mesh hernia repair.

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Efficacy Of Gabapentin In Trigeminal Neuralgia: A Non-randomized Trial

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ABSTRACT:

Objective: To compare the efficacy of Gabapentin with carbamazepine in Trigeminal Neuralgia.

Material/Method: The study was conducted in Agha Khan University Hospital and Abbasi Shaheed Hospital for four months. 19 patients of TN were collected through purposive convenience sampling. DN4 questionnaire was used to differentiate between Somatic and Neuropathic pain. Numeric Pain Rating Scale was used to assess the severity of pain.

Results: Nine patients of Trigeminal Neuralgia refractory to carbamazepine were put on Gabapentin with male to female ratio of 4:5. All showed favorable response on 800-1600 mg Gabapentin on Numeric Pain Rating Scale. All patients were pain free in three weeks with no side effects. There was significant difference between pain response to carbamazepine and Gabapentin at P< .05. Four patients (44%) had pain relief on 900 mg Gabapentin, three (33%) on 1200 mg, one responded on 800 mg and one on 1600 mg.

Conclusion: Gabapentin is effective as first line treatment in Trigeminal Neuralgia

Key words: Trigeminal Neuralgia, carbamazepine, Gabapentin

INTRODUCTION:

Trigeminal Neuralgia (TN) is a potentially disabling condition resulting in facial pain. It is also known as "TicDouloureux" and is a neuropathic pain syndrome[1]. According to International Classification of Headache Disorders, TN consists of the standardized set of salient features; paroxysmal episodes of stabbing pain accompanied by brief periods of facial spasm, a duration that lasts from a variable range of few seconds to couple of minutes and caused by stimulation with involvement of one or more divisions of the trigeminal nerve[2].

It is a rare disorder with an estimated prevalence of 155 cases per million persons[3]. The male to female ratio is 2:3[4]. In United States, the prevalence is around four to five cases per 10,000 of the population[5]. TN is primarily classified into two types. Classic TN is idiopathic in origin and most common in the age of 5th decade onwards. The compression or demyelination of the trigeminal ganglion causes the other type known as the symptomatic TN. This one is common in relatively young age group of 30-40 years[6]. Pain follows the sensory distribution of Trigeminal nerve typically radiating to mandibular or maxillary area and rarely both[7]. The diagnostic criteria for idiopathic TN by International Headache Society is follows[8].

- Paroxysmal attacks of facial or frontal pain lasting a few seconds to less than two minutes.
- Pain has at least four of the following characteristics
  I. Distributions along one or more divisions of trigeminal nerve
  II. Sudden, intense, sharp, superficial pain; burning or stabbing in nature
  III. Severe pain intensity
  IV. Precipitated from trigger areas or by certain daily activities eg. Eating, talking, washing face, cleaning teeth
  V. No symptoms between paroxysms
- No neurological deficit is present
- Attacks are stereotyped in individual patients
- Other causes of facial pain are excluded by history, physical examination and investigations when necessary. In symptomatic cases a persistence of aching can occur between paroxysms as well as signs of sensory impairment in the trigeminal division.

Mechanism of pain in TN remains highly debated[9,10]. The involvement of thalamic relay neurons result in perception of pain in the nucleus of trigeminal ganglion. The condition may further aggravate by the presence of tumors, aneurysms

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and meningeal inflammation that result in chronic irritation along the pathway of trigeminal nerve root near the pons.[3] An abnormal vascular course of superior cerebellar artery is often cited as the cause. It may be a symptom of multiple sclerosis or dental irritation. However in 90-95% of cases, no lesion is identified[6]. Management depends on the cause and as majority are idiopathic pharmacologic treatment is the mainstay[11].

By most, carbamazepine is the medical treatment of choice[12,13,14]. Some advocate a trial of baclofen since it has fewer adverse effects[15]. While, gabapentin has shown promising results in some forms of neuropathic pain[16].

The effects and response to these medications have not been studied before in Pakistan. The effectiveness of gabapentin in TN is gaining popularity through anecdotal reports and retrospective studies[17,18].

The rationale of the study was to assess the effectiveness of gabapentin in patients that were not responding to carbamazepine at high doses or were unable to tolerate increment in dosage so that patients, refractory to carbamazepine in TN could be benefited with substitute of gabapentin.

PATIENTS AND METHODOLOGY:

A non-probability purposive sample type was selected for the study and sample size was determined by World Health Organization (WHO) sample size software keeping alpha at 0.05, 1-beta=90%. A study design of non-randomized trial was performed on patients having TN, refractory to carbamazepine (400-800 mg daily) who visited Aga Khan University Hospital (AKUH) and Abbasi Shaheed Hospital (ASH) for four months.

Those patients whose pain response was refractory to carbamazepine were selected consecutively. All new patients were initially started on carbamazepine 200mg titrating to 800 mg over a period of three weeks and patients already on carbamazepine were either dose titrated if on a low dose or switched to gabapentin if already on adequate doses for more than four weeks. Gabapentin was started from 300-400 mg with weekly increments titrating to pain control and its maximum dose used was of 1600 mg.

The patients with secondary TN or abnormal neurological examination were excluded from the study. Informed consent was taken from the patients and their autonomy, anonymity and confidentiality were strictly maintained according to ethical guidelines of Pakistan Medical and Dental Council (PMDC).

In order to differentiate between neuropathic and somatic pain, Douleur Neuropathy 4 question (DN-4) questionnaire was used. Numerical Pain Rating Scale (NPRS) was used to measure the subjective intensity of pain. NPRS is an 11 point scale from 0 (no pain) to 10 (the most intense pain imaginable). Patients verbally selected a value that was most in line with the intensity of pain that they had experienced in last 24 hours.

Categorical variable like gender was exhibited through charts. For age, mean and standard deviation were calculated. To find out significant difference between two drugs efficacy T-test was applied. P value was kept significant <.05.

RESULTS:

Total number of patients of TN was 19. A total of 9 patients were refractory to the 1st line drug carbamazepine. 5 of these were unresponsive (800mg) and 4 failed to tolerate the dose (400 mg) and showed effects of fatigue and drowsiness. The flow chart demonstrating the entire process is given below. (Figure: 1)

The 9 patients (comprising of 4 males and 5 females) refractory to the monotherapy of carbamazepine were treated with various doses of gabapentin. The mean age of patients was 51 years. The initial dose was set to be 300-400 mg which was increased the following weeks with same increments every week till the patient was pain free. With regular follow up, all nine patients had pain relief from the dose ranging from 300-400 mg to 1200-1600mg. The response was overwhelmingly favorable and there were no drop-outs due to side effects.

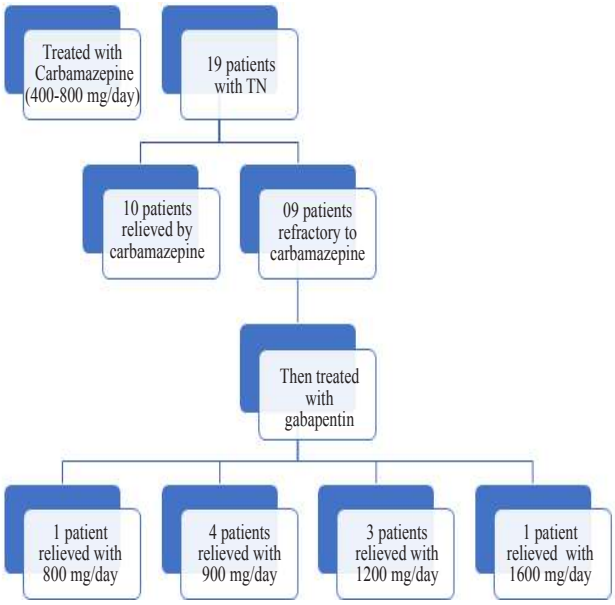

Figure 1: Flow-chart showing the entire methodology of treatment

DISCUSSION:

Trigeminal Neuralgia is often referred as "tic douloureux" because of the characteristic muscle spasm coupled with pain.[1] Some experts argue that this syndrome is caused as by neural trauma to the nerve that passes through the foramen in the skull to facial tissues and muscles[19].

Certain evidence suggests that carbamazepine is still

considered to be the first line drug for medical management[12]. The mechanism of action of carbamazepine involves the inhibition of voltage-gated sodium channels that ultimately reduces the excitability of neural membranes. This reduction subsequently causes relief in neuropathic pain[20].

On the contrary, Keppel Hesselink et al in their extensive review article claim that no convincing randomized controlled trials (RCTs) have been found in the medical literature that comprehensively substantiate the role of carbamazepine in TN[21].

One report of 143 people with TN followed for 16 years found that carbamazepine was initially successful in 69% of cases, however after 5-10 years only 22% were still gaining benefit from carbamazepine monotherapy. Therefore patients require other drugs to control pain[22].

A synergistic combination of carbamazepine with lamotrigine or baclofen is the second line treatment when monotherapy fails; however the evidence is weak[23]. The long term effects of carbamazepine have been assessed only in open trials. Common side effects include sedation, drowsiness, nausea, double vision, lack of muscle coordination and hyponatremia. This makes it contraindicated to old-age debilitated patients[3,11].

Gabapentin is a GABA (gamma-aminobutyric acid) receptor agonist that, unlike carbamazepine, acts on calcium channels and inhibit the release of neurotransmitters in excitatory state[8]. The evidence shows that gabapentin has been tested in randomized control trials of neuropathic pain with proven efficacy[13]. Its use and effectiveness were also validated in numerous studies[24].

The mere fact that gabapentin is well tolerated without serious side effects is an advantage when prescribing it for elderly patients[25]. Gabapentin has many advantages, including faster titration, no adverse drug reactions and a favorable side-effect profile. Studies have shown its efficacy particularly in patients with TN in multiple sclerosis and refractory cases[26,27].

CONCLUSION:

The results of our study suggest that gabapentin can be as effective as first line treatment in TN, even in those cases that are resistant to traditional treatment modalities. Gabapentin shows good efficacy and is well tolerated in all patient groups. Further prospective double blind comparative studies would show a better efficacy profile and need to be done.

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Epicardial Adipose Tissue Thickness, A Direct Correlation With Age And Gender In Healthy Adults And Coronary Artery Disease Patients

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ABSTRACT

Objectives: The aim of this study was to measure the Epicardial Adipose Tissue thickness through echocardiography in healthy adults and coronary artery disease patients and to make its association with age and gender.

Methods: It was a case control study. A total of 315 samples including 159 cases of coronary artery disease and 156 asymptomatic individuals for coronary artery disease underwent echocardiography for Epicardial Adipose Tissue thickness measurement.

Results: Mean Epicardial Adipose Tissue (EAT) in the study was found to be 15.45 ± 7.16 mm. Cases had significantly higher EAT 16.77 ±9.80mm as compared to controls 14.13 ± 4.52 mm (P=0.02). EAT thickness increased significantly with age (P=0.004). There was no significant difference of EAT (P=0.999) in both the genders.

Conclusion: The mean EAT thickness is significantly higher in our study population as compared to previous studies. The mean EAT thickness was same in both males and females of our study. There was no significant difference in EAT of both genders.

Key Words: Epicardium, Epicardial adipose tissue, Epicardial adiposetissue thickness, Coronary artery disease, Echocardiography, Cardiovascular risk, Myocardial fat, Visceral fat depot, Lean body mass, Myocardial infarction.

INTRODUCTION:

Epicardial adipose tissue (EAT) is an independent factor in the development of coronary artery disease [1]. It is responsible for fatal and nonfatal coronary artery events in general population irrespective of cardiovascular risk factors[2]. EAT is the visceral fat depot of the heart[3]. EAT is a metabolically active organ with anatomical and functional contiguity to the myocardium[4]. It is the most significant independent correlation of myocardial fat[5]. EAT has anatomic and functional proximity to the myocardium and it has intense metabolic activity, therefore some interactions between heart and its visceral fat depot has been suggested[6].

EAT has endocrine and paracrine activity[7, 8]. It secretes proinflammatory and anti- inflammatory cytokines and chemokines[9, 10]. It is suggested that these chemicals promote the development of coronary artery atherosclerosis [11, 12, 13].

Various researchers from different parts of the world have reported that EAT thickness varies with age and gender [14]. EAT increases with increase in age[15, 13, 16]. EAT mass increases with age, until the age of 20–40 years, but is not dependent on age in later life[17]. EAT is 22% thicker in individuals older than 65 years[18]. Lean body mass decreases with aging whereas visceral fat mass increases because of redistribution of fat in trunk and viscera[19]. These changes seem to occur at a different rate and intensity between men and women, with a greater redistribution seen in older women[20].

There is no literature available on the association of gender with EAT thickness. From the Framingham cohort study data, Rosito et. al [21] suggested that there is more association between EAT thickness and risk factors for coronary artery disease (CAD) in women than in men. However, two other studies of the same cohort did not find this association[11, 15]. Taking this into consideration, it is not possible to attribute these differences to the gender or to other concomitant characteristics[22]. Gender, race and genes are also responsible for the occurrence of CAD [23].

Determinations of normal EAT according to the population's own age and gender has now become essential for future prediction of having chances of coronary artery disease. Epicardial adipose tissue has been identified to play a crucial role in the pathogenesis of coronary artery disease[24]. Its thickness may serve as a new index of cardiac and visceral adiposity with potential as a diagnostic tool and therapeutic target in myocardial infarction. Increase EAT thickness may be associated with poor prognosis in patients with acute coronary syndrome[25]. The objectives of this study were to determine EAT thickness in a subset of Karachi population and also to determine the effects of age and gender on EAT thickness.

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MATERIAL AND METHODS:

This was a case-control study carried out from September 2014 to February 2015. Three Hundred and Fifteen volunteers participated in the study and went through echocardiographic examination at Echo cardiology Department of Ziauddin Hospital Clifton, Karachi. The study was conducted after taking approval from Ethical Review Committee, Ziauddin University, Karachi. Samples were collected after taking a written informed consent. Proforma regarding subject's history and demographic profile was filled. All those healthy individuals with incidental findings of coronary artery disease or any other cardiac pathology on echocardiography, history of cardiac disease and cardiomyopathy, pregnancy, hypertension, diabetes, any major cardiac surgical history, history of usage of alcohol, history of anti hypertensive and anti arrhythmic drugs, left chest irradiation, current use of oral corticosteroid and chest deformity were excluded from the study.

Echo machine Toshiba model NemioXG with cardiac probe frequency of 3.5 MHz was used to determine EAT thickness of our sample population. Participant was examined in supine position, with pillow under their shoulders to make comfortable position. EAT thickness was measured by sub costal view, parasternal long axis view and parasternal short axis views. The mean EAT was then calculated. Data was entered on Microsoft Excel and SPSS version 20 was used for statistical analysis. Means and standard deviations were derived for numerical variables and ANOVA was applied to determine the significance among age groups. Paired t-test was used to compare the difference of EAT with age and gender. Independent T-test was applied to calculate significance between genders and for age. P- Value of < 0.05 was considered to be significant.

RESULTS:

The mean age of the study participants was 55.16 ± 13.79 years. The minimum and maximum age of the volunteers ranged from 35 to 80 years. 50.2% (158 out of 315) were males and 49.8% (157 out of 315) were females with their mean age 54.36±14.54 and 55.96±12.98 years respectively. EAT thickness increased significantly with age (P value = 0.004). Weak positive (r= 0.162) association was found between EAT and age of cases and controls. Mean Epicardial Adipose Tissue thickness of 157 controls was found to be 14.13±4.5 mm, while mean Epicardial Adipose Tissue thickness of 156 cases was found to be 16.77±9.80mm. Significant difference of mean EAT (P-value = 0.002) was found between cases and controls. Mean EAT in males was 15.44±9.8 and in females it was 15.44±4.8. No significant difference of mean EAT between males and females was found. (P-value = 0.999).

DISCUSSION:

The mean age of the study participants was 55.16 ± 13.79

	Frequency	Percent
35-44	76	24.1
45-54	91	28.9
55-64	60	19.0
65-74	56	17.8
75-85	32	10.2
Total	315	100

Table 1: Age Distribution of Study Participants

Gender	Frequency	Percent
Male	158	50.2
Female	157	49.8
Total	315	100.0

Table 2: Gender Distribution of Study Participants

	Disease status	N	Mean	Std. Deviation	P-value
EAT(mm)	control	157	14.1325	4.52136	0.002
	case	156	16.7718	9.80318	

Table3: Mean EAT in Cases and Controls

	Gender	N	Mean	Std. Deviation	P-value
EAT(mm)	Male	156	15.4487	9.82080	0.999
	Female	157	15.4471	4.85730	

Table4: Mean EAT in Males and Females

R	R Square	P-value	95.0% Confidence Interval for B	
			Lower Bound	Upper Bound
0.162	0.026	.004	6.901	13.949
			.029	0.153

Table5: Correlation of EAT with Age

Age groups	Mean	N	Std. Deviation	P-value
35-44	12.4013	76	4.09873	0.999
45-54	15.8923	91	4.62736	
55-64	15.5500	60	5.10123	
65-74	16.8500	56	5.56283	
75-84	15.2688	32	5.95003	
Total	**15.0917**	**315**	**5.14660**	

Table 6: EAT in Age Groups

years. We found a significant difference in EAT with increasing age. A weak positive (r= 0.162) (table 5) association was found between EAT and age of cases and controls. Our results were in accordance with the results of previous studies done[26, 27 ,28,29]. The reason for this gradual increase in EAT thickness with age is that there is a decrease in lean body mass and increase in fat mass, with fat tissue redistribution to the trunk and viscera suggested by Dey DK, 1999. Epicardial adipose tissue is more abundant in the elderly and is correlated to visceral adipose tissue depots, indicating a higher cardio metabolic risk[26].

The mean EAT thickness was same in both males and females of our study (table 4). We found no significant difference in EAT of both genders. A study done by Dagvasumbere M[30] concluded that mean EAT was higher in men in CAD group than in non-CAD group. There was no consensus in the previous literature on the association of gender on the amount of EAT. The Framingham[31] cohort data suggested that EAT is more associated with risk factors in women than in men. Two other studies from the same cohort suggested this association of gender with EAT[32, 33]. Our study result was also in accordance with the results of previous studies[30,32,33].

Mean EAT thickness in our study controls groups were found to be 14.13±4.5 mm, while in case of CAD group it was found to be 16.77±9.80 mm (table 3). Significant difference of mean EAT (P-value 0.002) was found between cases and controls (table 3). EAT thickness in healthy adults noted by different researchers in different regions of the world was as follows: in Asian-Indians 2.6±1.3 mm[34], 3.43±0.88mm[35] and 9.97±2.88mm in Italy[36]. Mean EAT thickness in our studied population was highest than the other studied populations.

The mean EAT in CAD patients in our studied group was found to be 16.77+ 9.80 mm (table 3) while it was found different by other researchers like <5mm, 2.34 ± 0.89 mm[35] and 3.4±2.2 mm[37]. The reason for this increase in difference of EAT perhaps due to a higher number of overweight and obese subjects in our studied group.

CONCLUSION:

The mean EAT thickness is significantly higher in our study population as compared to previous studies. We found gradual increase in EAT with age until the age of sixty four year, after that it became static. The mean EAT thickness was same in both males and females in our study. We found no significant difference in EAT of both genders. Echocardiographic Epicardial Adipose tissue is an inexpensive, reproducible, and direct measure of visceral fat. It may have an important role in predicting and stratifying cardiovascular risk in clinical care.

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Outcome Of Wilms Tumors Among Children At Single Center In A Developing Country

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ABSTRACT:

Objective: To determine the outcome of wilms tumors among children in our center and compare the results of treatment on the basis of management proposed by the National Wilms tumor study board (NWTS) and the Societe international D'oncologie pediatrique (SIOP)

Patients and methods:- This study includes 49 children who presented to the Aga Khan University Hospital(AKUH) with wilms tumors from January 1988 to December 2015 (aged 0-16 years). Patients were further divided according to the treatment strategies they received i.e NWTS and SIOP. Data was analyzed using SPSS 10.

Results:-.A total of 49 patients (57%male and 43% female) were included in the study. Majority of the cases (56%) were between 1-5 years. The tumors mostly presented on the right side (65%).The diagnostic work up of the patients mainly involved CT imaging (69%).35% of children in the SIOP group presented with stage 3 diseases whereas in the NWTS group 42% presented with stage 1 disease. In the SIOP group 4 (14%) patients had disease reoccurrence and 2 (7%) patients died. In the NWTS group 2(10%) patients had disease reoccurrence and 1 (5%) patient expired. A 5 year survival rate of both groups was calculated to be more than 80%. Mean follow up in SIOP group was 119 months and In NWTS group was 114 months.

Conclusions:- Wilms tumors are curable in the majority of the patients even with limited resource as in our country. The NWTS and SIOP treatment approaches are almost equally effective at our center however adherence to a single treatment is mandatory for effective treatments.

Keywords:- Renal Tumors, Wilms Tumor, chemotherapy, Societe international D'oncologiepediatrique, National Wilms tumor study board

INTRODUCTION:

Pediatric renal tumors are one of the more commonly occurring pathological conditions[1]. Wilms tumor is the most common primary malignant renal tumor in children with an incidence of 7.6 cases per 1000000 children under 15 years of age[2]. About 10% of the cases are associated with syndromes such as WAGR and Denys-Dash[3]. In the era when surgery was the only treatment for this condition the survival rate of patients was only 20% however with the introduction of radiotherapy and chemotherapy as part of the treatment, long term survival rate has significantly increased (>90%)[3-4]. Currently 2 leading treatment strategies are being used in the USA and Europe[5-6]. The European strategy in accordance with the Societe international D'oncologiepediatrique (SIOP), favors the use of preoperative chemotherapy, followed by surgery[7-8]. This differs from the US treatment strategy in that the later, in accordance with the National Wilms Tumor Study (NWTS), favors immediate nephrectomy[9]. Hence oncologists and pediatric surgeons face the dilemma of choosing the most suitable treatment when dealing with wilms tumor[10]. Initially in our institute wilms tumors were managed on the basis of the NWST protocol however now the SIOP protocol has been adopted. This gives us the unique opportunity to observe and compare patients managed by both of these protocols. In this study we aim to determine the outcome of wilms tumors among children managed at The Aga Khan University Hospital (AKUH) Karachi Pakistan. We compared the results of patient's management on the basis of NWTS and the SIOP protocols.

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MATERIALS & METHODS:

This retrospective study was carried out at the Aga Khan University Hospital (AKUH), Karachi after approval from the institutional ethics committee and compromised all patients aged 0-16 years who presented with wilms tumors from January 1988 to December 2015.The medical records were retrieved using international classification of disease (ICD) codes 189.0. Data were retrieved and their confidentiality was maintained. Patients with incomplete medical records were excluded from the research (Figure 1). The wilms tumor patients were further divided according to the treatment strategies they received i.e. NWTS and

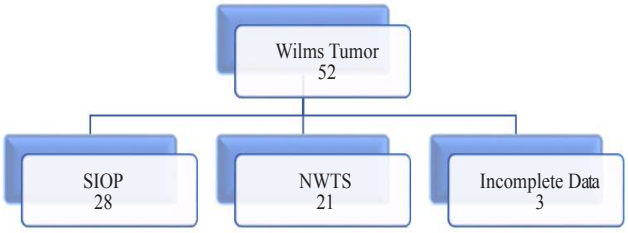

Figure 1 Study Population

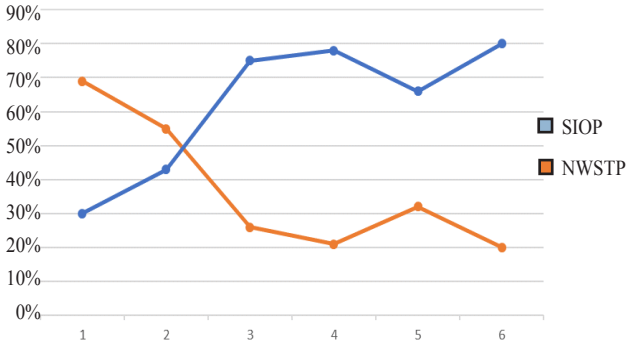

Figure 2 Trends In Treatment

SIOP. SPSS version 19 was used for statistical analysis.

RESULTS:

During this period of 27 years, 52 children with wilms tumors were managed at AKUH. 3 patients were excluded due to incomplete medical records (figure 1). A total of 49 patients (57%male and 43% female) were included in the study. 56% of the cases were between 1-5 years, 36% were between 6-10 years and 8% were between 11-16 years. The tumors mostly presented on the right side (65%) and were often present as an asymptomatic abdominal mass in half of the patients. The diagnostic work up of the patients mainly involved CT imaging (69%) alone or in combination with an ultrasound abdomen to rule out vessel involvement (48%). Other diagnostic workups included fine needle aspiration [FNA (n=11)], intravenous pyelogram [IVP (n=2)] and magnetic resonance imaging [MRI (n=1)]. All the patients in the SIOP group received pre-op chemotherapy. 35% of children with wilms tumor in the SIOP group presented with stage 3 diseases whereas in the NWTS group 42% presented with stage 1 disease. In the SIOP group 4 (14%) patients had disease reoccurrence and 2 (7%) patients died due to progression of the disease and chemotherapy related complications. In the NWTS group 2(10%) patients had disease reoccurrence and 1 (5%) patient expired due to chemotherapy related complications. A 5 year survival rate of both groups was calculated to be more than 80%. Mean follow up in SIOP group was 119 months and In NWTS group was 114 months.

DISCUSSION:

Willms tumor is the predominant form of renal tumor, consisting of approximately 84% of all renal tumors in children[5]. In Pakistan the incidence of renal tumors is mainly derived from hospital data. A study conducted by Dr Farhat Moazam et al, at AKUH 'Malignant abdominal tumors in children' showed that Wilms tumor (28%) was the most common tumor.Other more commonly occurring abdominal tumors included Non Hodgkins lymphomas (20.8%), Neuroblastomas (11.3%), Rhabdomysarcomas, germ cell tumors (9.4%)[11].

The incidence of wilms tumor in children younger than 16 years is 7.1 cases per 1 million[12]. The mean age at diagnosis is 44 months in unilateral cases of wilms tumor and 31 months in bilateral cases[13]. In our study most cases (56%) presented with unilateral wilms tumor of the right side with a male to female ratio of 1.3:1. Most children (68%) were diagnosed with wilms tumors in our study at a mean age of 65 months, clearly showing late presentation. A multi-disciplinary approach with efficient teamwork and communication between the Pediatric surgeon, Pediatric oncologist, Pathologist and radio-oncologist is essential[14].

When managing children presenting with wilms tumor currently two protocols are widely practiced, National Wilms Tumor Study (NWTS) and the Societe Internationale D'oncologie Pediatrique (SIOP). The NWTS technique favors an upfront surgery followed by chemotherapy and radiotherapy depending on pathological stage determined by the histopathology of the resected specimen. The SIOP, which is an, European Group that in 1971 started studies on Wilms' tumor, differed from NWTS in the concept of giving preoperative chemotherapy to all patients[15].

The NWTS approach has the major advantage of tumor resection with biopsy proven diagnosis and targeted therapy with no loss of histological staging as a result of preoperative chemotherapy. The disadvantages include tumor spillage intraoperatively which will increase the stage of the disease and chances of tumor reoccurrence, and if there is a failure to sample lymph nodes at time of surgery will lead to down staging and under treatment of patients[16-18].

The SIOP procedure on the other hand shrinks the tumor in size after chemotherapy and also reduces its extent significantly there by enabling the child to be operated on successfully with less chance of tumor spillage and postoperative complications[19]. The disadvantages of this procedure include loss of staging information secondary to down staging which makes the comparison of results difficult[20].

Wilms tumor management in developing countries is compromised due to the late presentations of tumors with disease metastasis and poor patience compliance[21]. When overall patients presenting stage was compared with international literature our 55% patients presented at stage 1, and 45% had presented with stage 3. However results of a randomized trial (UKW3) conducted by the UK Children's Cancer Study Group showed incidence of around 80% in stage 1 and only 18% were presented with stage 3. Thus it is obvious patients presenting to our center had a relatively higher stage[22].

Although there are a few local studies available on the management of wilms tumors in children in our part of the world, there is however no published reports regarding the outcome of wilms tumor as per SIOP vs. NWTS protocols of management.

Initially in our institution NWTS protocol was practiced. As no pediatric oncologist were available and hence chemotherapy was given to pediatric patients with the help of adult oncologists. Later on the department of pediatric oncology was established here in 1998 which followed SIOP protocol that has given usthe unique opportunity to compare our patients with both the protocols.

On comparison, the major difference between the wilms tumor groups includes initial stage of presentation, with higher stage in SIOP then NWTS (35% Vs 19%) but the overall survival rate was comparatively equal in both groups. Also children SIOP group had more surgical complications (21%) as opposed to the NWTS group (9.5%).

When we compare the SIOP and the NWST protocols of management SIOP proves to be more beneficial at initial presentation but no difference is seen in terms of surgical complications. However higher incidences of infective post operative complications were observed in the SIOP group which is understandable as pre surgery chemotherapy makes patients immunodeficient. Figure 2 represents the trend of treatments followed in the past era at our institution, which clearly shows a rising trend in SIOP protocol, in recent years. The current management of wilms' tumor has resulted in long-term survival rates of >90% for localized cancers and of ˜70% for metastatic disease[23]. Large randomized controlled trials have been designed, managed and published by various collaborative groups, including the NWTS, and SIOP emphasis has now been diverted from successful treatment to reducing treatment associated morbidity, without loss of efficacy. Collectively, these studies have enabled the treatment of wilms' tumor to be modified to minimize morbidity for low-risk disease and to maximize the prognosis for high-stage high-risk patients[24]. Overall survival rate in both groups in our study were calculated to be more than 80%.

The limitations of this study include a retrospective study design and a lack of multidisciplinary approaches in the early years of the study as therewas no pediatric oncologist available.Patient selection at early years of study was based on clinical and radiological stage at presentation. Patients with low stage were selected for upfront nephrectomy, however with higher stage underwent chemotherapy before surgical excision. Howeverour results indicate that our overall survival rate of about 80% can be achieved with careful planning of treatment in resource poor environment.

CONCLUSION:

Wilms tumors are curable in the majority of the children even when presenting late and with limited resources as in our country. The NWTS and SIOP treatment protocols proved almost equally effective at our Institution; however adherence to a single treatment is mandatory for effective treatments.

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Effects of Exercises On Pregnancy Related Low Back Pain: A Quasi Experimental Study

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ABSTRACT

Objective: To evaluate the effect of therapeutic exercises on pregnancy related low back pain in a tertiary care hospital of Karachi.

Material & Methods: This was a quasi-experimental study with non-probability convenience sampling technique. Study was carried out at Liaquat National Hospital Karachi. Patients were divided into two groups (Experimental and Control). Inclusion criteria were age <30 years, 2nd and 3rd trimester, stable medical status and those who gave the informed consent. Exclusion were pregnancy induced hypertension (>140/90mmHg), Cardiac disease, diabetes mellitus, persistent vaginal bleeding, history of miscarriages, decreased foetal movement. Data was collected through assessment Modified Oswestry Low back pain disability questionnaire. SPSS version 23.0 was used to analyze the data.

Results: A total of 30 samples were selected for the study. There were 15 respondents in experimental while 15 in control group. Disability levels were found to be significantly decreased after post treatment in experimental group with P-value= 0.002. It was seen that number of patients was increased from 1(6.7%) to 6(40%) in minimal disability group whereas crippled back pain group in pre-treatment group was totally shifted towards minimal or moderate pain 3(20.0%) and no case was seen in post-treatment.

Conclusion: Low back pain in pregnancy can disturb daily life routine but exercise therapy and proper counselling will lead stress free life to female in gestation. After post treatment in experimental group showed decrease in pain as compare to control group who were not provided any exercise therapy. Working women in experimental group also showed decrease by crippled back pain to moderate pain after exercise. So in the end researcher suggest that physiotherapy exercises play a vital role in reducing Low Back Pelvic Pain (LBPP) during pregnancy.

Keywords: Therapeutic Exercises, Pregnancy, Low back pain

INTRODUCTION:

Pregnancy is tremendous period for a women's life as it is the symptom of a new arrival to the family. The physical change of body needs care and attention to safe from different disease. One of the main discomfort in pregnancy is low back pain 90% pregnant women are suffering from it[1].

During maternity, the incidence of low back disorders might have world consequences involving physical, psychological and social impacts among ladies and their unborn children[1,2].

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Low back pain (LBP) could be a common grievance amongst girls throughout physiological state, having a good impact on their quality of life.

The effects of low back pain reduces quality of life during pregnancy. Hippocrates described low back pain during pregnancy is a known problem in many countries. In 1962 Walde was the first who recognized the differences between Pelvic Girdle pain (PGP) and Lumbar pain (LP). Later, Ostgaard et al. set the criteria for the differentiation between these two entities[3].

Hormonal and biomechanical changes can change the daily life routine of a pregnant women with low back pain. Moderate to severe pain observed to be more frequent in literatures because it disturbs pregnant women to complete their daily activities[4].

A study showed 50% prevalence of low back pain in pregnancy. These women will suffer complications of LBP during postpartum period[5].

Most of the females feels back pain throughout gestation. The causes area unit manifold: their weight increase on the one hand, and also the specific physiology of the spine on the opposite. Throughout gestation, a woman's weight will increase by fifteen to twenty five percent; this signifies a bigger burden on the tendons, ligaments, and joints Moreover, relaxin and estrogen loosen the ligaments and therefore

produce a further predisposition for injury[6]. The enlarged uterus and also the increase in breast volume shift the body's center of gravity to the front. The pelvis is tilted at the same time, and lordotic curve will increase[7].

Risk of pain also increases in women who had previous pregnancies. The volume of risk cannot estimated in any pregnant women. However those women who were suffering from LBP before pregnancy are more vulnerable to develop moderate to severe pain of unknown duration after child birth[8].

One can reduce pain after minimizing their physical activities which effect pelvis. These activities include standing on one leg, climbing stairs, walking long distances and standing for long periods of time, maximize vocational ergonomics, take many short breaks, try to lie down, and educate pregnant women on structural fitness, i.e., body ergonomics, to avoid low back stress. Also, avoid lifting anything over several pounds; strengthen back muscles (Antoniadis, 2012)[9].

If low back pain treated on early stages then treatment will lead to the best possible outcome. Conservative management is the gold standard including physiotherapy, stabilization belts, nerve stimulation, pharmacological treatment, acupuncture, massage, relaxation, and yoga[10].

The severity of back pain can be reduced by taking its preventive measures. These are the techniques which help to decrease back pain during pregnancy. Get plenty of rest, use exercises approved by health care provider that support and help strengthen the back and abdomen, avoid high heels and sleeping on the back (Cunningham and Gary, 2011)[11].

One of the best treatment to minimize pain in pregnancy is Physiotherapy. This includes passive therapies, such as manual therapy, and active treatment, such as therapeutic exercises[12]. Further treatment modalities include aquatic therapy, acupuncture, ergonomic advise, and the use of a pelvic belt. Exercise can reduce the intensity of pain, improve function and reduce disability[13,14].

To evaluate the effect of therapeutic exercises on pregnancy related low back pain in a tertiary care hospital of Karachi.

MATERIAL & METHODS:

This was a quasi-experimental study with non-probability convenience sampling technique. Study was carried out at Liaquat National Hospital Karachi. A prior ethical approval was taken from the Institute Ethical Committee. Participants gave their informed consent and the study was conducted according to the Declaration of Helsinki. Patients were divided into two groups (Experimental and Control). Sample size was found to be 30 which divided equally in both groups.

Inclusion criteria were age < 30 years, 2nd and 3rd trimester, stable medical status and those who gave the informed consent. Exclusion criteria were pregnancy induced hypertension (>140/90mmHg), Cardiac disease, diabetes mellitus, persistent vaginal bleeding, history of miscarriages, decreased foetal movement. Breech presentation, placenta preavia, intrauterine growth retardation or any pain due to exercise.

Data was collected through assessment Modified Oswestry Low Back Pain Disability Questionnaire, Visual Analog Scale, Quebac Back Pain Disability Scale. The treatment protocol of exercises were given to experimental group only. The procedure was moist heat or cold pack as needed to decrease pain. Advised to wear pregnancy support sacroiliac belt to improve posture. Advised to do regular aerobic exercise such as walking, swimming and bicycling. Strengthening exercise (pelvic tilts, kegels) and stretching (back, hamstring wall posture stretch). This was a complete 10-15 minutes exercise.

Statistical Analysis was done through SPSS version 23.0. Continuous variable (Age, years) was presented in Mean ± Standard Deviation. For categorical variables frequency and percentages were presented. Disability levels were measure Pre and Post separately by using chi-square test. P-Value = 0.05 considered to be statist carry significant.

RESULTS:

A total of 30 samples were selected for the study. There were 15 patients in experimental group while rest were in control group. Mean age in control group was 26.5 ± 1.8 with range of 22-29 years and in experimental group it was 25.8± 2.4 ranging from 20-29 years.

Occupation was categorized in housewife and working women. In control group there were 13 (80%) house wife and 2 (20%) were working women while in experimental group house wife were 9 (60%) and working women were 6(40%). (Figure 1)

Disability levels were found to be significantly decreased after post treatment in experimental group with P-value= 0.002. It was seen that number of patients was increased from 1(6.7%) to 6(40%) in minimal disability group whereas crippled back pain group in pre-treatment group was totally shifted towards minimal or moderate pain 3(20.0%) and no case was seen in post-treatment. (Table 1)

In control group disability levels were significantly increased in post treatment with P-value=0.003. the level of disability in minimal disability group is increased from pre to post treatment as well as the controls were shifted from minimal disability 3(20%) to moderate 7(46.7%) and crippled back pain 4 (26.7%) disability groups. (Table 2)

DISCUSSION:

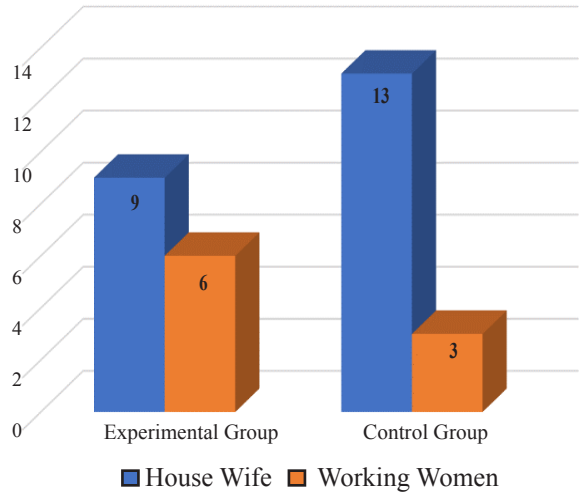
There was a significant difference between the experimental and control groups considering LBPP. The results showed low back pain were increase in the control group because no treatment provided to them with significant P-value of 0.003. While in experimental group physical disability due to LBPP decreased significantly with P-value of 0.002. In

	Experimental Group (n=15)		P-Value
Disability	Pre	Post	
Minimal Disability (0-20%)	1(6.7%)	6(40%)	
Moderate Disability (>20-40%)	8(53.3%)	6(40%)	0.002
Severe Disability (>40-60%)	3(20.0%)	3(20.0%)	
Crippled back pain (>60-80%)	3(20.0%)	0	

Table 1: Comparison between Pre and Post disability with level of Pain in Experimental group
*Chi-square test was applied to see the significance at P-value = 0.05

	Control Group (n=15)		P-Value
Disability	Pre	Post	
Minimal Disability (0-20%)	3(20.0%)	0	
Moderate Disability (>20-40%)	5(33.3%)	7(46.7%)	0.003
Severe Disability (>40-60%)	4(26.7%)	4(26.7%)	
Crippled back pain (>60-80%)	3(20.0%)	4(26.7%)	

Table 2: Comparison between Pre and Post disability with level of Pain in Control group
*Chi-square test was applied to see the significance at P-value = 0.05



Fugure 1: Distribution of Occupation

this way researcher would suggest that a pre-designed physical therapy may reduce the severity of LBPP and its related disability in pregnant women.

Literature showed the positive feedback of exercises to reduce level of pain in back and pelvic region. Shim et al[15] reported six different physical therapy exercises in his study. Exercise is the best option to decrease LBP in pregnancy. Their exercise program included pelvic tilting, knee pull, curl up, lateral straight leg raising, and the Kegel exercise which was very similar to the program in the present study.

Kulge J et al[16] showed in his research that outcomes of physical therapy exercises reduce low back pain in pregnancy also decrease lumbar and pelvic pain intensity.

Another study by Martins et al[17] reported that 80% pregnant female observed back pain specifically in lumbar and sacroiliac region. Reason of having back pain is not still clear but factors are already diagnosed i.e previous pregnancy, preexisting back pain before pregnancy, increased in weight or Body mass index (BMI) and muscular problems[18].

In present study low back pain diagnosed through disability scale. In experimental group moderate pain was felt by 8 (53.3%) patients, severe and crippled back pain was same 3 (20%) number of respondents whereas minimal pain was seen in 1(6.7%). After implication of therapeutic exercises to them there were no respondents in crippled back pain, only 3 (20%) found in severe back pain, minimal & moderate pain was same 6(40%) participants.

Similar findings reported in a study done in United States of America by Wang et al[19], the average low back pain during pregnancy with excercises was moderate in majority cases. Another study done by Stapleton et al[20] stated similar results to the present study that 35.5% of women with severe pain showed improvement after excercise.

In this study when observing pre-treatment in experimental group, house wife were found in minimal and moderate disability group 1 (11.1%) and 8 (88.9%) respectively and working women were observed in severe pain 3(50%) patients and crippled back pain 3(50%) patients. After post-treatment house wife were 6 (66.7%) in minimal disability group and 3 (33.3%) found in moderate disability group whereas working women were shifted in moderate 3(50%) and severe disability 3(50%) patients respectively. A study reported in Bangladesh[21] among the 51 participants who reported LBP during pregnancy, 36 (70.59%) experienced

that LBP increased with work. The same findings were seen in present study that working women were fall in the severe and crippled back pain category which means they work hardly and they feel more pain as compare to house wife.

In the present study it was commonly observed that age is also the risk factor in young pregnant women with mean age 25.8± 2.4 years they were more liable to to progress low back pain than any other age group. Wang et al[20] also reported that low back pain during the current pregnancy was predicted by age. Stapleton et al[21] stated that young female were more venerable to develop LBP in their gestation period.

Maximum female in pregnancy diagnosed with LBP. As the findings were reported in previous study that only 50% women will go for advice by the doctor or physiotherapist whereas 70% women consider back pain seriously take different treatments[22]. The diagnosis of LBP in early stages will decreases the risk of advance pain because a women in pregnancy will have different mode of treatments.

LBP leads to become wide range in physical diagnosis but mostly women improve their health status after childbirth. The treatment options for reducing LBPP are physical therapy exercises, sacroiliac belts, electrical muscle stimulation, usage of drug therapy, dry needling, stress relief through massage techniques and yoga[23,24]. Pregnant women can reduce weight via exercise and walk during postpartum period and it will help to avoid risk of LBP[25]. The common way of treating LBP in pregnancy has been found to be exercises. The effects of exercises will reduce pain if patient follow a physiotherapist for management of LBPP.

CONCLUSION:

Low back pain in pregnancy can disturb daily life routine but exercise therapy and proper counselling will lead stress free life to female in gestation. After post treatment in experimental group showed decrease in pain as compare to control group who were not provided any exercise therapy. Working women in experimental group also showed decrease in pain by crippled back pain to moderate pain after exercise. So in the end researcher suggest that physiotherapy exercises play a vital role in reducing LBPP during pregnancy.

RECOMMENDATION:

Pregnancy is not a pathology, but the consequences faced due to pregnancy dealt accurately and emphasis of physical activity in pregnant women should be encouraged. Specifically pregnancy related LBP can be better controlled by following proper exercise protocol, relaxation techniques and adjustment of posture with increasing body weight prescribed a qualified physical therapist. Awareness of exercise program for pregnancy related low back pain is available for every women either working or housewife.

CONFLICT OF INTEREST: None

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Acute Kidney Injury Secondary To Snake Bite In Patients Presenting To A Tertiary Care Hospital

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ABSTRACT

Objective: To determine the frequency of Acute kidney injury secondary to snake bite in patients presenting to a tertiary care hospital.

Subject and Methods: This was a descriptive cross-sectional study conducted at the department of General Medicine, Jinnah postgraduate medical center, Karachi, from 10th June 2015 to 10th Jan 2016. Patients with diagnosis of snake bite were enrolled. Detailed history, physical examination and biochemical measurements were recorded. Patients underwent serum creatinine levels for diagnosis of AKI.

Results: One hundred and twelve patients fulfilling the inclusion criteria were included in this study.There were 90 (83.36%) males and 22 (19.64%) females. The mean ± standard deviation age of study population was 28±0.151 years. On analysis of risk factors it was observed that 33 (29.46%) patients were obese. On analysis of outcome variable, it was observed that 33 (29.46%) had AKI.

Conclusion: Around 30% of patients who developed AKI were presented with history of snake bite. However, factors such as age, gender, duration and obesity were not related with the AKI.

Key words: AKI, Snake bite, kidney, CRF, renal shut down.

INTRODUCTION:

Snake bite remains major public health problems worldwide and it has been estimated that in Asia alone, there are approximately four million cases per year of snake bites, of which approximately venomous snake bites account for approximately 50% of the cases with about 100,000 annual deaths[11].

Snake bite is primarily a problem of the poorer rural populations involving mainly farmers[2] and snake bites are not systematically reported, only very few countries possess a reliable epidemiological data on snake bites. Most of the available data are based on hospital statistics, which constitute a very small percentage of cases of snake bite[3,4]. Incidence and frequency of snake bite vary in different geographic regions, depending on several factors like climate, ecology, biodiversity, distribution of snakes and human density[5].

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The mortality rate form snake bite is low,[6] and if the victim is treated without losing too much time, this mortality is potentially preventable[1,7,8]. In a study from Malaysia, it was recognized that the majority of the snake bite cases were due to non-venomous snakes, but the venomous bites were the cause of significant morbidity and mortality[9].

Prevalence of Acute renal failure or acute kidney injury secondary to snake bite ranges from 1% to 30.96%[10-16]. However in pediatric age group (<18yrs) 18.7% of patients developed snake bite induced acute kidney injury[17]. et al. also reported that acute renal failure patients were younger. Out the 19 children (=12 years), 11 developed acute renal failure (58%) and out of the 81 adults, 18 developed acute renal failure (22%)[18].

The rationale of study is that the studies on the subject under consideration are scarce in Pakistan and secondly most of the studies done on retrospective data. Therefore present study was designed to assess the current and actual magnitude of the problem, thereby strategies could be devised for resource allocation and for prompt management to decrease the morbidity of AKI and mortality.

SUBJECTS AND METHODS:

This was cross-sectional study conducted at the Department of General Medicine, Jinnah postgraduate medical centre, Karachi, from 10th June 2015 to 10th Jan 2016. The sample size was calculated by using WHO sample size calculator, based on frequency of AKI in snake bite cases=20.48% [14], margin of error as 7.5%, n=112 patients with snake bite. Non-probability consecutive sampling was done. All patients of 25 to 60 years of age of either gender with snake bite diagnosed presenting within 12 hours of incident were included in the study. Patients with documented history for

a pre-existent renal disease (Serum creatinine of >1.5 mg/dL), bilateral small kidneys, loss of the corticomedullary differentiation, obstructive nephropathy or other renal pathologies, diagnosed cases of hypertension/diabetes mellitus & exposure to nephrotoxic drugs/toxins on history and verified by physicians prescription were excluded from the study.

Approval from ethical review committee was sought prior to conduct of the study. Patients meeting the inclusion criteria admitted in the department of Medicine, Jinnah Postgraduate Medical Center, Karachi were enrolled in the study. The purpose procedure, risk and benefits of the study were explained before taking informed consent. Researcher took brief history for duration of snake bite and demographics. Baseline investigations including creatinine were sent to the laboratory at the time of admission. Serum creatinine level was repeated after 48 hours and rise in the serum creatinine concentration of = 0.3 mg/dL from baseline value within 48 hours was taken as AKI. These findings along with the demographic data were recorded in proforma.

Variables	Frequency (%)
Gender - Male - Female	 90(80.36%) 22(19.64%)
Age in years (Mean±SD)	28±0.151
BMI (Mean±SD)	27.65±5.393
Duration in hours (Mean±SD)	5.401±3.367
Obesity - Obese - Non-Obese	 33(29.46%) 79(70.54%)

Table I: Descriptive Statistics of Study Variables

Variables	AKI		P-value
	YES	NO	
Gender - Male - Female	26 7	64 15	0.487
Age group - 3-32 Years - 33-61 Years	17 16	53 26	0.091
Duration Less than 6 hours 6 hours and above	22 11	58 21	0.302
Obesity - Yes - No	10 23	23 56	0.535

Table 2: Stratification of Aki W.R.T Effect Modifiers

All the data were analyzed through Statistical Package for Social Sciences (SPSS) version 16. All quantitative variables were presented as mean and standard deviation while qualitative variables were presented as frequency and percentages. Chi square test was applied with 95% confidence interval & p-value=0.05 was taken as significant.

RESULTS:

One hundred and twelve patients fulfilling the inclusion criteria were included in this study.

There were 90 (83.36%) males and 22 (19.64%) females. The mean ± standard deviation age of study population was 28±0.151 years. On analysis of risk factors it was observed that 33 (29.46%) patients were obese. (Table I)

On analysis of outcome variable, it was observed that 33 (29.46%) had AKI (Fig I).

Stratification of age, gender, obesity and duration of snake bite is mentioned in (Table II).

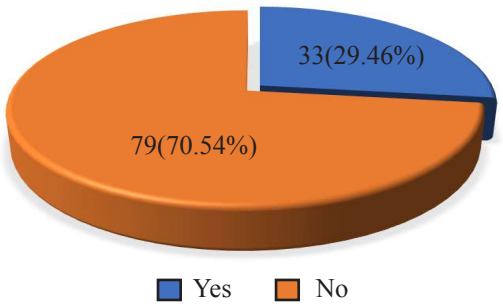

Figure I: Frequency of AKI

DISCUSSION:

We observed that 29.46% snake bite victims developed AKI. The rate of AKI following E. carinatus or Russell's viper bite is ranging from 13 to 32% in India[19,20]. In a study conducted by Patil et al[21] showed that in the cases of snake bite AKI developed was in 20.48%, whereas in another study by Ali et al.,[22] observed that 17% cases of snake bite were get complicated by AKI. Different authors have showed the relationship of AKI with snake bite and its correlation with various coagulation disturbances and the subsequent course of these patients in terms of mortality.

We calculated the mean age of patients as 28±0.151. The difference was statistically insignificant between those 3-32 years and 33-61 years. However, Athappan et al.[23] found that 39.1% of AKI patients were belong from of older age than non-AKI patients (35.4%) and showed statistical significance (p-value=0.03). In our study the proportion is higher in males, may be due to the fact that men typically go daily in the fields, are more active at night, travel wider, while women for the most of the time, stay in and around

houses and compounds. In a study by Kulkarni et al.,[24] showed 633 cases, out of which 433 (68.40%) were males who developed AKI while 200 (31.60%) were females. Bawaskar et al.[25] observed 182 cases of AKI out of which 114 (63%) were males and 68 (37%) were females.

In our study mean duration of snake bite was 5.401 + 3.367 hours. There was no difference in outcome between those who presented early than late. A similar study showed that bite to needle time greater than two hours was an independent risk factor for the development of AKI (OR 2.10, P = 0.001).[23] In a study by Kalantri et al.[26] showed that mean bite to hospital time of 6.5±10.3 hours. However, Danis et al.[27] in his study observed that there was no significant relationship between snake bite and hospital time with development of AKI. The bite to hospital time changes relying upon the availability of medical staff, facilities and the settings in which the study has been done. Anti-snake venom treatment should be neutralized as soon as possible because it is responsible for almost all of the complications related to snake bite. This fact is well supported by different studies which show a direct relation between increasing rates of complications or mortality with late arrival to hospital.

In general mortality because of venomous snake bites is 19.57%, with a significantly higher rate of mortality in victims who developed AKI. A study conducted by Kularatne,[28] found that out of 336 cases the mortality was observed in 2.6% patients only. In another study by Kulkarni et al.,[24] the mortality rate was observed in 5.2% patients. A total of 1548 cases were studied by Athappan et al.,[23] 159 patients developed AKI, out of which 36 got expired. Thus, mortality rate described in various studies varies starting with 2.5% to 25%. The studies involving vipers showed the higher rate of mortality, with higher proportion of patients developing complications. It might have been also intriguing to see that treatment with dialysis was not associated with improved results in patients with snake bite induced AKI . Paul J et al.[29] found incidence of acute kidney injury as 43.27% among 171 snake bite patients. The relationship of snake bite to hospital time with development of AKI highlights the importance of early treatment. The mortality rate of 15.5% found by Patil et al[21] because of snake bite induced acute kidney failure. In another study by Kalantri et al. showed that mortality of 11% due to venomous snake bite[26].

CONCLUSION:

Around 30% of patients who developed AKI were presented with history of snake bite. The main risk factors for development of AKI in snake bite are older age and prolong bite to hospital time.

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Surgical Approach To Manage Cerebrospinal Fluid Rhinorrhea Through Vault Or Through Nose

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ABSTRACT

Objective: Background: Surgical management of cerebrospinal fluid (CSF) rhinorrhea can be done through a transcranial approach or endoscopically using a transnasal approach. The endoscopic technology is relatively fresh in developing countries. Keeping this in mind we conducted an audit of patients undergoing endoscopic repair of CSF leaks to review their outcome in terms of recurrence and complications and compare them with the patients had transcranial repair. The objective of the study is to review the management of patients who underwent repair of CSF rhinorrhea at Lyari General Hospital, Aga Khan University Hospital and Memon Medical Institute Hospital – 10 years experience.

Study design: Cross-sectional observational study

Place and duration of Study: Lyari General Hospital, Aga Khan University Hospital and Memon Medical Institute Hospital, from January 2005 to December 2014

Patients & methods: A review of patient charts having undergone surgical repair for CSF rhinorrhea in the last 10 years at our institution was conducted. Thirty eight patients meeting the inclusion criteria of having undergone a surgical procedure for the repair of CSF rhinorrhea with a minimum post operative follow up of 6 months were included in the study.

Results: Skull base defects were repaired with the help of minimally invasive transnasal endoscopic approach with a success rate of 80% in comparison to transcranial repair success rate of 29%. Post-operative complications were seen in only 10% of endoscopic group and 53% of transcranial group.

Conclusion: Although endoscopic management is associated with better outcomes there is room for improvement in the approach in developing countries and training programs and detailed internal audits need to be conducted to improve the situation to the level of developed countries.

Keywords: Endoscopic repair, cerebrospinal fluid rhinorrhea, minimally invasive, endoscope

INTRODUCTION:

Cerbrospinal fluid (CSF) rhinorrhea is a rare but potentially lethal condition. It was first described by Galen in 2000 B.C.[1] It is currently defined as a condition involving the leakage of CSF from the subarachnoid space via a skull base defect into the paranasal sinuses and eventually the nose. [2] The potential sites of the CSF leak include the cribriform plate (70-80%) and roof of the ethmoid sinus (5-10%). Omaya et. al, in the year 1968 classified the condition into two major groups (traumatic and non traumatic) based on the etiology. The traumatic group was further subdivided into accidental and surgical trauma, whereas the non traumatic were further divided based on the presence or absence of elevated intracranial pressure. [3]

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Various strategies in the management of this condition have been adopted over time. Thompson et. al, reported the first series of patients suffering from spontaneous CSF leaks managed conservatively in 1889. [4] A variety of management methods has been described with variable outcomes. [5] The first successful procedure to stop CSF rhinorrhea was carried out by Dandy Walker in the year 1926 when he approached the defect via a bi-frontal craniotomy and sutured fascia lata over the defect. [6] However the approach was associated with a risk of serious complications including anosmia, intracranial hemorrhage, meningitis and death in rare cases.

Dandy's intracranial approach was followed by Dohlman's naso-orbital approach, which became the first extra cranial approach described in literature. [7] Hirsch in 1952 became the pioneers of the transnasal route. [8] Following their footsteps Wigand repaired a number of defects in the cribriform plates and sphenoidal sinus using rigid endoscopes in 1981, [9] leading to the popularization of this minimally invasive approach.

Recurrence and complication rates have been quite variable in different regions and settings. A meta-analysis of 14

studies showed success rate approaching 92%. This figure has improved since then; Rodney et. al, reported a success rate close to 96%. These high success rates along with minimal risks of complications have made the endoscopic transnasal procedure the primary choice for patients requiring surgical repair of uncomplicated CSF rhinorrhea. However there are a few shortcomings in this approach which limit its application. The situations where in it may not be successful include high pressure leaks, multiple skull base defects and cases associated with intracranial pathologies.

The technique is fairly new in developing countries and data regarding its application in the developing world is scarce. In this regard, we conducted a retrospective review of patients undergoing endoscopic repair of CSF rhinorrhea with the objective to review their outcome in terms of recurrence and complications and compare them with patients who underwent transcarnial repair.

METHODS:

This was a cross sectional observational study. We retrospectively reviewed charts of patients undergoing surgical repair of a CSF leak either transcranilly or endoscopically at different centers mentioned above from the year Jan 2005 to December 2014. All the patients underwent surgical repair of CSF leak during the above mentioned period were included however the patients with associated meningioencephalocele or any intracranial space occupying lesion or had any prior surgical treatment for this condition were excluded. The patients having follow up of less than 6 months or had incomplete records were also excluded. Fifty three patients were identified in our health information management system, of which 15 cases were excluded.

All case notes, records, investigations, method of repair and outcome in terms of failure of repair and complications of the included 38 patients were reviewed and the data was recorded in a predesigned database. Complications were recorded along with the predisposing factors and measures taken for their prevention and management.

The data was analyzed using Statistical Package for Social Sciences version 19 (SPSSv19.0). Mean and standard deviation for continuous variables was computed. Frequency & percentages were computed for categorical variables. The statistical analysis was done using chi-square test taking p-value of <0.05 as significant with confidence interval of 95%.

RESULTS:

The study population was predominantly female with a male to female ratio of 1:1.7, with a median age of 40 ± 20 years (Range 3-61 years).

The most common presenting complaint was watery nasal discharge 65% of which 60% was unilateral and 40% was bilateral. Recurrent meningitis was the presenting complaint in 23.6%. Iatrogenic and non iatrogenic trauma accounted for 15.8%and 57.9% of cases respectively. Spontaneous CSF rhinorrhea was present in 26.3% of cases. Few patients also have associated anosmia.

The site of the leak was determined using computed tomography (CT) with or without intrathecal contrast or magnetic resonance imaging (MRI). The procedure for diagnosis was not standardized as our center is a major referral center in the city and a significant proportion of the patients were diagnosed elsewhere and referred to our center for surgical management. In the cases diagnosed using CT scans the site of leak was identified in 50% of cases, the MRI showed superior results in this regard identifying the leak in 86.59% of patients.

About half, 52.6% of the cases had a defect in the cribriform plate, while the others showed defects in the sphenoid bone, fovea ethmoidalis and frontal bone (table 1). Nearly 63.1% of patients suffered from small sized (<5mm) leaks, while 23.6%and 13.1% suffered from medium and large leaks respectively (table 1). The patients were evenly distributed in both groups with regards to the size of the leak. Three of our patients also had an associated meningiocele, one of which was managed using a minimally invasive endoscopic approach. Both of these two groups were stratified according to cause of CSF Rhinorrhea, size and .site of leak, the recurrence for each factor was also analysed using chi-square and none of them was statistically significant to effect recurrence rate as shown in table I.

The most common material used for repairing the defect was autologous fascia used in 71% of cases, other materials included fat 26.3% and turbinate 2%.

Among thirty eight patients minimally invasive endoscopic method of CSF repair was used in 10 patients and rest of 28 patients had transcranial repair, with failure rate of 10% and 29% respectively.

The average duration of hospital stay was only 4 days for patients had repair through minimally invasive approach but it was 7 days on average for patients required craniotomy. The complication rates was also reviewed and only two patients in endoscopic had complications that constituted 10% of study population in comparison to 53% in transcranial group.

DISCUSSION:

A large number of audits and reviews have been published on CSF rhinorrhea to date, most of which include limited sample sizes due to the rarity of the condition. [10,11,12] Kirtane et. al, in their review of 267 patients reported that the two most common presenting complaints were rhinorrhea and recurrent meningitis. [13] Most of their cases were attributable to trauma with the cribriform plate being the commonest site of involvement. [14] Other than cribriform plate fovea ethmoidalis, roof of sphenoid sinus and frontal sinus wall

Site of Defect				
	Sphenoid	Cribriform plate	Fovea ethmoidalis	Frontal
Endoscopic approach	6	2	2	0
Intracranial approach	5	18	3	2
Total	11	20	5	2
Recurrence	3	4	1	2
p-value	0.106			
Causes of Cerebrospinal Fluid Rhinorrhea				
	Trauma	Spontaneous	Iatrogenic	
Endoscopic approach	4	3	3	
Intracranial approach	18	7	3	
Total	22	10	6	
Recurrence	8	1	1	
p-value	0.453			
Size of defect				
	Small	Medium	Large	
Endoscopic approach	5	5	1	
Intracranial approach	19	4	4	
Total	24	9	5	
Recurrence	7	1	2	
p-value	0.437			

Table I: Repair methods used for different types of leaks and their outcome

leak can be the contributing factor[11,14] A similar trend was seen in our setting with regard to presenting complaints, site of involvement and causes as reported in literature. [9-12] Although trauma was the underlying cause for nearly 3 quarters of our patient population, only 16% of the cases were due to iatrogenic trauma. Of the 16% half had undergone a transnasal hypophysectomy; which has been described as the commonest cause of iatrogenic trauma leading to CSF rhinorrhea, [15] and is regarded as an inherent manifestation of the operating protocol. The cribriform plate was commonest site of the defect in our series of patients accounting for 52% of leaks, this could be attributable to the fact that the cribriform plate is by nature the thinnest and most vulnerable bone in the anterior skull base and that it is already perforated by the olfactory nerve roots.

A major portion of our population suffered from small sized leaks; however a significant number also had medium and large sized leaks and they were also dealt smoothly. We found no relation of size with the outcome of the procedure and were able to successfully repair leaks endoscopically regardless of size of the defect.

A number of surgical and non-surgical methods were described in literature for the management of CSF Rhinorrhea. Recurrence vs complications were the major outcome compared in most of the literature. [16,17,18]

Among the two surgical techniques the endoscopic trans nasal approach was a less inavasive described technique with learning curve the outcomes can be achieved comparable to that of the orthodox craniotomy approach. [19,20,21,22] We found a significant low complication rate and less post operative stay in our patients. The cases which underwent endoscopic repair also had a lesser chance of relapse on follow up with a success rate of 80%. Of interest to note here is that although the success rate for intra cranial repair has been internationally reported up to 90%.[20,21,22] A series from our center had shown the success rate of endoscopic repair approaching up to 70% which included the patients till 2011. [23] Although we have improved our success rate but it is still lower when compared to those reports by the developed world which are nearly 98%.[24] The reason behind this deficit may be the relative lack of experience with the technique as it is fairly recent in the developing world, but growing experience has improved the outcome, as in some centers endoscopic CSF Rhinorrhea repair is also done on day care basis showing high level of expertise. In our study the high success rate may however be an exaggerated figure due to our limited sample size.

CONCLUSION:

The authors would like to conclude by stating that although a transnasal endoscopic approach to repair CSF rhinorrhea is a feasible management strategy with a better outcome than intracranial procedures to achieve the same, there is room for improvement in the approach in developing countries and comprehensive training programs and detailed internal audits need to be conducted to improve the success rates and make them comparable to those quoted by centers

in the developed world.

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Innovative Curriculum: Evidence Based Practice For Nursing Professionals

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ABSTRACT:

Introduction: Evidence based medicine and practice needs to have a robust and reliable curriculum. This curriculum has been designed keeping in mind the latest technology and teaching strategies. There has been a major shift in context to the patient physician relations, care and utilisation of best available evidence in making informed decisions about the various treatment options and approaches to patient care. Nurses form an integral component of the healthcare delivery system and of the health system itself. There has been substantial research in the nursing principles and indexed nursing journals are publishing articles pertaining to the various disciplines and components of nurse practitioners and related patient care services.

Methodology: It is a cross sectional study and total of 50 registered nurses were recruited from a public hospital to engage in the evaluation for statistically meaningful and valid results or interpretations. A self-administered questionnaire was distributed among 62 registered nurses; 12 registered nurses did not fill the questionnaire therefore 50 registered nurses were recruited.

Result: Pie chart shows the major differences in frequency of all themes, the junior registered nurses have more knowledge about EBM as compared to their seniors 70% and 10% respectively but when asked about doing post-graduation the seniors showed more interest as compared to junior nurses 67% and 2% respectively. The junior nurses showed more counselling ability and also practiced EBM. Overall there was significant decline in senior nurses' performance when compared with junior nurses p-value is 0.001

Conclusion: Evidence based medicine is based on three components; utilising prior knowledge based on clinical experience, searching systematically evidence and acknowledging patient's preferences. Junior registered nurses understand evidence based medicine and are eager to apply EBM in their career whereas senior nurses where more interested in obtaining higher degree and were less interested in patient care

Key words

Nursing, EBM, curriculum, patient, physician

Introduction:

There has been a paradigm shift in the last few decades in context to the patient physician care and utilisation of best available evidence or evidence based medicine in making informed decisions about the various treatment options and approaches to patient care[1, 2, 3]. Nurses form an integral component of the healthcare delivery system and of the health system itself[4-7]. There has been substantial research in the nursing principles and indexed nursing journals are publishing articles pertaining to the various disciplines and components of nurse practitioners and related patient care services[8-9]. The application of evidence based practice no longer only implies to medical practitioners but has become relevant from nursing practitioners' perspective as well. In the developed nations nursing has evolved as a speciality with nursing specialities and specialized training programs run by leading academic institutes and universities[10, 11]. In a developing country like Pakistan which is resource limited and there is a scarcity of healthcare professionals to meet the ever-increasing need of the communities, capacity building of nurses is the need of time. Therefore, a 12 weeks' curriculum is proposed for the capacity building of nursing in developing essential skills pertaining to adopting an evidence based approach. Evidence based medicine is based on three components; utilising prior knowledge based on clinical experience, searching systematically evidence and acknowledging patients preferences[1,2]. The Construction Curriculum perspective is based on not just receiving information but to interpret and relate it to other information[12]. Moreover, it emphasizes on building skills not only to perform the desired actions but having the ability to perform in varied circumstances building on the existing knowledge[12]. The perspective complements the essential components of evidence based practice which is also based on building on

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previous clinical knowledge which is supplemented by a systematic search of the best available scientific evidence supplemented by patients perceptions and informed decisions[1,2, 12].

The curriculum is constructed based on the six-step approach for curriculum development proposed by Patricia A. Thomas[13] which are namely; Problem identification and general needs assessment, Targeted Needs Assessment, Goals and Objectives, Implementation and Evaluation and Feedback[13].

1. Problem Identification and General Needs Assessment

i) Defining the healthcare problem:

Evidence based practice or medicine (EBP) ensures that clinical experience is amalgamated with best evidence and patients perceptions[1,2]. Currently, EBP is relatively a newer concept with some healthcare professionals adopting the concept in tertiary care settings in urban cities of the country[14, 15] introduction of the concept of evidence based medicine and its practical application will ensure quality of patient care, safety and improved healthcare delivery services which will be in accordance with best available evidence aiming for professional development and capacity building of the nurses.

ii) General Needs Assessment

General needs assessment will primarily focus on assessment on the current and the ideal approach of capacity building of nurses in evidence based medicine. To collect the relevant information about the present knowledge, perceptions, practices of nurses pertaining to evidence based medicine a comprehensive review of the available information will be done. The following steps will be taken to assess the gaps in knowledge and skills required for evidence based practice among nursing professionals;

i) Review of published literature or reports pertaining to evidence based practice among nurses in Pakistan or a developing country's perspective

ii) Inspection of reports by professional organisations or government agencies pertaining to EBM

iii) Extracting views of experts in the field and importantly collection of new information to build a knowledge base for outlining objectives in the proposed curriculum in the form of surveys and focus group discussion to assess the existing knowledge and skills of nurses[16].

iv) A pre-test should be conducted among the targeted nursing professionals containing structured questions pertaining to the basic concepts of EBM to assess the baseline knowledge of the nurses. The sample will be selected by systematic random sampling in the selected tertiary care hospitals.

v) Qualitative methods such as focus group discussions and in depth interviews will be conducted among targeted nurses' cohort by convenience sampling to highlight the perceptions of the nurses towards EBM, baseline knowledge and expectations from the proposed concept in the curriculum.

2. Targeted Needs Assessment

This step involves the following strategies:

i) identification of targeted learners:

The nursing staff should be enrolled for 12-weeks of teaching and application of the innovative evidence based curriculum. The regions which would be included in the cohort of nurses will be specified for devising a targeted approach. The regions will be selected on the basis of patient load and availability of tertiary care hospital facilities. For EBM a tertiary care setting is ideal although not mandatory. Initially the tertiary care hospitals will be selected by lottery method for recruiting the nursing practitioners in the EBM training program. A total of 100 nurses will be trained, 10 from each hospital, encompassing 10 tertiary care settings in total in the province of Punjab.

Content of the targeted learners:

Information about the cohort included for the training will be obtained in context to their previous qualifications, skills and experiences in practicing evidence based medicine or competencies or skills associated with it. This information will be useful in understanding the targeted levels, their baseline knowledge and level of competencies, so the curriculum is designed catering to their needs[17].

The criteria for selection of a nursing professional into EBM course would include;

i) The nurse recruited in the 12 weeks training are graduate nurse and not an undergraduate nurse.

ii) Be able to demonstrate at least intermediate level English reading and writing skills.

Content of the targeted learning environment:

Previous similar curriculum aiming to enhance evidence based practice will be searched and it will be ensuring whether a curriculum already exists addressing the aspects the proposed curriculum wants to address. Furthermore, need of stakeholders other than the learners such as faculty and management that will be involved in the program will be incorporated[18, 19].

Objectives:

By the end of the 12 weeks training program of evidence based medicine each trained nurse will be able to:

i. Achieve cognitive proficiency to apply prior knowledge during patient assessment of signs and symptoms pertaining to the presenting complains

ii. Develop competence to address the key issues and terms relating to the disease condition of the part

iii. Develop psychomotor behaviour to incorporate feedback from patients by sharing scientific knowledge into daily practice.

Competencies	Knowledge	Comprehension	Attitude	Demonstration of skills	Total
Detailed patient history and diagnosis	2	3	2	3	10
Using prior knowledge	4	2	2	2	10
Knowledge of self- role and collaboration	1	2	2	5	10
Investigatory and analytic approach	2	2	3	3	10
Generating key terms	2	4	2	2	10
Literature search/Boolean technique	2	1	4	3	10
Application of search engines	1	2	3	4	10
Basic understanding of study designs	4	1	3	2	10
Basic understanding of Hierarchy of evidence	5	1	2	2	10
Understanding basic descriptive statistical analysis	2	2	2	4	10
Basic appraisal of literature	2	1	3	4	10
Incorporating patient feedback	1	1	7	1	10
Total	28	22	35	35	120

Table of specifications:
The table of specifications using the competencies highlighted in table below are weighted in knowledge, comprehension, application and analysis.

Furthermore, the objectives of the proposed curriculum from individual learner and the program are comprehensively presented in a tabulated form below:

The educational methods will mainly include lectures, Small and Large Group Discussions; Problem Based Learning, Peer teaching, Role plays and Demonstration in computer lab sessions.

i) Methods for achieving cognitive objectives:

The educational methods to achieve cognitive objectives will include; lectures, Problem Based Learning, Peer teaching and discussions[21]. the introduction to the terminologies and basic concepts pertaining to evidence based medicine will be achieved through lectures. The use of targeted readings will also be incorporated[21].

ii) Methods for achieving psychomotor objectives:

The methods utilized to achieve psychomotor objectives will encompass demonstration[21] of applying search strategies and scientific literature extraction from the specified search engines. This will aim to develop skills within the nursing staff to conduct a systematic search.

iii) Methods for achieving affective objectives:

To assess attitudes and behaviours is a daunting task. It represents debriefing of experiences in context of acquired knowledge and its internalization[21]. Role plays will be conducted to simulate patient interactions and referring to an evidence based approach. This will be substantiated by reflective writing[21] in which nurses will be assigned task to reflect on their previous interactions with patients and the approach in making decisions in best interests of patients aiming to achieve standard quality of care. This will reinforce the acquired skills of evidence based medicine in context to the previous gaps in knowledge and approach.

iv) Assessment of Learning:

Formative and summative assessment is done at the individual level for identification of areas of improvement or highlighting specific suggestions or improvement in formative aspect of the assessment. The summative aspect is more inclined towards verification of achievement of nursing professionals and the various aspects of the efficacy and success of the program. The schedule of the formative and summative assessment of the curriculum is described below.

i) Formative assessment

The formative assessment of the nursing students is an ongoing process during the 12-weeks course. The students are provided formative feedback after group activities and individual oral presentations regarding the content of EBM that is being taught and the concepts introduced. Role plays were conducted and feedback provided on the ideal way of approaching patients to help them make informed decisions.

The computer sessions and tasks assessed by tutors and feedback provided of systematic literature search and how to practically make use of the up to date information.

ii) Summative assessment

The nursing students participating in the 12 weeks will be required to sit in a two-hour multiple choice exam followed by a marked computer exercise after successfully completing the program. 50% marks will be required in the written exam and in the computer exam to be awarded certification of Evidence Based Medicine training.

	Individual Learner	Aggregate or Program
Learner Cognitive (Knowledge)	By the end of the curriculum each nurse will be able to systematically search published literature using search engines, review basic information in the evidence base to effectively apply in their daily practices	By the end of this curriculum = 70% of nurses will be able review and search published literature, and =90% will be able to efficiently use search engines to find scientific articles pertaining to their discipline
Affective (attitudinal)	By the end of this curriculum each nurse will rank evidence based medicine as a step forward and best clinical practice (=3 on a 4-point scale)	By the end of the curriculum, there will have been a statistically significant increase in how nurses rate the significance of evidence based medicine and its role in improving the quality of care and implementing best clinical practices.
Psychomotor (behavioural or performance)	By 12 weeks after completion of the curriculum, each nurse will have developed a systematic framework of the steps in conducting a systematic literature search and general review of evidence	By 12 weeks after completion of the curriculum there will be a statistically significant increase in the percentage of nurses who have a formulated framework for conducting and reviewing a systematic literature search
Process	Each nurse will have attended all sessions of the evidence based medicine interactive learning sessions and workshops	=80% of nurses will have attended all sessions of the evidence based medicine interactive learning sessions and workshops
Patient outcome	By 12 months after completion of the curriculum, the application of evidence based medicine by trained nurses in daily practices of patient care and healthcare service delivery of the will be =40%	By 12 months after completion of the curriculum there will have been a statistically significant increase in the percentage of nurses who would be applying evidence based practice in their daily practices for improved patient care.

The process of implementation will involve identification of resources, support for curriculum, development of administrative mechanisms, anticipation and identification of barriers and introduction of curriculum which are summated in the table below with subsequent subheadings.

METHODOLOGY:

Although non-coercive methods have been used, it is a cross sectional study; recruited randomly after informed consent. A total of 50 registered nurses were recruited from a public hospital to engage in the evaluation for statistically meaningful and valid results or interpretations.

A self-administered questionnaire was distributed among 62 registered nurses with complete 4-year bachelor's degree in nursing and practiced in a hospital attached to a teaching institute; 12 registered nurses did not fill the questionnaire therefore 50 registered nurses were recruited. Of which 25 were junior nurses with 2-3 years of experience and mean age group of 24 2.01 years. Twenty-five were senior registered nurses of mean age 404.63 and experience of more than 10 years' experience; figure 1

The quantitative data collected has been analyzed using SPSS 21. Frequencies and percentages have been reported for the responses and bar charts and pie charts have been created for subsequent responses. For categorical data Chi square test has beer be applied

RESULT:

Pie chart shows the major differences in frequency of all themes the junior registered nurses have more knowledge about EBM as compared to their seniors 70% and 10% respectively but when asked about doing post-graduation the seniors showed more interest as compared to junior nurses 67% and 2% respectively (figures 2 and 3). The junior nurses showed more counselling ability and also practiced EBM. Of all the 50 nurses 39 (78%) agreed that EBM curriculum must be introduced however 11 (22%)were of neutral opinion. Majority were not interested in doing

Steps of implementation	Proposed requirements
A-Identify Resources[21]	Facilitators to conduct lectures, interactive discussions and computer lab sessions. Administrative staff for record keeping, attendance, arranging classroom schedules and managing formative assignments of nurses attending the course.
Personnel	Formulation of time table of the 12 weeks courses, with allotted time for the educational activities and teaching time slots of facilitators and administrative staff.
Time	Classrooms for lectures and interactive discussions. A computer lab with internet facility. A proposed cost of 10, 00,000 rupees (10 Lac) for the computers, lecturers and administrative costs combined per facility where this program will be implemented.
Facilities	Internal support will be from the management staff of the tertiary care settings where this course will be conducted along with external support in the form of active involvement of governmental health authorities directly involved in capacity building, management and training of nurses in the selected district, province or region.
B-Support for Curriculum[3]	Complete roles will be defined in terms of the administrative responsibilities and the teaching and higher management of the proposed program. The goals, objectives and ongoing evaluation of the program will be communicate throughout to all the stakeholders involved in the planning, management and implemented of the program.
C-Developing administrative mechanisms[4]	Arranging staff with experience of practicing evidence based medicine and proficient in latest literature searching techniques will be a challenge. Certification from provincial health authorities and a attractive pay package can resolve this issue in attracting qualified staff. For lab session's high quality internet with efficient computers is mandatory and any technology failure can lead to disruption of smooth conduction of the program. Test running and affiliating with reliable national companies for technology supply should be assured to avoid any future inconvenience. Teaching space should be identified within the health facilities for training of the nurses. This can be scheduled accordingly coordinating both the administrative staff of the program and management of the health facility.
D-Anticipated barriers and mechanisms to address the complexities[2]	
E-Introducing the curriculum[21]	The curriculum will be pilot tested within a health setting where nurses are to be trained in the proposed skills. The teaching space can be assessed particularly computer sessions and its feasibility.

active research; only 8 showed enthusiasm in doing research. Forty eight nurses agreed that refresher courses must be held to introduce new practices to them, only 2 thought the course would not be very useful and disagreed. Almost all nurses agreed that that they may be sent abroad by their university/ hospital to acquire education and training. Strongly and agree responses were put into one category, neutral as another category whereas strongly disagree and disagree as the first category, all the points were added to determine the responses. Overall there was significant decline in senior nurse's performance when compared with junior nurses p-value is 0.001 (Table) All questions were positively stated with no negative question so as to determine the Chi-square.

DISCUSSION:

Evaluation of the curriculum has been carried out in the following; Identifying users, identifying uses, identifying resources, identifying evaluation questions, identifying evaluation design, choosing measurement methods and construct instruments, addressing ethical concerns, collecting data, analyzing data and reporting results. The stakeholders involved in the implementation of the curriculum, the teaching staff, learners and external collaborators will all be actively involved in the evaluation process to ensure continuous improvement and further development highlighting gaps and addressing the unmet needs or deficiencies proposed in the formulated curriculum.

The proposed evaluation will involve the nursing participating in the program, faculty and the curriculum developers. The evaluation will involve both summative and formative types of the individuals and the program[21]. The specific uses of the evaluation will involve feedback on and improvement of individual performances, judgements regarding individual performance, judgements regarding program success, justification for the allocation of the resources, stratification

of internal and external requirements, demonstration of popularity and presentations, publications, and adoption of curricular components by others. The resources for the evaluation and feedback generated will be proposed before implementation of the curriculum to ensure funding avialbaility[21].

Evaluation questions structured validated questions to access the learning objectives by the end of the individual teaching sessions and end of program. The questionnaire generated quantitative data pertaining to the indicators of the criteria of objectives previously outlined. The questions are congruent with the related curricular objectives and its processes[21,4]. The evaluation design will be primarily post-test which the most commonly used evaluation design[21]. Measurement methods and construct instruments were used. A randomized controlled post-test only was utilized for the evaluation.

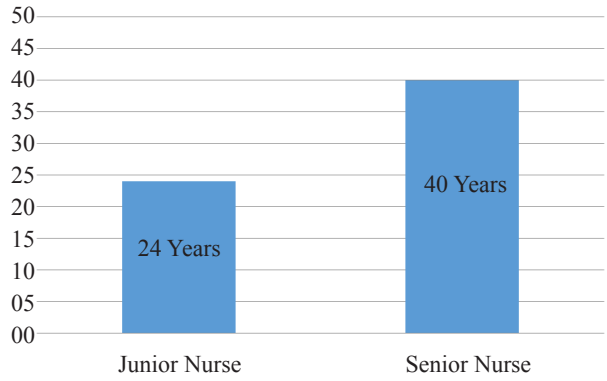

Figure 1: Age difference between Junior & Senior Registered Nurse

Ethical concerns:

The ethical issues have been addressed in the evaluation process. the needs of the program participants and stakeholders are in the centre eliciting suggestions for program improvement. Informed consent has been obtained with adequate informed provided to the participants about the purpose of the evaluation maintaining confidentiality and anonymity of the participants. Transparency will be insured and a fair presentation of the strengths and weaknesses of the program has been highlighted.

Conflict of interest: None

CONCLUSION: In a developing country like Pakistan which is resource limited and there is a scarcity of healthcare professionals to meet the ever-increasing need of the communities, capacity building of nurses is the need of time. Junior registered nurses understand evidence based medicine and are eager to apply EBM in their career whereas senior

Group	DA n (%)	N n (%)	A n (%)	P-Value
Senior RN	18(72)	1(0.04)	6(24%)	0.001
Junior RN	07(28%)	0(0%)	18(72)	

Table: Response of Senior and Junior RN

RN = Registered Nurses
DA = Disagree
N = Neutral
P = Value Highly Significant

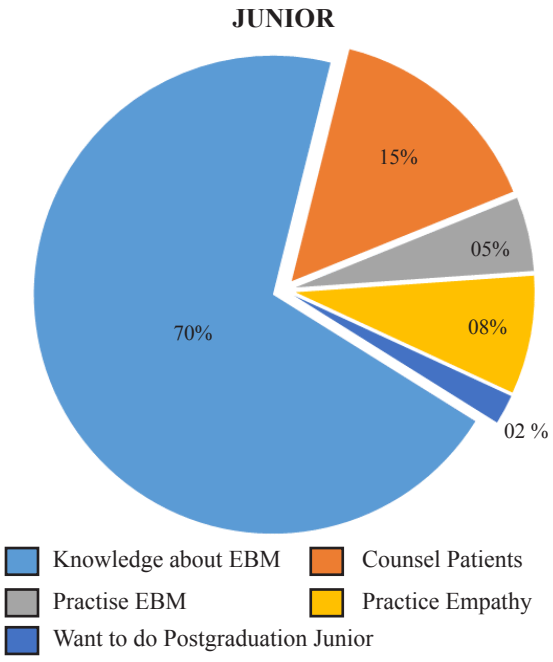

Figure 2: Responses of Junior registered nurses

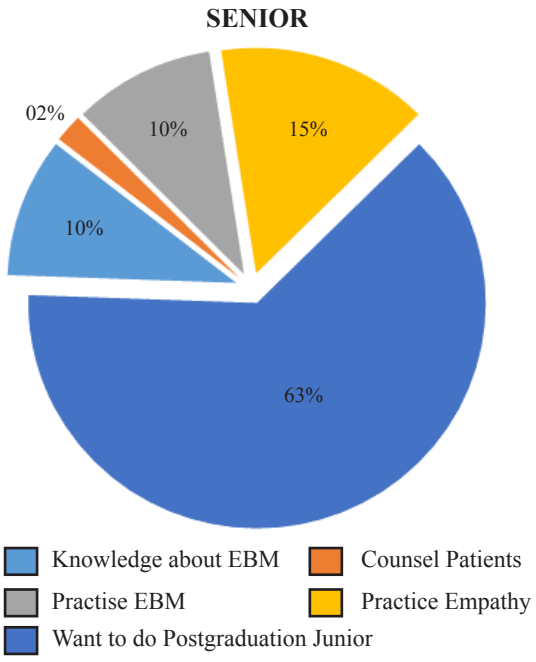

Figure 2: Responses of Senior registered nurses

nurses where more interested in obtaining higher degree and were less interested in patient care and changing the curriculum to cater to better nursing care.

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Replacement Of Conceptions Developed During Health Professions Education

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ABSTRACT:

Replacement of concepts is another terminology used for misconceptions which are developed at an early and theoretically the student considers it as correct and builds all other related concepts upon it. This eventually become so strong that when they reach their professional studies it becomes extremely difficult to replace the misconception and erase the previously formed schema in their minds. This problem became so prominent that research into students' misconceptions started and are still continuing so as to identify the areas where replacement of concepts is required providing elaborative evidence about the nature of students' understandings This research is concentrated on particularising the essential differences between "students' and experts' ideas" on a topic that will affect lifelong learning.

INTRODUCTION:

The term misconception was widely used during this time to encapsulate the ideas that students' incorrect conceptions were often stable, widespread, resistant to change, and could interfere with learning[1]. The natural con- sequence of this perspective of students' ideas is that incorrect ideas should be eradicated. "If we view students' incorrect ideas as resources for refinement, rather than obstacles requiring replacement, then this model of student thinking may lead to more effective pedagogical strategies in the classroom"[2].

"Research into students' misconceptions continued through the 1980s and 1990s, providing extensive information about the nature of students' understandings. Much of this research focused on describing the fundamental differences between students' and experts' ideas"[3, 4].

"The general consensus among education researchers during this time was that students' misconceptions were so prevalent that instruction needed to focus on revealing, confronting, and replacing them"[5]. "Constructivism asserts that prior knowledge is the primary resource for acquiring new knowledge, but misconceptions research has failed to provide any account of productive prior ideas for learning expert concepts and has overemphasized the discontinuity between novice and expert"[6].

Smith et al discovered that novices can show expert-like behaviour "in explaining how a complex but familiar physical system works". It is elaborated that previous knowledge plays a role in scientific expertise by stipulating "raw material for formulating scientific theory, supporting qualitative analysis", and constructing one concept over the other forming logical linkages and situations to theoretical representations[7,8]. Through many examples, the researchers "demonstrated that students' conceptions are similar to complex clusters of associated ideas rather than distinguishable independent units, and replacement at that time would not be plausible or cognitively acceptable as a learning process"[9]. They discussed that the "mere addition of new expert knowledge and the deletion of faulty misconceptions over- simplifies the change involved in learning novel subject matter". Further backing for their claim that learning processes are much more complex than replacement suggests comes from other studies showing that "misconceptions once thought to be erased will often reappear"[10].

It is incorrect to blame, that the "student's opinions about need or want are correct; rather it shows contend that the learner's initial amateur idea includes a productive component, beneficial traits that can be emphasized and built upon during instruction"[11,12]. The facilitator should "clarify with their students that needs or wants is overgeneralization from our own human experiences and would emphasize the role of randomness in evolutionary processes" [13] "As the concepts of need and want are relevant in our own lives", it is not possible or practical to "eradicate" the "idea from the student's mind. Instead, we need to help the learner refine or limit their application of that idea. [14] Studies have shown that students may shift from one incorrect conception to another before developing scientific understanding, and such shifts can be viewed as initial steps in meaningful learning"[15].

Andrews et al, defined misconception as "a scientifically inaccurate idea about a scientific concept" that "may occur before and after instruction".

"When biology education researchers refer to students constructing new ideas and integrating new ideas with old ones, while concurrently describing students' erroneous ideas as those to be" "challenged" and "replaced" they are demonstrating a misunderstanding although students do still have incorrect conceptions in biology, these conceptions are

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the building blocks for future knowledge and can be viewed as such standing of constructivist destruction[16, 17]. Here the problem does not seem to be of teaching strategies or the assessment tools but it seems to be of the concepts of the students which are developed initially. These students then carry these concepts with themselves throughout their five-year MBBS course and also after that as working doctors. Misconceptions are a natural result of trying to make sense out of new information and ideas. [18] By observation "one can make inferences about this understanding. For instance, based on observing someone take a needlessly long way to get to a location, this may infer that the person is not aware that road construction has been finished which would be a shortcut that would prove to be shorter. This inference is an example recognizing someone's misunderstanding through observation alone. The person believes that the road cannot be traversed, but in fact, the road is passable. Making inferences about the understanding and misconceptions of others can be critical in education settings as it allows one to specifically intervene and correct those misconceptions"[19,20]. Observing others take actions to complete a goal and making "inferences about that person's knowledge is a relatively natural task for people. "This ability can be especially important in educational settings, where the inferences can be used for assessment, diagnosing misconceptions, providing informative feedback and applying replacement. A general framework for making such inferences based on observed actions" has been constructed by educationists; this framework is based upon "educational games and other interactive virtual environments". The basics of this model relies on action planning and performance. A scenario was formalized as a "Markov decision process in which one must choose what actions to take to complete a goal, where choices will be dependent on one's beliefs about how actions affect the environment[21]. A variation of inverse reinforcement learning to infer these beliefs were used". Laboratory experiments, showed that this model can recover "people's beliefs in a simple environment", with accuracy as opposed to observation[22]. It was later demonstrated that "the model can be used to provide real-time feedback and to gather model data from an existing educational game" can be used as a reliable tool in replacing misconceptions. [23] Making conclusions and inferences about the understanding of students can be critically upsetting in education settings as it allows one to particularly interfere to correct those misconceptions[19, 20]. An easy way of understanding this problem is: imagine students playing a scientific virtual game, and their "responses to specific situations in the game, such as what sequence of actions is taken to adapt an organism to a new environment, can indicate their knowledge about particular elements of cell biology". If any student of the entire class never makes particular "adaptations or takes actions in a suboptimal order, this can indicate gaps in their knowledge, leading to targeted remediation"; conversely, the students' actions might indicate that they might have mastered the current topic and are ready for the next activity[24]. Automating these "assessments is beneficial because it does not require interrupting students to explicitly query their knowledge and can provide a detailed picture of students' misconceptions". The benefits of "stealth assessments" that occur within a student's normal activities have been noted, [25] and prior work has found that such embedded assessments can be useful in the classroom[26].

The "ability to use complex series of actions to automatically diagnose student knowledge is becoming more relevant with the increasing use of games and the electronic environments in education. Within these environments, students often perform many individual actions to complete a task, resulting in appropriate data about the choices that students make. These data contain much more information than simply whether the student completed the task successfully or not, and we would like to use these data to make fine- grained inferences about a student's knowledge, including misconceptions, just as a teacher could infer this information by observing the student. However, existing assessment models in education are generally not suited to interpreting such sequential process data. These models typically assume the data are conditionally independent given student ability, and consider only success or failure, rather than the way that these outcomes are achieved[27,4,8]. Instead, we propose modelling the process by which people choose their actions based on their beliefs. This detailed model then allows us to gain insight into a student's knowledge by observing her actions". "Cognitive Load Theory (CLT) has started applications in medical education research, unfortunately, misconceptions such as lower cognitive load always is beneficial to learning and the continued use of dated concepts and methods can result in improper applications of CLT principles in medical education design and research" may be questionable[28].

METHODOLOGY:

"Literature search was performed by using database of PubMed", the keyword use was misconception (56 searches) AND learning (143 searches). "PERN was used by database of Bahria University, this included literature and articles from international sources; 2 articles from Pakistan on this topic were consulted (one in international journal and 1 in a local journal)". Of these, 49 articles were shortlisted which discussed relation replacement of conception developed during health professions education. "These articles were consulted for this review".

LITERATURE REVIEW:

Q-Why do students have these misconcept-ions?

Reports by researchers in science education suggest that students' misconceptions are often stable, pervasive and resistant to change[29,1]. "Teachers can be astonished to learn that despite their best efforts, students do not grasp fundamental ideas covered in class. Even some of the best

students give the right answer but are only using correctly memorized words. When questioned more closely, these students reveal their failure to understanding fully the underlying concepts[2,25]. Students' "misconceptions about scientific phenomena can arise from at least two possible sources, the students personal experience with those phenomena and things learned in the classroom. Misconceptions have been studied in a variety of science disciplines, but little attention has been given to the faulty models"[3, 6, 28].

Q-Why Do Misconceptions Occur Anyway?

Misconceptions can be categorized as follows[3, 9, 16;]

"PRECONCEIVED NOTIONS are popular conceptions rooted in everyday experiences".

NONSCIENTIFIC BELIEFS "include views learned by students from sources other than scientific education, such as religious or mythical teaching"

CONCEPTUAL MISUNDERSTANDINGS arise when students are taught scientific information in a way that does not provoke them to confront paradoxes and conflicts resulting from their own preconceived notions and nonscientific beliefs. To deal with their confusions, students construct faulty models that usually are so weak that the students themselves are insecure about concepts.

Vernacular misconceptions arise from the use of words that mean one thing in everyday life and another in a scientific context".

Factual misconceptions are falsities often learned at an early age and retained unchallenged into adulthood.

Whenever students are unable to structure the huge amount of information that they acquire and store in their long-term memory, misconceptions about topics or subjects may occur since this structuring of knowledge is one of the most important cognitive themes for education[30].

Thus, it is very difficult to attribute the reason for misconceptions to one problem, it may be a set of problems, which need to be identified, followed-up and solved. "We show how?mass spectrometry and infrared spectroscopy allow for?unravelling the chemical background of this demonstration?and discuss various ideas on how to use it in a classroom setting?to engage students' critical thinking about chemical research.?Along the way, we show that two commonly published ideas?about the chemical background of this demonstration are incorrect, and we suggest simple tests that may be performed in a high school setting either as an addition to the demonstration or as a student research project. There is, however, another major benefit to implementing this demonstration in a high school curriculum. When continuing the classroom discussion following the demonstration, questions that relate to and connect many aspects of the curriculum will arise. While a survey of the literature suggests that experimental variables have been explored rather well for this demonstration, the provided explanations, among others in this Journal, are highly doubtful. A guided classroom discussion will bring this to light. We discuss two obvious questions within the framework of such a classroom discussion, assuming a knowledge level characteristic for students nearing graduation. We conclude with the notion that this demonstration has beautiful complexity and wide applicability veiled by an apparent simplicity".

This study investigated undergraduate biology students' conceptions of Genetically Modified Organism (GMOs), and how those conceptions can be compared to the spectrum of biology expertise. However, this study represents only the conceptions of undergraduate nonmajors, biology majors, and faculty from one institution and should be explored across a broader range of disciplines and contexts. The authors omitted participant attitudes toward GMOs from the analysis to focus on conceptual understanding[31].

Every day biology undergraduates learn from lectures halls, libraries, and laboratories with their minds abuzz with biological concepts. Yet the degree to which students apply those concepts to everyday life is an open question. Indeed, from healthcare to climate change to biotechnology, the challenges facing modern society demand an expertise in underlying biological principles in order to be able to perform solutions. Partly for this reason, the collaboratively published document Vision and Change in Undergraduate Biology Education has urged biology educators to encourage expert thinking in their students[32].

"Experts connect ideas from diverse subjects to build their worldviews[33]. Previous studies have shown that using relevant biological problems as learning tools can help bridge the gap between science learned in the classroom and the real world"[34]. "While many examples of such biological problems exist, genetic modification in particular is a complex concept that relies on in-depth understanding of the molecular behavior of DNA and proteins[35]. At the core of this understanding is what is often termed "the central dogma," which describes how information is stored in DNA, copied into a newly built RNA molecule, and used to make proteins that carry out cellular functions. Many educators may assume that students with a biology degree are more equipped to understand the complex science behind genetically modified organisms (GMOs) than the general public; however, the central dogma has been a well-documented challenge for undergraduates[36].

"In India, traditional contraceptive methods are employed by a large population, and most of the time decisions related to family planning are taken by the men of the household. Therefore, it is really necessary for men to have the correct idea of when a woman is most susceptible to pregnancy during the menstrual cycle. The study tries to assess the prevalence of such knowledge among urban men in Uttar

Pradesh, India. Also, it attempts to investigate the rationale behind the misconceptions among men of the region under study. It was found that only one-fifth of the men have the correct knowledge about the concept. Further, education, societal perception, caste, and spousal discussion about the reproductive issues are found to be the most important components that affect the knowledge among men about the conception risk during the menstrual cycle[37]. The study suggests promoting the sex education in urban Uttar Pradesh, especially in slum areas to educate the men regarding the reproductive functions of women. Also, the article promotes higher education and motivates couples to discuss the reproductive hurdles among them. These interventions can provide a better reproductive health to the women of urban Uttar Pradesh, India".

"Educational studies about virus-related issues have hitherto also mostly been interested in knowledge about ways of transmission and prevention of infection. Only a very limited number of studies analyzed students' biological knowledge about viruses (e.g. virus structure as distinct from pro-/eukaryotes, the cellular infection process, details about the immune system response), and, if so, usually focused on single or few aspects only"[38]. As far as we know, very few studies have analyzed the relevant knowledge in depth and tried to improve understanding concerning virus biology, with, however, a very limited number of participants?(N = 10–54 in various studies). Here, we attempted to make visible such knowledge in a much broader way, both within and between three age groups of students (high school grade 7, high school grade 10, biology and non-biology first-year university students). "Due to the large number of participants we were able to both derive quantitative measures and qualitative data from distributed questionnaires, which comprised mostly open-response items.

A second reason for this study was cumulative evidence that many clinicians and general practitioners sometimes unnecessarily prescribe antibiotics, e.g. for patients with acute respiratory infections[39, 40, 41].

"Misconceptions can impede student learning and?are refractory to change, they are seldom measured in biomedical courses". Scientific literacy is the ability to navigate, interpret, and critique scientific information—skills critical for all citizens as they support scientifically informed decision-making. One emerging genre of citizen science (i.e., the inclusion of non-scientists in research to meet shared goals)[4,13] is inquiry-based research in undergraduate laboratory courses[14,19]. Through this work, students experience the true nature of science through the failures and successes of authentic research. Although such experiences are powerful students may not appreciate their greater impact—i.e., the breakdown of barriers between science and society to create engaged citizens and a more balanced scientific process.

ANYONE WHO HAS TAUGHT NEUROPHYSIOLOGY would be aware of recurring concepts that students find difficult to understand. However, a greater problem is the development of misconceptions that may be difficult to change. [7] For example, one common misconception is that action potentials pass directly across chemical synapses. [8] Difficulties may be compounded by explanations using voltage-time graphs, since students are not necessarily familiar with oscilloscope or computer-based representations of neural signals. Several different approaches have been used to overcome such misconceptions and provide simple explanations of complex physiological processes. These range from using groups of students acting out concepts[14] to the use of a "travelling flame" analogy for nerve conduction[11]. E-learning using animations provides an additional method for overcoming physiology misconceptions. Internet-based instruction in the health professions may be similar to traditional instruction in effectiveness,[3] but it is important to clarify when to use e-learning and how to use it effectively[2]. Thus, an "online self-directed e-learning module was developed, using best-practice approaches **1**, to engage students and help them overcome some common neurophysiology misconceptions. The essential features of the module were: the use of well-designed[9] and simple (low cognitive load)[12,13] animations intended to promote good learning outcomes[5] and the use of multiple-choice questions linked with the animations to provide immediate feedback"

Inter professional "SRC participation promotes learning 'with, from, and about' each other. Participation challenges misconceptions and sensitizes students to patient experiences, health systems, advocacy, and social responsibility. Learning involves inter professional interactions "in the patient encounter, reinforced by formal and informal communications. Participation is associated with interest in serving the underserved and in primary care careers. The authors proposed a framework for inter-professional learning with implications for optimal learning environments to promote team-based care. Future research is suggested to identify core faculty functions and best settings to advance and enhance student preparation for future collaborative team practice".

CONCLUSION:

Replacement of misconception is a challenging task especially at the level of University students, however it is important to identify those students who have built their misconception but in their minds the schema is correct and they continue to build upon these tasks which is difficult to erase in their minds and ensure that they have accepted the new correct concept and understanding of a topic they have been learning for many years.

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Exotic Spice *Illicium Verum* Hook.F

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ABSTRACT

Chinese Star anise (*Illicium verum* hook.f.) spice is generally consumed in food, beverages and confectionery item due to their characteristic spiciness as well as zesty flavor. Star anise is extensively employed in Chinese traditional medicine and as a tonic for home remedies since ancient times for many complaints such as gastrointestinal disorder, colic discomfort and inflammation. The active components present in star anise has been identified by many researchers and several favorable, pharmacological effects of its constituents confirmed and authenticated recently by experiment. Additionally, many studies reveal numerous health effects of this spice. This article concisely reviews the most noticeable investigations which have validated the potential of star anise such as anxiolytic, anti-microbial, antioxidant, chemopreventive, insecticidal, flu prevention, atherogenesis, lactagouge, anticolic action. However star anise is usually nontoxic and used as a functional ingredient of daily cuisine.

Keywords: Star anise, Pharmacological effects, Anti-spasmodic, Anxiolytic, Lactagouge, Nutraceuticals, Anti-microbial, anti-Inflammmatory, Anticancer.

INTRODUCTION

Illicium verum Hook. f belongs to the family (Austrobaileyales: Schisandraceae)[1]; is a medium-sized native evergreen tree of Northeast Vietnam and South West China[2] formerly allocated in the tropic and subtropics areas of Asia and utilized as a traditional medicine in East Asia[3]. The genus name is derived from Latin 'illicere' (allure), probably because of the sweet and pleasant fragrance. In 2002, Ministry Health of People's Republic China confirmed that star anise one of the item act as "both food and medicine"[4].

Star Anise (***Illicium verum* Hook.** f) is prehistoric spice, recocnized in China as far back as 100 B.C[5]. However traditionally Japanese use star anise plant and their bark as incense to produce perfumed smoke on their temples and on tombs. Seventh centuries recipes disclosed that this spice also used to prepare Jam and syrup[6]. Star anise flavor is oftnely mixed up with licorice and depict as a"licorice like" flavor[7]. In Europe fruit of star anise used as a liquer to prepare tincture and distillate[8]. In Chinese cusin star anise play important role they use it in seasoning dishes especially sweet dishes and to enhance the flavor of coffee and tea[9].

METHODOLOGY

A comprehensive literature search was being conducted from 1993-2017.the search engines utilized were Google Scholar, Pub Med, Springer link and Med line. In this review keyword of history plant description, chemical constituent, traditional use and pharmacological properties of spice Chinese star anise (*Illicium verum* Hook.f) were used and 45 articles of Asian and Pakistani literature are selected for write up.

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LITERATURE REVIEW:

a) Origin of the Name:

The generic name of star anise (***Illicium verum* Hook. f)** originated from Latin word "Illicio" or "Illicere" which means to attract or the fragrance[10].

b) Local Names:

Star anise recognized by many substitutes' names according to the origin of specific regions. In China it is known as a "Ba Jiao Hui Xiang". Following are other synonyms by the other countries[11].
English Name: Star anise
Danish: Stjerne Anis
Dutch: Adas china, Steranijs
French: Anis de la Chine, Badiane
German: Badian, Sternanis
Indonesian: Adas cina, bunga lawang, Pe ka
Italian: Anice Stellato
Khmer: Phka Cann, Poch kak lavhak, Innish Tähtianis
Portuguese: Anis Estrelado
Spanish: Anís Estrellado
Thai: Dok chan, poy kak bua
Vietnamese: vat giac huong, dai hoi, hoi sao, mai, cay hoy
In Hindi and Urdu its commonly known by "Badiyan Ka Phool" (Badayan, Anasphal)[12].

c) Plant Description:

Illicium verum hook.f (Figure-1) medium sized evergreen plant having 8-15 m height and equal to 30 cm in dbh along with green, glabrous branches on straight rounded stem. The bark is white to bright grey in color. The plant of this spice is proliferated by seed and generally planted for fragrance, medicine and culinary purposes in southern china and Vietnam. The fruit of this spice is colle cted before they ripen and then sun dried. The flowers are grow from March

to May and fruits are ripen from September to October[13,14].

d) Traditional Uses of Star Anise in Medicine:

Nearly seventeenth century European firstly introduces Star anise spice having specific licorice type taste due to the presence of chemical constituent anethole[15]. In 1505's book

Fig: 1 (*Illicium verum* hook.f)

of ''Herbal Essentials Collection" stated that *Illicium verum* is used for the cure of cholera and fistula. In 1769 HUANG Gongxiu discovered that spice star anise is used to prevent chronic[16]. It was documented in book "Herbal positive" I.verum play a vital role to eliminate teeth and mouth disease. It is used as a common flavoring agent in coffee and tea, lozenges and cough syrups, stimulant, expectorant and diuretic. Star anise oil has beneficial effects in the treatment of rheumatism and lower back pain and possesses anti-oxidants properties due to presence of Linalool[17,18].

Star anise has a long history being consumed in Chinese traditional cooking and medicine for the treatment of skin inflammation, vomiting, stomachaches, rheumatic and sleeplessness[19]. Essential oil of I.verum contain approximately 70-90% anethole, having estogenic properties thus it is used to relief from rheumatism and lower back pain[20]. It has a good carminative property for that reason it is often chew up in minute amounts after each meal to stimulate digestion and helps to relieve flatulence. This spice is used in several preparations which is intended for both external and internal application. The most common internal use of this spice is for dyspeptic complain on the other hand topically it is implemented as an inhalant for the respiratory tract congestion. It is also a chief constituent of anti-tussives remedies and currently employ as a flu medicine. However, large quantity of this spice can cause neurotoxic effects[21].

Chemical constituents of Star Anise:

Chinese star anise contains numerous numbers of chemical constituents having various pharmacological actions[22,23], few of them are mentioned below

Culinary usage of star anise:

Illicium verum as an essential spice and main constituent of Chinese, Malay and Indonesian cuisines[24]. In Asian cuisines

COMPOUND	PHARMACOLOGICAL ACTION
Anethole	Antimicrobial,Antifungal and Insecticidal
Anisaldehyde	Fragrance, scent of licorice.
Beta-caryophyllene	Anti-inflammatory, Anti-nociceptive, Neuroprotective
Benzoic acid-4-beta-d-glucoside	Antifungal
Cinnamic acid	Flavoring agent
Cinnamaldehyde	Fungicide, Insecticide
Cinnamyl alcohol	Sensitizing agent
Caffeic acid	Antioxidant and Anti-inflammatory
Cineol	Mouthwash,cough suppressant, Insecticide and repellent
Citronellol	Perfumery and Insect repellents
Estragole	Perfumes and food additive for flavor
Eugenol methyl ether	Perfumes, flavorings,local antiseptic and anesthetic.
Kaempferol	Antioxidant
Kaempferol-3-o-beta-d-rutinoside	Flavonol glycoside
Lignans	Anticarcinogenic, Anti-inflammatory
Myrcene	Perfumery agent
P-methoxy-cinnamaldehyde	Fungicide
P-coumaric acid	Antioxidant and Anticancer
Phenylpropanoids	Defensive agent against herbivores and pathogens
P-methoxycinnamaldehyde	Flavor and Perfumery agent
Quercetin	Mental performance or cardiovascular health
Quercetin-3-o-alpha-d-xyloside	Potent free-radical scavenger and antioxidant
Sesquiterpenoids	Defensive agents or pheromones.
Trans-anethole	Antimicrobial,Antifungaland Insecticidal
Shikimic acid	Anticoagulant and Antithrombotic
Terpinen-4-ol gamma-terpinene	Antibacterial and Antifungal
Veranisatins A, B and C	Analgesic

star anise usually use with other spice such as fennel seeds, cloves, cinnamon, pepper etc and considered as one of the "Five Chinese Spice", used for its potent taste and spicy flavor[25]. A special spicy ingredient called "Garam masala" is made by the addition of other popular Indian spices with star anise. Vietnamese use this spice as a major ingredient in noodle soup called ph?[26]. In soak form, it intensifies and enhances the flavor of coffee. Star anise is a pleasant spice can be used in whole or ground form. The whole form of this spice is usually make use of to flavor tea, coffee, soup, and other liquids conversely in ground form, star anise is strong and can be added directly to foods. In Asian cuisine, star anise use to enhance the flavor of many spicy dishes especially meat, curries, biryani and also used in desserts and beverages[27].

Medicinal and Pharmacological Properties:

Anxiolytic Effects

Hexane-extract of *Illicium verum* fruit oil possess strong anxiolytic effects in male ICR mice. It is proposed that this effect is due to the presence of chief constituents trans-anethole and related compounds trans-â-methylstyrene, propiophenone and 4'-methoxy-propiophenone. Researchers validated and reported structure activity relationship of several constituents of I.verum such as anethole and trans-anethole. Result of this analysis show that I.verum fruit oil at the dose of 1iL produce anxiolytic effects in male ICR mice[28].

Antimicrobial Effects

Illicium verum hook.f has a strong anti-microbial property. Chemical investigation of this spice reveals that the chief constituent anethole is responsible for antimicrobial activity and this is abundantly present in dried fruit of I.verum. Numerous studies illustrated that the chief constituent of this spice (anethole) effective against many strain of bacteria, yeast and fungal[29,30]. The recent finding disclosed that the volatile oil of I.verum at the dose of 6µl inhibited the growth of Fusarium moniliforme bacteria completely. However the extract of this spice show 50% mycelial zone of inhibition against P.viridicatum and Pencillium citrinum species[31].

Antioxidant Effects

Extract of *Illicium verum* hook .f anticipate natural antioxidant activity. The earlier investigation revealed that rapeseed oil of this spice exhibit excellent activity to inhibit primary and secondary oxidation product, responsible for the ailment result from the oxidative detrioration[32]. It is consider that the antioxidant activity is mainly due to the presence of active constituent specifically anethole more than 80% in this spice[33].

Chemopreventive Effects

Illicium verum contain prenyl moiety "phenylpropanoids" accountable to inhibit the growth of tumor cell and significantly role as a chemopreventive agent. Experimental Studies revealed that isolated compound of I.verum show excellent activity against Epestin barr virus early antigen (EBV-EA) at 1×10 mol ratio and this inhibitory effects is more than ?-carotene[34,35].

Insecticidal Effects

The fruit extract of I.verum also possess insecticidal activities due to the presence of phenylpropene, (E)-anethole. Insecticidal activity against B.germanica species were assess by chang and Ahn in 2002[36]. This spice is well-known to inhibit and restrain the growth of pest and used to control the progression of various types of insect species. Studies reveal that I. verum fruit extract is highly effective against ?.germenica.

Antiflu Effects

Star anise is utilized to yield shikimic acid industrially[37], a principal component to produce the antiflu medicine, Tamiflu[38]. The rigorousness of bird flu virus strain H5N1 were completely diminish by the use of drug Tamiflu. Nowadays, the avian flue (bird flu) is controlled and treated by commercially available drug Tamiflu[39].

Atherogenesis Effects

Treatment with I. verum reduce immunoreactivity of iNOS activation and decrease aortic atherosclerotic plaque lesions and cytokines was observed in ApoE-/- mice. Analyses reveal that the *Illicium verum* at the dose of 10 ×100ug/ml reduce transcriptional activity of NF-êB in a dose-dependent manner[40]. Furthermore,from the investigation it is revealed that I.verum deteriorated the manifestation of linkage molecules that are responsible for inflammation in these cells. In experimental studiesin HFD-fed APoE-/-mice administration of I.verum or atorvastatin drug depicted the characterstics changes in blood pressure body weight and lipid level[41].

Lactagouge Effects

Studies indicated that the dietary supplementation of *Illicium verum* has beneficial effects, improving lactation performance during gestation and lactation in sows. The diet of this spice increases the concentration of prolactin and IGF-1(insulin like growth factor -1) in milk of sows[42].

Anticolic Effects

Anticolic and antidiarrheal effect is also effectively treated by this spice star anise. Recently this study was carried out on mice. In this study percentage of advance activated carbon administered and animal intestinal tract was measured. Diarrhea was inducing by castor oil administration. Orally administration of this spice at different doses 10, 20, 40, and 80mg/kg was given[43]. The results of studies shown that this spice decrease activated carbon percentage, responsible for delaying the diarrhea also reduce the number of evacuations as compared to the control group. Investigation depict that the combination of chamomile and star anise produce strong antidiarrheal effects.

CONCLUSIONS:

The health benefit of the strong-tasting spice star anise are being progressively recognized and experimentally validated in recent decades. The most studied beneficial pharmacological action of star anise and its active constituents include antimicrobial, antifungal, insecticidal, anticolic, antitumorgenic and anticancer effects. This spice is also a good anxiolytic property and used to prepare antiflu drug. Latterly, Chinese star anise (*Illicium verum* hook.f) declare tremendous work and play a functional food among all spices and considered as the natural component of our diet, beyond its role in revealing taste and flavor to our food.

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Moyamoya: An Uncommon Variant Of Stroke In Children

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ABSTRACT:

Moyamoya is a rare cause of stroke in children. It is an infrequent cerebrovascular disorder of unknown etiology. We are reporting a case of a 7-year-old girl who presented with an acute history of left-sided weakness. On imaging she was diagnosed with Moyamoya disease. CT Angiogram revealed an occlusion of the right middle cerebral artery typical of Moyamoya disease. The child improved with conservative therapy.

Key words: stroke, Moyamoya disease, children, transient ischemia

INTRODUCTION:

Moyamoya disease is an uncommon variant of stroke of unknown etiology in children, characterized by occlusion of the cerebral circulation at the level of the circle of Willis. Obstruction leads to multiple ischemic strokes with neurological deficit[1]. Occurrence in children is relatively rare i.e. six in every 100,000 children and at least one-third of these cases occur in newborns, being more common under the age of 2 yrs[2]. Moyamoya, which in Japanese means "puff of smoke", was first reported in 1957 in Japan as an occlusion of the bilateral internal carotid arteries. The disease is diagnosed radiologically on angiography as a puffy smoke like appearance due to the formation of collaterals, hence the name Moyamoya. It is a slowly progressive disease in which there is bilateral occlusion and aneurysms of the middle cerebral and internal carotid arteries with the development of collateral circulation[3]. Clinical manifestations include neurological deficits like hemiparesis, monoparesis and other sensory disturbances in children[4].

CASE REPORT:

A 7-year-old girl brought to the emergency department with the complaint of weakness of left side of the body for one day and inability to move the same side and dribbling from the mouth for 3-4 hrs. According to her father, the child was in good health a day back, when, in the morning she suddenly felt weakness in the left side of her body and was unable to stand or walk. Her father noticed that she was unable to move her left arm and leg, which was associated with difficulty in speech and loss of sensation over the left side of the body. She also developed difficulty in taking food and drinking water with dribbling from the mouth. There were no complaints of a headache, fits, visual disturbance or trauma. Past medical history was uneventful and there was no previous hospitalization. The child was fully immunized according to EPI. The perinatal period was uneventful, and all milestones were achieved at appropriate ages. There was no family history of any inherited or any bleeding disorder.

Detailed neurological examination revealed a conscious child, well oriented with time, place and person, understanding and following the commands, having difficulty in speech. She had an evident left-sided facial asymmetry. She was unable to walk without support, with obvious limping on her left side. Motor and sensory examination on the right side was normal. Left upper and lower limbs were flaccid with hypotonia but the bulk was normal, power was grade 0, and reflexes were absent. There were no involuntary movements. Cranial nerve examination revealed right supranuclear facial paralysis (left sided facial weakness) with lesion of left accessory and right hypoglossal nerve. Rest of the general physical and systemic examination was unremarkable.

Initial investigations included complete blood cell count which showed normocytic anemia with normal leukocyte and platelet counts. Coagulation studies including prothrombin time and absolute partial prothrombin time were within normal limits. Specific tests for hypercoagulability disorders included activated protein C resistance, anti-cardiolipin antibody, anti-thrombin III, homocysteine, D dimer, Factor V Leiden, fibrinogen, lupus anticoagulant, protein S, and thrombin time which were all within the normal range. CT angiography of the brain shows occlusion at the proximal portion of the right middle cerebral artery. There were abnormal vascular collaterals in the vicinity of the occlusive areas suggestive of Moyamoya disease (Fig1).

The child was started on low molecular weight heparin for 2 weeks followed by oral aspirin with supportive care, and physiotherapy was also continued. The child showed significant improvement and at 3 months follow-up showed full recovery with no residual deficit. Repeat CT angiography

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revealed re-vascularization of the occlusive artery (Fig2).

DISCUSSION:

Moyamoya is a rare progressive Cerebro-occlusive disease

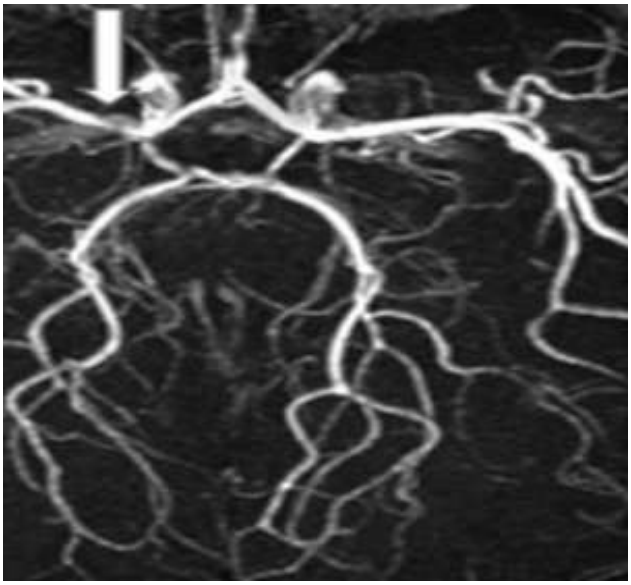

Fig 1: CT angiogram shows occlusion of the right middle cerebral artery

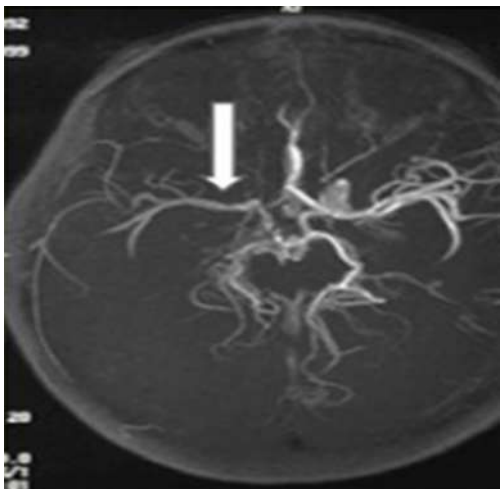

Fig 2: Repeat CT angiogram reveals reperfusion of the occlusive artery

that involves vessels of the cerebral circulation at the level of the circle of Willis[3]. Initially it was reported in Japan but now it is prevalent globally. The etiology is still unknown but genetic predilection is identified to play a part but it is not confirmed yet[5]. The symptoms of the disease vary from cerebral vascular occlusion/stenosis to hemorrhage leading to ischemic stroke, neurological deficit, and hemiplegia[3]. Ahmed R et al in 1997 reported four patients of this disease variant who presented with hemiparesis[6]. Similar cases were reported in four and five-year-old children by Rafiq A et al and Shamim S et al respectively[7,8]. 13 patients were reported by Sana et al at Aga Khan University hospital during the period of 1988 -2006; their results showed the mean age at presentation is 16 years and a female preponderance. They also concluded that only 3 patients required surgery whereas the rest were treated conservatively[9]. Diagnosis is established by imaging studies. CT angiography is the gold standard in the diagnosis and follow up in patients with Moyamoya disease[10]. Anticoagulation including heparin or warfarin is the main stay of therapy in this disease but is of unproven benefit. This therapy can be empirically considered in ischemic stroke or when thrombosis of vessels is present to prevent future ischemic strokes. Safety and efficacy for these drugs have not been fully established, and careful monitoring of risk and benefits is required. The basis for the administration of anticoagulation and antiplatelet therapy is the prevention of further strokes. These drugs do not modify the natural course of the disease rather significantly increase the risk of hemorrhage with large strokes[11]. Various surgical procedures have also been used in the treatment of Moyamoya disease, with the goal of re-vascularizing the ischemic hemisphere[12]. Rehabilitation treatment includes physical, occupational and speech therapy should be considered, depending on the neurologic impairment.

This case highlights the importance of early diagnosis and management that lead to a favorable outcome in children with Moyamoya disease. Prognosis of patients with Moyamoya disease is found to be related to age and the type of presentation. Disease has a more rapid and worse prognosis in children younger than 3 years than in those aged 3 years or older.

CONCLUSION:

Although the disease is not common, it should be well considered while dealing with stroke in children, especially during the first decade. This disease, in the future, might be helpful in understanding the pathogenesis of vaso-occlusive diseases in children.

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Median Rhomboid Glossitis Reported In Diabetic Patient – An Enigmatic Pathological Finding

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ABSTRACT:

Median rhomboid glossitis is an unusual oral condition with a fascinating clinical presentation. It is typically located around the midline of the dorsum of the tongue appearing as a reddish, rhomboid area expressing in form of atrophy. The following case reported is of 47 year old male diabetic patient who visited BUMDC for regular dental check up consisting of case report literature review, discussion including insight regarding etiology and its association with diabetes mellitus, clinical presentation and management of the condition.

Keywords: Median rhomboid glossitis, Diabetes Mellitus, Fungal infection

INTRODUCTION

Median rhomboid glossitis (MRG) is a benign pathological condition characterized by central atrophy of the filiform papilla of the tongue[1]. It is also known as central papillary atrophy, posterior lingual papillary atrophy or posterior midline atrophic candidiasis[2]. MRG has acquired its name because of the salient features associated uniquely with its lesion. It is usually located around the midline of the posterior dorsum of the tongue, classically exhibits a quadrilateral shape resembling a rhombus or a diamond and microscopically demonstrates an inflammatory process with fungal infection[3].

Clinically, the lesion is reported to be flat, well-demarcated, symmetric and area of depapillation that arises anteriorly to the circumvallate papillae. The surface can either be smooth, fissured, or lobulated. The tongue may exhibit a darker appearance or may have a white diffuse coating[4].

The male predominance has been observed three times more often than females[5]. An average global prevalence of 0.01%-1% is reported annually[6]. In Indian population the prevalence ranges from 1.0-2.5% according to the study of Goswami[7]. 0.7% of MRG cases were reported in Turkey[8]. On the other hand, one study middle eastern study reported its prevalence to be 4.8% in the region[9].

CASE REPORT

A 47 year old male patient visited dental OPD for regular dental checkup. The patient was known case of insulin dependent diabetes mellitus since 10 years. The patient was non-smoker healthy, fully dentulous. On history taking, the patient use to take Metformin and Gliperide. Clinical examination of mouth revealed a well demarcated rhomboid area of depapillation. It was located on the dorsal surface of tongue just anterior to circumvallate papillae. The surface was smooth and raised, the palatal mucosa was normal. The red patch was observed by the patient three months ago which was painless. A clinical diagnosis of median rhomboid glossitis was made. Due to its asymptomatic nature, no treatment was planned. He was reassured regarding the non- aggressive nature of the condition and follow up was recommended after three to six months.

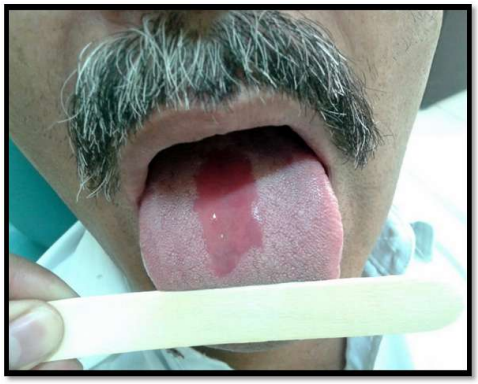

Figure 1: Median rhomboid glossitis

DISCUSSION:

MRG is a peculiar oral finding and rarely found in patients. Researches have shown that that in most cases it is usually asymptomatic3,[10]. However, but, in some cases may complain of persistent pain or irritation, has been reported[11]. MRG accompanied by the simultaneous inflammation of the palate due to immunosuppression is called the kissing lesion. The condition is considered as one of the significant markers of AIDS[12].

The etiology of MRG is controversial[5,6]. Historically, the Barghum in 1971 suggested the etiology of this disease is developmental in orign which may result due to failure of

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the lateral processes to envelope the tuberculum impar of the tongue during embryogeneis[8,13]. During the recent years, it has been considered as a variant of candidiasis in association with hyphae of fungal infection. Other possible suggested factors are diabetes, smoking, denture wearer, and use of corticosteroid sprays[9, 13].

According to various studies, the prevalence of MRG was found to be higher in diabetics, immunosuppressed patients and patients on broad-spectrum antibiotics[10,11]. According to to Guggenheimer et al MRG is one of the most observed oral candidal infections in insulin-dependent diabetes mellitus patients[11]. The tongue lesions of atrophic nature were found in 26.4% of the diabetic patients and 91.7% of these lesions were MRG according to Farman et al[8].

Under microscope, the bulbous, elongated epithelial rete ridges that showed a pattern resembling psoriasis, loss of the lingual papillae, parakeratosis of the epithelium, and inflammation are generally observed. The presence of candidal hyphae in the superficial epithelium is the diagnostic feature of MRG[1]. The differential diagnosis includes erythroplakia, geographic tongue, granular cell tumor gumma of tertiary syphilis, the granuloma of tuberculosis, deep fungal infections[7,12,13].

CONCLUSION:

MRG is an enigmatic oral pathological condition with an idiopathic etiology. This condition has a strong affiliation with diabetes mellitus as reported in previous literature. The authors are of the view that updated extensive studies are a need of time to decipher the association of MRG with diabetes mellitus.

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Childhood Sexual Abuse: A Public Health Concern

Farhan Muhammad Qureshi

Childhood sexual abuse (CSA) is one of the serious form of child abuse that includes sexual activity with a minor[1]. CSA happens when a child engage in sexual activity for which he or she cannot give consent, developmentally unprepared and unable to comprehend. In recent years, this topic has been received much attention due to its magnitude and sequel. CSA is a significant public health problem across the world, owing to its widespread occurrence with grave lifelong consequences. According to World Health Organization (WHO), CSA is a gross violation of rights of children and adolescents and defines CSA as "the involvement of a child in sexual activity that he or she does not fully comprehend and is unable to give informed consent to, or for which the child is not developmentally prepared, or else that violate the laws or social taboos of society" [2].

The term CSA doesn't mean necessarily a physical contact between a perpetrator and a child. It includes different form of touching and non-touching activities such as; exhibitionism or exposing oneself or an adult sexual activity to a minor, attempted intercourse, intercourse, fondling of genitals, pornography, use of the child for prostitution or pornography, obscene phone calls, text messages or digital interaction[1,3].

Childhood Sexual Abuse - The Dynamics:

As compare to the adult sexual abuse, the CSA is very different dynamically, that make a unique phenomenon. Victims of CSA can't be handled in the same way as in case of adult sexual abuse[4].

The characteristics features of CSA includes:

- Perpetrator seldom used physical force or violence; instead gain child's trust and hid the abuse
- The perpetrator is usually a known, reliable or trusted caregiver.
- Perpetrators develops relationship with child over time as gradual process of sexualizing
- It often happens over weeks or years
- Occurs frequently as repeated episodes with increase invasiveness with time
- Most of the cases of CSA are interfamilial or incest.

Who are more susceptible for victimization?

Epidemiological evidence showing that rates for CSA according to age and gender are different[6]. For children age 0 – 7 years, CSA rates are equal for boys and girls, but with increasing age the girls experience CSA at higher rates[7,8]. On the contrary, rates for CSA in boys decreases with age, however rate is as same as girls till the age of 7[6].

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A variety of factors have been recognized that make individual children susceptible to abuse sexually. The key factors are believed to be:[9]

- Female sex
- Unaccompanied children
- Foster care children
- Step children
- Adopted children
- Handicapped children (mentally or physically)
- Low socioeconomic
- Past abuse history
- Parents separation/single parents
- Cognitive/psychological vulnerability
- Mental disorder, or drug/alcohol dependency in parents
- Social isolation

What to watch out in suspected victims – Warning signs?

It is not always easy to prove that child has been sexually abused. Affected children do not disclose the incidence directly or straightaway. Furthermore, their disclosure initially might following complaint of physical nature or any behavioral change[2,5]. Victimized children exhibits expressions that something is distressing them rather than telling someone. There are many physical and behavioral warning signs or indicators (Table. 1) however, physical signs are usually found to be rare[5]. Physicians or health care experts rely on warning signs to detect the cases of CSA but there may be many other reasons for changing in child behavior.

What are the outcomes of Childhood Sexual Abuse?

CSA is a problem of considerable magnitude with short and long term outcomes for victimized individuals. Outcomes varies from case to case and from person to person and can cause physical as well as psychological health problems [4,9,10]. It might hamper the normal social growth due to psychosocial problems that arise after the event[11]. The physical health issues are related to gastrointestinal or urogenital system. In addition, CSA has been correlated with many psychological and behavioral symptoms such as anxiety, low self-esteem, social incompetency, depression, guilt, self-blame, eating disorders, dissociative patterns, denial, substance abuse, somatization and suicidal attempt etc[5,12]. CSA is now found to be recognized risk factor for suicidal behavior in victims CSA and is prevalent in all parts of the world[13,14].

The physical or medical complaints of CSA victims are often related to somatization symptoms such as headaches, difficulty in swallowing, pelvic pain, dysmenorrhea, menstrual irregularities, gastrointestinal symptoms like irritable bowel syndrome, dyspepsia, abdominal pain etc.[5,12] In a long term, the most common symptom among the victims of CSA is a depression. Due to continuous depression in victims, they might think negative about themselves and after the span of time they start feeling worthless and avoid

PHYSICAL	BEHAVIOURAL
Pain and bleeding in genitals, anus or mouth	School problems in performance
Discoloration, bruises or swelling in genital areas	Social issues (non-participating)
Persistent or recurring painful urination	Disturb sleep patterns
Persistent or recurring painful bowel movements	Nightmare
Pain, burning or itching in genital area	Regression in behaviors
Sitting or walking difficulties	Phobias development
Discharge Vaginal or penile	Altered eating habits
Anal fissure, pain or bleeding	Self-harming
Stained or torn under cloth/cloths	Fear of people or a particular place
Pregnancy (unmarried and under 16 years of age)	Stigmatized feeling (ashamed, bad)

Table. 1 Warning Signs or Indicators in the victim of CSA

friends or socializing because of self-negative thoughts. Further, disturbed eating and sleeping patterns are also associated with depression. Body image concerns like feeling of looking ugly or dirty and conscious about their unsatisfactory appearance contributes the social incomp-etency[12]. Mostly, victimized individuals experience chronic anxiety, tension, stress and phobias or frightened long after the incident happened. Some of CSA victim's may have dissociated to protect them from the incident. Feeling disorientation or confusion, feeling of facing difficult or bad situation, hallucinations and nightmares are included in dissociation among CSA victims.

Management:

The cases of childhood sexual abuse involves medical and psychological treatment as well as psychosocial support anticipatory guidance to the victims. However, there are no simple rules to manage the case of CSA and treatment varies depending upon the case. Professionals need for the support of victimized individuals includes pediatricians, psychologists, psychiatrists, and social workers. Frequent and regular sessions of CSA victims with these professionals, working intensively have proved valuable but the consent and confidentiality issues of victims requires professionals to consider their ethical duties carefully. The key areas of interest regarding the likelihood of the case of CSA includes history taking, behavioral or physical signs or indicators, symptoms, sexually transmitted diseases and forensic evidence. [2] These are considered as a diagnostic tools in CSA cases, however in the absence of physical finding the diagnosis can be made on the victims or eye witness statement/s.

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Vesicovaginal Fistula: Psychosocial Problems In Rural Areas of Pakistan

Nadia Khalid

Dear Sir,

It gives me immense pleasure to appreciate your efforts that you and your team have made to the scientific journal of Bahria University Medical & Dental College (JBUMDC) to make it a successful medical journal. An editorial "Vesicovaginal Fistula: Psychosocial Problems In Rural Areas of Pakistan" was published in vol. 8 issue 2, April to June 2018 of JBUMDC[1]. I was the author of this editorial and to my amazing surprise it was widely viewed online nationally as well as internationally. I am honored to receive an offer from the editor of Lambert Academic Publishing (LAP). It was about writing a book about "Psychosocial Aspects of VesicoVaginal fistula (VVF) in rural areas of Pakistan" based on this research. It is an Europe based publishing company and is dedicated to scientific work. Their books are distributed worldwide through well-known shops. In addition they are willing to bear all cost related to publishing, marketing and distribution of book.

This Editorial was based on the observations and information collected during the field visit with students of 4th Year MBBS. As it was mentioned that VVF are the most commonly acquired genital fistulas that are associated with numerous physical, social, psychological and sexual problems in affected individuals. It was noticed during the survey that the most common reason that affects young pregnant women is prolonged obstructed labor. Education of females, safe motherhood initiatives, better family planning services and legislations against early marriages could be the strategies for the prevention and control of this debilitating diseases responsible for not only medical but a major psychological trauma to the sufferers.

In the last but not the least, I am obliged to express my gratitude for whole editorial board of JBUMDC for giving me this opportunity and wish all the success and accomplishment for the journal.

REFERENCE:

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The Cardiac Society of Australia and New Zealand. Clinical exercise stress testing. Safety and performance guidelines. Med J Aust 1996; 164: 282-4

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Cancer in South Africa [editorial]. S Afr Med J 1994;84:15

d) Chapter in a book

Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. Hypertension: pathophysiology, diagnosis, and management. 2nd ed. New York: Raven Press; 1995. p. 465-78

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