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Editorial

Original Articles

Editorial

Smoking and its Health Hazards

MohsinMasud Jan
Editor

People start smoking for different reasons, such as some think it looks cool. Others start because their family members or friends smoke. Statistics show that about 9 out of 10 tobacco users start before they're 18 years old. Tobacco contains nicotine, which is highly addictive. Like heroin or other addictive drugs, the body and mind quickly become so used to the nicotine in cigarettes that a person needs to have it just to feel normal.

It's not only cigarettes that get people dependent on tobacco. One form of smoking is Hookahs, staples of Middle Eastern café society, are water pipes used to smoke tobacco through a hose with a tapered mouthpiece; other form of smoking is electronic cigarettes (e-cigarettes), which contain cancer-causing chemicals and other toxins. These battery-operated devices use cartridges filled with nicotine, flavorings, and other chemicals and convert them into a vapor that's inhaled by the user.

The body doesn't need tobacco the way it needs food, water, sleep, and exercise. And many of the chemicals in cigarettes, like nicotine and cyanide, are actually poisons that can kill in high enough doses. The consequences of this poisoning happen gradually. Over the long term, smoking leads people to develop health problems like heart disease, stroke, emphysema (breakdown of lung tissue), and many types of cancer — including lung, throat, stomach, and bladder cancer. People who smoke can develop skin problems like psoriasis (a type of rash), and are more likely to get wrinkles. Also, they have an increased risk of infections like bronchitis and pneumonia.

Many of these diseases limit a person's ability to be normally active, and they can be fatal. In the United States, smoking is responsible for about 1 out of 5 deaths. The consequences of smoking may seem very far off, but long-term health problems aren't the only hazard of smoking. Nicotine and the other toxins in cigarettes, cigars, and pipes can affect a person's body quickly, which means that teen smokers have many of these problems: Bad breath, Bad-smelling clothes and hair, reduced athletic performance, Greater risk of injury and slower healing time & Increased risk of illness.

Smokers today have a greater risk of developing lung, even though they smoke fewer cigarettes. The chemicals used in cigarette have changed over the years, and some of those changes may be a factor in highest lung cancer risks." Their report said experts how know that active smoking can cause a common form of blindness called age-related macular degeneration, as well as diabetes, colorectal cancer and liver cancer.

Smoking can also cause tuberculosis, erectile dysfunction facial clefts in infants, ectopic pregnancy, rheumatoid arthritis, inflammation, impaired immune functions, and worseness the out-look for cancer patients and survivors.

Those who do not smoke but are exposed to second-hand smoke face an increased risk of stroke. More than 20 million people in the United States have died from smoking related diseases and illness caused by second-hand smoke. Smoking remains the leading preventable cause of premature death in the United States, killing nearly half a million Americans a year.

Smoking rates are way down in the United States- 18 percent of people here now smoke compared to 42 percent five decades ago modern cigarettes are more potent and more dangerous than ever, said Acting Surgeon General Borish Lushniak. Smoking cigarettes can cause even more health problems than lung cancer, including blindness, diabetes erectile dysfunction and liver cancer, said a major US government report on Friday.

More people smoke worldwide today than in 1980, as population growth surges and cigarettes gain popularity in countries such as China, India and Russia, researchers said Tuesday. For instance, China boasted nearly 100 million more smokers in 2012 than it had three decades ago, even though its smoking rate fell from 30 to 24 percent in that span, said the findings in the journal of the American Medical Association.

Half of all smokers will eventually be killed by tobacco, greater number of smokers will mean a massively increases in premature deaths in our lifetime,' said co-author Alan Lopez of the University of Melbourne. The study, led by the institute for Health Metrics and Evaluation at the University of Washington, measured data from 187 countries. It found that the global smoking rate among men was 41 percent in 1980, but has since declined to an average of 31 percent.

Original Article

Surgical Site Infection

Surgical Site Infection-A Six Months Prospective Study in General Surgery Unit

Sajid Hussain, Anila Farooq and Rabbia Shabbir

ABSTRACT

Objective: To find out the incidence of SSI in Allama Iqbal Memorial Teaching Hospital, Sialkot and identify the risk factors to avoid or minimize the effects of risk factors on development of SSI so as to lessen the burden and improve healthcare.

Study Design: Prospective cohort study

Place and Duration of Study: This study was conducted at the Busiest Unit of General Surgery, Allama Iqbal Memorial Teaching Hospital, Sialkot from December 2017 to April 2018.

Materials and Methods: Total 861 cases who had surgery were studied. All patients were followed pre-operatively, operatively and post operatively, from the date of discharge to thirty days post operatively to see the outcomes of the surgery.

Results: Total 861 cases were studied pre-operatively, operatively and post operatively and 63 cases were found to developed surgical site infection. The most important factors indentified like age, gender, residence, ASA score, wound classification, type and duration of surgery and their association with SSI was found out. Significant relation was found for age, residence, presence of risk factors, ASA score, previous surgery, wound classification, duration of surgery, type of surgery, and use of pre-op antibiotics whereas insignificant relation was found for gender and length of pre-op stay in hospital. Most infective organisms which were isolated include E.coli, Staph. aureus and P. aureginosa.

Conclusion: SSI is a recognized problem both for the surgeons and the patients. Identification of risk factors and their eradication to minimum level after adopting strategies in order to decrease physical, economical and treatment burden to ensure better healthcare.

Key Words: Surgical site infection, Preoperative, Risk factors, Contamination, Nosocomial infection

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INTRODUCTION

Nosocomial infection like surgical site infection (SSI) occurs in surgical operations or later[1] which is accounting for the 10-40% of all nosocomial infections[2,3]. Globally SSI rates have been found to be from 2.5% to 41.9%[2,4], even in western countries clean surgery cases and intra abdominal surgery cases developed SSI ranging from 2 to 5% to 20% respectively[5] but it also varies from case to case and even more high in certain high risk patients. Various countries has various incidence rate like Africa (2.5 to 30.9%)[6], Ethiopia (10.9 to 75%)[7]. But SSI remains a substantial cause of morbidity, prolonged hospital stay and increased rate of mortality.

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SSI is not only endangering the patient's health and life but also put a lot of burden on patient's family and society.

Despite all measures globally in developing and developed countries pre-op preparation and antibiotic prophylaxis life saving operations still are associated with high incidence of infection rates and mortality even as appendectomies[4]. Still there are few countries where none of the study has been occurred like Hawassa Referral Hospital of Ethiopia and Uganda, and even in developing countries like Pakistan data is not available to predict the exact percentage of incidence of SSI. The risk of SSI development is affected by various factors like wound classification (clean, clean contaminated, contaminated and dirty), degree of wound contamination, pre-operative preparation of procedures like shaving, and co-morbidity factors like diabetes and obesity[8]. Microbically majority of the organisms which were separated in many studies were staphylococcus auerus, E.Coli, Klebsiella, Pseudomonas and enterobacter spp[9].

MATERIALS AND METHODS

The study was conducted in a surgical unit at Allama Iqbal Memorial Teaching Hospital, Sialkot from December 2017 to April 2018**.** Total 861 cases who had

surgery were studied. All patients were followed pre-operatively, operatively and post operatively, from the date of discharge to thirty days post operatively to see the outcomes of the surgery.

The patients included in the study fulfilled the inclusion criteria. Written consent for participation in the study was obtained, and complete history and physical examination was done. Data was collected regarding socio-demographics, past medical history, previous treatment record, pre-operative preparation, co-morbidity, operative procedures, classification of operation, duration of surgery and post operative care.

Exclusion Criteria: Incomplete data, other specialties units, privately operated cases and those cases that left against medical advice.

Laboratory procedures: Those patients who developed SSI, exudates from the wounds were collected using sterile swabs and shifted to lab within 15 minutes of collection.

Statistical analysis: Descriptive statistics (count and %), bivariate analysis (risk factors for SSI), Multivariate regression methods, Odds ratio (OR) 95% CI, was analyzed in SPSS version 20. P-value of 0.005 was accepted as statistically significant.

RESULTS

Demographics: Details of 861 patients were obtained who underwent surgeries like cholecystectomy, appendecetomy, haemorridectomy, hernioplasty, parotidectomy and mastectomy.

The mean age of the patient was 37.5 years. In our study 399 (46.3%) were male and 462 (60.7%) were female, 762 (88.5%) cases were belonging to rural and 99 (11.4%) from urban areas. Age group which was commonly involved was below 20-40 years (23%) then more than 60 years (10%) and 1-20 years (12%) in descending order.

Table No. 1: Bivariate logistic regression analysis for factors associated with SSI (N=861)

Sr. No.	Variables	SSI		Crude OR	95% CI	P-value
		Yes N (%) 63(7.3%)	No N (%) 798(92.6%)			
1	Age in years					
	1-20	12(19.0%)	120(15.0%)	1.978	0.907-4.313	
	20-40	23(36.5%)	452(56.6%)	3.887	2.016-7.496	0.001
	40-60	10(15.8%)	135(16.9%)	2.670	1.179-6.048	
2	Gender					
	Male	30(7.5%)	369(92.4%)	0.946	0.566-1.581	0.833
	Female	33(7.14%)	429(92.8%)			
3	Residence					0.006
	Rural	40(63.4%)	628(78.6%)	2.124	1.238-3.646	
	Urban	23(36.5%)	170(21.3%)			
4	ASA Score					
	<1	89(12.6%)	192(24.0%)	2.178	1.020-4.654	0.044
	>1	55(87.3%)	606(75.9%)			
5	Pre-op stay					
	<7days	25(39.6%)	320(40.1%)	0.953	0.566-1.604	0.855
	>7days	38(60.3%)	478(59.8%)			
6	Risk factors					
	Yes	12(19.0%)	272(34.0%)	2.198	1.152-4.192	0.017
	No	51(80.9%)	526(65.9%)			
7	Prev surgery					
	Yes	10(15.8%)	63(7.8%)	0.454	0.220-0.936	0.032
	No	53(84.1%)	735(92.1%)			
8	Duration of surgery					
	15min	7(11.1%)	330(41.3%)	0.543	0.000-1	
	½ hour	8(12.6%)	251(31.4%)	0.777	0.000-1	0.000
	1hour	10(15.8%)	150(18.7%)	0.264	0.000-1	
	2hour	12(19.0%)	67(8.3%)	0.982	0.000-1	
9	Wound class					
	Clean	12(19.0%)	598(%)	38.206	17.367-84.050	0.000
	Clean contaminated	10(15.8%)	120(%)	9.200	3.958-21.382	
	Contaminated	18(28.5%)	50(%)	2.130	0.991-4.577	
10	Pre-op Antibiotic					
	>1hr	59(93.6%)	580(72.6%)	0.133	0.41-0.429	0.001
	<1hr	4(6.3%)	218(27.3%)			
11	Type of Surgery					
	Elective	20(31.7%)	598(74.9%)	6.428	3.694-11.188	0.000
	Emergency	43(68.2%)	200(25.0%)			

Table No. 2: Multivariate logistic analysis of predictors for SSI (N=861)

Sr. No.	Variables	SSI		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
		Yes N (%) 63(7.3%)	No N (%) 798(92.6%)			
1	Age in years					
	1-20	12(19.0%)	120(15.0%)	1.978(0.907-4.313)	0.506(0.232-1.102)	0.086
	20-40	23(36.5%)	452(56.6%)	3.887(2.016-7.496)	0.257(0.133-0.496)	0.000
	40-60	10(15.8%)	135(16.9%)	2.670(1.179-6.048)	0.374(.165-0.848)	0.019
2	Residence					
	Rural	40(63.4%)	628(78.6%)	2.124(1.238-3.646)	0.471(0.274-0.808)	0.006
	Urban	23(36.5%)	170(21.3%)			
3	ASA Score					
	<1	8(12.6%)	192(24.0%)	2.178(1.020-4.654)	0.459(0.215-0.981)	0.044
	>1	55(87.3%)	606(75.9%)			
4	Risk factors					
	Yes	12(19.0%)	272(34.0%)	2.198(1.152-4.192)	0.455(0.239-0.868)	0.017
	No	51(80.9%)	526(65.9%)			
5	Prev surgery				2.201(1.068-4.536)	0.032
	Yes	10(15.8%)	63(7.8%)	0.454(0.220-0.936)		
	No	53(84.1%)	735(92.1%)			
6	Dura. of surgery					
	15min	7(11.1%)	330(41.3%)	0.543(0.000-1)	0.3848(1.461E-011-1.013E-010)	0.000
	½ hour	8(12.6%)	251(31.4%)	0.777(0.000-1)	0.5782(2.271E-011-1.472E-010)	0.000
	1hour	10(15.8%)	150(18.7%)	0.264(0.000-1)	0.1209(4.980E-011-2.937E-010)	0.000
	2hour	12(19.0%)	67(8.3%)	0.982(0.000-1)	0.3249(3.249E-010-3.249E-010)	0.000
7	Wound class			38.206(17.367-		
	Clean	12(19.0%)	598(74%)	84.050)	0.026(0.012-0.058)	0.000
	Clean	10(15.8%)	120(15%)	9.200(3.958-	0.109(0.047-0.253)	0.000
	contaminated	18(28.5%)	50(6.2%)	21.382)	0.470 (0.218-1.009)	0.053
	Contaminated			2.130(0.991-4.577)		
8	Pre-op					0.001
	Antibiotic	59(93.6%)	580(72.6%)	0.133(0.41-0.429)	7.517(2.333-24.219)	
	>1hr	4(6.3%)	218(27.3%)			
	<1hr					
9	Type of Surgery					
	Elective	20(31.7%)	598(74.9%)	6.428(3.694-	0.156(0.089-0.271)	0.000
	Emergency	43(68.2%)	200(25.0%)	11.188)		

The incidence of SSI found in our cases was 63 out of 861 hence giving rise 7.31%, 45 cases of SSI were diagnosed during hospitalization while 15 got infection after discharge from the hospital. Cases of SSI ranged from superficial to deep seated infections. The strains which were isolated from the infection sites include E.coli (60%) > Staph. aureus (22%) > P. aureginosa (5%) and others (15%) in order of priority.

Analysis for finding association between various risk factors and SSI development was performed which showed significant and non significant association as shown in Table 1 & 2.

DISCUSSION

One of the most significant complications of surgical patients is development of surgical site infection. One of the leading causes of morbidity and mortality in various regions of China is still SSI where incidence varies from 13.0% to 18.0% and they are considered as 25.0% of nosocomial infections[10] which is much higher incidence as compared to many other countries[11]. The incidence of SSI in our study setting was 7.3%. Age Group: In few studies, it was found to be very high i.e. >65 years as compared to <65 years[12][13]. while in our study rate of SSI was found to be very high in between 20-29 years.

This association is statistically significant as compared to other age groups.

Preponderance: There was a marginal preponderance of male patients for developing SSI as compared to female patients[14] but in our study there was marginal preponderance of female 33(52.3%) as compared to male 30 (47.6%) cases which were consistent with the study performed in Aligarh[15]

Demographic distribution of residence of the patients as the risk factor showed 40/628 who developed SSI

belongs to rural area. On detailed bivariate regression and multi variate analysis showed significant relation.

American society of Anesthesiology (ASA) score evaluation is also a good predictor of SSI. Incidences had been found higher in ASA III, V as compared to ASA II, I which matched with other studies [16].

Preoperative stay for more than 7 days leading to contamination and colonization of infective pathogens and increase the risk of SSI[1] in our study 25 patients (39.6%) developed SSI whose stay was up to seven days and 38 patients (60.3%) stay was more than seven days. Pre-op stay more than seven days increase the risk of developing SSI by 22.44 times as compared to less than seven days which was in line with other studies[17] but on detailed analysis bivariate regression did not show any significant relation with SSI. Each day of extra hospitalization add

10 times more risk of acquiring SSI and has been confirmed by studies in Aurangabad, Mumbai, Hyderabad and Orrisa[18]

Risk factors: SSI are related more to risk factors like diabetes, cancer, operation duration, use of drain, catherization which are responsible for the trigging of SSI [19]. In our study all risk factors as mentioned above were considered. 12 (19%) patients with risk factors for developing SSI while 51 (80.9%) did not develop any SSI.

Duration of Surgery: Operation time more than two hours has been positively associated with SSI due to increase exposure of wound to operation theater environment[20][10][4]– which was also quite consistent with our study showing a stepwise rate of nosocomial infection associated with SSI..

Wound classification: Another important predictor of SSI showed that incidence of SSI was found to be more in contaminated wounds as compared to clean and clean contaminated wounds. Rate of developing infection was highest in contaminated wounds 18 (28.5%) followed by clean contaminated wounds 10 (15.8%) and least with clean wounds 12 (19.0%). Similar was noted in Aurangabad, clean contaminated 10.6% and clean 4%[18][21].

Microorganisms which were isolated many strains of bacteria from the exudates (E. coli, Stap. aureus, P. aureginosa) from infected surgical sites. In another study Staph aureus was commonest microorganism, more than third were MRSA[22][23].

Pre-op antibiotics have been known to reduce the incidence of developing SSI[18]. Time of pre- op antibiotics, first dose of antibiotics before one hour of skin incision was found to be an independent predictor for development of SSI. It was in accordance with first dose of antibiotic given before one hour of skin incision has increased SSI by 14 times as compared to first dose after one hour of skin incision which was consistent with another study where it was 11 times as compared to our study[24], before one hour tissue concentration was not adequate but still it was independent predictor for development of SSI. When this was analyzed as association with SSI, it showed significant association[25].

Emergency vs. elective: Incidences were high in the emergency cases as compared to elective cases (20/43) [26], the results were consistent with our study where elective 20 (31.7%) and emergency cases 43 (68.2%) developed SSI

CONCLUSION

Surgical site infections are still a recognized dilemma for the surgeons and the patients. Pre- existing disease, wound classification, wound contamination are still considered to be important risk factors for SSI, which can never be completely eradicated. These may be managed properly once appeared to reduce the physical, economical and treatment burden thus adopting strategic measures to ensure healthcare in community.

Author's Contribution:

Concept & Design of Study:	Sajid Hussain
Drafting:	Sajid Hussain
Data Analysis:	Anila Farooq, Rabbia Shabbir
Revisiting Critically:	Sajid Hussain
Final Approval of version:	Sajid Hussain

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Oral Cancer

Assessing Awareness and Knowledge of Oral Cancer among Adult Dental Patients in Lahore, Pakistan

Abdul Razzaq Ahmad[1], Muhammad Usman Muneer[2], Sikander Bajwa[3] and Aleena Chaudhary[4]

ABSTRACT

Objective: To determine the level of awareness and knowledge of oral cancer and its association with socio-demographic variables

Study Design: Observational study

Place and duration of study: The study was conducted at the Department of Prosthodontics, Lahore Medical and Dental College, Lahore from December 2014 to December 2015.

Material and Methods: 952 participants of age 18 years and above participated. Sociodemographic information was obtained and a structured questionnaire comprising of 8 closed-ended questions assessed the general awareness and knowledge regarding oral cancer. SPSS version 22 was used for statistical analysis.

Results: Majority had poor awareness (63.8%) and poor knowledge (82.88%) of oral cancer. A significant association was observed with age, gender, place of residence and education level.

Conclusion: The overall awareness and knowledge of the population is lacking. It is recommended that more effort and time should be invested in public educational programs

Key words: Oral cancer; knowledge; risk factors

Citation of articles: Ahmad AR, Muneer MU, Bajwa S, Chaudhary A. Assessing Awareness and Knowledge of Oral Cancer among Adult Dental Patients in Lahore, Pakistan. Med Forum 2018;29(7):7-11.

INTRODUCTION

Oral cancer includes the cancers of the lips, tongue, buccal mucosa and rest of the oral cavity, but not cancers of the major salivary glands. Oral cancer continues to remains as a life-threatening disease and is one of the most debilitating and disfiguring of all malignancies. It is responsible for a significant amount of morbidity and mortality rates worldwide especially in developing countries[1, 2, 3]. Oral cancer is the 15th most common cancer globally[4]. While it is estimated that cancer incidence is 14 million new cases, oral cancer alone claims about 300,000 deaths (2.1%) annually with 1.8% mortality globally[5, 6].

Pakistan is facing double burden of the diseases like other developing countries of this region, there are un-controlled infectious diseases with increasing graph of chronic disease like oral cancer as well. The most prevalent form of the oral cancer is the oral epithelial, mucosal malignant form called oral squamous cell carcinoma which constitutes around 90% of all the malignancies of the oral cavity[7]. According to WHO (World Health Organization) there will be a pronounced increase in trend of oral cancer patients especially in South Asian Countries where incidence of oral cavity cancers are found highest in all urban cancer registries, in comparison to global data. In developing Asian countries, the main carcinogenic factor are the betel quid areca nut, its substitutes and smoking[8]. According to Shaukat Khanum cancer registry Lahore in Pakistan, during the year 2016, oral cavity malignant neoplasm is the 6th most common cancer in adults while other types of cancers were slightly ahead of oral cancer[9].

Majority of oropharyngeal cancers are oral squamous cell carcinomas, which account for 90-94% of all oral cancers[10].The role of smoking, alcohol consumption and betel quid chewing as a potential risk factor of oral cancer has been established by numerous researchers[11, 12]. However, some patients develop oral squamous cell carcinomas without exposure to these risk factors. This suggests that genetic predisposition or oncogenic viruses may also play a role[13, 14].

Delayed presentation of oral cancer results in increased treatment morbidity and reduced survival rates. Lack of public awareness and knowledge is the most significant factor in delaying diagnosis and treatment of oral

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cancer. Most of the oral cancers are preventable if people know which risk factors they must control or eliminate [1, 15, 16].

MATERIALS AND METHODS

The descriptive observational study was performed in Lahore Medical & Dental College, Lahore. The duration of the study was from December 2014 to December 2015. Non-probability convenience sampling technique was used to collect requisite information. 952 participants, aged 18 years and above were included in the study. Patients attending the hospital on emergency basis, belonging to medical field and those with communication disabilities were excluded from study. Informed consent was obtained from the respondents. Socio-demographic information such as age, gender, marital status, place of residence, and educational level were recorded.

A structured questionnaire comprised of 8 closed-ended questions, assessed the general awareness and knowledge regarding oral cancer among the participants. Response categories for each knowledge of risk factors questions were 'no' coded as 1, and 'yes' coded as 2. Furthermore, average knowledge of risk factors mean scores were used for group comparisons. For overall awareness regarding oral cancer, mean score of three awareness questions were taken and labeled "poor awareness" for those with less than 1.5 mean score and "good awareness" for those with greater than 1.5 mean score. Similarly, for overall knowledge, the mean of five knowledge questions were taken and categorized as "poor knowledge" for those with less than 1.5 and "high knowledge" for those with greater than 1.5 mean score.

Data collected entered cleaned and analyzed in the SPSS version 22. The qualitative variables were presented in the form of mean ± standard deviation, frequencies and percentages while frequencies and percentages tables were used for quantitative variables. An independent t-test was used for group comparison of gender, marital status, and place of residence with respect to mean knowledge scores while One way ANOVA is used to compare education level of participants with mean knowledge scores. The P-value was significant at $P<0.05$.

RESULTS

The sociodemographic characteristics of the participants is presented in Table 1. As depicted; a total of 87% (830) of the participants were <60 years old. Majority were married 76.7% (730) & belonged to urban residence 71.7% (683). 81.4% (773) had education level less than higher secondary school.

Table 2 shows general awareness and knowledge of risk factors regarding oral cancer. The findings of this study revealed that less than half of the respondents 359 (37.7%) had heard about oral cancer. 811 (85.2%) had the misconception that oral cancer is developed by chance. Only 313 (32.9%) responded that oral cancer can be prevented and cured if diagnosed early.

Table No.1: Distribution of Respondents by Socio-demographic Profile

Characteristics	**Frequency %**
Gender: Male	515 (54.1)
Female	437 (45.9)
Age Groups: 19-29 years	262 (27.5)
30-39 years	270 (28.4
40-49 years	187 (19.6)
50-59 years	111 (11.7)
60-69 years	81 (8.5)
>70 years	41 (4.3)
Marital status: Single	222 (23.3)
Married	730 (76.7)
Education: No Formal Education	318 (33.4)
Primary School	136 (14.3)
Secondary School	319 (33.5)
Higher Secondary	113 (11.9)
Graduate & Above	66 (6.9)
Residence: Urban	683 (71.7)
Rural	269 (28.3)

Table No.2: Frequency of Responses for Individual Questions

General Awareness Of Oral Cancer	Frequency (%)
Have you heard of oral cancer? Yes	359(37.7)
No	593(62.3)
Does oral cancer develop as a matter of chance? Yes	811 (85.2)
No	141 (14.8)
Is prevention & treatment of oral cancer possible? Yes	313 (32.9)
No	639 (67.1)
Knowledge of Risk Factors	
Smoking: Yes	329 (34.6)
No	623 (65.4)
Smokeless tobacco (e.g.Betel nut) Yes	211 (22.2)
No	741 (77.8)
Alcohol consumption: Yes	159 (16.7)
No	793 (83.3)
Age: Yes	76 (8.0)
No	876 (92)
Family history of cancer: Yes	58 (6.1)
No	894 (93.9)

Next section in Table 2 was regarding knowledge of risk factors. Of the 952 respondents 329 (34.6%) answered that smoking plays a role in oral cancer and 211 (22.2%) considered smokeless tobacco as a crucial risk factor. Few 159 (16.7%) participants viewed alcohol as a key risk factor in oral cancer. 876 (92%)

did not know that the risk of oral cancer increases with age. Only 58 (6.1%) of the respondents knew that family history of oral cancer is an important risk factor.

Table No.3: Comparison of Oral cancer awareness and knowledge scores by Age, Gender, Marital status, Place of residence, and Education

Variables	N	Awareness of oral cancer Mean (SD)	Knowledge of risk factors Mean(SD)
Age Groups 19-29 years	262	4.76(0.79)	6.37(1.54)
30-39 years	270	4.48(0.74)	5.80(1.31)
40-49 years	187	4.45(0.73)	5.69(1.21)
50-59 years	111	4.39(0.72)	5.54(1.18)
60-69 years	81	4.41(0.73)	5.66(1.32)
>70 years	41	4.19(0.55)	5.29(0.87)
P-value		P<0.001*	P<0.001*
Gender Male	515	4.61(0.78)	6.04(1.44)
Female	437	4.43(0.72)	5.67(1.23)
P-value		P<0.001*	P<0.001*
Marital Status Single	222	4.76(0.79)	6.38(1.51)
Married	730	4.45(0.73)	5.71(1.28)
P-value		P<0.001*	P<0.001*
Place of residence Urban	683	4.62(0.78)	6.09(1.46)
Rural	269	4.27(0.63)	5.30(0.84)
P-value		P<0.001*	P<0.001*
Education No formal education	318	4.28(0.67)	5.37(0.96)
Primary School	136	4.28(0.60)	5.42(1.00)
Secondary School	319	4.62(0.78)	6.08(1.47)
Higher Secondary	113	4.79(0.80)	6.25(1.32)
Graduate and Above	66	5.22(0.60)	7.54(1.45)
P-value		P<0.001*	P<0.001*

Figure No.1: Awareness of Oral Cancer%

Table 3 shows the comparison of mean oral cancer awareness and knowledge scores by age, gender, marital status, place of residence and education status. Younger respondents (19-29 Years), unmarried, males, individuals living in urban localities and participants with higher educational qualifications had better knowledge regarding the risk factors and the difference was statistically significant (P<0.001).

Figure 1 displays the overall awareness of participants regarding oral cancer. Out of 952 respondents, 608 (63.8%) had "poor awareness" and 344 (36.2%) had "good awareness" of oral cancer.

Figure 2 displays overall knowledge of participants regarding oral cancer. Out of 952 respondents, 789 (82.88%) had "poor knowledge" while 163 (17.12) participants had "good knowledge" of oral cancer.

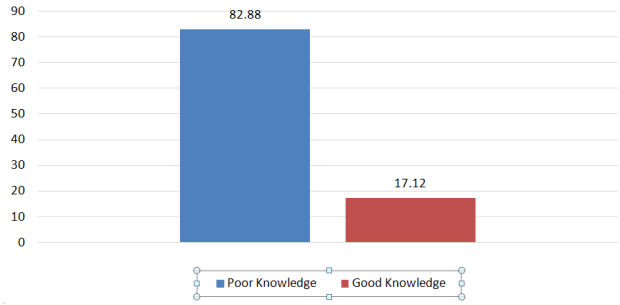

Figure No.2: Knowledge of Oral Cancer%

DISCUSSION

Oral cancer in most of the cases is a preventable disease by avoiding or controlling the known risk factors. Mass public education/information and early detection may result in reducing the oral cancer burden on the society. Lack of general awareness, misconceptions about risk factors and failure to detect early signs and symptoms is responsible for sizeable morbidity and mortality rates worldwide especially in developing countries. Data on the level of oral cancer awareness in Pakistan is scarce which makes the planning of public health policies very difficult.

The present study showed that the level of participant's awareness about oral cancer was alarmingly low, with only 37.7% had heard of oral cancer. This figure is lower to that reported in previous studies in Jordan (45.6%) [17], Turkey (48.9)[18], Saudi Arabia (53.6%) [19], Portugal (68.6%) [16], Malaysia (84.2%) [3], Sudan (85.6%) [2], India (91.2%)[15], Nigeria (72%) [20] and USA (84.5%) [21]. Countries in our region, having high prevalence of oral cancer, report higher level of public awareness. The fact that most of our study patient had not even heard of oral cancer shows the current lack of public health education programs focusing on this type of cancer.

Several socioeconomic factors may affect public awareness and knowledge. Several studies have reported that younger respondents were more aware and had higher knowledge as compared to older individuals which is comparable with the results of current

study[3,4,15,22,23,24,25]. This may be due to the fact that the younger generations had greater media exposure.

As for the difference in awareness/knowledge between both the gender, males scored better and the results are similar to other studies[24,25]. Few studies have reported females to be more aware regarding cancer[3,15]. Few studies suggest no relation among gender with their level of knowledge[4,19]. Better awareness among males in current study may be attributed to the vast anti-cancer campaign on the cigarette packs as smoking is more prevalent among males than in females in Pakistan.

A significant difference in awareness/knowledge was observed between the urban and rural population with the former scoring significantly better. This finding is similar to another study conducted in India [15].

It was observed that the awareness/knowledge scores among the various education groups was significantly more for those respondents whose education level was more than secondary school and lower among respondents who were illiterate or had only primary school education. This finding is consistent with the result of many other studies[3,4,15,19,23,24,25].

CONCLUSION

The overall awareness and knowledge regarding oral cancer was quite low in the participants of this study. Thus, educational programs on the national level are needed for the public such as mass media television programs, newspaper and radio advertisements. Brochures containing information regarding the early warning signs/symptoms, risk factors, harms of smoking, betel quid and alcohol should be distributed as well. Dentists can also play a key role by updating their patients to address the problems in awareness and knowledge as identified in this study

Author's Contribution:

Concept & Design of Study:	Abdul Razzaq Ahmad
Drafting:	Muhammad Usman Muneer
Data Analysis:	Sikander Bajwa, Aleena Chaudhary
Revisiting Critically:	Abdul Razzaq Ahmad, Muhammad Usman Muneer
Final Approval of version:	Abdul Razzaq Ahmad

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

The Impact of Seminal Zinc on Sperm Morphology in Infertile Pakistani Patients

Mohammad Shoaib Khan[1], Rafat Ullah[2] and Muhammad Ashraf[3]

ABSTRACT

Objective: The present study was designed to assess the impact of seminal Zinc on sperm morphological abnormalities in infertile patients.

Study Design: Descriptive analytical study

Place and Duration of Study: This study was conducted at the Department of Reproductive physiology/Health, Public Health Laboratories Division, National Institute of Health, Islamabad and compiled in the Department of Biochemistry, Bannu Medical College, Bannu from March 2016 to March 2017.

Materials and Methods: Total 1181 subjects were included in the study, out of which 353, 535, 159, 37 were oligozoospermic, asthenozoospermic, oligoasthenozoospermic, teratozoospermic, along 97 proven fathers as control.

Results: The results of the study showed that seminal zinc was 598.48 ± 12.95, 617.54± 9.55, 542.29± 22.75, 710.36± 7.87, and 762.06± 8.99 in oligozoospermic, asthenozoospermic, oligoasthenozoospermic, teratozoospermic, and proven fathers groups respectively, while, head, neck & tail defects in these groups were 26.42□0.97, 6.64□0.41 & 6.60□0.35, 23.40□0.86, .4.86□0.29, & 8.89□□0.49, 31.69□1.47, 10.82□0.73 & 8.49□0.62, 75.43□2.99, 4.32□0.89 & 10.08□1.39, 11.32□0.87, 1.92□0.23, & 4.24□0.62 respectively, showing significant ($p<0.05$) decline trend in seminal Zinc level whenever, the overall sperm abnormalities gets increased. Out of sperm abnormalities among these groups, the head abnormalities are more prominent as compared to neck & tail defects

Conclusion: It is concluded, that decrease level of seminal Zinc, not only causes hypogonadism, and arrest of spermatogenesis, but also affect the quality and quantity of sperms, and ultimately leads to male infertility.

Key Words: Semen Zinc, sperm morphology, male infertile patients.

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INTRODUCTION

Adult human being contains 1400 – 2300 mg of zinc normally, and plays a vital role in normal testicular development, spermatogenesis and sperm motility[1] and has been reported to be an essential cofactor for more than 200 metallo-enzymes in a variety of animal species[2]. zinc, the most crucial trace element for male sexual function is involved in male reproduction[3,4,] and its deficiency has been documented with male infertility. Deficiency of zinc occurring in certain diseases had also been reported to affect adversely testicular function[5-6].

Complete Semen analysis is a keystone in the clinical workup of the infertile patient. The physiological state that represents a low sperm concentration of less than 20 million/ml is referred as oligozoospermia

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The oligozoospermia can further be classified into mild oligozoospermia (10-20 million/ml), moderate oligozoospermia (5-10 million/ml) and severe oligozoospermia (1-5 million/ml), motility less than 50% is asthenozoospermia, sperms having disturbed morphology of more than 30% of normal is called teratozoospermia, while the semen sample having progressive activity more than 25 percent (overall motility>50%) with sperm concentration within the range of 20 to 250 million/ml were classified as normozoospermia[7].

Sperm morphology is assessed routinely as part of standard laboratory analysis in the diagnosis of human male infertility and it is evident that sperm morphology is significantly different in fertile compared to infertile man. There is an ongoing debate on which criteria should be applied to define normal spermatozoa and which classification of abnormal forms is most appropriate. The definition of a normal spermatozoon as described by World health Organization (WHO) in 1992 is different from that used by other authors[8-9]. The evaluation of the morphology of human spermatozoa varies widely between and sometimes even within laboratories. Standardized analysis is difficult because of the use of different staining techniques, which are not always suitable for optimal examination from head to tail[10].

In certain cases of unexplained infertility where, both male and female partners of the infertile couple present a normal picture; six variables, i.e, age of the women, history of pelvic surgery, duration of menstrual cycles, types of infertility, duration of infertility and sperm morphology are responsible for infertility [(11)]. Among these, only sperm morphology is a male factor variable. So, the present study was designed to assess the impact of seminal zinc on sperm morphology in infertile patients, as by searching literature survey, on the role of seminal zinc with sperm morphology in infertile patients, very few studies have been searched on the mentioned topic.

MATERIALS AND METHODS

The present Descriptive analytical study was carried out in the Department of Reproductive physiology/Health, Public Health Laboratories Division, National Institute of Health, Islamabad, and compiled in the Department of Biochemistry, Bannu Medical College, Bannu from March 2016 to March 2017.

Sample size: Total 1181 subjects were included in the study, out of which 353, 535, 159, 37 were oligozoospermic, asthenozoospermic, oligoasthenozoospermic, teratozoospermic, along 97 proven fathers as control.

Inclusion & Exclusion criteria: Patients with primary and secondary infertile males without treatment and having no relatable cause of male infertility were included in the study. While, the subjects, who had undergone pelvic surgery or hernia, repair, patients with diabetes mellitus, thyroid disease and subjects who were on medicine were not included in this study.

Semen examination: Semen examination of the patients was carried out according to the standardized method of the world's Health Organization [(12)].

Determination of Seminal Zinc: Seminal Zinc was estimated by colour 5 Br.PAPS method using order No. ZF 01000050 obtained from centronic GmbH-Germany[13].

Statistical analysis: Statistical analyses were performed by using SPSS (Version 16.0 for windows) software, and the results are presented in the form of table and graphs.

RESULTS

The results of the study are tabulated at table 1 and figure 1.

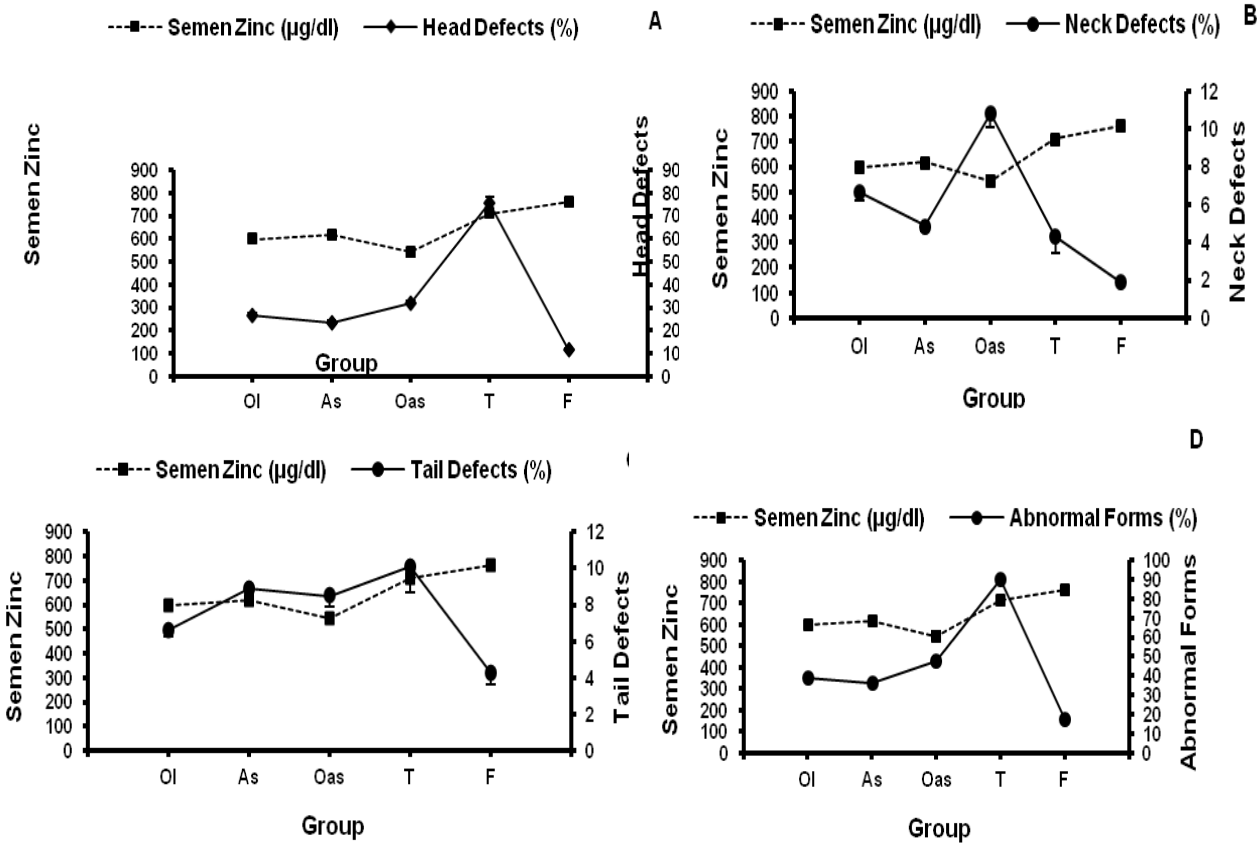

Figure No.1: Serum Zinc details

Table No.1: Semen morphology in relation to Semen Zinc levels. Means sharing a common letter do not differ significantly, others differ significantly (p < 0.05).

Group	N	Semen Zinc (µg/dl)	Head Defects (%)	Neck Defects (%)	Tail Defects (%)	Abnormal Forms(%)
Ol	353	598.48 □ 12.95 b	26.42 □ 0.97 b	6.64 □ 0.41 B	6.60 □ 0.35 b	38.54 □ 1.22 B
As	535	617.54 □ 9.55 bc	23.40 □ 0.86 c	4.86 □ 0.29 C	8.89 □ 0.49 c	36.46 □ 1.00 Bc
Oas	159	542.29 □ 22.75 d	31.69 □ 1.47 d	10.82 □ 0.73 D	8.49 □ 0.62 cd	47.79 □ 1.76 D
T	37	710.36 □ 7.87 ae	75.43 □ 2.99 e	4.32 □ 0.89 ce	10.08 □ 1.39 cde	89.84 □ 1.29 E
F	97	762.06 □ 8.99 g	11.32 □ 0.87 f	1.92 □ 0.23 H	4.24 □ 0.62 fg	17.46 □ 0.00 H

The results of the study showed that seminal zinc was 598.48 ± 12.95, 617.54± 9.55, 542.29± 22.75, 710.36± 7.87, and 762.06± 8.99 in oligozoospermic, asthenozoospermic, oligoasthenozoospermic, teratozoospermic, and proven fathers group respectively, while, head, neck & tail defects in these groups were 26.42□0.97, 6.64□0.41 & 6.60□0.35, 23.40□0.86, 4.86□0.29, & 8.89□□0.49, 31.69□1.47, 10.82□0.73 & 8.49□0.62, 75.43□2.99, 4.32□0.89 & 10.08□1.39, 11.32□0.87, 1.92□0.23, & 4.24□0.62 respectively, showing significant($p<0.05$)decline trend in seminal Zinc level whenever, the overall sperm abnormalities gets increased.

Out of sperm abnormalities among these groups, the head abnormalities are more prominent as compared to neck & tail defects. Moreover, highest values were recorded in cases of proven fathers, where normal sperm morphology of more than 80% were noted, and low levels of semen zinc were noted in all other groups having disturbed morphology.

DISCUSSION

The association between semen morphology and male infertility has been known for more than half decade. Having reviewed the literature, it seems clear that strict morphology has a clinical relevance, being an excellent biomarker of sperm fertilizing capacity, in vivo and in vitro, independent of motility and concentration[14]. Sperm morphology evaluation is considered to be a highly subjective procedure because, unlike the blood cells, it is difficult to classify sperm morphology because of the existence of large variety of abnormal forms found in the semen of infertile and fertile men, in which, only certain types of sperm abnormality are of clinical interest[10]. Sperm aberrations mainly occur during either production of sperm or during the storage of sperms in the epididymus. In epididymal dysfunction and in frequent ejaculations, the increased number of immature spermatozoa has been reported. Similarly, large number of spermatozoa with tapered head, cytoplasmic droplets and bent tail are found in cases of varicocele[15], whereas in the present study, 37 (3.13%) patients with teratozoospermia was found, having predominantly head defect abnormalities.

Testicular hypofunction due to zinc deficiency was characterized by decreased function of the leydig cells causing decreased serum androgens, increase serum gonadotrophin which resulted oligozoospermia, in animals and human subjects,[5,16]. Furthermore, zinc supplementation has been used to increase plasma testosterone level and sperm count in infertile males[16-17]. Our results showed that more sperm morphological abnormalities were recorded in patients where low level of seminal zinc were found, which can be seen in oligoasthenozoospermic, asthenozoospermic and oligozoospermic groups, with, some exception in teratozoospermic group.

Gonadotropins output and consequent fall of androgen production, with altered sperm morphology have been documented in dietary zinc deficient male rats. Clinical studies with adult males experimentally deprived of zinc showed decrease leydig cell synthesis[17,18]. It is well documented that zinc has a marked inhibitory effect upon the respiratory chain of isolated mitochondria [(19)] and inhibit electron transport, and perhaps affect sperm morphology.

In this study, low levels of semen zinc with altered sperm morphology was obtained in cases of teratozoospermia, asthenozoospermia and oligoasthenozoospermia, which are similar findings to other earlier study, in which when 107 infertile men & 103 fertile men were compared, it was found that except semen volume, all the other semen parameters of infertile men were significantly lower than those of fertile group and the geometric means of the seminal plasma zinc concentrations were significantly lower in the infertile group compared with those in the fertile group[20]. Similarly, a significant ($p<0.01$) inverse correlation was observed between zinc and sperm count[21] and morphology[22,] which is an agreement to our study.

Comparing values of semen zinc in various groups, the results of the study showed that highest values were recorded in cases of proven fathers, where normal sperm morphology (>80%) were noted with respect to other groups, whereas, low levels of semen zinc were noted having disturbed morphology and semen zinc levels of all groups varied significantly ($p<0.05$) with proven fathers. When semen zinc relation with respect to sperm abnormalities of head, neck and tail defects in various infertile groups were compared, it was seen, that semen zinc showing significant($p<0.05$) decline trend whenever, the overall sperm abnormalities gets increased. The decrease was correlated more with the head abnormalities in these groups. Comparing the low values of semen zinc with respect to head abnormalities

within the various groups, it was noted that it decreased more in teratozoospermia followed by oligozoospermia and then asthenozoospermia respectively, while, in cases of neck abnormalities; it was decreased more in oligozoospermic and oligoasthenozoospermic patients. Similarly, more prominent tail abnormalities were noted in terato, oligoastheno & asthenozoospermic groups respectively.

CONCLUSION

In conclusion, it has been observed in our study that decreased concentration of seminal zinc do affect the sperm morphology also, besides its established role in reproduction, particularly sperm count and sperm motility, which is evident from these results that there is decline trend in seminal zinc, whenever, the overall sperm morphology gets disturbed. So, it is concluded that the measurement of seminal zinc level, may be considered as useful marker in male infertile patients having disturbed morphology, in addition to other parameters in assessing male infertility.

Author's Contribution:

Concept & Design of Study:	Mohammad Shoaib Khan
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Original Article

Frequency and Clinico Pathological Features of Diffuse Large B Cell Lymphoma - A Tertiary Care Center Experience

Ambareen Hamid[1], Sobia Ashraf[1], Muhammad Azhar Farooq[2] and Adil Iqbal[3]

ABSTRACT

Objective: To determine the frequency and study the clinicopaological features of DLBCL.
Study Design: Descriptive study
Place and Duration of Study: This study was conducted at the Department of Pathology, King Edward Medical University , Lahore from 2013 to 2017.
Materials and Methods: One hundred and seventy two consecutive cases of Non Hodgkins lymphoma referred for bone marrow biopsy were enrolled in the study. All the cases were diagnosed on histological biopsies. The patients receiving chemotherapy or radiotherapy were excluded from the study.
Results: Out of 172 patients 05 (2.9%) had T cell NHL and 167 (97.1%) had B cell lymphoma. Out of these B cell NHL 46 (26.7%) cases were of diffuse large B cell lymphoma. Cytopenias were observed in 32.6 % of patients. In 13 % patients bone marrow was infiltrated. The pattern of infiltration was diffuse.
Conclusion: DLBCL is a frequently presenting aggressive NHL having hcetrogenous clinical behavior.

Key Words: Clinico Pathological Features, Diffuse Large B Cell, Lymphoma

Citation of articles: Hamid A, Ashraf S, Farooq MZ, Iqbal A. Frequency and Clinico Pathological Features of Diffuse Large B Cell Lymphoma - A Tertiary Care Center Experience. Med Forum 2018;29(7):16-19.

INTRODUCTION

Lymphomas are group of malignancies arising from the lymphoid system. The term lymphoma is used when the primary site of origin is out of bone marrow. Lymphomas are broadly classified into Hodgkin Lymphoma (HL) and Non Hodgkin Lymphoma (NHL). Collectively, lymphoid neoplasms are the fourth most common cancer and the sixth leading cause of cancer death in the United States. The lymphoma comprise 3.37% of all malignant neoplasms and the incidence of malignant lymphoma around the world has been increasing at a rate of 3-4% over the last 4 decades.[1,2]

Diffuse large B cell lymphoma (DLBCL) is the most common histologic subtype of nonHodgkin lymphoma (NHL) accounting for approximately 25 percent of NHL cases.[2]. The diagnostic category of "DLBCL" is quite heterogeneous in terms of morphology, genetics, and biologic behavior and a number of subcategories are included in the revised 2017 World Health Organization (WHO) classification.[3]

DLBCL is a malignancy of large B lymphocytes. Common cell of origin is germinal centre centroblast in 80% of cases, immunoblast in 10% of cases. Other morphologic variants include the T-Cell–Rich/ Histiocyte-Rich variant which has a prominent background of reactive T cells and histiocytes, anaplastic type, where the cells are morphologically similar to those of T/null ALCL while Plasmablastic DLBCL, a very uncommon subtype, often occurs in HIV-positive patients.

A variety of chromosomal alterations have been detected in DLBCL. The most common abnormality involves alterations of the BCL-6 gene at the 3q27 locus, which is critical for germinal center formation. A substantial number of cases of DLBCL have complex karyotypes.[4]

In the majority of cases, patients present with either a nodal or extranodal mass lesion. At diagnosis, DLBCL involves the bone marrow in approximately 15-25% of cases. However, the bone marrow may reveal discordant morphology from the lymph node, usually in indolent lymphoma[5]. DLBCL is an aggressive tumor, the second most common lymphoma to secondarily involve the marrow, comprising 16% of bone marrow biopsies infiltrated by NHL at one institution[6].

MATERIALS AND METHODS

This descriptive study was conducted in Department of Pathology, King Edward Medical University, Lahore from 2013 to 2017. One hundred and seventy two consecutive cases of Non Hodgkins lymphoma referred for bone marrow biopsy were enrolled in the study. All the cases were diagnosed on histological biopsies. The patients receiving chemotherapy or radiotherapy were excluded from the study.

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Data Collection and Analysis: After informed consent the socio demographic information was entered on the specially designed proforma. The clinical data regarding site of involvement, organomegaly was noted. Bone marrow aspiration and trephine biopsy was performed according to standard protocol. Bone marrow aspirate smears were stained by Giemsa Wright stain. Trephine was decalcified and the paraffin embedded sections were prepared. Histological sections were stained with haematoxylin and eosin. Bone marrow aspirate and trephine biopsy were examine for infiltration of marrow, its pattern and any other significant finding. The data was analysed and expressed as frequency and perectages using IBM SPSS version 20.

RESULTS

A total of consecutive one hundred and seventy two biopsy proven non hodgkins lymphoma (NHL) patients referred for bone marrow biopsy were included in the study. Out of these 172 patients 05 (2.9%) had T cell NHL and 167(97.1%) had B cell lymphoma. Out of these B cell NHL 46 (26.7%) cases were of diffuse large B cell lymphoma. In these 46 patients of DLBCL 34 were male and 12 were female (male to female ratio 2.8 1. (figure 1).

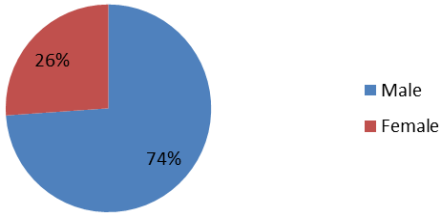

Figure No.1: Gender distribution

Figure 1: Gender distribution in patients of DLBCL Age ranged from 18-80 years and peak age group was seventh decade followed by 6th decade..(figure 2)

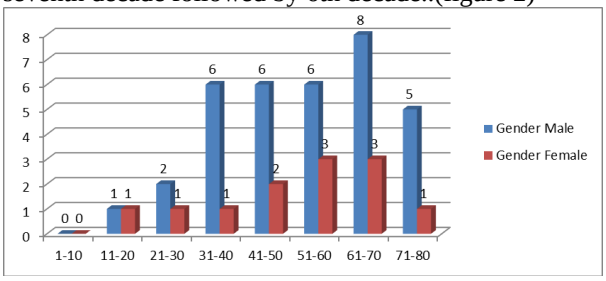

Figure No.2 : Age and gender distribution in patients of DLBCL

The primary site of involvement was nodal in 41 patients (89%) and extra nodal in 05 (11%) patients. Cervical, axillary, 4attern4i4lar and supraclavicular were enlarged in majority of patients (35 patients – 76%), inguinal lymph nodes in 02 patients (04 %) and para aortic in 04 patients (08 %).

We also examined the patients for organomegaly. Spleen was enlarged in 04 patients. No other organ involvement was found in rest of patients. Cytopenias were observed in 15 (32.6 %) patients, 14 had anemia only while 1 patient had both anemia and thrombo-cytopenia. Bone marrow was performed to see infiltration of marrow. (Table 1)

Table No.1: Morphological findings of Bone marrow in DLBCL

Bone marrow infiltration						Total
Present (n= 06)				Absent n= (40)		
Pattern of infiltration				Reactive lymph follicles		
Diffuse	Focal	Interstitial	Paratra-becular	Present	Absent	
06 (13%)	0	0	0	03 (6.5%)	37 (80.5%)	46

DISCUSSION

NHL is a heterogeneous neoplasm considering clinical presentation, its response to therapy and outcome of disease. The DLBCL, a morphological subtype of non 5attern's lymphoma exhibits significant heterogeneity pertaining to the underlying genetics, morphological pattern, immunophenotypes and clinical expression. Therefore, there is variation in both response to treatment as well as the prognosis of disease.[7] It is an aggressive tumour. The 5 year survival with current standard chemotherapy is estimated to be 60 – 70 %.[8]

This study was conducted to determine the frequency of DLBCL and study its clinio pathological features. A total of 172 patients of biopsy proven non hodkins lymphoma were enrolled in the study. Majority of our patients presented in 7th decade. Nagi et al in a study on non hodgkins lymphoma found that most of the patients presented in 5th – 7th decades with the mean age being 43.2 years.[9] Uzma et al found that the mean age of presentation of patients of NHL was 46.7 years[10]. In a study conducted by Sultan et al it was seen that the mean age was 48.5 ± 16.0 years with the median age of 50 years.[11] Bajwa et al found Mean age at presentation was 54.66 ±16.73 years in cases of lymphoma.[12] In our study the age of patients of DLBCL, a subset of NHL ranged from 14 to 80 years with a mean age of 53.6 years. The wide range of age at first presentation is attributed to the diverse genetics and morphological subtypes[7,8].

The male to female ratio was 2 8:1. In a study conducted by Bajwa et al found a male to female ratio of 5:1[12]. Naz E et al found a male to female ratio of 2.6:1 in sixty two patients of non hodgkins lymphoma[13]

In the modern era of medicine, underdeveloped countries like Pakistan still face economic constraints. The less presentation of females can partly be explained by less health care facilities available to females.

Sultan et al conducted a study on 184 patients of non hodgkins lymphoma and found out that B cell

lymphoms were more common than T cell lymphoma.[11] The study conducted by Naz E e tal revealed that B cell NHL were 85.5 % as compared to 14.5 % of T cell lymphoma[13]. The findings of our study are in concordance with theses local studies, showing a percentage of 97 of B cell NHL .

We found in that 26.7 % of patients. had DLBCL 28 patients of NHL were broadly classified as B cell NHL. Further catagarization was not done due to financial constraints. The exact percentage of DLBCL may be higher. The studies conducted in this region mostly report a higher frequency of DLBCL. In a study by Nawaz et al, the reported percentage is 55 %.[14] Whang C et al. found that the most common subtype of NHL was diffuse large B-cell lymphoma (55.0%)[15] In a study Sultan et al found that Diffuse large B-cell lymphoma constituted major subtype, in 67.9% of cases.[16] Aggressive behavior of this neoplasm compels the patient to seek medical attention leading to its frequent presentation.

In our study anaemia was most frequent haemtological manifestation, presenting in 14 patients while anaemia and thrombocytopenia was present in only one patient. Cytokine release, anorexia leading to malnourishment and marrow infiltration and failure are all contributory factors towards development of cytopenias.

Majority of patients had nodal involvement at presentation. In our study most common site of involvement was lymph nodes above the diaphragm. In extra nodal site gastrointestinal tract was most commonly involved site. International studies show that gastrointestinal tract is the most common primary site of extranodal diffuse large B-cell lymphoma , and approximately one-third of extranodal DLBCL occurs in the GI tract.[17] The findings are consistent with recent studies conducted internationally in which they found out that most common extra nodal involvement is gastro intestinal tract in 32% and 34% patients respectively.[17,18,19]

Bone marrow infiltration reflects advance stage of disease. It is associated with poor prognosis in newly diagnosed cases of lymphoma. Bone marrow biopsy was done to stage the disease. In our study 06 (13%) patients had bone marrow infiltration at presentation. The pattern of infiltration was diffuse in all cases. These findings are similar to the results reported in international studies by Hantaweepant C, et al, and Vishnu P, et al, who found 12.2%, 13% of bone marrows involved by DLBCL at presentation respectively.[20,21]

CONCLUSION

Diffuse large B cell lymphoma is a frequently presenting non hodgkins lymphoma. Being an aggressive, tumor compels the patient to seek medical help at an earlier stage. .

Author's Contribution:

Concept & Design of Study:	Ambareen Hamid
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Data Analysis:	Muhammad Azhar Farooq, Adil Iqbal
Revisiting Critically:	Ambareen Hamid, Sobia Ashraf
Final Approval of version:	Ambareen Hamid

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Blood Culture Positivity in Acute Pyogenic Meningitis

Jan Muhammad Afridi, Yasir Rehman, Arshia Munir and Qamar Ali

ABSTRACT

Objective: To compare CSF Culture VS Blood Culture in 88 Patients Newly Diagnosed as Acute Septic Meningitis Admitted in Paediatrics Department KTH.

Study Design: Descriptive / cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Pediatrics, Khyber Teaching Hospital, Peshawar from June 2017 till December 2017.

Materials and Methods: 88 patients presenting with clinical signs and symptoms of acute septic meningitis were selected through non randomized convenient sampling. Before enrolling the patients informed consent was taken from the attendant. For every patient a proper record was maintained on a standardized proforma. Detailed history and examination was done with a special emphasis on signs and symptoms suggestive of meningitis were documented. Lumber puncture was performed under aseptic technique and samples were sent for analysis and culture to the Khyber Medical College Pathology Department. Where the CSF culture was performed by Beckitic Machine using special culture bottle and the results were received and interpreted.

Results: Out of 88 patients with meningitis 7 patients (7.9%) had positive CSF Culture. 10 patients had staphylococcus Epidermidis growth which was considered contamination. Out of 7 positive culture 3 patients (3.4%) had MRSA positive CSF Culture, 2 patients (2.2%) had Staphylococcus Aurius and 1 patient (1.1%) each had Streptococcus Pneumonie and E.Coli in CSF Culture.

Out of 88 patients with meningitis 6 patients (6.8%) had positive blood culture. 8 patients had staphylococcus Epidermidis growth which was considered contamination . Out of 6 positive culture 2 patients (2.2%) had MRSA positive blood Culture, 1 patient (1.1%) each had Staphylococcus Aurius,Streptococcus Pneumonie, Psudomonas and E.Coli in Blood Culture.

Conclusion: In our study it was found that MRSA is the commonest cause of septic meningitis comprising 3 (3.4%) patients followed by Staphylococcus Aurius in 2 (2.2%) and 1 (1.1%) patient each had Streptococcus Pneumonie and E.Coli. Similar results of blood culture were seen with commonest growth of MRSA found in 2 (2.2%) patients followed by 1 (1.1%) patient each of Staphylococcus Aurius,Streptococcus Pneumonie, Psudomonas and E.Coli .

Septic meningitis is a serious condition and inappropriate or delay in the management may result in serious fatal complications therefore aggressive and appropriate antibiotic therapy is vital for better outcome.

Key Words: Acute Pyogenic Meningitis, Cerebrospinal fluid (CSF)

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INTRODUCTION

Acute bacterial meningitis (ABM) is a life threatening illness that is prevalent worldwide. It is a medical emergency that needs early diagnosis and aggressive therapy. Despite advances in management and vaccination, bacterial meningitis remains a severe infection with high rate of mortality and long term neurological disabilities.[1] It has increased mortality and morbidity in the developing countries due to poor health facilities, poor living conditions and lack of access to appropriate preventive and curative services[2,3]. In recent years, despite improvements in Antimicrobial therapy and intensive care support, overall mortality rates related to bacterial meningitis is around 20 to 25 % reported by major centers.[4]

Early clinical suspicion and implementation of appropriate antimicrobial therapy are critical to minimize adverse outcomes, Therefore accurate diagnosis is necessary regarding the important etiological agents to ensure appropriate management.[5] As meningitis is a serious emergency, rapid examination of cerebrospinal fluid (CSF) is considered an essential and critical step in early diagnosis and management of the patients.[6] Blood culture is valuable to detect the causative organism and establish susceptibility patterns if CSF cultures have negative results or be unavailable. However, blood culture positivity differs for each causative organism.[7] Meningitis is mainly diagnosed on the basis of history,

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clinical examination and cerebrospinal fluid examination. Conventional culture methods, though gold standard diagnostic technique, cannot be relied upon in certain situations, due to delay in results availability and relatively limited bacterial growth on culture that is reported worldwide especially in situations where prior antimicrobial therapy was administered [8]. Accurate information on important etiologic agents and populations at risk is needed to determine public health measures and ensure appropriate management of acute bacterial meningitis.[9]

Most cases of bacterial meningitis occur in childhood and its pathogens are varied in different age groups. Streptococcus pneumoniae, Neisseria meningitidis, and Haemophilus influenzae type b are among the prevalent bacterial pathogens of this disease.[10] Introduction of Streptococcus pneumoniae and Haemophilus influenzae type b vaccines recently have changed the epidemiology of acute bacterial meningitis.[11] There has been a decrease in the incidence of H. influenzae type b and S. pneumoniae meningitis in countries where vaccination plan is generally performed against the two bacteria.[12]

MATERIALS AND METHODS

This study was conducted at department of pediatrics, Khyber teaching hospital, Peshawar from June 2017 till December 2017. A cross-sectional descriptive study design was used and 88 patients presenting with clinical signs and symptoms of acute septic meningitis were selected through non randomized convenient sampling. Before enrolling the patients informed consent was taken from the attendant. For every patient a proper record was maintained on a standardized proforma. Detailed history and examination was done with a special emphasis on signs and symptoms suggestive of meningitis were documented.

Lumber puncture was performed under aseptic technique and samples were sent for analysis and culture to the Khyber Medical College Pathology Department. Where the CSF culture was performed by Beckitic Machine using special culture bottle and the results were received and interpreted.

Inclusion criteria:

Patients age less than 15 years with clinical features suggestive of Acute Septic Meningitis.

Exclusion Criteria:

1. Patients more than 15 years of age,
2. Those who have taken IV Antibiotics in the last 24-48 hours.
3. Patients with TBM or Viral meningitis.

RESULTS

In our study Total 88 patients with clinical suspicion of meningitis were included out of which 7 patients (7.9%) had positive CSF Culture. 10 patients had staphylococcus Epidermidis growth which was considered contamination. Out of 7 positive culture 3 patients (3.4%) had MRSA positive CSF Culture, 2 patients (2.2%) had Staphylococcus Aureus and 1 patient (1.1%) each had Streptococcus Pneumoniae and E.Coli in CSF Culture.

All MRSA growths were sensitive to Linezolid and 2 to Vancomycin, while all were found resistant to Ciprofloxacin. Both S. Aureus growths were sensitive to Ciprofloxacin, Linezolid and Gentamycin while one was resistant to Clindamycin and other to Erythromycin and Levofloxacin. S. Pneumoniae was found sensitive to Vancomycin, Meropenem and Doxocycline while resistant to Amikacin, Clindamycin, Ciprofloxacin and Gentamycin. E. Coli growth was found to be sensitive to Amikacin, piperacillin/tazobactam and Meropenem while resistant to Cefotaxime, Ceftriaxone, Ciprofloxacin and Levofloxacin.

Out of 88 patients with meningitis 6 patients (6.8%) had positive blood culture. 8 patients had staphylococcus Epidermidis growth which was considered contamination . Out of 6 positive culture 2 patients (2.2%) had MRSA positive CSF Culture, 1 patient (1.1%) each had Staphylococcus Aurius,Streptococcus Pneumonie, Psudomonas and E.Coli in Blood Culture. MRSA growth was found sensitive to Vancomycine and Linezolide while resistant to Ciprofloxacin, Ceftriaxone and Cefotaxime. S. Aureus growth was sensitive to Ciprofloxacin, Linezolid and Gentamycin while resistant to Clindamycin,Erythromycin and Levofloxacin. S. Pneumoniae was found sensitive to Vancomycin and Meropenem while resistant to Amikacin, Clindamycin, Ciprofloxacin and Gentamycin. E. Coli growth was found to be sensitive to Amikacin, piperacillin/tazobactam and Meropenem while resistant to Cefotaxime, Ceftriaxone, Ciprofloxacin and Levofloxacin. Psudomonas was sensitive to Meropenem while resistant to all other antibiotics.

Out of 88 patients 42 (47.7%) were male and 46 (52.3%) were female and 3 (7.1%) and 4 (8.6%) patients were found culture positive respectively. 42 (47.7%) patients were below 1 year, 1-5 years and above 5 years patients were 23 (26.1%) in each group. 2 patients (2.2%) were culture positive in below 1 year age group while 4 (4.5%) and 1 (1.1%) patient from 1-5 years and above 5 years group respectively.

Fever was found to be the commonest finding in 84 (95.4%) patients, followed by fits in 44 (50%) patients, up going planters in 40 (45.4%) patients, neck stiffness in 32 (36.3%) and altered sensorium in 27 (30.6%) patients.

Table 1 and Bar Graph1 showing percentages of organisms isolated from CSF and Blood culture.

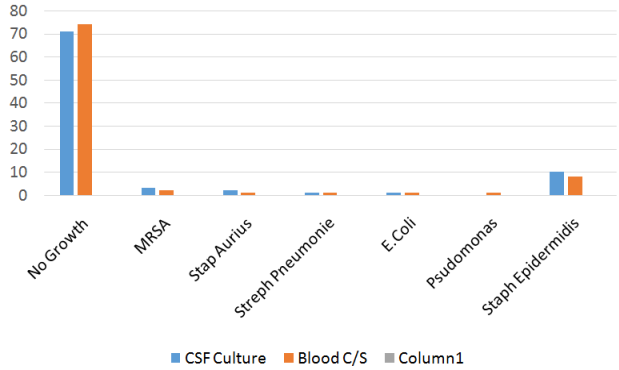
Table 2 and Bar Graph 2 showing gender wise distribution.

Table 3 and Bar Graph 3 showing age wise distribution.

Table 4 and Pie Chart 1 showing Clinical Presentation.

Table No.1: Percentages of organisms isolated from CSF and Blood culture

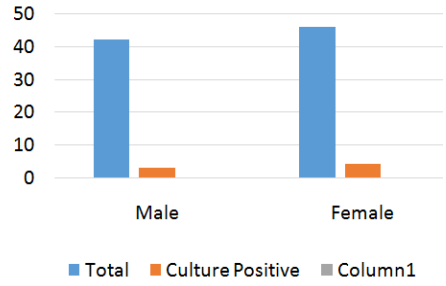
Organisms	CSF C/S	Blood C/S
No Growth	71 (80.6%)	74 (84%)
MRSA	3 (3.4%)	2 (2.2%)
Stap Aurius	2 (2.2%)	1 (1.1%)
Streph Pneumonie	1 (1.1%)	1 (1.1%)
E.Coli	1 (1.1%)	1 (1.1%)
Psudomonas	0	1 (1.1%)
Staph Epidermidis	10 (11.3%)	8 (9%)



Bar Graph No. 1: Percentages of organisms isolated from CSF and Blood culture

Table No.2: Gender wise distribution

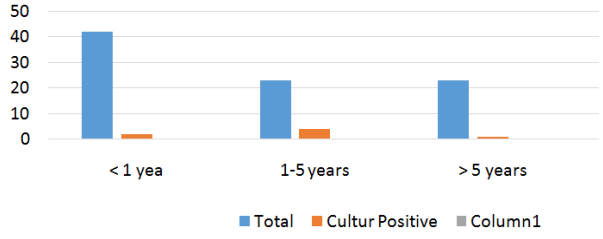
Gender	Total	Culture Positive
Male	42	3
Female	46	4



Bar Graph No. 2: Gender wise distribution

Table No.3: Age wise distribution

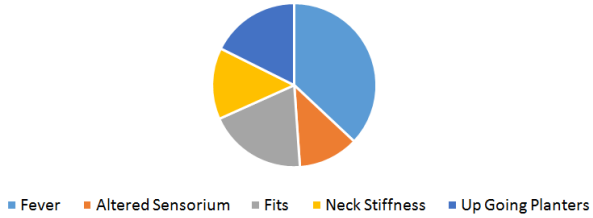
Age Group	Total	C/S Positive
<1 year	42	2
1-5 years	23	4
>5 years	23	1



Bar Graph No.3: Age wise distribution

Table No.4: Clinical Presentation

Presenting Complaints	**No of Patients (%age)**
Fever	84 (95.4%)
Altered sensorium	27 (30.6%)
Fits	44 (50%)
Neck Stiffness	32 (36.3%)
Up Going Planters	40 (45.4%)



Pie Chart 1: Clinical Presentation

DISCUSSION

Bacterial meningitis, an infection of the membranes (meninges) and cerebrospinal fluid (CSF) surrounding the brain and spinal cord, is a major cause of death and disability worldwide[13]. The mortality rate of acute bacterial meningitis remains significantly high in developing countries and is found to be around 16-32% [14,15].

The current standard for the identification of bacterial meningitis in developing countries remains to be microscopic examination and consequent culture of CSF.[16]

In our study a total of 7.9% patients had culture positive CSF while its reported to be 13.7% by Attia et al[17] and 6.7% by Maleeha et al[18]. In our study the commonest organism isolated was MRSA (3.4%) followed by Staph Aurius (2.2%), Staph Pneumonia (1.1%) and E. coli (1.1%) in contrast to coagulase negative staphylococci (5.5%), S.Pneumoniae (2.5%) and H. Influenzae (1%) by Attia et al [17] while in another study Staph Pneumoniae (1.5%), E. coli (1%) and coagulase negative staphylococci (1%) were reported by Maleeha et al [18].

Blood cultures should be performed in all the patients with suspected meningitis. Blood culture reveals the responsible bacteria in up to 80-90% of cases of meningitis.[19] In our study 85.4% blood culture correlated with CSF culture. In our study Out of 6 positive culture 2 patients (2.2%) had MRSA positive blood Culture, 1 patient (1.1%) each had Staphylococcus Aurius, Streptococcus Pneumonie, Psudomonas and E. Coli in Blood Culture, while another study by kalpana et al enterococcus was reported to be positive in 2 (1.4%) patients followed by Pseudomonas and E. coli in 1 (0.7%) Patients each.[20]

In our study 47.7% patients were below 1 year age which is similar to a study conducted by Dharubajjoti et al which reported 46.8% of hospitalized children with meningitis below 1 year while it has been reported 68.3% by Attia et al.[17,21].

In our study 47.7% patients were male while 52.3% patients were female, in contrast to 63.8 % male and 36.2 % female reported by Attia et al while Rajani et al reported 55.2 % males and 44.8 % females.[17,22]

In our study Fever was found to be the commonest finding in 84 (95.4%) patients, followed by fits in 44 (50%) patients, up going planters in 40 (45.4%) patients, neck stiffness in 32 (36.3%) and altered sensorium in 27 (30.6%) patients, while another study by Fahmi Y K et al reported fever in 94% patients, fits in 19.7%, neck stiffness in 26.5%, and altered sensorium in 47% patients [23].

CONCLUSION

In our study it was found that there is a change in pattern of organisms involved in causing acute bacterial meningitis in children at Peshawar. MRSA is the commonest organism which was sensitive to Lenziolid more than Vancomycine and children below 1 year age were the most effected age group. Fever and fits were found to be the commonest presenting complaints.

Recommendations: Patients received with fever, altered sensorium, fits and the clinical signs suggestive of meningitis mentioned above should be hospitalized, Antibiotic cover for meningitis is to be started immediately, cerebrospinal fluid routine examination and blood culture should be sent urgently to avoid the complications of meningitis.

Author's Contribution:

Concept & Design of Study:	Jan Muhammad Afridi
Drafting:	Yasir Rehman
Data Analysis:	Arshia Munir, Qamar Ali
Revisiting Critically:	Jan Muhammad Afridi, Yasir Rehman
Final Approval of version:	Jan Muhammad Afridi

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Gender Influence on Clinical and Electrophysiological Manifestations of Guillain-Barre Syndrome (GBS), and Response to Treatment

Maryam Javed, Usman Ali Khan, Fatima Javed, Raja Zaigham Abbas and Muhammad Athar Javed

ABSTRACT

Objective: To study the gender influence on clinical and electrophysiological manifestations and response to treatment.

Study Design: Retrospective / cross sectional study

Place and Duration of Study: This study was conducted at the Neurology Department of Mayo Hospital Lahore for a period of seven months from October 2017 till April 2018.

Materials and Methods: Patients fulfilling the Asbury and CornBlath's Criteria for diagnosis of GBS were included in the study. Subtypes or variants of GBS were identified according to our defined operational definitions. All patients who showed progression of disease were treated with five sessions of plasmapharesis performed over 10 days. Clinical features, muscle power strength on admission and NCS/EMG and CSF findings and duration of hospital stay required for one grade improvement in MRC scale before discharge results were recorded on a specified proforma designed for this study. The results were analyzed using IBM SPSS version.

Results: Twenty nine (29) patients fulfilling the Asbury and CornBlath's Criteria for diagnosis of GBS were included in the study. There were 19 males and 10 females with M: F of 1.9:1. The mean age for male group (n=19) was 39(+16.92) with range 15 to 75 years. The mean age for female group (n=10) was 32.30(+8.05) with range 6 to 41 years. The mean muscle power in limbs on admission according to MRC grading in female group was 1.50 (+1.354) compared with mean muscle power in male group of 2.50 (+1.150). The various subtypes of GBS in male group were AMSAN 52.63% (10 out of 19 patients), AIDP 36.84% (7out of 19 patients) and AMAN 5.2% (one patient). In comparison AIDP was most common 70% (7 out of 10 patients) variant of GBS in the female group followed by AMSAN 30% and AMAN 10%. The respiratory distress requiring ventilator support occurred in 15% (3 out of 19) of male patients compared with none in female group. Bilateral facial weakness was seen in 26% (5 out of 19) male patients compared with 30% in female group. Dysphagia occurred in 21% (4 out 0f 19) in male group compared with 10% (1 put of 10) in female group. All patients with progression of disease after admission to hospital were treated with alternate day sessions of plasmapharesis for a total five sessions. For the male group mean duration of hospital stay for improvement in muscle power of limbs according to MRC grade of one from the baseline before discharge was 11.63(+ 12.584) days with range from 2-45 days. In comparison the mean duration of hospital stay for female group was 20.10 (+ 8.749) days with range from 3-30 days.

Conclusion: In conclusion our study confirms significant gender influence on the clinical and electrophysiological manifestations of Guillain-Barre syndrome (GBS), and response to treatment. AMSAN was most common subtype in males and AIDP in females. Limb weakness was severe in female on admission and required prolonged hospital stay compared with males. Bilateral facial weakness, dysphagia and respiratory involvement were more common in males. This study has small sample size and larger studies are needed to confirm our findings.

Key Words: Guillain-Barré syndrome, Gender, Male, female, muscle weakness, areflexic

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INTRODUCTION

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Guillain-Barre Syndrome is a group of autoimmune disorders of the peripheral nervous system characterized by rapidly progressing polyradiculoneuropathy.[1] The aberrant auto-immune response consistent with the disease process is usually triggered by a preceding infection of the respiratory or gastrointestinal tract.[2] Infectious agents with a recognized role in disease pathogenesis include Campylobacter jejuni, Cytomegalovirus (CMV), Mycoplasma pneumonia, Ebstein Barr Virus and

Influenza Virus.[3] Classic clinical presentation of GBS is sudden onset progressive symmetrical motor weakness with loss or diminution of deep tendon reflexes.[4] Clinical nadir is reached in 90% of patients by four weeks. Bulbar palsy, facial palsy, ophthalmoplegia may occur secondary to cranial neuropathies with one- third of patients requiring mechanical ventilation due to paralysis of diaphragm.[1, 5] Epidemiological studies on GBS estimate the average global annual incidence rate of the disease to be 1.1-1.8 cases per 100000 population. [6, 7, 8] Incidence of disease is seen to increase linearly with age; adults being affected more frequently than children. [6, 7] An approximate male to female preponderance of 3:2 has been appreciated. [6, 9]

While the diagnosis of GBS is made on clinical grounds, electro-diagnostic studies are essential for predicting prognosis and for classifying the disease into its distinct variants.[10] GBS has three common subtypes: Acute inflammatory demyelinating neuropathy (AIDP), acute motor axonal neuropathy (AMAN) and acute motor sensory axonal neuropathy (AMSAN). Predominant subtype varies geographically; AIDP is more prevalent in Europe and North America while AMAN is the common form in East Asia.[10, 11]

Being an autoimmune disease, the impact of gender in defining clinical picture of Guillain-Barre Syndrome should be significant.[10] Yet, of the innumerable studies conducted on GBS, little has been done to investigate the degree of sex influence on the presentation of GBS and electrophysiological pattern. The objective of this study was to ascertain the role of gender, if any, on the clinical and electrophysiological manifestations of GBS, and response to treatment.

MATERIALS AND METHODS

This was a retrospective cross sectional study designed to see Gender influence on Clinical and electrophysiological manifestations in patients presenting with Guillain-Barre Syndrome (GBS). The study was conducted at the Neurology Department of Mayo Hospital Lahore for a period of seven months from October 2017 till April 2018. Medical records of the patients with clinical diagnosis of GBS were reviewed. A special proforma was designed to record clinical features, demographic details, nerve conduction findings, CSF abnormalities and duration of hospital stay required for one grade improvement in muscle power of limbs as per MRC scale before discharge.

Patients fulfilling the Asbury and CornBlath's Criteria for diagnosis of GBS were included in the study.[12] Features necessary for diagnosis included progressive motor weakness of both lower and upper limbs which developed over few days to 4 weeks associated with areflexia. Other supportive diagnostic features were abnormal nerve conduction studies consistent with various types of GBS and CSF cytoalbuminologic dissociation. Diagnosis was excluded in the presence of any one of the following features; recent history of hexacarbon abuse, abnormal porphyrin metabolism, recent diphtheritic infections, lead neuropathy with evidence of lead intoxication, purely sensory syndromes or a definitive diagnosis of similar conditions: poliomyelitis, botulism, hysterical paralysis, toxic, metabolic, drug induced or vasculitic neuropathy.[12] Patients with paraneoplastic or paraproteinemic neuropathy were also excluded from the study.

Assessment of Motor weakness of the upper and lower limbs was made using the MRC scale for muscle power (Table 1)[13]. The lowest power grade for any of the four limbs was then used for comparative purposes.

Duration of hospital stay was taken as number of days spent in hospital required for at least one grade improvement in muscle power according to MRC scale. Response to treatment was considered negative with a decrease in the MRC power grade by one or more points. Assessment of cranial nerve involvement was made on purely clinical grounds.

Electrophysiological classification into distinct subgroups was done using the suggested electrodiagnostic protocols[14]. Criteria used for classification into AIDP, AMAN, and AMSAN is as follows[15].

AIDP: At least one of the following in each of at least two nerves, or at least two of the following in one nerve if all others inexcitable and distal compound muscle action potential (dCMAP) >10% lower limit of normal (LLN).

- Motor conduction velocity<90% LLN (85% if dCAMP <50% LLN)
- Distal motor latency >110% upper limit of normal (ULN) (>120% if dCMAP <100% LLN)
- pCMAP/dCMAP ratio <0.5 and dCMAP >20% LLN
- F-response latency >120% ULN

AMAN:

- None of the features of AIDP except one demyelinating feature allowed in one nerve if dCMAP <10% LLN
- Sensory action potential amplitudes normal.

AMSAN:

- None of the features of AIDP except one demyelinating feature allowed in one nerve if dCMAP <10% LLN.
- Sensory action potential amplitudes less than LLN.

RESULTS

Twenty nine (29) patients fulfilling the Asbury and CornBlath's Criteria for diagnosis of GBS were included in the study There were 19 male and 10 female patients with M: F of 1.9:1.

The mean age for male group (n=19) was 39(+16.92) with range 15 to 75 years. The mean age for female group (n=10) was 32.30(+8.05) with range 6 to 41 years. The mean muscle power in limbs on admission according to MRC grading in female group was 1.50 (+1.354) compared with mean muscle power in male group of 2.50 (+1.150). The various subtypes of GBS in male group were AMSAN 52.63% (10 out of 19 patients), AIDP 36.84% (7out of 19 patients) and AMAN 5.2% (one patient). In comparison AIDP was most common 70% (7 out of 10 patients) variant of GBS in the female group followed by AMSAN 30% and AMAN 10%. The respiratory distress requiring ventilator support occurred in 15% (3 out of 19) of male patients compared with none in female group. Bilateral facial weakness was seen in 26% (5 out of 19) male patients compared with 30% in female group. Dysphagia occurred in 21% (4 out 0f 19) in male group compared with 10% (1 put of 10) in female group. All patients with progression of disease after admission to hospital were treated with alternate day sessions of plasmapharesis for a total of five sessions. For male group the mean duration of hospital stay for improvement in muscle power of limbs according to MRC grade of one from the baseline before discharge was 11.63(+ 12.584) days with range from 2-45 days. In comparison the mean duration of hospital stay for female group was 20.10 (+ 8.749) days with range from 3-30 days.

Table No.1: MRC Scale of Muscle Power

0	No contraction
1	Flicker or trace of contraction
2	Active movement, with gravity eliminated
3	Active movement against gravity
4	Active movement against gravity and resistance
5	Normal power

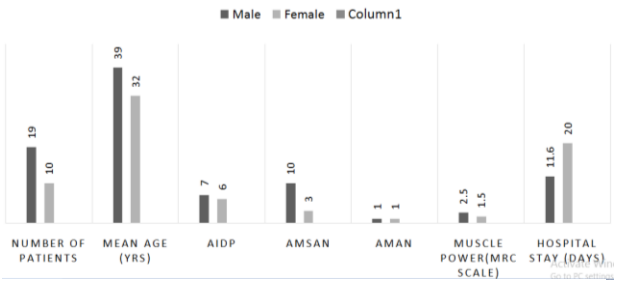

Figure No.1: Gender influence on different variables of GBS

DISCUSSION

This is first study from Pakistan to assess the gender influence on various clinical and electrophysiological features of GBS. Most published studies report male preponderance for GBS with an approximate M: F ratio of 1.9:1.[16-18] Our study also confirm this finding with males being affected more than females. This is in contradiction to studies that a definite female predominance is found in many autoimmune diseases. Gender has been also associated with differences in clinical presentation, onset, progression and outcome of autoimmune diseases such as multiple sclerosis.[19] HLA associations are also found to differ with the gender of the patient in some autoimmune diseases. McCombe et al investigated whether there were gender-related HLA associations in Guillain–Barré syndrome (GBS) and chronic inflammatory demyelinating polyradiculoneuropathy (CIDP), both of which occur more frequently in male patients than in females. His study showed no particular HLA associations in GBS except for a slight negative association for carriage of HLA-DR5 in both males and females. In a new study to determine *Campylobacter jejuni* infection in GBS patients before onset of neurologic symptoms, it was found that male patients were three times more likely to have serologic evidence of *C. jejuni* infection ($P = 0.009$)[21]. In yet another study factors found to be associated with poorer current level of functioning and wellbeing outcomes in survivors of Guillain–Barre syndrome (GBS) included females, older patients (57+ years), acute hospital stay >11 days, those treated in intensive care and those discharged to rehabilitation. No associations were found between the Medical Research Council (MRC) Motor Scale Rating scores at admission [22]. In line with these findings, results of our study show that female patients have a low mean MRC grading on admission and also prolonged hospital stay compared with males. However contradictory to this are results of Italian Guillain-Barre Study Group showing that the chance of recovery is significantly affected by age, antecedent gastroenteritis, disability, electrophysiological signs of axonopathy, latency to nadir and duration of active disease with no gender influence on outcome[23].

CONCLUSION

In conclusion our study is the first study of its kind designed to see the gender influence on the clinical and electrophysiological features and outcome of GBS. We found that AIDP was most common variant of GBS (70%) in female gender and AMSAN (52.63%) in male patients. This finding has not been reported before. Similarly we found that cranial nerve palsies especially bilateral facial weakness and dysphagia occurred more commonly in males compared with females. This observation has also not been published before. Finally, limb weakness was more severe in female group (mean MRC grade 1.5) compared with male group (mean MRC grade 2.5) and as a result the mean hospital stay was prolonged in female group than in male group. All these sex gender differences in GBS has not been reported before. Keeping in view of small sample size

of our study, lager studies are needed to confirm our findings.

Author's Contribution:

Concept & Design of Study:	Maryam Javed
Drafting:	Usman Ali Khan, Fatima Javed
Data Analysis:	Raja Zaigham Abbas,
Revisiting Critically:	Muhammad Athar Javed
Final Approval of version:	Maryam Javed

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Prevalence of Depression in Younger Population at a Tertiary Care Hospital

Shakeel Asif[1], Muhammad Shoaib Irfan[3] and Nisar Ahmed Khan[2]

ABSTRACT

Objective: To determine the frequency and severity of depression in adolescents presenting in outpatient department of a tertiary care hospital.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at the Psychiatry OPD of Div. HQ Hospital Mirpur AJK from Sep. 2017 to Feb 2018.

Materials and Methods: Data was collected by cluster sampling using the systematic random sampling technique. KADS for Depressive Illness was applied and data was then analyzed using SPSS 18.

Results: In total (n=400) prevalence of depression is 12%, with 177 (44.3%) male and 223 (55.8%) female participants while 5.8%,5.0%,and 1.3% have mild, moderate and severe degree of depression respectively.

Conclusion: The findings indicated that the clinician should determine a treatment plan that not only for assessment but also address the risk factors. Studies should be cost effective for treatment of depression as well as improving quality of life of sufferers.

Key Words: Children, childhood, frequency, severity, adolescent, Risk factors, Prevalence, depression, KADS.

Citation of articles: Asif S, Irfan MS, Khan NA. Prevalence of Depression in Younger Population at a Tertiary Care Hospital. Med Forum 2018;29(7):29-31.

INTRODUCTION

Depression, a disorder with maximum level of disability rate, disturbs quality of life and total functionality. Rate of depression is 14% to 20% in various studies and consequences could be substance misuse, anxiety, school refusal, truancy, conduct problems, with criminal tendency among the children and adolescents. The mortality risk for suicide in depressed patients is more than 20 times greater than in the general population as well as increase risk of ischemic heart disease and stroke. This article is gives a detailed idea that this disabling disorder of depression may affect quality of life and increases burden on family and social life. Even when successfully treated with remission is achieved, depressive disorders still impose a considerable burden on the patient[1]. Early onset depression is an imminent condition, which may become chronic in long term progression, so early detection and intervention is most important step. It is a leading cause of absents for schools, decreased functionality, and broad functional impairment across social, academic and family domains in adults, children, and adolescents[2].

Current studies are doing investigations of the prevalence, course, risk factors, protective factors, prevention and treatment plans for depressive symptoms in adolescence[3]. The past studies researched about epidemiology, biological factors, etiology, genetic factors, environmental factors, risk factors, precipitating factors, outcome of management, treatment of depression and suicidal behavior in the young. Stresses and acute life events such as friendship difficulties and bullying are also likely to be relevant in this age group[4].

Children of depressed parents have increased risk for the full range of adjustment problems, anxiety, depression, and causes could be family adversity, divorce, separation, early childhood losses, neglect, and insecure attachment, physical and sexual abuse. Parenting may have a role in the etiology of adolescent depression[5]. There are three main forms of treatment for depression: Counseling or psychotherapy; electroconvulsive therapy, and Antidepressant medications. The current research focuses on understanding the relationship between depression and factors such as the circadian rhythms, the hormonal system, genetics, neuronal receptors and circuits, PET/SPECT scan, MRI while medicines such as selective serotonin, nor-epinephrine and dopamine reuptake inhibitors are mainstay of treatment[6].

A number of socio-demographic factors may play a role in depression pathogenesis including difficulties in role transitions e.g. low education, high teen child-bearing, marital disruption, employment difficulties, low earning, persistence, and severity of secondary

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disorders, and increased risk of mortality due to physical disorders and suicide[7]. In GBD 2000, depressive disorders were the 3rd leading cause of burden responsible for 13.4% of YLDs in women and 8.3% in men and also predicted as worse outcome for the other co-morbidities[8, 9]. There was a high rate of co-morbidity in children and adolescents with major depressive disorders such as conduct disorder/ oppositional defiant disorder, anxiety disorder, attention deficit hyperactive disorder and substance misuse e.g. (Cannabis, opiods, alcohol, cocaine and benzodiazepines) [10, 11].

The current study will reflect in the future planning about the mental health status of child and adolescents and can play an important part in determining and planning the kind of mental health services, identification of etiological and risk factors, prevalence of depression, interventions and rehabilitation services required both medical and psychological health.

MATERIALS AND METHODS

This Study was conducted in OPD of psychiatry department Div. HQ Hospital Mirpur AJK. The design of the study was descriptive cross sectional study.

Study was completed in 6 months from Sep. 2017 to Feb 2018. Sample size was calculated by using WHO sample size calculator, taking Confidence level 95 %, and Population proportion 3.7%, Precision 1.85%, Sample size was calculated to be 400.Sampling technique used was Consecutive non probability. Inclusion criteria:

1. Patients aged between 10-19 years of either genders having any or combination of followings; irritability, poor school performance, behavioral disturbances and disturbed sleep & appetite for one week duration.
2. Consent regarding the participation in study was taken from guardians.

Exclusion criteria: Patients with other psychiatric disorders like ADHD, Mental retardation and Patients unable to communicate.

Procedure of data collection: After getting approval from hospital ethics committee, informed consent was obtained from those subjects who fulfilled the inclusion criteria. A predesigned Performa was given to the study participants and all the relevant details such as age, gender, educational status were obtained. The Kutcher Adolescent Depression Scale (KADS) was used to screen depression in adolescents. The patients suffering from depressive illness were then assessed for the severity of depression using the ICD10 criterion for depression. Data was analyzed with Statistical Program for Social Sciences (SPSS) version 18.

For the quantitative variables i.e. Age, KADS score, ICD10 criterion, Mean ± S.D was calculated. For the qualitative variables i.e. gender, depression and its severity, frequencies and percentages presented. Chi-square was applied, keeping p value <0.05 as significant.

RESULTS

Participants were children 10-19 years of age. Period was 6 month. The total numbers (n) of participants were 400.

Gender Distribution: Among the participants, 178 (44.5%) were males where as 222 (55.5%) were females (Table 1).

KADS scores: The mean KADS score was 4.35 ± S.D 2.530 with a score range of 10-19 years, (Table 2).

Frequency of Depression: Among the (n=400) participants, depression was present in 48(12%) while absent in 352 (88%). (Table 3)

Different Grades of Depression: Among the participants 352(88.0%) had no depression, 23(5.8%) had mild depression, 20(5.0%) had moderate depression and 5(1.3%) had severe depression. (Table 4).

Table No.1: Showing the gender distribution of the participants.

Gender	Frequency	Percentage
Male	178	44.5%
Female	222	55.5%

Table No.2: Mean KADS score

KADS Score			
Minimum	Maximum	Mean	Std.Deviation
2	15	4.25	2.057

Table No.3: Showing the frequency of depression amongst the adolescents

Depression	Frequency	Percentage
Present	48	12%
Absent	352	88%

Table No.4: Showing frequency of different grades of severity of depression

severity of depression	Frequency	Percentage
Mild	23	5.8%
Moderate	20	5%
Severe	5	1.3%

Table No.5: Chi-square test to test the association of age with severity of depression (p-value less than 0.05 considered statistically significant)

Age groups of patients	Severity of depression				Total	P-value
	Mild	Moderate	Severe	No depression		
10-12 years	1	3	0	80	84	
13-15 years	2	2	1	165	170	
16-18 years	16	10	2	86	114	
>18 years	4	5	2	21	32	
Total	23	20	5	352	400	0.000

Chi-square Analysis to associate age with Depression Severity: Chi-square test reveals p-value of 0.001 i.e. <0.05 hence a statistically significant association exists between age and severity of depression. (Table 5)

Chi-square Analysis to associate Gender with depression severity: Chi-square test reveals p-value of 0.000 i.e. <0.05 hence a statistically significant association exists between gender and severity of depression. (Table 6)

Table No.6: Chi-square test to test the association of gender with severity of depression (p-value less than 0.05 considered statistically significant)

Gender of patients	Severity of depression				Total	P-value
	Mild	Mode-rate	Severe	No depre-ssion		
Male	10	8	3	157	178	0.000
Females	13	12	4	165	222	
Total	23	20	5	352	400	

DISCUSSION

Depression is a debilitating kind of mental illness which carries a significant burden in terms of social, educational, interpersonal, economic and impaired future developmental outcomes and creates problems for many youngsters throughout childhood, adolescence and beyond. There is lack of confirmatory studies concerning the main contributing factors and further studies regarding the most suitable treatment for each age group are still needed. Understanding and recognizing the early signs of depression, as well as the treatment and prevention, helps to reduce the global burden. Families and caregivers are in a unique position to provide interventions, Promotion of a positive family environment, healthy lifestyles can reduce the likelihood of depression in their children. Mental health is as equally important as the physical health and child psychiatric services are available only in big cities of Pakistan covering only 30% of the total population. There are several causes that may contribute to the mental health problems in Pakistan, including interfamily marriages, high rates of birth injuries, economic decline and high rates of unemployment, fragmentation of the social and family system and loss of religious value[12]. The salient feature of the present study was to determine the frequency, age and gender distribution of psychiatric illnesses in children attending psychiatric clinic, their assessment, recognition, and treatment strategies.

CONCLUSION

Research is needed in understanding the pathogenesis of childhood mood disorders. Mental health morbidity is an important issue as seen in children attending the "Psychiatry Clinic" in a Pediatric OPD. Most common psychiatric problems found in children are conduct/ oppositional defiant disorders, ASD, ADHD, anxiety and mood disorders. Sensitization of parents, teachers and family physicians is required to enable them for playing their role in early recognition and interventions. There is need for further studies to rule out contributions of factors like cost effectiveness, course of illness, identification of risk factors, attitude towards treatment, adherence, compliance and neurobiological correlates.

Author's Contribution:

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Original Article

Role of Oral Verses Intravenous Antibiotic in Patients with Spontaneous Bacterial Peritonitis

Muhammad Hassan Zafar[1], Ammar Asghar[1] and Uzma Ather[2]

ABSTRACT

Objective: To determine the role of oral verses IV antibiotics in patients with spontaneous bacterial peritonitis.
Study Design: Randomized trial study.
Place and Duration of Study: This study was conducted at the Department of Medicine, Services hospital, Lahore from June 2017 to December 2017.
Materials and Methods: Patients of age range 16-80years of either gender with SBP due to cirrhosis were included. Patients with other comorbidities like varices, previous failed medical management or recurrent SBP were excluded. Then patients were randomized in either group and treatment was given. Patients were followed-up and presence of SBP and mortality was noted.
Results: The mean age of patients was 45.36±12.02years in oral group and 46.67±11.94years in IV group. There were 37 males and 13 females in oral group while 28 males and 22 females in IV group. SBP was eradicated in 43 (86%) patients with oral antibiotics while in 46 (92%) patients with IV antibiotics. Mortality occurred in 1 (2%) patients with oral antibiotics while in 1 (2%) patients with IV antibiotics. The difference was insignificant (p>0.05).
Conclusion: The role of both oral and intravenous antibiotic are equal in eradication of spontaneous bacterial peritonitis. Thus we can replace IV antibiotics with oral antibiotics and can improve compliance.

Key Words: Administrative rout, Spontaneous bacterial peritonitis (SBP), Bacterial infection, Peritonitis, Cirrhosis.

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INTRODUCTION

The most commonly occurring bacterial infection of ascites is spontaneous bacterial peritonitis (SBP). This is often fatal in patients with cirrhosis with miscellaneous symptomatology. The incidence of spontaneous bacterial peritonitis patients who are hospitalized ranged between 10 to 30% and its mortality ranged between 10%-46%.[1-3] In 1907 spontaneous bacterial peritonitis was described by Krencker and than by Caroli in 1958 and few others in 1964 including Kerr.[4-6] Spontaneous bacterial peritonitis term was invented by Conn in 1964 to describe a syndrome of peritonitis and bacteraemia. This syndrome was observed in Laennec's cirrhosis without a seeming source of infection.[7] In peritoneal cavity the fluid overflow, sodium and water retention is due to the portal hypertension and activation of the renin-angiotensin pour.[8]

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MATERIALS AND METHODS

This was a randomised trial was done in Department of Medicine, Services hospital, Lahore over a period of 6 months from June 2017 to December 2017. Sample size of 100 patients was calculated with 95% confidence level, 9% margin of error and taking expected percentage of SBP i.e. 30% in patients of cirrhosis. Patients of age range 16-80years of either gender with SBP due to cirrhosis were included through non-probability, consecutive sampling. Patients with other comorbidities like varices, previous failed medical management or recurrent SBP were excluded. Then patients were randomly divided in two groups by using random number table. In group A, patients were given oral antibiotics. In group B, patients were given intravenous antibiotics. Then patients were followed-up for 3months in OPD. After 3months, ascetic fluid was obtained again and sent to the laboratory of the hospital for assessment of presence of SBP. Reports were assessed and presence of SBP was noted. If patient dies during treatment, then mortality was noted.. The analysis was performed using software named statistical package for social sciences (SPSS) version 20. Descriptive statistics were applied to calculate mean±SD for age. Frequency distribution and percentages were calculated for qualitative variables like gender, SBP presence and mortality. Both groups

were compared by using chi-square test. Over all a P values ≤0.05 was considered statistically significant.

RESULTS

The mean age of patients was 45.36±12.02years in oral group and 46.67±11.94years in IV group. There were 37 males and 13 females in oral group while 28 males and 22 females in IV group. The mean duration of cirrhosis was 5.34±2.22years in oral group and 6.74±2.69years in IV group. The mean BMI of patients was 20.28±8.94kg/m^2 in oral group and 20.21±6.59kg/m^2 in IV group (Table 1).

Spontaneous bacterial peritonitis was eradicated in 43 (86%) patients with oral antibiotics while in 46 (92%) patients with IV antibiotics. SBP was present in 7 (14%) patients with oral antibiotics while in 4 (8%) patients with IV antibiotics. The difference was insignificant (p>0.05). Mortality occurred in 1 (2%) patients with oral antibiotics while in 1 (2%) patients with IV antibiotics. The difference was insignificant (p>0.05) [Table 2].

Table No.1: Characteristics of patients (n=100)

Variable	Oral antibiotic	IV antibiotic
Age (years)	45.36±12.02	46.67±11.94
Gender (m/f)	37/13	28/22
Duration of cirrhosis	5.34±2.22	6.74±2.69
BMI	20.28±8.94	20.21±6.59

Table No.2: Comparison of both groups for outcome

Outcome	Oral antibiotic	IV antibiotic	p-value
SBP (after 3months)	7 (14%)	4 (8%)	0.3377
Mortality	1 (2%)	1 (2%)	>0.999

DISCUSSION

It is very rear that SBP appear without cirrhosis and hence it is always with cardiac, malignancy, renal, portal vein thrombosis and autoimmune related infections of ascites.[9-15] The adult cirrhotic patients with ascitic fluid polymorphonuclear neutrophil (PMN) counts of 250 cells/μL or greater in a community-acquired setting (in the absence of recent beta-lactam antibiotic exposure) should receive empiric antibiotic therapy (e.g. an intravenous (IV) third-generation cephalosporin, preferably cefotaxime 2 g every 8 hours) which should be established on confined receptiveness testing of bacteria.[16-17] As an alternative to IV cefotaxime, in patients with cirrhosis can be treated with oral ofloxacin (400 mg twice per day), if none of the contraindications like vomiting, shock and serum creatinine greater than 3 are present.[16]

This study was conducted to determine the role of oral verses intravenous antibiotics in patients with SBP. SBP was eradicated in 43 (86%) patients with oral antibiotics while in 46 (92%) patients with IV antibiotics. SBP was present in 7 (14%) patients with oral antibiotics while in 4 (8%) patients with IV antibiotics. The difference was insignificant (p>0.05). Mortality occurred in 1 (2%) patients with oral antibiotics while in 1 (2%) patients with IV antibiotics. The difference was insignificant (p>0.05).

We had observed in our study the role of both oral and intravenous antibiotic is crucial and situation dependent but due to the low quality of research related to the outcomes, it is difficult to draw a clear administrative route picture for both treatment types. The debate survives with event situations like an intravenous antibiotic is much appropriate when any there is suspicion (fever tenderness, ascites, and cirrhosis etc.) arises for SBP, than this option should be opted immediately. This will reduce the complications. Broad-spectrum antibiotics cephalosporins that belong to third generation group are the perfect choice to control SBP due to its superiority in controlled trials and rare side effects. Also the nephrotoxicity risk became low in when compare to the other antibiotics.[17-20]

Other antibiotic like cefotaxine that is covering the most causative pathogens due to its ascetic fluid excellent penetration. It also gain 94% sterilization when applied to its cases.[21] The treatment efficacy and clinical decree with this drug ranges from 77% to 98% but bearing in mind the high dosage will not produce any therapeutic advantages.[22] American Association for study of liver disease has put forth a standard regimen of cefotaxime dose as 2g every 8-hour.[16] That's why a 5-day treatment will generate the desirable results than a 10-day use.[17]

Amoxicillin and clavulanic acid are the alternative IV antibiotics that yield comparable results to cefotaxime and gentamicin in patients with SBP.[23,24] It is well versed that the antibiotics which are not third generation with an exception of cephalosporins always owe high adverse events risk, that's why the evidence lacked in their role as primary treatment. Whereas among oral antibiotics fluoroquinolones were probably unfussy and suitable in SBP patients because of its bioavailability that range from 705 to 95% for ciprofloxacin and levofloxacin respectively.[25] Among few trials the SBP resolved at the almost same rate with both drugs oral oflocacin and IV cefotaxime i.e. 84% and 85% respectively.[26] However a therapy can be switched elsewhere for example in one of published studies which is a controlled randomized trial by Terg et al[25], showed that a patient who were receiving IV ciprofloxacin can be passably treated with oral ciprofloxacin. This switch is more cost effective and effective at infection tenacity.[24] In this way the best optimized tenacity to control SBP is the switch therapy technique whereas it is difficult to draw a clear administrative route picture for both treatment types.

CONCLUSION

The role of both oral and intravenous antibiotic are equal in eradication of SBP. Thus we can replace IV antibiotics with oral antibiotics and can improve

compliance. This may help in reducing cost of IV antibiotics and use of syringe and aseptic measures and oral antibiotic can be given at home, instead of admitting the patients in hospital.

Author's Contribution:

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Original Article

Perceived Stress, Contributing Factors and Coping Mechanisms in Prospective Medical Students of Karachi: An Exploratory Study

Stress Contributing Factors in Medical Students

Zainab Hasan[1], Zeba Saeed[1], Asad Raza Jiskani[2] and Javeria Akber[1]

ABSTRACT

Objectives: To determine the perceived level of stress, identify the factors contributing to it and the coping mechanisms among Medical College Admission Test (MCAT) candidates.

Study Design: Cross sectional exploratory study

Place and Duration of Study: This study was conducted at Anees Hussain (to provide MCAT preparation) all branches of amajor private MCAT preparation center in Karachi immediately before the scheduled test date in July 2016 to November 2016.

Materials and Methods: All candidates registered for MCAT preparation at the center were requested to participate in the study. Perceived stress was measured using Cohen's Perceived Stress Scale (PSS-14). A separate structured questionnaire was used to determine contributing factors on a 3 point Likert scale and coping mechanisms on a dichotomous scale. Data was analyzed using SPSS 21.0.

Results: A total n=500 respondents completed the study. There were 24.0% (n=120) males and 76.0% (n=380) females with mean age 18±0.75 years. Majority 81.4% (n= 407) had premedical education from Sindh Board. The overall mean PSS-14 score was 30.00 ±7.31 and 48% candidates had a score greater than mean. Preference for public sector institute was cited by 80.3% (n=305) females and 78.2% (n=93) males whereas financial constraints was consideration for this preference among 45.9% (n= 174) females as compared to 30.8% (n=36) males. Major factors contributing to stress were self-study problem, examination pressure, vast syllabus, time shortage and high level of competition. Pressure to study medicine against will was admitted by 19.0% (n=72) females and 12.5% (n=15) males. The most frequent coping mechanism in both males and females were sleeping and talking to someone.

Conclusion: There is a moderate to high level of stress present in prospective medical students of Karachi. Students entering medical college with prior stress may be at added risk with consequent impacts on learning and physical health. Standardized premedical education at national level and a universal admission test can reduce stress levels. Good study management skills should be inculcated since school to prevent stress of competitive examinations. Medical undergraduate education is extensive and potentially stressful. Therefore, medical colleges should initiate stress management counseling to incoming students immediately after commencement.

Key Words: MCAT, Stress, Coping mechanisms

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INTRODUCTION

Stress is an uncomfortable emotional experience accompanied by predictable biochemical, physiological and behavioral changes. It is a recognized cause of morbidity from non-communicable diseases and increases risk of infections.[1] Perceived stress is "the feeling or thoughts that an individual has about how much stress they are under at a given point in time or over a given time period". Perceived Stress Scale (PSS) is a widely used and validated psychological tool to measure this perception of stress by individuals. Developed by Sheldon Cohen in 1983, its latest format includes 14 items. Though not a diagnostic tool, it reliably objectifies the subjective perception of stress in an individual. Score from PSS-14 range from 0–56, with a higher summative score predictive of higher perceived stress during the preceding week or month. It is quick to administer and its language is simple enough to be comprehended by a person who has passed high school English and therefore a reliable tool to measure stress in post-high school students.[2]

The Medical College Admission Test (MCAT) is a standardized annual examination conducted by medical colleges in numerous countries to assess candidates and facilitate the selection process. Though candidate selection for medical training was stringently conducted

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even in the apprenticeship model, the current form of this examination was started by the Association of American Medical Colleges (AAMC) since its inception in 1876.[3] Majority of the tests across the world follow a multiple choice format and include questions that assess knowledge, language, problem solving and critical thinking skills. Test is mostly conducted at the national level to standardize selection of candidates coming from a variety of educational backgrounds and testing boards. Nowadays these tests are conducted nationally around the world in Australia, Canada, China, Hong Kong, Cyprus, France, Germany, Guam, Israel, Japan, Kazakhstan, Malaysia, Lebanon, Pakistan, Puerto Rico, Qatar, Singapore, South Africa, Taiwan, Thailand, United Kingdom and United States of America.[4]

Up till the 1990s, admission to the medical colleges in Pakistan was based on fixed quota system followed by an open merit system using the passing percentage of marks in pre-medical education. Subsequently with increase in number of private medical colleges, there was a need to filter suitable candidates and hence institutes started conducting their own entry tests and interviews. In 1998, admission policy for medical colleges was changed to develop a merit based on weightage of matriculation exam, pre-medical exam and a universal provincial level MCAT.[5] The standard pattern was a one hour, 100 multiple choice question test covering physics, biology, chemistry and Basic English. In the year 2017, it was converted to the Medical & Dental College Admission Test (MDCAT) containing 220 Multiple Choice Questions (MCQs) with negative marking.[6] Punjab has been conducting a single National Testing System based MCAT for all its public sector universities since 1998 however public sector universities in Sindh introduced it only recently.[7] Currently, there are 101 private and 55 public sector medical and dental colleges in the country with approximately 13.650 seats.[8] Despite the new policy, private colleges continue to hold their own test and interview, giving partial weightage to the NTS MCAT. Additionally, some private sector medical colleges having a high international ranking, require very high merit and high MCAT scores.[9] Though test pattern is similar, private medical college tests vary in level of difficulty, a key utilized by private medical colleges to filter better candidates. The education systems in Pakistan from school to premedical college also vary in the quality and depth of their curriculum, teaching and assessment methods. There are 31 Boards of Intermediate & Secondary Education in the public sector and additional Cambridge and Aga Khan Boards in the private sector.[10] In absence of standardized education, it is difficult for even meritorious students to cope with mismatch of their educational background with competing peers.[11,12] The legislative move towards a single provincial MDCAT is yet to achieve complete implementation. To increase possibility of securing a medical college seat, most candidates apply to at least one public sector and more than one private sector college. Consequently, students with a wide range of prior education have to deal with another wide range of tests. The difference in educational expense of public sector and private sector institutes promotes additional pressure. The respectability of profession also drives parents to pressure their children into securing an admission many a times at expense of student's mental and emotional wellbeing. Hence, the MCAT candidates are put into a stressful situation due to their aspiration to secure a medical college admission.[13]

Numerous studies have shown that medical college undergraduate students worldwide, have a high degree of study related stress.[14,15,16] If this stress is occurring during the admission process, candidates may associate it with medical studies which can then persist into the medical college and cause or aggravate the stress of undergraduate medical education. Stress is known to interfere in process of learning and impacts performance.[17] However, the stress perceived by MCAT candidates prior to starting medical studies is not known. Therefore, this study was conducted using the PSS 14 scale to determine the perceived stress level in MCAT candidates. This study also explored the possible factors contributing to the stress so that strategies aiming to resolve them can be developed. The effect of the stress on health of individuals also depends upon how they have learned to manage the stress. Therefore, this study also explored how the young adults manage their stress.

MATERIALS AND METHODS

This was a cross sectional exploratory questionnaire based study. Perceived stress was evaluated using Cohen's 14 item Perceived Stress Scale (PSS-14). The PSS 14 comprises of 14 questions, including seven negative and seven positive responses in 5-point Likert Scale (never to very often), scored 0 to 4. The positive items were scored 0-4 and the negative items (numbers 4-7, 9, 10 and 13) were reverse coded. All 14 scores were summated for final score.

Three informal focus groups were conducted with 10-12 students preparing for MCAT to ask if they felt stressed, about factors contributing to their stress and coping mechanisms they and their peers adopted to manage stress. The responses were used to generate a list of possible options. A structured questionnaire was then constructed to determine sources of stress on a 3 point Likert scale (Agree-Maybe-Disagree) and coping mechanisms were measured on a dichotomous scale of Yes/No. An open ended option of "other" was also included to accommodate any missed option. Questionnaire and PSS-14 was distributed to all the candidates, at all five branches of MCAT preparation institute in Karachi immediately before the scheduled

test dates in November 2016. They were requested to anonymously participate in the study. Submission of completed questionnaires was considered as voluntary implied consent.

Data was analyzed using SPSS 21.0. The study was conducted after review from Research Committee of Jinnah Medical and Dental College and permission was taken from the coaching center administration.

RESULTS

A total n=500 respondents returned the questionnaires and were included. There were 24.0% (n=120) males and 76.0% (n=380) females as shown in Figure 1 with mean age 18±0.75 years. Majority 81.4% (n= 407) had premedical education from Sindh Board. The overall mean PSS-14 score was 30.00 ±7.31 which reflects moderate level of perceived stress. Stress scores were normally distributed among the study sample as shown in Figure 2. A total 48% (n=239) candidates scored > mean score. Among males, mean score was 28.3±7.2 and 48.3% (n= 58) males had a perceived stress score greater than 28. Among females, mean score was 30.6±7.3 and 50.7% females had a perceived score greater than 30.

Most frequent factors contributing to stress as reported by participants were self-study issues, exam pressure, vast syllabus and short preparation time as shown in Table 1. Examination pressure and high level of competition were significantly different between genders with p<0.05.Pressure to study medicine against will was admitted by 19.0% (n=72) females and 12.5% (n=15) males. Preference for public sector institute was cited by 80.3% (n=305) females and 78.2% (n=93) males whereas financial constraints was consideration for this preference among 45.9% (n= 174) females as compared to 30.8% (n=36) males.

The most frequent coping mechanism in both males and females were sleeping and talking to someone. Table 2 shows the difference in coping mechanisms between males and females. There is a very highly significant difference between genders for coping mechanisms with males using of exercise and playing games to manage stress and females using crying to manage stress. Negative coping strategies of smoking and taking drugs were identified only by a few candidates.

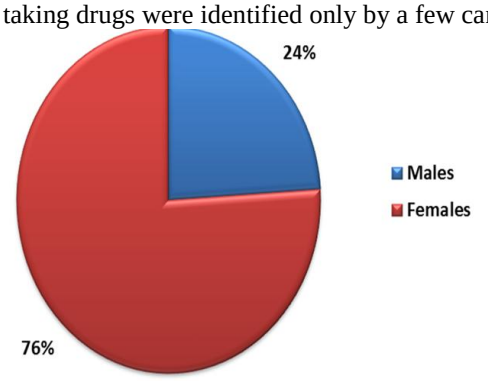

Figure No.1: Gender distribution of MCAT candidates

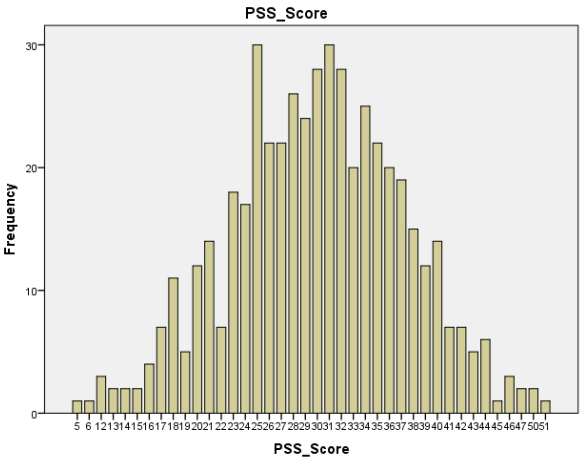

Figure No.2: Histogram of Perceived Stress Scale -14 Scores of MCAT candidates

Table 1:Factors contributing to stress as identified by respondents and the difference between genders

Sources of Stress	Total Respondents	Agree n(%)	Maybe n(%)	Disagree n (%)	X^2Value
Vast Syllabus	458	339 (74.0)	90 (19.6)	029 (6.3)	< 0.218
Tough topics	462	183 (39.6)	210 (45.9)	069 (14.9)	0.223
Short preparation time	463	343 (74.1)	068(14.6)	052 (11.3)	0.083
Problem in memorizing	461	231 (50.1)	146 (31.6)	084 (18.2)	0.202
Self-study issues	456	408 (89.4)	040 (8.8)	008 (1.7)	0.263
High competition	464	286 (61.6)	110 (23.7)	068 (14.6)	<0.001***
Examination pressure	468	442 (88.7)	038 (7.3)	020 (4.0)	<0.001***
Performance pressure	465	321 (69.0)	102 (21.9)	042 (9.0)	0.222
Family/teacher's expectations	463	310 (66.9)	112 (24.4)	041(8.8)	0.075
Family pressure to become a doctor	465	085 (18.3)	062 (13.3)	318 (68.4)	0.555

Total responses from n=500 excluding missing response n= numeric count % = valid frequency
p-value is calculated using cross tabulation and chi-square test for difference between genders; significant at <0.05
***Very highly significant ** highly significant * significant

Table 2: Coping strategies used to manage stress by males and females

Coping Strategy	ALL n (%)	Males n (%)	Females n (%)	p-value
Eat	108 (21.6)	20(16.8)	88 (23.2)	0.142
Sleep	195 (39.9)	40 (34.5)	155(41.4)	0.181
Take Drugs	22 (04.4)	09 (07.6)	13 (3.4)	0.023
Talk to Someone	201 (40.2)	44 (37.0)	157 (41.3)	0.399
Exercise	25 (05.0)	17 (14.3)	08 (2.1)	<0.001***
Watch Movie	96 (19.2)	30 (25.2)	65 (17.1)	0.049
Play Games	61 (12.2)	27 (22.7)	34 (8.9)	<0.001***
Read	66 (13.2)	15 (12.6)	51 (13.4)	0.819
Listen to Song	20 (04.0)	07 (05.9)	13 (3.4)	0.232
Shop	25 (05.0)	05 (04.2)	20 (5.3)	0.643
Smoke	04 (00.8)	03 (02.5)	01 (0.3)	0.015
Cry	47 (09.6)	01 (0.9)	46 (12.3)	<0.001***
Pray	10 (02.0)	01 (0.8)	09 (2.4)	0.299
Other	107 (21.4)	18 (15.1)	89 (23.4)	0.054

n= numeric count % = valid frequency p-value is calculated using chi-square test; significant at <0.05
***Very highly significant ** highly significant * significant

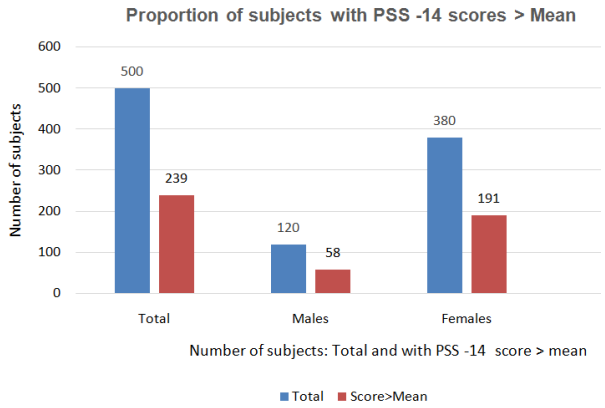

Figure No.3: Number of subjects: Total and with PSS 14 scores > mean by gender

DISCUSSION

Taking up Medical College Admission Test is a milestone in every student life who is aspiring to secure a seat in a medical college. It is one of the career building turning point of life and consequently generates a stressful situation.[18]

The gender ratio of candidates reflects the current predominantly female enrollment ratio in medical colleges of Pakistan. It has been speculated that this ratio is a result of inability of males to academically compete with female peers. However, this study shows that males are not seeking medical college admissions at all. Therefore, the gender ratio of MCAT applicants is reflective of the professional choice of male and female science students. No published study was found on the changing professional choices of college students in Pakistan.

The stress scores of the candidates indicate a moderate amount of stress in almost half of the total sample and both males and females are equally affected. Studies on stress reveal that women significantly higher on chronic stress and minor daily stressors, however in this study, both scored similarly.[19] Numerous studies in undergraduate medical students show that there is high level of stress present in them. This study shows that stress is also present even before entering medical college. The undergraduate stress can thus be a continuation of stress developed in reference to medical college admission initiating a predisposition and conditioning that medical studies are stressful. Stress interferes with learning and therefore early recognition and management of stress can help prevent the undergraduate level development of stress.

This is in agreement with studies that women have higher stress from daily stressors.[19]

Women are more likely to use verbal expression and emotion based methods to dissipate their stress. We also found that stress coping strategy is different in males and females candidates.[20] This study found that though both males and females used talking to someone as most frequent strategy and females significantly utilized emotional expression of crying than their male counterparts.[21] Social integrated neutralizes the effects of stress. This social cushion could be from family, friends, neighbors, relatives, or formal clubs and college societies. This is consistent with our study where MCAT candidates look for these social cushions and talk to someone to reduce stress.[22,23,24]

CONCLUSION

This study concludes that there is moderate level of stress present in prospective medical college students. It is mostly attributed to the examination, its preparation and competition. Social pressures do not contribute significantly to this stress. Candidates have developed coping mechanisms, however these are based on good social and interpersonal support system. Study management skills and coping through engagement in healthy activities need to be included from the start of medical education to enhance learning and prevent stress.

Author's Contribution:

Concept & Design of Study:	Zainab Hasan
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Final Approval of version:	Zainab Hasan

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Invasive Ventilation in NICU

To Share our Experience of Invasive Ventilation in NICU at Rehman Medical Institute, Peshawar- Pakistan

Abid Salahuddin, Anwar Zeb Jan, Shahzada Bakhtyar Zahid and Maria Aleem

ABSTRACT

Objective: Outcomes of neonatal invasive ventilation at Pediatric Unit - Rehman Medical Institute, Peshawar – Pakistan.

Study Design: Descriptive / cross sectional study

Place and Duration of Study: This study was conducted at the Neonatal ICU (NICU), Pediatric Unit Rehman Medical Institute from January 2015 to December 2016.

Materials and Methods: The total number of neonates ventilated during 2 years, were 45. All neonates ventilated were included in the study. Neonatal record of ventilated babies were taken from hospital data base.

Results: Out of 45 cases, 19 were premature babies, which contributed 12 % of the total neonatal admissions. Cases were described according to Spectrum of disease, duration of ventilation, and outcome based on risk factors and prematurity. 40 (89 %) were high risk cases with multiple co-morbidities. With the current approach, the results were variable. The variability can be due to the individual neonatal condition. In high risk cases 18 (45 %) cases were successfully extubated and discharged home. The rest 55 % cases met poor outcome because of multiple reasons, with prematurity being the most important cause. Among extreme preterm cases (ventilated) overall survival rate was 27.2%.

Conclusion: Prematurity, sepsis, MAS, HIE were the major indications for ventilation. However, early referral risk stratification, appropriate initiation of management and surfactant administration is associated with decrease mortality.

Key Words: Experience, Invasive ventilation, NICU, Outcome

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INTRODUCTION

An estimated 15 million premature births were recorded according to national estimates of 184 countries in 2010.[1] Worldwide about 1 in 10 babies are born premature. Of these 15 million premature babies, about 1 million i.e. 1 in every 15 premature baby, die every year. The fact that prematurity is a leading cause of death in under 5, is true universal.[2] However, this situation is worse in low and middle income countries.[3] Pakistan stands eight in list of countries with highest rate of preterm births per 100 live births.[4]

Respiratory Distress Syndrome (RDS) is among one of top complications of prematurity and contributes significantly (21%) in respiratory complication after birth.[5,6] It is also a cause of major morbidities and mortality in premature babies.

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It not only causes respiratory compromise by itself but leads to other complications like cerebral hemorrhages, PDA, ROP etc.

The introduction of mechanical ventilation in the 1960s was one of the major new interventions in neonatology, which provided lifesaving support for infants with cardio respiratory failure. Along with other technologic advancements, such as administration of ante partum steroids, replacement of surfactant and continuous positive airway pressure (CPAP).[7] Mechanical ventilation has led to improved neonatal survival, especially for premature babies.[4]

Babies less than 32 weeks and especially 30 weeks gestation have (70-80) % chance of developing RDS. RDS has a natural course where it tends to get worse on 2nd to 3rd day before starts improving. However as this condition progresses, ventilation/perfusion (V/Q) mismatch worsens and it becomes difficult to reverse. That's why there is role of elective ventilation and many times surfactant administration electively. However though there is now increasing trend towards managing RDS non- invasively, invasive ventilation still remains an essential part of care in any NICU.[8]

The advent of surfactant therapy has decreased the morbidity and mortality from RDS by about 50%.[9] Infant mortality caused by RDS in the United Stated decreased from approx. 268 in 100,000 live births in

1985 to 17 in 100,000 live births in 2007.[4] Although preference is now on non-invasive modes of assisted ventilation as a primary support mechanism for premature babies. Invasive mechanical ventilation has its important role in INSURE approach as well as support for very sick babies. Earlier it was a standard practice to ventilate all babies less than 28 weeks and selected babies between 28 and 32 weeks. This is where insure comes in which include intubation - surfactant administration - extubation on to non-invasive means.

MATERIALS AND METHODS

This descriptive cross-sectional study was carried out at Neonatal ICU (NICU), Pediatric Unit Rehman Medical Institute from January 2015 to December 2016. A total of 45 neonates who were given invasive ventilation were included in the study. All neonates who were ventilated were included in the study. Neonatal record of ventilated babies were taken from hospital data base, admitted during the above mentioned time. 45 cases were collected and data were entered and analyzed using SPSS version 15.

RESULTS

Of the total admissions 196 (12%) babies were premature. Out of total admissions, 45(2.7 %) neonates were ventilated (Table 1). Out of 45 cases, 19 were premature babies, nearly 10 % of total premature admissions. Premature babies were further categorized according to their period of gestation and number in each category (Table 2). Nearly 42 % cases of ventilation were in premature babies. These were the babies with multiple co-morbidities which are all considered at high risk esp. when they are unwell enough to be ventilated. The other criteria that predispose a baby to high risk are; babies transferred in sub optimal conditions, those with congenital malformations, severe sepsis and babies with necrotizing enterocolitis, encephalopathy or with severe pneumonia. 40 (89 %) cases were high risk in our study. With the current approach, the results were variable. The variability can be due to the individual neonatal condition (Fig. 1). In high risk cases 18 (45 %) cases were successfully extubated and discharged home. The rest 55 % cases met poor outcome because of multitude of reasons. Half of all the cases were premature neonates.

Table No.1: Percentage of cases from within the hospital and referred cases (n=45)

Variable	No.	%
Within RMI cases from Obstetrical Unit	15	33.4
Referred Cases	30	66.6

All the cases in Medium risk category remained alive and were discharged. Out of 45 cases, 5 babies were ventilated for respiratory distress syndrome (RDS).

Table No.2: Frequency and percentage of preterm status of babies

Preterm status	Period of gestation	No. of cases (N = 19)
Late preterm	> 32 weeks	3 (15.7 %)
Very pre-term	28 – 32 weeks	5 (26.3 %)
Extreme pre-term	< 28 weeks	11 (57.8 %)

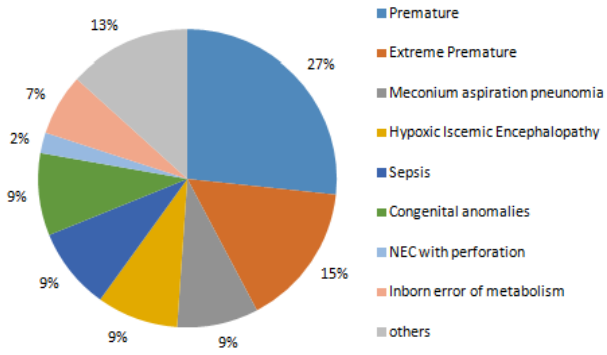

Figure No. 1: Spectrum of diseases in neonates who were ventilated.

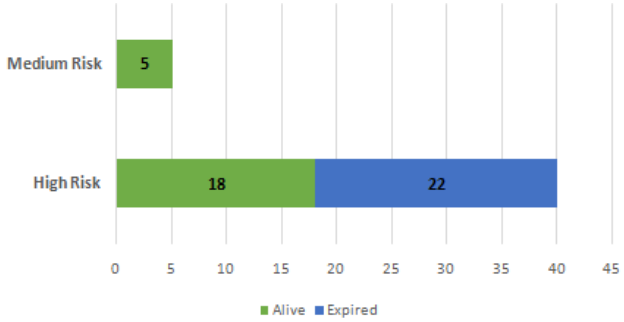

Figure No, 2: Outcome of risk in high and medium risk

Table No.3:Mortality in various premature babies

Preterm status	No. of cases (n=19)	No. of deaths	Cause
Late preterm >32 weeks	3 (15.7%)	1	IUGR and NEC
Very pre-term 28– 32 weeks	5 (26.3%)	2	Severe sepsis, DIC, IUGR & congenital heart diseases
Extreme pre-term <28 weeks	11 (57.8%)	8	Mostly sepsis, LBW and referred cases in sub optimal conditions

With 100 % survival rate, these babies were discharged without complications. As for duration of ventilation is concerned, for all the babies with good survival outcome. A total of 78 days of ventilation was done with mean of 4.5 days. While, in expired babies mean ventilation time was 2.7 days. In 22 expired cases, in 17 cases ventilator status was determined for PH and Oxygen saturation. Only 1 case showed signs of respiratory acidosis, while 5 had sub optimal oxygen saturation even with maximum ventilator support (Fig. 2). Half of all the cases were premature neonates (Table 3)

DISCUSSION

This study was done in a busy NICU of a tertiary care hospital where it has not only got its own high delivery rate but is also a referral center for the whole region. We had total 1639 admissions in study period of which our study group that is the ventilated babies in NICU is 45 (2.7%), among these 30 (66.6%) were referred from outside. In our study group we had babies with wide spectrum of diseases and having multiple morbidities.

In our study group 42% babies required ventilation primarily for Respiratory distress syndrome. This is comparable to the percentage given in the studies done in developing countries.[10,11] Disease pattern which we found interest of our patients is similar to what has been published in other studies i-e sepsis, meconium aspiration syndrome and hypoxic ischemic encephalopathy being on the top.[4,12]

As most of the babies have more than one morbidity especially when they are seriously ill is difficult to assess their survival for any one particular disease. So in order to check our outcome based on co-morbidities we grouped study population into Moderate and High Risk groups. Criteria for high risk group was already identified in Figure 1. Those babies which were electively ventilated for RDS and surfactant therapy were categorized as Moderate Risk group. When we compare this group with similar patients reported by the study done in Shifa hospital with the survival rate of 41% (52), our outcome was 100% although our number are very small i-e 11%.[5,13] As far as High Risk group is concerned we couldn't find any study done in developing countries presenting the survival outcome of patients similar to our High Risk group. However there is a study done on babies with meconium Aspiration Syndrome (both ventilated and non-ventilated) showing survival rate of 21%.[14] In our High Risk group we had survival rate of 45 %.

Association between low birth weight, prematurity and poor survival has been shown by many studies.[5,13,14] Among extreme preterm(ventilated) with weigh less than 1000gm. our overall survival rate was 27.2%. Outcome of these extreme low birth weight babies presented in other studies has been 5.9% (non-ventilated) and 14.28% (ventilated) respectively.[5,13] Moreover, neonates who survived did not develop complications related to ventilation, which is significant because other studies show that neonate who were ventilated developed complication like ateltctasis, pneuothorax, bronchopulmonary dysplasia and pulmonary haemorrhage.[15,16] Late preterm babies with the gestational age >32 weeks usually don't require ventilation unless they are very sick. In this group only one baby expired unfortunately after developing NEC with perforation. In the gestational age between 28-32 weeks among babies who expired one had severe sepsis and DIC while other had complex congenital heart disease.

Overall in premature group which include both Moderate and High Risk babies our survival rate is 42%. These results are encouraging keeping in view that neonatal ventilation was recently started in our unit.

Though we don't have a lot of numbers, we wanted to see how prepared we are for babies who require prolong ventilator support. Overall we have done about 78 days of ventilation in babies who survived as compared to 34.5 days, in babies who could not make it. On average there had been about 4.5 days of ventilation per patient.

Ventilation is a mechanism mainly to support breathing while babies overcome their other co-morbidities. Oxygen saturation and CO_2 levels can be considered as reliable indicator for effective ventilation.[10] Unfortunately we could get record of only 17 out of 22 babies (who expired). Out of 17 babies only one showed sign of respiratory acidosis, while 5 had oxygenation issues. So in majority of cases who died ventilatory support doesn't seems to be a major issue.

Success of ventilation or neonatal care as a whole is not just dependent on the equipment and expertise of that unit but involve almost a cultural change. Where ante-natal high risk babies are picked up and efforts are made to refer these mothers antenataly and deliver these babies in hospital with appropriate neonatal care.

We should have designated ambulances and trained transport staff, readily available. Parents are more educated and compliant with the treatment, and financial support should be available for those who cannot afford.

CONCLUSION

Prematurity, sepsis, MAS, HIE were the major indications for ventilation. However early referral appropriate initiation of management and surfactant administration is associated with decrease mortality. Risk stratification is as necessary as time in referral. Communication between primary health care units and tertiary care centers should be strong so that we can overcome the area where we lack behind. Even though our mortality is significantly higher than developed countries it is possible and strongly recommended to

start mechanical ventilation to reduce the neonatal mortality in developing countries with limited resources. We to move forward and develop our expertise in advance services like Nitric Oxide and ECMO. We also need to work on improving prenatal care and transport services.

Author's Contribution:

Concept & Design of Study:	Abid Salahuddin
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Data Analysis:	Shahzada Bakhtyar Zahid, Maria Aleem
Revisiting Critically:	Anwar Zeb Jan, Abid Salahuddin
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Original Article

To Determine the Measles Vaccination Status and its Correlates in Children with Measles

Shahzada Bakhtyar Zahid, Anwar Zeb Jan, Humaira Achakzai and Maria Aleem

ABSTRACT

Objective: To assess the measles vaccination status of children with measles and to ascertain the reason for any omission.

Study Design: Descriptive / case series study

Place and Duration of Study: This study was conducted at the Pediatric Unit, Rehman Medical Institute, Peshawar from January 2013 to December 2013.

Materials and Methods: Sixty children with measles according to CDC clinical criteria were included. Data regarding the demographics and immunization status was noted after consent. The children who were vaccinated against measles were enquired about the history of contact and the ones not vaccinated, about the reason for omission.

Results: Out of 60 patients 36 (60 %) were male and 24 (40%) were females.52 (86.6%) were Pakistani while 8(13.3%) were Afghani. 31(51.6%) were between 3-12 months ,those aging between 13-24 months were 8(13.3%) while ages 3-7 years and above 7 years were 16(26.6%) and 4(6%) respectively. Only 12 (20%) were vaccinated according to the EPI schedule including measles vaccine, out of these 7gave history of contact .Twelve (20%) were not vaccinated at all against any of the infectious diseases including measles because of lack of awareness or unavailability of vaccines while36 (60%) were vaccinated according to EPI schedule but measles vaccination was not done either due to age less than 9 months or lack of awareness about measles vaccine.

Conclusion: Measles outbreaks will continue unless awareness and immunization rates are increased and maintained at universal levels.

Key Words: Measles, Immunization, EPI

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INTRODUCTION

Measles is a highly contagious respiratory disease caused by a virus. It can result in serious health complications, such as pneumonia and encephalitis, and even cause death. Measles kills more than 100,000 children in the world each year despite the availability of an effective vaccine. In 1980, before widespread vaccination, measles caused an estimated 2.6 million deaths each year. Approximately 158,000 people died from measles in 2011, mostly children under the age of five years.[1]

No specific antiviral treatment exists for measles virus. It could easily be prevented by timely immunization. The measles vaccine has been in use for over 4 decades. It is safe and cost effective. Measles vaccination resulted in a 71% drop in measles deaths between 2000 and 2011 worldwide.[1] The Millennium Development Goal, 4 aims to reduce, the less than 5 years child mortality rate by two-thirds between 1990 and 2015 and routine measles vaccination coverage is a key indicator of monitoring progress. All 194 WHO Member States have committed to reduce measles deaths by 95% by 2015. However, Pakistan witnessed measles outbreaks (particularly in the province of Sindh) from January 2012 to February 2013. 19,048 suspected measles cases were reported, 3982 were reported from KPK. 463 deaths of children were reported throughout the country, out of which 50 deaths occurred in KPK. There is general consensus that the most important cause of the Measles outbreak is the deterioration in, and failure of, routine EPI system in Pakistan, this failure is evident in the low immunization coverage achieved to date.[2]

The reasons for the current increase in the number of measles patients in KPK according to the report on measles outbreak in Pakistan by the Federal ombudsman Islamabad are (1) Post 18th Amendment situation at the provincial and federal level have a bearing on the EPI situation, (2) reported Measles 1 coverage is 79%. And Reported Measles 2 coverage is 59%, (3) poor socio economic condition, (4) congested

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population, (5) influx of IDPs /security situation /Influx from the FATA and Afghanistan, (6) earthquake and other disasters in the province and (7) polio vaccination priority ignoring measles vaccination.

The aim of this study was to assess the vaccination status of children admitted with measles to pediatric unit Rehman Medical Institute, Peshawar, and to ascertain the reason for omission of the vaccine. This may have implications for future strategies to prevent measles outbreaks, reduce morbidity and mortality as well as achieving the targets of millennium development goal 4.

MATERIALS AND METHODS

This study is a descriptive case series conducted at Pediatric unit from January till December 2013 at Rehman Medical Institute, Peshawar, which is one of the tertiary care centers in the province, receiving patients not only from all over Pakistan but also Afghanistan and Central Asia. All children with confirmed clinical diagnosis of measles were included in the study, minimum clinical criteria for measles being -generalized maculopapular rash of at least three days' duration, notable fever and cough, coryza, and conjunctivitis. A total of 60 Patients were included in the study age ranging from 3months to 18 years. Written consent was taken from the parents. Data regarding the age, sex, and origin of the children was noted along with the immunization status in general and measles vaccine in particular. The children who were vaccinated against measles were enquired about the history of contact and the ones not vaccinated, about the reason for not immunizing the child. Descriptive analysis of data was done by Microsoft Excel version 7 on personal computer.

RESULTS

Out of 60 patients 36 (60%) were males and 24 (40%) were females. 52 (86.6%) were Pakistani while 8(13.3%) were from Afghanistan. The children were divided into four age groups for the sake of simplifying data (Table 1). Only 12 (20%) patients were vaccinated according to the EPI schedule including measles vaccine, out of these 7 (58.3%) gave history of contact with a measles patient while in 5(41.6%) history of contact could not be elicited. Thirty six (60%) patients were vaccinated according to EPI schedule but measles vaccination was not done because of the following reasons (1) <9 months of age=18 (2) lack of awareness about measles vaccine=10 (3) busy routine of the parents=6 (4) febrile Illness=1 (5) unavailability of the vaccine=1. Twelve patients (20%) out of 60 were not vaccinated at all against any of the infectious diseases including measles, 5 had no access to immunization facility while 7 did not have any awareness about immunization (Fig. 1).

Table No.1: Descriptive statistics of the patients

Age	No.	%
3-12 months	31	51.6
13-24 months	8	13.3
3-7 years	16	26.6
>7 years	4	6.0

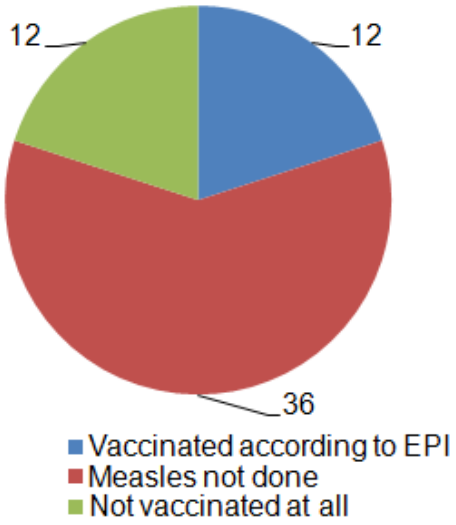

Figure No. 1: Immunization status

DISCUSSION

Measles is a leading cause of childhood morbidity and mortality in developing countries. Furthermore, the residual effects of measles often precipitate other, often fatal illnesses among children. The incidence of illness and death in the months following a measles outbreak can be up to 10 times greater among children who contracted the disease than among those who did not. Measles is also one of the major contributors to childhood malnutrition. These problems continue to plague even developing countries with relatively high coverage.[3,4] Vaccination against measles is the recognized prevention measure. However the risk factors increasing the severity of the disease are (a) Malnutrition, (b) Overcrowding, and Adverse socioeconomic conditions. All these factors along with poor vaccination coverage are the main reasons for measles epidemics.[5] In a study in India in areas of high vaccine coverage, poor cold chain maintenance was found to be a reason for vaccine failure (6). According to Bhutta; “Poor coverage of vaccine is due to the lack of human and vaccination resources “to those who need it the most”.[7] In endemic countries, Measles attains epidemic proportions every2nd or 3rd year and its outbreaks. These outbreaks become deadly from public health point of view when they are occurring during natural disasters or conflicts.[2] Case Fatality Rate (CFR) is estimated to be 3-5% in developing countries but may reach up to 30% in complex emergencies.

Therefore effective routine measles vaccination for children, combined with mass immunization campaigns and personnel trainings are recommended in countries with high measles cases and death rates.

In this study it was observed that majority of the cases belonged to the group A i.e. aged between 3-12 months (51.6%) and group C aged between 3-7 years (26.6) which is comparable with study carried out by Dales LG et al in California in 1990 (8).Studies done in Pakistan, showed the prevalence of measles in children less than 9 months of age to be 25.4%.[9] All these children were non-vaccinated. International organizations such as WHO and UNICEF[1] recommend vaccination of infants at 6-9 months because of the high susceptibility of young infants to measles and its complications. Thus, many children are immunized while maternal antibodies are still present at sufficient levels to prevent an adequate response to the vaccine, resulting in high percentages of vaccine failure, with low levels of individual protection and herd immunity. It has been observed that children of mothers vaccinated against measles have lower concentrations of maternal antibodies and lose protection by maternal antibodies at an earlier age. Where early vaccination is indicated by the epidemiological situation (high morbidity and mortality in infancy), a second dose should be seen as essential to boost the immunity levels and catch those who did not get the primary vaccination.[10]

Twenty percent of the patients suffered from measles despite of being vaccinated against measles. In case of measles vaccine, it is universally recognized that 15% of vaccinated children after first dose do not develop required level of immunity for various reasons which could be genetic weaknesses of immunity system and levels of mal-nutrition etc. prevailing in a given society. It must be recognized that even with adequate resources and good public response to immunization campaigns, the control of measles epidemics is difficult. Measles is a highly contagious, rapidly spreading infection that has repeatedly demonstrated its ability to erupt even in the presence of high population immunity levels.[11-13] It has been suggested that a large inoculum might increase vaccine failure risk. Airborne transmission might occasionally entail a large measles inoculums.[14]

Around 60% of the patients in our study were vaccinated according to EPI, however measles vaccine was not done. Most of them were less than 9 months and were not due for their routine measles vaccine; Ten out of these thirty six patients ,were left out merely due to lack of awareness of the parents about the measles vaccine and unfortunately few of them missed the vaccine because of the busy working schedule of the parents. Infants younger than the recommended age for vaccination are susceptible to the disease, and in developing countries they have a high risk of complications and mortality.[14]

Twenty percent of the patients were not vaccinated at all against any of the infectious diseases mostly due to lack of awareness and inaccessibility to the immunization facility. Nearly 30 % of the children who were not vaccinated against measles and other vaccines had an array of reasons. Literature says male and elder children have more chances to get vaccinated than female and younger children of the family.[15] Similarly it was observed that younger mothers tend to take their children's vaccination for granted than older mothers.[16]

To improve this situation substantially, we need a measles vaccine that is effective in infants younger than 12 months, better accessibility of immunizations for low-income families, and more effective methods of motivating parents to have their young children immunized. Staff training, cold chain maintenance and active surveillance system shall be in place to detect the disease activity. We also need changes in policy and more research as to determine the immune status of our population. Measles outbreaks will continue to occur unless population immunization rates can be increased and maintained at essentially universal levels.[17]

CONCLUSION

In developing countries an enormous toll of measles deaths and disability continues, despite considerable efforts and increasing immunization coverage. Empirical evidence from a number of countries suggests that a two-dose measles vaccination programme, by improving individual protection and herd immunity can make a major contribution to measles control and elimination of local circulation of the disease. Awareness of the masses about the measles and its prevention needs to be emphasized through advocacy by the Government and non-government institutions on large scale. Vaccine coverage in excess of 95% interrupts endemic transmission of measles in many countries, but achievement of such coverage almost always requires coordinated supplementary mass vaccination campaigns.

Author's Contribution:

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Original Article

Examine the Causes of Acute Scrotal Pain and Treatment Following to this Malignant Disorder

Causes of Acute Scrotal Pain with Malignant Disorder

Sultan Mohammad Tareen and Abdul Razaque Nasir

ABSTRACT

Objective: To determine the causes of acute scrotal pain and treatments following to this malignant disease for providing better treatment to the patients.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Urology, Bolan Medical Complex Hospital, Quetta from 1st July 2017 to 31st December 2017.

Materials and Methods: In this study, we included 105 patients having acute testicular pain were included. Patient's ages were ranging between 10 years to 60 years. Those occurring incidence <6 hours and a history of testicular torsion undergo urgent exploration and those examined with a history of >6 hours and <6 hours but clinically examination of testicular torsion undergone doppler ultrasonography before surgical treatment.

Results: Out of all 105 patients, 52 (49.52%) patients were ages < 20 years, 25 (23.81%) patients were ages between 20 to 34 years, 15 (14.29%) patients had an ages between 35 to 49 years while rest 13 (12.38%) patients were ages > 49 years. 48 (45.71%) patients presented with less than six hours while 57 patients had presented with more than six hours. Findings of dopler ultrasound was noted as testicular torsion, Torsion of appendix testis, Epididymo orchitis, Orchitis, Trauma, infected hydrocele, Strangulated inguinal hernia and Idiopathic scrotal pain in 8, 2, 45, 9, 10, 13, 02, 16 patients respectively.

Conclusion: It is concluded that, use of dopler ultrasound for diagnoses acute scrotal pain is very useful method to diagnose accurately. The ratio of testicular tortion is very high in patients ages less than 20 years.

Key Words: Acute scrotal pain, Epididymo-orchitis, Testicular torsion

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INTRODUCTION

World-wide, acute scrotal or testicular pain is most frequent urological problem found in urology departments. It is very important that the diagnosing of this malignant disease should be accurate and timely, because unindentifying and delay may lead to severe damage to the testis.[1] Acute scrotal pain is a medical emergency acquiring urgent treatment to overcome the testicular torsion.[2] The time on onset, age group, clinical examination and ultrasonography examination are effected characteristics which helps in examination the causes of acute scrotal pain.[3] The physical examination must should be accurate examination of the abdomen and inguinal region.[4] Nonurological causes of scrotal pain must be also considered in which peritonitis, rupture abdominal aortic aneurysm, and referred scrotal pain. Other diagnoses in which Henoch-Schonlein purpura, testicular tumor and lower back strain. Henoch-Schonlein purpura is a systemic vasculitis that commonly affects patients aged less than and equal to twenty years and mostly found in children having ages 4 to five years and is reported to involve the scortum in 2 to 38% of patients and if it misdiagnosed than required a urgent surgical exploration.[5]

Testicular torsion is one of the most frequent medical emergency that acquired urgent surgical treatment. The ratio of testicular tortion is 1/4000 male population and mostly observed in males having ages less than 25 years.[6] Epididymitis is another commonly found cause of acute scrotal pain. As per results of DCPAH data (disease control prevention ambulatory health care), epididymitis resulted in 1 out of one hundered and forty four patients whom ages between 18 years to 50 years.[7] Epididimytis required urgent surgical treatment if there is specific point tenderness on examination.[8]

Epididymis-orchitis is an inflammation of the epididymis and testis examined by clinical observation and ultrasonography.[9] A study conducted by Holland et al, reported that chronic scrotal pain can be idiopathic in nature.[10]

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This research was conducted to evaluate the causes of acute scrotal pain by using Doppler ultrasound and and its treatments, so that better treatment may be provided to effected patients.

MATERIALS AND METHODS

This prospective study was conducted at Department of Urology, Bolan Medical Complex Hospital, Quetta from 1st July 2017 to 31st December 2017. In this study, we included 105 patients having acute testicular pain were included. Patient's ages were less than 20 years to 60 years. After taking the informed consent from all the patients, detailed history was examined. Ptients having pain duration > 48 hours and those had treated inguinal surgery in last one month and those having pain lumber region radiating to groin and scrotum was excluded from this study. Those occurring incidence <6 hours and a history of testicular torsion undergo urgent exploration and those examined with a history of >6 hours and <6 hours but clinically examination of testicular torsion undergone Doppler ultrasonography before surgical treatment. Dopler ultrasound examination was done by the expert radiologist. All the data was analyzed by statistical computer software SPSS 17.0.

RESULTS

Out of all 105 patients, 52 (49.52%) patients were ages < 20 years, 25 (23.81%) patients were ages between 20 to 34 years, 15 (14.29%) patients had an ages between 35 to 49 years while rest 13 (12.38%) patients were ages > 49 years (Table 1). 48 (45.71%) patients presented with less than six hours while 57 patients had presented with more than six hours. Findings of dopler ultrasound was noted as testicular torsion, torsion of appendix testis, Epididymo orchitis, orchitis, trauma, infected hydrocele, Strangulated inguinal hernia and Idiopathic scrotal pain in 8, 2, 45, 9, 10, 13, 02, 16 patients respectively shown in Table 2. Time duration of symptoms were note as 9±5, 12±2, 17±15, 16±12, 10±5, 28±14, 4±5, 23±12 as testicular tortion, tortion of appendicular testis, epididymo orchitis, orchitis, trauma, infected hydrocele, strangulated hernia and idiopathic scrotal pain respectively. Out of all patients 45 patients had epididymo-orchitis and referred for medicated treatment. All the patients had complete recovery after suitable treatments (Tables 2-4).

Table No.1: Age-wise distribution of the patients

Age (years)	No.	%
<20	52	49.52
20-34	25	23.81
35-49	15	14.29
>49	13	12.38

Table No.2: Presented duration of patients

Presentation (hours)	No.	%
< 6	48	45.71
> 6	57	54.29

Table No.3: Diagnosis of patients having acute scrotal pain

Diagnosis	No.	%
Testicular torsion	8	7.62
Testicular appendix testis	2	1.90
Epididymo-orchitis	45	42.86
Orchitis	9	8.57
Trauma	10	9.52
Infected hydrocele	13	12.38
Strangulated inguinal hernia	2	1.90
Idiopathic scrotal pain	16	15.24

Table No 4: Distribution of symptoms in hours

Symptoms	Mean±SD (hours)
Testicular torsion	9±5
Testicular appendix testis	12±2
Epididymo-orchitis	17±15
Orchitis	16±12
Trauma	10±5
Infected hydrocele	28±14
Strangulated inguinal hernia	4±5
Idiopathic scrotal pain	23±12

DISCUSSION

Acute scrotal pain is the frequent urological problem found in medical emergencies.[11] Early accurate and prompt diagnosis of this malignant disorder helps to provide better treatment and to reduce the morbidity.[12]

Age and time duration of the symptoms are important factors and may help us in examination. A study conducted by Eaton et al[13] reported that bell clapper deformity was a important observation in testicular torsion.

In our study, we found out of all 105 patients, 52 (49.52%) patients were ages <20 years, 25 (23.81%) patients were ages between 20 to 34 years, 15 (14.29%) patients had an ages between 35 to 49 years while rest 13 (12.38%) patients were ages >49 years .The most common age found in testicular torsion is 11 to 14 years reported by Mattias et al.[14] We observed that the causes of acute scrotal pain by using Dopler ultrasound was not as dopler ultrasound was noted as testicular torsion, Torsion of appendix testis, epididymo orchitis, orchitis, trauma, infected hydrocele, strangulated inguinal hernia and Idiopathic scrotal pain in 8, 2, 45, 9, 10, 13, 02, 16 patients respectively.

In this study, the mean duration of symptoms were 12 hours. 5 torsed testis were observed to be non viable. Some other researches shows that the use of Dopler Ultrasound is very helpful in diagnosing testicular tortion.[15-17] In our research 5 patients with a duration > 6 hours were observed on ultrasound and there was no any misdiagnosed. We found only 1 case of mild and blunt trauma out of testicular tortion. Trauma is not

commonly observation and only found in teenagers with ratio of 5 to 6%.[18]

In our study, we observed that cremestric reflex was not found in all patients but it was found that 4 patients were latterly diagnosed to have epididymo-orchitis. Cremestric reflex is the sensitive but not specific sign of the testicular tortion.[19]

Out of all patients 45 patients had epididymo-orchitis and referred for medicated treatment. Epididymo-ochitis is an significant differential diagnoses of acute scrotal pain. Use of ultrasound is very useful to diagnose accurately. Some other studies resulted that use of ultrasonography is very important in differentiating testicular torsion and acute epididymo orchitis.[20-21]

Moreover, this study is not sufficient due to small number of cases. We should have to do more work regarding this malignant disorder to overcome the morbidity and to provide better treatment to the patients.

CONCLUSION

Acute scrotal or testicular pain is commonly found in urological departments. In this study, we concluded that use of dopler ultrasound for diagnoses acute scrotal pain is very useful method to diagnose accurately. The ratio of testicular tortion is very high in patients ages less than 20 years and if strong and accurate examination was established by clinically it may reduce to delay in treatment and severe damage of testis.

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Assessment of Hyperglycemia in Patients Presenting With Acute Ischemic Stroke Without History of Diabetes

Ammar Asghar[1], Muhammad Hassan Zafar[1] and Nasir Mahmood[2]

ABSTRACT

Objective: To find the frequency of hyperglycemia in patients presenting with acute ischemic stroke without history of diabetes.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Medicine, Services Hospital, Lahore from 1st July 2017 to 31st December 2017.

Materials and Methods: One hundred and seventy five non-diabetic patients with acute ischemic stroke were included. Each patients drawn blood sample and blood glucose level was measured by using glucometer at the time of presentation. Blood glucose level ≥200mg/dl was considered as hyperglycemia.

Results: Out of 175, hyperglycemia was found in 52 (29.7%) cases. 90 (51.4%) patients had ischemic stroke and 85 (48.6%) had hemorrhagic stroke. Out of 95 hemorrhagic stroke, 32 (33.7%) had hyperglycemia and out of 80 ischemic stroke 20 (25%) was also hyperglycemia.

Conclusion: The overall frequency of hyperglycemia is found to be high in stroke patients, although they did not had history of diabetes. Thus we cannot neglect the stroke patients for their blood glucose level, although they are negative for diabetes.

Key Words: Stroke, Ischemic, Glucose, Hyperglycemia

Citation of articles: Asghar A, Zafar MH, Mahmood N. Assessment of Hyperglycemia in Patients Presenting With Acute Ischemic Stroke Without History of Diabetes. Med Forum 2018;29(7):51-53.

INTRODUCTION

Stroke is the major cause of disability and death in all over the world.[1] Last ten years the prevalence of stroke was 33 million.[2] The problem of this disease in Asian countries like India, Bangladesh, Srilanka, Pakistan has increase and is normally to rise as compare to western countries.[2]

Both hemorrhage and ischemic have caused due to lack of blood flow in blood vessels of brain. Ischemia is develops when there is blockage in blood vessel due to thrombosis, arterial embolism or cerebral hypperfusion.[3] Hyperglycemia occurs in those people who have too much sugar in their bloodstream.[4] Pathological reasons include cerebral infarction, primary intercranial hemorrhage and subarachnoid hemorrhage. In developed countries, 85–90% strokes develops because of cerebral infarction and 10–15% because of intracranial haemorrhage.[5]

Hyperglycemia at time of presentation of patients with acute ischemic stroke, is usual finding at admission in about 60% cases. This finding is very common in diabetics but now in non-diabetics, it can be observed in many number of cases.[6,7]

A cross sectional study was conducted in Pakistan DG Khan hospital, out of 150 only 32 had hyperglycemia patients. There was an insignificant relation between ages, gender, and duration of disease with hyperglycemia. Every stroke patient must be screened for hyperglycemia. Its early diagnosis and treatment should be done so as to the morbidity and mortality can be reduced.[8] A recent study by Jitendra et al[4] showed that stress hyperglycemia for 20.33% of all the cases with non-diabetics patients. Significant association in stroke patient with stress hyperglycemia and duration of hospital stay.[9-12]

In USA 80,000 people suffer stroke in each year[13], out of these 82-90% of these stroke are ischemic. Hemorrhagic stroke develops when blood vessels of brain bleeds outside the vessel.[14] Fayyaz et al, showed that 44(25.73%) hyperglycemia with acute stroke. No significant relation between hyperglycemia and type of stroke and duration disease.[15]

All over the world, several studies have been done but there is no local studies available regarding hyperglycemia in non-diabetics presenting with acute ischemic stroke. So we conducted this study to find the occurrence of hyperglycemia and acute ischemic stroke.

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MATERIALS AND METHODS

This cross-sectional study was carried out at Department of Medicine, services Hospital, Lahore from 1st July 2017 to 31st December 2017. One hundred and seventy five non-diabetic patients with acute ischemic stroke were included. All non-diabetics patients who were presented with acute stroke and age between 30 to 70 years of both genders, duration of acute stroke <24 hours were included. Patients had history of diabetes mellitus, head injury, previous steroids use, recurrent attack were excluded. Patients with no history of diabetes in past and HbA1c normal level (<5.5%) on presentation was labeled as non-diabetes. The sign and symptoms of acute stroke according to WHO definition, fast developing symptoms <24 hours duration, speech disturbance, weakness of one side body, loss of unconsciousness (GCS <8/15) and cranial nerve palsy. CT brain was also showed loss of gray white interface, high attenuating bright clot and low attenuating (dark) cerebrospinal fluid (CSF) and normal brain tissue. Blood pressure and BMI of each patients was calculated and also observed hypertension. Each patients drawn blood sample and blood glucose level was measured by using glucometer at the time of presentation. Blood glucose level ≥200mg/dl was considered as hyperglycemia. Statistical analysis was performed using SPSS-21. Qualitative variables like gender, type of stroke, hyperglycemia were presented as frequency and percentage. Mean ±SD were computed for quantitative variables like age, duration of disease.

RESULTS

The mean age of patients was 50.04±12.05 years. There were 96 (54.9%) males and 79 (45.1%) females. In 85 (48.6%) patients hemorrhagic stroke occurred and 90 (51.4%) cases ischemic stroke occurred. Hyperglycemia was found in 52 (29.7%) patients.

Table No.1: Demographic information of the patients

Variable	No.	%
Age (years)	50.04±12.05	
Gender		
Male	96	54.9
Female	79	45.1
Type of stroke		
Ischemic	90	51.4
Hemorrhagic	85	48.6
Hyperglycemia		
Yes	52	29.7
No	123	70.3

Out of 95 hemorrhagic stroke, 32 (33.7%) had hyperglycemia and out of 80 ischemic stroke 20 (25%) was also hyperglycemia. There were also no significant difference between hyperglycemia and type of stroke. Mean duration of disease10.29±6.53 hours. Duration of disease were divided in to two groups ≤12 hours and >12 hour. Total 72(43.6%) patients was present ≤12 hour, 24(57.1%) was found hyperglycemia and 93(56.4%) was present >12 hour 18(42.9%) was found hyperglycemia (Tables 1-2).

Table No.2: Hyperglycemia with respect to Type of stroke

Type of stroke	Hyperglycemia		Total	P value
	Yes	No		
Hemorrhagic	32 (33.7%)	63 (66.3%)	95	0.2109
Ischemic	20 (25%)	60 (75%)	80	

DISCUSSION

Hyperglycemia is an unusually high blood glucose level in the blood like >140mg/dl (7.8mmol/I).[10] Hyperglycemia is also seen amongst non-diabetics and can cause significant morbidity and mortality. It was found in 22-46% cases who were not critically ill. Previous researches indicate that hyperglycemia in stroke patients, whether they had diabetes or not, is associated with high risk of morbidity and mortality, prolonged hospital stay, number of ICU admissions increased and the requirement of transitional or nursing home care after hospital discharge also increases.[11]

In a study conducted by Fayyaz et al[15], hyperglycemia was found 25.73%. This finding is almost near to the results of our study i.e. 29.7% hyperglycemia was found in nondiabetic patients with acute ischemic stroke.

Jitendra et al[8] observed different results in their study. 20.33% found stress hyperglycemia in non-diabetics presenting with acute stroke. As compare in our study 29.7% found hyperglycemia in non-diabetics presenting with acute ischemic stroke. Significant association hyperglycemia and duration of disease were found..

Sharma et al[9] observed the prevalence of stroke was 21.8%but our study observed ischemic stroke was 48.5% and hemorrhagic stroke 51.5%. Bilal et al[8] were found 32 had hyperglycemia patients and no significant association between ages, gender and duration of stay. In our study showed also insignificant association between hyperglycemia with age, gender and stroke but significant association between hyperglycemia and duration of disease.

CONCLUSION

The overall frequency of hyperglycemia is found to be high in stroke patients, although they did not had history of diabetes. Thus we cannot neglect the stroke patients for their blood glucose level, although they are negative for diabetes.

Author's Contribution:

Concept & Design of Study:	Ammar Asghar
Drafting:	Muhammad Hassan Zafar
Data Analysis:	Nasir Mahmood
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Presentation of Preoperative Diabetes Mellitus in Patients Undergoing Surgery

Management of Diabetic Patients for Surgery

Mujahid Ali Chandio[1], Jeando Khan Daidano[1] and Sikander Azam Yusfani[2]

ABSTRACT

Objective: Managing glycemic level in a surgical patient is critical. In this study we will manage the diabetes mellitus in patients presented for surgical disease.

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted at the OPD Department of Medicine at PMCH Nawabshah from June 2016 to November 2017.

Materials and Methods: 115 patients were enrolled for this study. 63 were male and 52 were female. Informed permission was taken from all the patients, study was done using proforma with history, clinical examination and investigations. All diabetic patients newly diagnosed and known case of Diabetes Mellitus with surgical disease were included for this study. Non diabetic with surgical disease and diabetic without surgical disease were excluded from this study.

Results: 115 patients participated for this study, both male and female of all ages. All patients presented with surgical disease for surgery. Age range from 17-70 ys mean age 48.48+_10. HbA1C was from 5.60-10 mean 7.5+_0.78. Fasting Blood Sugar range 121-231 mg/dl mean 139.38+_22. Random Blood Sugar range 139-510 mg/dl mean 272.3+_67. All the patients were treated with insulin, on the day of surgery morning dose of insulin was omitted. Statical analysis was done using software SPSS 15 version.

Conclusion: Uncontrolled Diabetes Mellitus is a major problem before Surgery and postoperative, by closed communication between physician, surgeon and anesthetic staff complications can be reduced. Good glycemic control before surgery and postoperative blood glucose control are important in reducing complications. Acid base balance and electrolyte status should be monitored for better surgery.

Key Words: Diabetes Mellitus, Surgery, Preoperative care, Insulin, Oral hypoglycemic agents, Glycosylated hemoglobin, Anesthesia

Citation of articles: Chandio MA, Daidano JK, Yusfani SA. Presentation of Preoperative Diabetes Mellitus in Patients Undergoing Surgery. Med Forum 2018;29(7):54-57.

INTRODUCTION

Diabetes Mellitus defined as metabolic disease characterized by hyperglycemia due to defects in insulin action or insulin secretion. Diabetes Mellitus is classified into type 1 and type 2. Normal glucose homeostasis is altered due to metabolic perturbations caused by surgical procedures. Hyperglycemia due to uncontrolled Diabetes Mellitus is a risk factor for postoperative wound infection, impaired wound healing, endothelial dysfunction and cerebral ischemia.[1] Diabetic ketoacidosis or hyperglycemic hyperosmolar syndrome result due to stress during surgery or postoperatively.[2] Careful management of diabetes in patients undergoing surgeries preoperative and postoperative complications can be minimized.[3] Managing diabetes is challenge for clinician in patients requiring surgery.

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In USA prevalence of diabetes is about 8%.[4] Commonly diabetic patients present for surgery. Glucose metabolism orchestrated by insulin, growth hormone, glucagon, epinephrine and cortisol. Glucose uptake in muscles, adipose and other tissues is a function of insulin. Insulin increases glycogen production in liver and inhibit gluconeogenesis. Glucose metabolism is dysregulated by diabetes mellitus. Type 1 diabetes mellitus occur due to destruction of beta cells of pancreas with absolute deficiency of insulin. Type 1 diabetes is dependent on insulin. Type 2 diabetes is due to insulin resistance and deficit in insulin secretion. Treatment of Type 2 diabetes is diet, exercise, weight reduction, and oral or inject able drugs. Release of neuroendocrine hormones such as cortisol and catecholamine due to stress related to anesthesia and surgery result in insulin resistance and hyperglycemia. Hyperglycemia resulting due to abrupt discontinuation of drugs, volume depletion and administration of steroids contribute hyperglycemia.[5] Hyperglycemia develop due to stress even in non diabetic.[6] Patients with type 1 diabetes are at risk of diabetic ketoacidosis in intercurrent stress even not severe hyperglycemia. There are incidence of postoperative diabetic ketoacidosis in patients undergoing surgery 25%.[7] Incidence of diabetic

ketoacidosis was less in diabetic type2 0.2% due to same surgery.[7] Diabetic ketoacidosis is less common in type 2 diabtes but hperosmolar non ketotic states with severe hyperglycemia and dehyderation are common.[8] Normal wound healing is interrupted due to increased blood glucose impeding tissue oxygenation and blood flow, prolonging inflammatory state and endothelial dysfunction,[9] Neutrophil phagocytic function is impaired in hyperglycemia, risk of infection increase due to non clearance of bacteria.[10] To maintain blood glucose level between 80-110mg/dl with insulin therapy in surgical ICU morbidity and mortality can be reduced as compared with conventional treatment.[11] Morbidity and mortality is increased 50% in diabetes or hyperglycemia in surgery as compared to non diabetic patients.[12] Reason of these outcome is failure to diagnose diabetes and hyperglycemia.[13]

MATERIALS AND METHODS

This cross sectional study was conducted in the OPD department of medicine at PMCH Nawabshah. Total 115 patients were enrolled for this study. Study was done on proforma with questionnaires with informed consent from all the patients. Detailed history was taken from the patients with clinical examination. All patients were investigated for Random blood sugar, Fasting blood sugar, HbA1C level, Urea and creatinine level. X-ray chest and ECG was advised to exclude any cardiac disease.

Inclusion criteria:

Known diabetic
Newly diagnosed diabetic
Diabetic patient for surgery

Exclusion criteria:

Non diabetic
Non diabetic patient for surgery
Diabetic Not willing for study

RESULTS

This study was conducted on 115 patients. Age range from 17-70 yrs mean age 48.48+10. All the patients participated were known diabetic or newly diagnosed diabetic. 9 patients admitted for the surgery of thyroid, 10 patients for the surgery of vesical calculus, 9 patients for hysterectomy, 11 patients for surgery of cataract, 3 patients for the surgery of deviated nasal septum, 28 patients for the surgery of inguinal hernia, 5 patients for surgery of incisional hernia, 7 patients for the surgery of paraumlical hernia, 17 patients for renal calculus, 15 patients for the surgery of prostate, 10 patients for the surgery of cholilithiasis HbA1C was from 5.60-10 mean 7.5+_0.78. Fasting Blood Sugar range 121-231 mg/dl mean 139.38+_22. Random Blood Sugar range 139-510 mg/dl mean 272.3+_67. After investigations all patients were kept on insulin therapy and oral hypoglycemic drugs discontinued to avoid complications of surgery. Five patients were referred to nephrologists for further treatment. Morning dose of insulin was omitted on the day of surgery. Statical analysis was performed by SPSS 15 version. Marking is as under. Sex male=a, female =2, education uneducated =1, primary =2, middle =3 and matriculation =4. Occupation farmers =1, housewife = 2, private job =3 and Govt. job =4.

Table No.1: Sex

Variable	Frequency	Percent	Valid Percent	Cumulative percent
1	63	54.8	54.8	54.8
2	52	45.2	45.2	100
Total	115	100	100	

Table No.2: Education

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
1	58	50.4	50.4	50.4
2	31	27.0	27.0	77.4
3	21	18.3	18.3	95.7
4	5	4.3	4.3	100.0
Total	115	100.0	100.0	

Table No.3: Occupation

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
1	32	27.8	27.8	27.8
2	50	43.5	43.5	71.3
3	29	25.2	25.2	96.5
4	4	3.5	3.5	100.0
Total	100	100.0	100.0	

Table No.4: Descriptive Statics

Variable	N	Min.	Max.	Mean	Std. Deviation
Age	115	17.00	70.00	48.4870	10.23527
Sex	115	1.00	2.00	1.4522	0.49998
Education	115	1.00	4.00	1.7652	0.901556
Occupation	115	1.00	4.00	2.0435	0.82069
HbA1C	115	5.60	10.00	7.5130	0.78187
FBS	115	131.00	231.00	139.3826	22.39736
RBS	115	139.00	510.00	272.3391	67.28688
Urea	115	23.00	101.00	37.2783	11.79247
Creatinine	115	0.60	8.00	1.1800	0.90391
Valid N	115				

Table No.5: Paired Samples Correlations

Variables	N	Correlation	Sig.
Pair 1: Age & Sex	115	0.075	0.426
Pair 2: Education & Occupation	115	0.725	0.000
Pair 3: HbA1C & FBS	115	0.681	0.000
Pair 4: RBS & Urea	115	0.281	0.002
Pair 5: Urea & Creatinine	115	0.544	0.000

DISCUSSION

In this study majority of the patients were known diabetic some of the patients were newly diagnosed diabetic. Preoperative management is a complex process require team work between physician, surgeon and nursing staff. To avoid any fluctuations in blood glucose level preoperatively glucose level should be kept low, morbidity and mortality can be reduced. Blood glucose level should be lower than 180 mg/dl constantly in hospitalized patients according to American Diabetes Association. Postoperative complications are increased by elevated HbA1C level preoperatively in several studies.[14] There is no definite relationship between HbA1C and postoperative outcome in a recent review.(15) HbA1C more than 8% in non cardiac major surgery associated with increased hospital stay time in a retrospective study on1775 patients.[15] Postoperative complications can be reduced to achieve good glycemic control by delaying surgery. Fasting times of solids for six hours and two hours for fluids in healthy adults are preoperative fasting guidelines by Royals College of Nursing.[16] Acute blood glucose changes leads to oxidative stress resulting macrovascular disease according to some studies.[17] Other benefits of normal glucose level include improved immune response and reduced endothelial dysfunction. Poor postoperative outcomes are associated with mild hyperglycemia. Worldwide increasing prevalence diabetes type 2 fact is that patients with diabetes are more likely to undergo surgery than nondiabetic.[18] Postoperative complications myocardial ischemia and infection increased among patients of diabetes mellitus undergoing surgery.[19] By good glycemic control these complications can be reduced in a variety surgical patients.[20] By continuous insulin infusion to maintain glycemic level 80-110 mg/dl benefit of reducing mortality in a study done by ven den burghe in 2001.[20] Few episodes of hypoglycemia reported in patient treated with insulin analogues. For the treatment of diabetes mellitus type1 and type 2 comparison of cost effectiveness of insulin analogues and conventional insulin depends on the type of diabetes and insulin analogue.[21] Preoperatively increase in blood glucose 20 mg/dl complications are raised 30%.[22] Increased catabolism due to stress hormones, inhibition of insulin secretion, interruption in food intake, cardiac complications due to anesthetics and decreased level of consciousness are common problems preoperatively.[23] Dehydration, acidosis, fatigue and loss of weight are acute preoperative complications.[23]

CONCLUSION

For the management of preoperative diabetes mellitus communication and close coordination is needed amongst patients, physician, surgeon, anesthesia staff and outpatient providers. Majority of the patients were with uncontrolled blood glucose level. Treating patients with insulin monitoring of blood sugar level and preventing patient from hypoglycemia or hyperglycemia morbidity and mortality can be decreased. Acid base balance and electrolytes should be monitored for better surgery. Careful monitoring of glucose level surgical complications and hyperglycemia or hypoglycemia can be reduced. Morbidity and mortality can be improved.

Author's Contribution:

Concept & Design of Study:	Mujahid Ali Chandio
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Data Analysis:	Sikander Azam Yusfani
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Prevalence of Acid Peptic Disease in Young Doctors and its Major Causes

Aden Khalid Shah[1], Syeda Maryam Hussain[2] and Zainab Zafar[3]

ABSTRACT

Objective: To determine the prevalence of Acid Peptic Disease in young doctors and its relationship with dietary habits, nature of duty and workload.

Study Design: Analytical / cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Medicine, Lahore General Hospital, Lahore from December 2017 to February 2018.

Materials and Methods: Questionnaire based study from a random sample of 100 doctors working in different teaching hospitals of Lahore. In this study, a sample of 100 doctors was taken from government hospitals of Lahore. This sample included male and female doctors with ages ranging from 25 -40 years, and included House Officers, Postgraduate Residents and Medical Officers.

Results: Of the 100 doctors interviewed, 67% had suffered from APD at some stage during their professional life. Of these, 35% started having APD during M.B.B.S. whereas 16% during House job. The doctors with duty hours of more than 50 hours per week had increased incidence of APD as compared to the doctors who clocked lesser work hours. 51% of doctors consumed fast food during duties, 60% had weight gain during professional life and 78% consumed beverages like coffee and tea. 55% doctors suffered from symptoms of APD during emergency duty. Among those who suffered from APD, 20.4% also used anxiolytic medication.

Conclusion: APD is very common among young doctors and can be prevented by reducing working hours which will directly lead to stress reduction and in turn APD. The risk of APD is directly and proportionately linked to more working hours and lack of balanced diet among doctors.

Key Words: Acid Peptic Disease, Heartburn, Young Doctors, Peptic Ulcer Disease

Citation of articles: Shah AK, Hussain SM, Zafar Z. Prevalence of Acid Peptic Disease in Young Doctors and its Major Causes. Med Forum 2018;29(7):58-61.

INTRODUCTION

Medicine is one of the most prestigious professions in our country. Medical students are selected after undergoing rigorous examinations. After which they go through a tough period of studies spanning five years. They then begin training as House Officers, and then Postgraduate Trainees. The stressful nature of the job along with prolonged working hours creates an environment fraught with stress for the doctors. Leading to health issues in doctors such as, depression[1], anxiety[2], suicide ideation, acid peptic disease[3], irritable bowel syndrome[4] and migraine.[5]

Acid peptic disease is a group of symptoms that are a result of distinctive yet overlapping mechanisms that decrease stomach mucosal defense and increase the production of acidic gastric juice, resulting in mucosal damage. This is characterized by a sensation of burning in epigastrium[6], indigestion and abdominal discomfort. This has an effect on quality of a doctor's life as well as as patient care and management. Leading to significant patient morbidity and mortality[7]. A study held in US states that approximately 42% adults suffer from heartburn at some point[8].

Based on the observation that gastrointestinal disorders are quite common among doctors[9], a study on Acid Peptic disease in doctors and its relationship with its various risk factors is imperative. House Officers and postgraduate trainees have tough working schedules in government hospitals. Their duties include emergency duties and ward calls which are on average 12 to 30 hours in duration. With the average work week being 60-80 hours long. The population of Lahore is 11,126,285 total, and population density is 20,205/km2 by 2017 Census of Pakistan, whereas 16 public sector hospitals are functioning in it.

Therefore there is a huge load of patients in emergencies of Government hospitals of Lahore. In addition, since Lahore has tertiary care hospitals with the best facilities, all the referrals from the surrounding districts are made here. This leads to an overwhelming number of patients in the Emergencies and Wards. During duties a doctor faces mental as well as physical stress. Mental stress or anxiety can lead to APD[10]. Most of the doctors we interviewed complained of body aches occurring, for which they resort to the use of

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analgesics, which are a known cause of acid peptic disease.[11,12]

There is a large patient load in tertiary teaching hospitals and not enough doctors to cope with the load, doctors don't find time to consume proper food during duty hours. They often resort to Fast food which has high fat content and large quantities of saturated fat and carbohydrates. Consumption of unhealthy food and inability to exercise due to lack of time leads to a significant weight gain in doctors[13], which is also an identified risk factor for development of acid peptic disease and GERD[14].

Most doctors consume coffee, tea, green tea or energy drinks, and smoke cigarettes to stay alert during prolonged duties. All of these habits lead to APD according to multiple researches done in the past[15]. Long duty hours, stress, unhealthy diet, energy drinks, beverages and smoking are prevalent among doctors during their training period. Medical Officers have lesser duty hours than house officers and postgraduate trainees and so is the incidence of stress related APD among Medical officers who work 6-8 hours per day.

According to a retrospective research held in UK, based on study of patients who were newly started on low dose aspirin to prevent cardiovascular events, NSAIDs, oral steroids, tobacco, stress, depression, previous history, anemia and social deprivation were identified as risk factors for PUD[16]. This supports our study as most of these risk factors can be found in excess in the doctor community as compared to the general population.

MATERIALS AND METHODS

A cross sectional, comparative study was conducted at the Department of Medicine, Lahore General Hospital, Lahore from December 2017 to February 2018.

It was conducted on young doctors working in Government Hospitals of Lahore. These doctors included House Officers, Postgraduate Trainees, Medical Officers and Consultants. A sample of 100 doctors was taken, including males (43) and females (56).This study was conducted over a time period of 3 months. Doctors who were suffering from acid peptic disease as well as those who did not report any such symptoms. This helped identify the risk factors for acid related gastrointestinal diseases that are generally present in the doctor community.

Specialty

Frequency	Percent	Valid Percent	Cumulative Percent
Medicine	12	12.0	12.0
Medicine Allied	10	10.0	10.0
Surgery	2	2.0	2.0
Surgery Allied	27	27.0	27.0
MO,WMO	49	49.0	49.0
Total	100	100.0	100.0

49 doctors were Working as MOs or WMOs in Government setups whereas 51 were working as Post Graduate Residents;12 doctors were in General Medicine,10 in Medicine and Allied,2 in General Surgery whereas 27 were in Surgery and Allied. Sample population included doctors aged 25 to 40. SPSS Statistics Data Editor was used to analyze the data.

RESULTS

Out of 100 doctors who were included in this study, 67% reported to suffer from APD, while 33% had never faced any symptoms of APD during their life time.

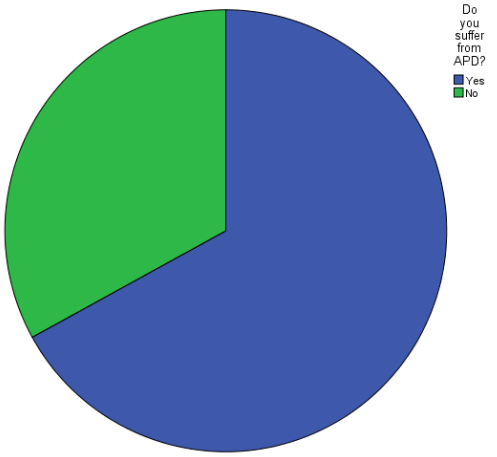

Figure No.1: Graph about suffering from ADP

(41% of doctors use medication to relieve their symptoms including PPIs and antacids).

Among those who had APD, 12% suffered from APD daily, 33% suffered from APD often and 55% suffered sometimes.

35% of them started having symptoms during M.B.B.S. whereas 16% had them since House Job. A small number (6%) had APD before joining Medical College.

Work hours had a significant relationship with acid peptic disease. There was a spike of APD patients in the doctors who were working 60 hours or more. Out of 11 doctors who worked >70 hours per week, 10 (91%) suffered from APD whereas 1 (9%) did not. 27 doctors worked from 61 to 70 hours per week, out of these 27, 19 (70%) suffered from APD whereas 8 (30%) did not.

Do you suffer from APD? * How many hours do you work per week?

Table No.1: Count

Do you suffer from APD?		How many hours do you work per week?						
		20-30	31-40	41-50	51-60	61-70	>70	Total
	Yes	2	15	12	8	25	10	72
	No	2	13	9	1	2	1	28
Total		4	28	21	9	27	11	100
%age		50%	53.5%	57,1%	88%	92.5%	90.9%	72%

9 doctors worked from 51 to 60 hours per week; out of these, 8 (88%) suffered from APD while 1 (12%) did not. 57% of the doctors working from 41 to 50 hours per week and 54% of the doctors working from 31 to 40 hours per week were suffering from APD. Which substantiates that more the working hours, more is the incidence of APD in doctors.

Majority of the doctors suffered from symptoms of APD during emergency duty.55% doctors suffered from APD symptoms during emergency duty,24% during ward calls, 6% during OPD duty whereas 16% population symptoms were unrelated to duty.

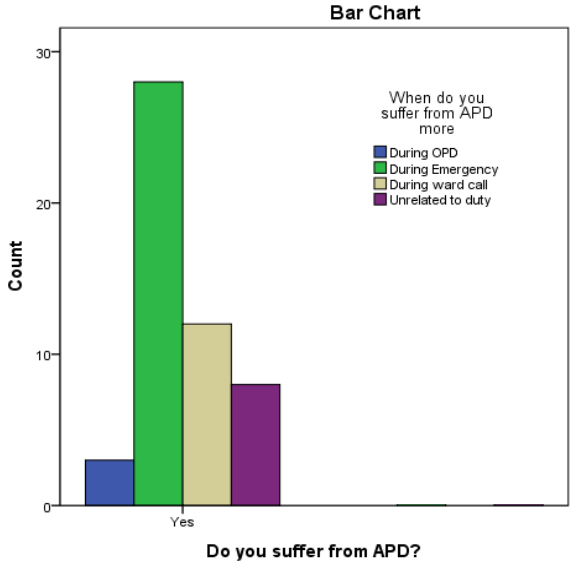

Figure No.2: Bar graph – suffering from ADP

51% of the doctors consumed fast food during their duties whereas 9%, 21% and 18% consumed Chinese, continental food and fruits and salads respectively. No significant relationship with amount of fruits and salads consumption was seen.

60% doctors suffered reported weight gain during professional life .Among those who gained weight, 65% suffered from APD, whereas among those who didn't gain weight, 67% suffered from APD. According to this, both the doctors who gained weight and those who didn't suffered almost equally from APD. No significant relationship was established between weight gain and APD in doctors in our research.

Table No.2: Details of suffering from ADP

Do you suffer from APD?		Have you suffered from any weight gain during professional life?		Total
		Yes	No	
	Yes	39	24	63
	No	21	12	33
Total		60	36	96

Tea, coffee and green teas are known to cause burning epigastrium as well as PUD. Out of 100 doctors who were interviewed, 78 regularly consumed coffee, tea or green tea to stay alert. Out of these 78, 63 (80.8%) consumed tea, 9 (11.5%) consumed coffee and 5 (6.4%) consumed green tea.69% of the doctors who consumed tea had APD, 67% of those who consumed coffee, while 60% of those who consumed green tea had APD. Among these, 60% of the doctors who consumed 1 cup daily, 67% of the doctors who consumed 2 cups daily, 70% of those who consumed 3 cups daily, 89% of those who consumed 4 cups daily, 75% of those who consumed 5 cups daily was seen.

Smoking was found to have a positive relationship with APD. Among these 78 doctors, 11 doctors (14.1%) were smokers while 67 (85.9%) were non-smokers. 64% of smokers had APD while 70% of non-smokers had APD.

Table No.3: Count

Do you suffer from APD?		Do you smoke?		Total
		Yes	No	
	Yes	7	47	54
	No	4	20	24
Total		11	67	78

To assess the relationship of stress with APD in doctors we also asked them whether or not they used any anti-depressants/ anxiolytics. According to our study, 20.4% doctors suffering from APD used anxiolytics/ antidepressants while 14.3% of those who never had APD took these medications. Since there was a difference of 6.1% between these values, it shows that there is some relationship of mental health and APD, and further researches should be carried out on this. However there are some researches that support our result.[17]

DISCUSSION

According to this study a massive percentage, i.e. 67% of doctors have suffered from APD at some stage in their professional lives[18]. Most of these doctors developed symptoms of APD during M.B.B.S. (35%), whereas 16% developed it during house job. This can be attributed to stress and over work during this time period. This is also supported by the fact that 55% doctors reported to have suffered from APD during Emergency duty. Emergency duty is tough in terms of physical and mental stress of not only treating a large number of critical and an even larger number of completely stable patients. Although the patient load is no less in OPDs of government hospitals of Lahore, there are no critical patients, the hours and nature of work less stressful.

Food is provided to the patients in Hospitals. However, no such system exists for doctors who are working for 12 -24 hour or even longer shifts. As a result, most doctors order fast food which is one of the major culprits of APD.

CONCLUSION

Doctors are the cream and pride of our nation. They save many lives in their careers. However, while

ameliorating the sufferings of others, they suffer from health issues themselves. Many doctors develop symptoms of acid peptic disease after starting their journey towards becoming a doctor, or after becoming one. Upon studying the causes and risk factors of APD in young doctors through this study, it was concluded that most of the risk factors for this Gastro intestinal disease are preventable. Working Hours for trainee doctors should be fixed and should not exceed a certain fixed limit. Emergency, OPD and ward duties should be rotated among Medical Officers and Post graduate residents in public sector hospitals to avoid effects of continuous stressful duties. Long duties and calls should be avoided and instead should be divided in shifts. Food should be provided through a proper mess system in public sector hospitals to the doctors who are doing long duties in ward or Emergency.

Recommendations: there was a direct relationship between the amount of hours a doctor spent at work and incidence of Acid Peptic Disease. It is imperative that a cap be put on doctors' working hours per week to a maximum of 48 hours/week with duties and calls longer than 8 hours per shift being abolished. More Medical Officers to be hired in Government Hospitals and the number of seats for post graduate residents under Central Induction Policy be increased. This way doctors can give their optimum work output without patient care being compromised. As a doctor having a sick body and a tired mind cannot deliver quality healthcare.

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Evaluation of Risk Factors and Cadmium in Patients During Hemodialysis

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ABSTRACT

Objective: To evaluate the effectiveness of Hemodalysis for the heavy toxic metals.
Study Design: Observational study.
Place and Duration of Study: This study was conducted at the Institute of Biochemistry, Universitry of Sindh Jamshoro, Institute of M.A Kazi Chemistry, University of Sindh Jamshoro from August 2016 to February 2017.
Materials and Methods: During this research work, 73 subjects of kidney dialysis treatment from three hospitals of Hyderabad city were studied. Patients were divided in three groups Diabetic Patients (DP) Kidney Patients (KP) and Hepatitis Patients (HP). Own prepared questionnaire were filled by patients at hospitals. Cadmium were analyzed from serum by Atomic Absorption.
Results: 45.9% of subjects were founded Diabetic, 37.8% kidney failure patients and 16.3% were found Hepatitis patients. Number of male subjects was more affected than female. Vegetables, fruits and meat consumption was low in all groups. In this research work Cadmium were analyzed from before dialysis (Pre) and after dialysis (Post) samples. Mean±SD of cadmium in Diabetic Patients (DP), Kidney Patients (KP) and Hepatitis Patients (HP) was (1.17±0.15µg/L), (1.14±0.15 µg/l), (1.29±0.29 µg/l), (1.37±0.12 µg/l), (1.24±0.4 µg/l) and (1.14±0.10 µg/l) respectively.
Conclusion: Besides other reasons, Diabetic Mellitus and Hepatitus have been main cause of Kidney failure, leading to Hemodialysis. Majority of Hemodailysis patients despite being Daibetic have been using soda drinks and tape water which can further aggravate or complicate their disorder and needed guidance and precautionary measure. No significant variations in Cadmium could be seen after hemodailysis therefore necessitating special attention on removal of heavy or toxic metals from blood by hemodialysis process.
Key Words: Hemodislysis, Cadmium, Diabetes, Hepatitis and Kidney Patients.

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INTRODUCTION

The kidneys excrete waste products formed during metabolism into urine. It contain the nitrogenous wastes and uric acid, from nucleic acid metabolism and it's also Hormone secretion, Reabsorption of essential nutrients and Osmolality regulation. The hemodialysis, is a mechanism filter wastes, salts and fluid throughout your blood while your kidneys are not working. Hemodialysis is technique to treat kidney failure and can assist you take on an active life despite failing kidneys.Hemodialysis be able to help control blood pressure and maintain the proper equilibrium of fluid and different minerals in your body. Generally causes of kidney failur, glomerulonephritis, hypertension, Kidney cysts.

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The risk of Hemodialysis are hypotension, Muscle pain, Itching, Sleep problems, Anemia, Hypertension, Depression,Bone diseases[1,2].
Heavy metals contain no positive function and nutritional values in our body & they also be toxic. They well recognized verity that contact to heavy metals may activate the instigation of autoimmune syndrome like diabetes mellitus. Metals are essential part of enzymes and co-enzym. Significant amount of metalsare plays very fundamental role in growth & maintain the body tissues. Therefore all these metals back to singular body parts and results comes into serious disorders[2,3].

MATERIALS AND METHODS

This study was done on the kidney patients who seeking hemodialysis from three hospital of Hyderabad city i.e Shah bhattai Government hospital, Memon charity hospital & Majee hospital, Hyderabad Sindh, Pakistan. Own prepared questionnaire were filled by all patients. Questionnaire consist questions about gender, age, marital status, kidney disease, blood pressure, family history, kidney or any other surgery, other disorders, question about dietary, number of dialysis etc. Before (Pre) and After (Post) hemodialysis

blood sample were also collected for the Cadmium analysis[4].

Blood sample collection for the analysis of Cadmium: The blood samples of hemodialysis patients taken two samples of one patient first was before the dialysis started that was PRE at 8:00AM and the second was taken post at 12:00PM. Aid vein puncture technique used for the collection of whole blood sample, using 5 ml disposable plastic syringes (BD Syringe Medical, Germany) and blood was collected. The entire patients were taught not to clasp the hand and during the handling of whole blood specimens, all these essential safety measures were taken to avoid chemical contamination and hemolysis. The sample were collected then centrifuged for 5 minutes at 4000 rpm. The supernatant was collected and cadmium was analyzed by Atomic Absorption.

Blood sample preparation for the analysis of Cadmium: Firstly we have to take 100ml of distilled water in a beaker then add 10g of Sulfocylic acid in it mix it well. After the preparation of this we separately take 1ml of serum of post dialysis and pre dialysis patients in centrifuge tube and also add 0.5ml of sulfocylic solution for centrifugation, place all sample tubes in centrifugation, centrifuge all pre and post samples for 20 minutes. Supernatant were collected after centrifugation. Now the sample is ready for further testing

Analysis of Cadmium: Cadmium was analyzed by Atomic Absorption Spectroscopy (Perkin-Elmer AA40 flame). Firstly air compresser KIT on (oxylation air used) than on flame carfuly than set the computer methood (time 4-5 second) and also set the cadmium flame. Acetylene set on 1.5. first we taken calibaration samples and sip samples from 5second than note reading one by one than all samples sip and note down reading on the monitor[5,6]. The cross-cofficient of all samples were 0.995602.

RESULTS

Details of results have been incorporated in table1, table 2 and table 3 respectively.

Table No.1: Demographic character of hemodialysis patients

Parametters	Diabetic Patients(DP)	Kidney Patients(KP)	Hepatitis Patients(HP)
Total Patients (N-73)	45.9%	37.8%	16.3%
Age Group			
(20-30)	5.8%	5.8%	33.3%
(31-40)	11.7%	11.7%	25.7%
(41-50)	17.6%	17.6%	16.6%
(51-60)	35.2%	35.2%	14.1%
(61-80)	29.4%	29.4%	10.3%
Gender:			
Male	64.7%	42.8%	66.6%
Female	35.2%	57.4%	33.3%

Table No.2:Complications and factors of Hemodialysis patients

Parametters	Diabetic Patients (DP)	Kidney Patients (KP)	Hepatitis Patients (HP)
Blood in urine			
Yes	5.8%	72.2%	3.34%
No	94.2%	92.8%	66.6%
Urine in a day			
1 time	2.14%	33%	33.4%
2 times	28.5%	50%	50%
8 times	7%	0.1%	0%
No	42.9%	17%	16.6%
Urological surgery.			
Yes	5.8%	0%	0%
No	94.2%	100%	100%
Fatigue after dialysis			
Yes	47.1%	57.1%	3.34%
No	52.9%	42.9%	66.6%
Length of dialysis			
2h	17%	17%	16.6%
2:30h	17%	17%	17%
3h	50%	50%	50%
3:30h	16%	16%	16.7%
4h	0%	0%	0%
Dialysis per week			
2times	41%	42%	99%
3times	53%	28%	1%
4times	7%	0%	0%
Specific allergy			
Yes	23.5%	50%	50%
No	76.5%	50%	50%

Table No.3: Nutrition of Hemodialysis pateints.

Parametters	Diabetic Patients (DP)	Kidney Patients (KP)	Hepatitis Patients (HP)
Water			
Tap	41.7%	42.8%	35.2%
Mineral	58.8%	58.8%	64.7%
Hand Pump	0.1%	0.1%	0.1%
Glasses			
1 to 4	23.6%	28.5%	33%
5 to 8	58.8%	42.8%	66%
More than 8	17.6%	28.5%	1%
Soda drink			
Once a week	41.1%	35.7%	35.2%
Twice a week	17.7 %	21.4 %	22%
Daily	17.7%	7.1%	8.2%
NO	35.5%	21.7%	34.4%
Vegetables and fruits			
Once a week	58%	21.4%	9%
Twice a week	41%	21.4%	41%
Daily	52.9%	57.1%	50%
NO	0.2%	0.1%	0%
Meat			
Once a week	5.88%	35.7%	58.8%
Twice a week	117%	28.5%	11.7%
Daily	29.4%	35.1%	29.4%
NO	0.1%	0.1%	0%

DISCUSSION

The signs and symptoms of a kidney infection may include fever, backside (flank) or groin ache, abdominal pain, puss or blood in your urine (hematuria) with bad smell or urine is cloudy. Hemodialysis is a method that is used to complete removal of waste products like creatinine and urea. hemodialysis treats in a health center are handled by specific paramedical nurses and technicians[7]. During this research work, 73 subjects of kidney dialysis treatment from three hospitals of Hyderabad city were studied. 45.9% of subjects were found Diabetic[8], 37.8% kidney failure patients[6]and 16.3% were found Hepatitis patients[3,9] Therefore, results of patients were divided in to three groups i.e Diabetic Patients (DP), Kidney Patients (KP) and Hepatitis Patients (HP). All female were house wives and belonged to low income category. Number of male subjects was more affected than female and mostly vegetables and fruits and meat consumption was low in all groups[5].

Diabetic Mellitus is multi metabolic disorder during which many organic and inorganic compounds are released in blood along with excess glucose which causes damage to kidneys. In Diabetic Patients (DP) group; highest percentage were belonging to 51-60 years age and 5.8% (n=18) patients placed on hemodialysis were under 30 years. 41.1% patients were still using tape water (local water) and devour soda drink even after disorder which might have caused complications of kidney and hemodialysis[8]. 82% patients were not having history of Diabetes. 5.8% patients were having urological surgeries. 47% patients were feeling fatigue after dialysis[10]. 50% patients' length of hemodialysis was three hours. 53% patients were three days under dialysis process in a week (Table no. 01 and 02).

Cadmium is a well known toxic heavy metal that can cause renal dysfunction, cardiovascular disease (CVD) and numerous cancers demonstrated that exposure of cadmium produce toxicity in kidney. Cadmium revelation from ingestion of impure food & water (water pipes or industrial pollution) it produced long-term health bad causes[12]. In this research Mean±SD of cadmium in Diabetic Patients (DP) before dialysis (Pre) was 1.29±0.29 µg/l and after dialysis (Post) was 1.14±0.10 µg/l. There has been no significant variation ($p>0.05$) before and after dialysis process. Same findings were reported by[11] in which he also observed no prominent changes in Cadmium concentration after hemodialysis[6].

Kidneys infection or stones slowly spoiled the filtration function, eventually affecting both kidneys and failing to filter the blood. Kidney Patients (KP) were more affected from 51-60 years age group. We also founded 5.8% (n=14) Kidney patients were from 20-30year on hemodialysis. 42.8% were still using tape water (local water) and 35.7% utilize soda drink. 5.8% patients were having urological surgeries. 57.1% patients were fatigue after dialysis[10]. 50% patient's length of hemodialysis was three hours. 72% patients were two days under dialysis process in a week. Mean±SD of cadmium[12] in Kidney Patients (KP) before dialysis (Pre) was 1.17±0.15 µg/l, whereas after dialysis (Post) was 1.14±0.15 µg/l. There had been no statistically significant variation ($p>0.05$) before and after dialysis hemodialysis.

Liver metabolized all molecules and produced different metabolites for excretion mostly radicals or acids which damaged kidneys gradually. Hepatitis is disorder of liver caused by viruses which destroys liver cells. Age group from 31-40 years was more effected among the Hepatitis Patients (HP), 33.3% (n=06) Hepatitis patients who were on Hemodialysis were of 20-30years. 47.4% were still using tape water (local water) and 35.2% using soda drink even after disorder which might have contributed towards complications of kidneys and hemodialysis. 33.3% patients were feeling fatigue after dialysis[13,10]. 50% patient's length of hemodialysis process was three hours. 99% patients were two days under dialysis process in a week. Mean±SD of cadmium[12] in Hepatitis Patients (HP) before dialysis (Pre) was 1.37±0.12 µg/l, whereas after dialysis (Post) was 1.24±0.4 µg/l. Statistically no significant variations ($p>0.05$) was observed before and after dialysis process[13,14]. In our research we founded no remarkable change in cadmium concentration after Hemodialysis in all groups. Hemodialysis of kidney might be useful for removal of organic compounds i.e Urea and Creatinine but many studies reported that metals retained in blood might be due to membrane permeability of dialyzer instruments, necessitating special attention on removal of heavy or toxic metals from blood by hemodialysis process.

CONCLUSION

Besides other reasons, Diabetic Mellitus and Hepatitus have been main cause of Kidney failure, leading to Hemodialysis. Majority of Hemodailysis patients despite being Daibetic have been using soda drinks and tape water which can further aggravate or complicate their disorder and needed guidance and precautionary measure. No significant variations in Cadmium could be seen after hemodailysis therefore necessitating special attention on removal of heavy or toxic metals from blood by hemodialysis process.

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Frequency of Significant Structural Heart Disease in Neonates Presenting with Cardiac Murmer

Aroma Tariq and Maryam Rafiq

ABSTRACT

Objective: To know the frequency of Significant Structural Heart Disease in Neonates Presenting with Cardiac Murmer.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Paediatric Department, Sheikh Zayed Hospital Lahore from July 2013 to December 2013.

Materials and Methods: Seventy five (75) neonates with murmur collected from Nursery, Postnatal Gynae Ward and Out-Patient Department of Shaikh Zayed Hospital .The information was recorded in a pre-formed Performa, Data was analyzed using statistical package SPSS 12.

Results: Echocardiography confirmed murmurs in 65 neonates due to significant structural heart disease and remaining 10 murmurs were functional. Regarding frequencies of different heart defects VSDs were 43 (57.3%), ASDs 13 (17.3%), PDAs 6 (8%) and PS, ASD + PDA and VSD + ASD 1 (1.3%) each.

Conclusion: The clinician should have high index of suspicion regarding congenital heart disease especially in neonates presenting with murmur. Having missed, a large number of neonates with significant congenital heart disease present late when they actually become in-operatable resulting in disability or even death of the neonate.

Key Words: Significant structural heart disease, Innocent murmur, asymptomatic neonates

Citation of articles: Tariq A, Rafiq M. Frequency of Significant Structural Heart Disease in Neonates Presenting with Cardiac Murmer. Med Forum 2018;29(7):66-69.

INTRODUCTION

Up to ten in every 1000 live born babies have a cardiovascular malformation which presents in infancy, but most are asymptomatic at birth[1]. There is a relatively high incidence of structural heart disease in neonates presenting with asymptomatic cardiac murmur[2]. One in 100 is borne with some form of CHD, many of whom are first diagnosed by the findings of a cardiac murmur. The remainder of the children with murmur will have no cardiac disease and the murmur will be labeled as innocent or functional[3]. There is however, a wide misconception that murmurs are common in neonates and the most are innocent or physiological. This may explain why there seems to be a reluctance to make early referral for definitive diagnosis of heart disease[4].The purpose of this study is to emphasize the importance of detecting cardiac murmurs in asymptomatic neonates as an evidence of possible clinically significant structural heart disease.

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Two - Dimensional Echocardiography remains the gold standard non-invasive technique for the diagnosis of significant structural heart disease[5]

Congenital heart disease is one of the most common causes of death in newborn infants. The incidence of CHD has been reported as 6-8 in every 1000 live born babies but most are asymptomatic at birth[6]. Congenital heart disease (CHD) is defined as a "gross structural abnormality of heart or intrathoracic great vessels that is actually or potentially of functional significance"[7]. A cardiac murmur is a very common finding in the first few days of life and the most common reason for referral to the pediatric cardiologist. The reported prevalence of heart murmurs in neonates varies from 0.6% to 77.4%. About half of these murmurs in the neonates are due to an underlying cardiovascular malformation. The prevalence of heart murmur in a study was 13.7 per 1000 neonate[8]. If a murmur is heard there is a 54% chance of there being an underlying cardiac malformation Detection of a murmur on routine examination may be a clue for heart disease and offers the possibilities of early, pre symptomatic diagnosis and requires further evaluation[9].

Heart murmurs are a common finding in infants and children and mostly originate from normal flow patterns with no structural or anatomic abnormalities of the heart or vessels and are referred to as innocent, physiological or normal murmurs; conversely, murmur may be created by abnormal flow patterns in the heart

and vessels resulting from congenital heart abnormalities.[10]

In Pakistan, no community-based data is available on CHD prevalence. However, the reported incidence of CHD in NWFP is 8 / 1000 live births[11].

The frequencies of different cardiac defects remain constant in different studies with VSD being the commonest among acyanotics and TOF among cyanotic heart defects both nationally and internationally[12, 13].

MATERIALS AND METHODS

This study was conducted at the Paediatric Department, Sheikh Zayed Hospital Lahore from July 2013 to December 2013.

Sample size: Sample size of 75 cases is calculated with 95% confidence level, 8.5% margin of error and taking expected percentage of PDA i. e., 16.3% in neonates presenting with cardiac murmur.

Data Collection Procedure

Sample Technique: Non probability purposive sampling

Sample selection:

- **Inclusion criteria** Term neonates (>37 weeks) with cardiac murmurs as per operational definitions.
- Patients of both genders.

Exclusion criteria for both groups

- All those who were admitted in NICU due to some illness, e.g. D.I.C. (PT, APTT and D-dimers), hyaline membrane disease (on X-ray), C.C.F. (clinically).
- Any neonate with a risk factor that was known to be associated with an increased incidence of congenital heart disease (e.g., tachypnoea, respiratory rate> 60/ min, cyanosis, Down's syndrome).

Date collection: Sample size of 75 cases is calculated with 95% confidence level, 8.5% margin of error and taking expected percentage of PDA i. e., 16.3% in neonates presenting with cardiac murmur.

Seventy five cases fulfilling inclusion and exclusion criteria taken from Shaikh Zayed Hospital's Nursery, Postnatal Gynae Ward and O.P.D. Informed consent was taken before the enrollment and demographic information name, age (in months), sex, contact details were obtained from parents. After necessary clinical examination the neonates with murmurs were sent for 2-Dimensional echocardiography. After echocardiography, the patients were categorized depending upon the presence or absence of any clinically significant heart disease as per operational definitions. Then in neonates with significant structural heart disease the anomalies like ASD, VSD and PDA were noted. All the data was collected through a Proforma .

Data Analysis: Data was analyzed using statistical package SPSS (version 12.0). Mean and standard deviation were calculated for quantitative variables e.g. (age) and frequencies and percentages for qualitative variables (like gender, significant structural heart disease, and cardiac lesions like PDA, ASD, VSD) in patients with significant structural heart disease.

Demographic details, clinical characteristics and other relevant data was analyzed using statistical package SPSS (version 12.0). Mean and standard deviation was calculated for quantitative variables e. g. (age) and frequencies and percentages for qualitative variables (like gender, significant structural heart disease, PDA, ASD, VSD

RESULTS

Seventy five (75) neonates with murmur collected from Nursery, Postnatal Gynae Ward and Out-Patient Department of Shaikh Zayed Hospital and were enrolled from July 2013 to December 2013.Out of these 75 patients, 12 were from NICU (16%), 14 were from Postnatal Gynae Ward (18.6%) and 49 from OPD (65.3%) (Table 1).

Our study revealed 10 (13.33%) murmurs as functional among 75 neonates and the remaining 65 (86.7%) were due to structural heart disease(table 2). In a similar study by Laohaprasitiporn, 83 neonates found to have cardiac murmur, 49 (59%) with confirmed CHD and 34 (41%) with no CHD[1]. In a study by Abdullah, King Fahd Hospital of the University, Saudi Arabia, 6333 healthy newborn babies were screened for the presence of a murmur during routine neonatal examination. Murmurs were detected in (87) babies (1.37%). Echocardiography and Doppler study confirmed a cardiac mal-formation in 37 (42.5%), 24 (27.58%) had an insignificant structural heart lesion and 20 (22.98%) with normal heart.[19]

A local study conducted in Peshawar by Rahim, murmur was detected in 91 (3.1%) neonates, of whom 47 (51.6%) had a congenital heart disease. and in 44 (48.4%) have innocent murmur[12].

The most frequent congenital heart disease detected in our study was VSD comprising of 57.3% followed by ASD 17.3% and PDA 8% which is consistent with the worldwide figures. Bansal found VSD as the most common lesion amounting to 65.63% of the lesions[16]. The high incidence of VSD could be because the preterm infants were not included in our study. In other study by Abdullah, King Fahd Hospital University, Saudi Arabia VSD was found to be 62% among acyanotic heart disease, ASD 13.5% and PS and PDA 8% each[19].

Table No.1: Distribution of Patients According to Mode of Admission

Mode of admission	No. of Patients	%age
NICU	12	16.0
Postnatal Gynae Ward	14	18.66
OPD	49	65.33
Total	75	100.0

Table No.2: Echocardiographic Diagnosis

	No. of Patients	Percentage
VSD	43	57.33
ASD	13	17.33
PDA	6	8.0
PS	1	1.3
ASD + PDA	1	1.3
VSD + ASD	1	1.3
Functional	10	13.33

Table No.3: Comparison of Clinical and Echocardiographic Diagnoses

	Clinical	Echocardiography
Innocent murmur	08(10.66%)	10(13.3%)
Murmur due to underlying structural heart disease	67(89.33%)	65(86.7%)
Total no. of patients	75(100%)	75(100%)

Most of the patients were AGA (82%) in our study.

Clinical diagnosis revealed 8 (10.66%) murmurs as functional and remaining 67 (89.33%) murmurs due to an underlying structural heart disease (table 3). On the other hand, echocardiography confirmed 10 (13.33%) neonates having functional murmur as compared to 65(86.7%) neonates having significant structural heart disease (table 3).

Echocardiography confirmed murmurs in 65 neonates due to significant structural heart disease and remaining 10 murmurs were functional (Table 3).

Out of 65 neonates with significant structural heart disease 43 (66.15%) were males and 22 (33.85%) were females.

Total number of live births in our hospital during the study period was 1800 and 26 out of these babies had murmur. The incidence of cardiac murmurs among these babies was 14.4 for 1000 live births. Whereas total number of neonates observed in OPD were 3500 out of which 49 neonates with cardiac murmur were included in the study.So the incidence of cardiac murmur among neonates enrolled from OPD was 14 per thousand live births.

Regarding frequencies of different heart defects VSDs were 43 (57.3%), ASDs 13 (17.3%), PDAs 6 (8%) and PS, ASD + PDA and VSD + ASD 1 (1.3%) each.

DISCUSSION

Congenital heart disease is one of the most common congenital malformations. Many present with this problem in the neonatal period. Cardiac murmur is an important clinical manifestation of congenital heart disease. The earlier the congenital heart disease is diagnosed better is the prognosis[7]. Therefore this study was done to evaluate the murmurs in otherwise healthy term neonates. Our clinical diagnosis was made based on the auscultatory findings in the neonates. Later, the clinical findings were confirmed by two dimentional echocardiography, which is the gold standard for diagnosis of congenital heart disease[5,14]. Total number of live births during the study period in our hospital were 1800 and 75 out of these had murmur. The incidence of cardiac murmurs among the neonates born in our hospital was 14. 4 for 1000 live births. Early studies of the incidence of CHD, as summarized by Hoffman[15]produced low incidences of about 4 to 5 per 1, 000 live births, but this figure has been rising steadily until recently when incidences of 12 to 14/1, 000 live births, or higher, have been reported in the literature. Bansal et al[16] in his study had shown an incidence of 23.81 per 1000 live birth having murmur. Farrer et al studied 8096 babies and found murmurs in 112 babies with a prevalence of 13.8 per 1000 live birth as against 14. 4 per 1000 live births in our study[17]. There were 13.5 per 1000 live births having murmurs in the study by Rakesh[18].

CONCLUSION

The congenital heart disease contributes to a high proportion (up to 25% in some studies) of congenital malformation that present in neonatal period. There is a misconception that murmurs are common in neonates and that most are innocent or functional. The clinician should have high index of suspicion regarding congenital heart disease especially in neonates presenting with murmur. These delayed or missed diagnoses can result in both disability and death. life So diagnosis of CHD at the earliest possible time is very important as early referral and appropriate intervention in some of these cases are life saving.

Author's Contribution:

Concept & Design of Study:	Aroma Tariq
Drafting:	Maryam Rafiq
Data Analysis:	Maryam Rafiq
Revisiting Critically:	Aroma Tariq
Final Approval of version:	Aroma Tariq

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Knowledge and Practices Regarding Preventive Oral Health Care Among Undergraduate Students of Karachi, Pakistan

Anjum Tariq[1], Anam Jawed[2], Faiza Sattar[3] and Muhammad Tariq[4]

ABSTRACT

Objective: To assess the knowledge and practices regarding preventive dental care among different universities undergraduate students in Karachi, Pakistan.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Dental Biomaterials Department, Jinnah Medical and Dental College, Karachi from September 2017 to December 2017.

Materials and Methods: This survey was conducted using a self-administered questionnaire, that assessed oral health and hygiene knowledge and practices of 400 students from various professions (i.e. ACCA, BA, BCOM, BBA, B.S.) Data was analyzed using descriptive statistics and chi-square tests using SPSS VERSION 21. Significance level was set at $p<0.05$

Results: The survey revealed that 48.8% students used tooth brush with toothpaste and considered as an oral hygiene aid. About 36.5% cleaned their teeth once every morning.57.3% were aware of the role of fluoride in caries prevention.44.3% frequently changed their toothbrush i.e. every 3 months.While 63.0% were aware of the dental problems, occur when oral hygiene is not maintained properly.

Conclusion: It can be concluded that most of the students used toothbrush along with toothpaste only, and were not aware of interdental cleaning aids. Interdental cleaning were much below than our expected levels and we must create awareness through programs in educational institutions to reduce the dental disease burden.

Key Words: Oral hygiene, Knowledge, Attitude, Students

Citation of articles: Tariq A, Jawed A, Sattar F, Tariq M. Knowledge and Practices Regarding Preventive Oral Health Care among Undergraduate Students of Karachi, Pakistan. Med Forum 2018;29(7):70-73.

INTRODUCTION

The word hygiene is obtained from hygienia, the Greek goddess of health, cleanliness, asepsis, sterility and sanitation. So, hygiene refers to the conditions and a set of exercises that support to rebuild health and arrest illness from the spread of bacterial or viral infections and other diseases.[1]

Dental cleaning knowledge is deemed to be the most essential factor in oral disease prevention that helps us in maintaining esthetics, communication and mastication.[2,3]

Oral health is now as essential as the general health. In current years gingival diseases have been linked to a number of health issues, which might be a bi-faced relationship for many conditions such as cardiovascular problems, respiratory conditions, diabetes mellitus, osteoporosis, obesity, pancreatic cancer, Alzheimer's disease, preterm labor and low birth weight babies.[4-8]

Fortunately many of the oral health issues are preventable and curable too, their onset can be reverted back.[9] Many factors like diet, smoking, alcohol, poor hygiene, stress are transformed to a broad range of high morbidity diseases; moreover these factors are also responsible for developing many oral diseases. That is why WHO is also approaching to stop a wide range of conditions including oral diseases.[10]

It is presumed that mass media, dental faculty and dental literature are the actual sources of oral health concept for people. By maintaining oral health, dentists, dental hygienists and rest of dental health providers become role model for their patients, families, relatives and friends. Knowledge about the idea of oral health and its significance at the university level are presumed to be more easily understood and implemented by them.[11] A study[12] related to oral hygiene behavior had been conducted among university students that have focused on the knowledge, attitude and exercises of non-professional college students for oral health. Our current study therefore focuses undergrad students belongs to professional but non-medical universities.

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MATERIALS AND METHODS

The study was conducted at Jinnah Medical And Dental College. It's a descriptive cross-sectional study. The participants were university level undergraduates above 18 years. An 8-item self–administered questionnaire was distributed to 400 students to collect the information related to oral hygiene using convenience sampling. Students were approached individually, purpose of the study was explained and consents were taken from each of them. Data were entered into the SPSS version 21 and analyzed. Test of association was done using chi square statistics.

Inclusion criteria: Age above 18 years, non-medical undergraduate students, above intermediate level.

Exclusion criteria: Age below 18 years, non-medical students, below intermediate level.

RESULTS

Amongst the 400 undergraduate students of various professions evaluated in the research, in which majority of the students i.e 48.8% of them considered toothbrush and toothpaste as the most common dental cleaning aid, 27.3% of them used toothbrush, toothpaste and mouth wash, 9.8% used tooth brush, tooth paste and dental floss as dental cleaning aids, 8% used tooth brush, tooth paste, mouth wash and dental floss and very few of them i.e. 6.3% used miswak. 44.25% of the students change their tooth brush every 3 months, 12% every 6 months, 23.75% every month, and 20% of them changed their tooth brush whenever they feel that their bristles are spread.10.5% of the students considered bad breadth as a cause of not cleaning their teeth,9.5% of them think gum disease as a main factor, 17% of them considered tooth decay as a main cause and majority of

Table No.1: Responses of students of knowledge and practices regarding preventive dental care among undergraduate students *Statistically significant p-value

No	Question	Result	P - Value
1.	Not cleaning your teeth everyday can cause? a. Tooth decay b. Gum disease c. Bad breadth d. All of the above	a.17.0% b.9.5% c.10.5% d.63.0%	0.383
2.	What is the cause of mouth odour? a. Improper cleaning of teeth b. Not cleaning your tongue c. Dental caries d. All of the above	a.35.3% b.19.5% c.7.80% d.37.5%	0.059
3.	How often do you visit your dentist? a. Once a year b. Twice a year c. Only when I have dental problem d. I don't visit the dentist	a.13.0% b.13.5% c.50.3% d.23.3%	0.059
4.	Are you aware of fluoridated toothpaste in preventing caries formation? a. Yes b. No	a.57.3% b.42.8%	0.16*
5.	What do you use for cleaning your teeth? a. Miswak b. Tooth brush and a paste c. Tooth brush, paste, mouthwash and dental floss d. Tooth brush paste and mouthwash e. Tooth brush, paste and dental floss	a.6.3% b.48.8% c.8.0% d.27.3% e.9.8%	0.018*
6.	How long you normally take to brush your teeth? a. Less than a min b.1 min c.2 mins d. 3 mins	a.15.0% b.35.0% c.34.0% d.16.0%	0.705
7.	How frequently do you change your tooth brush? a. Every month b .Every 3 months c. Every 6 months d. Whenever I feel bristles are spread	a.23.8% b.44.3% c.12.0% d.20.0%	0.001*
8.	When do you clean your teeth? a. Before breakfast b. After breakfast c. After every meal d. Before going to sleep e. Both A&D f. Both B&D	a.36.5% b.4.8% c.6.30% d.3.5% e.33.5% f.15.5%	0.000*

them i.e. 63% think that halitosis, gum disease and tooth decay all of them are considered to be the causes of not cleaning their teeth.35.5% of the students considered improper cleaning of the teeth is the mean reason of halitosis,7.8% think dental caries is the main cause, 19.5% think that bad breadth occurs because of not cleaning their tongue and majority of them i.e. 37.5% think that all these reasons are considered as the causes of halitosis. 17% of them found tooth decay as the major cause of not cleaning teeth, 10.5% thought bad breadth as the main cause and very few 9.5% considered gum disease. 36.5% clean their teeth before breakfast, 33.5% before breakfast and before going to sleep, 15.5% after breakfast and before going to sleep, 6.3% cleaned their teeth after every meal, 4.8% after breakfast and 3.5% before going to sleep.50.3% of the students only visit the dentist when they face dental problems, 13.0% visit once a year, 13.5% visit twice a year, and about 23.3% of them don't visit the dentist. 57.3% were aware of fluoridated toothpaste in preventing caries formation, while only 42.8% were unaware. 35.0% of the students take 1 minute to brush their teeth, 34.0% take 2 minutes, 16.0% take 3 minutes, and about 15.0% take less than a minute to brush their teeth. Results are shown in table 1.

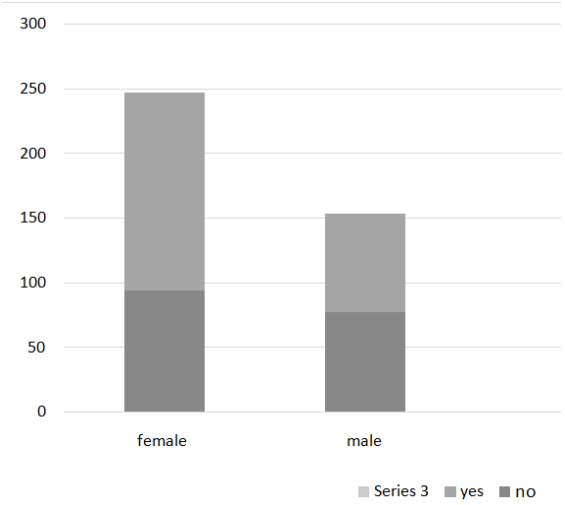

Figure No. 1: Depicts the responses of awareness of fluoridated toothpaste in preventing dental caries according to gender.

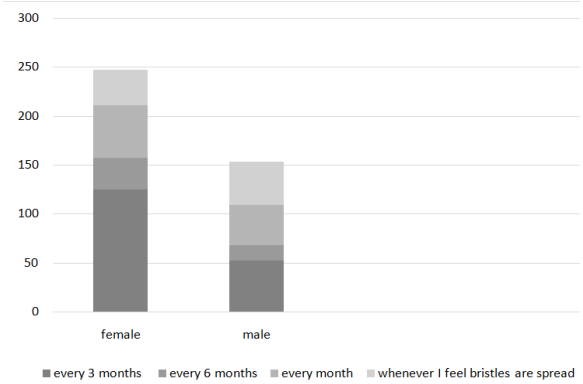

Figure No. 2: Depicts the responses of frequency of changing their tooth brush according to gender

DISCUSSION

Health and hygiene work synergistically. For leading a healthy life it is necessary for one to maintain personal hygiene and incorporated it daily routine. Hygiene practice should be initiated from oral cavity because practicing oral hygiene in a correct way can be helpful in preventing unfavorable effects on general health. Students are considered to be an ideal population for an early intervention towards development of a healthy behavior and practices at younger age.[13] Many studies have been conducted on perceived behavior for oral hygiene, targeting school children and medical students. We therefore chose undergraduate non-medical students (ACCA, BBA, BA, B.COM and BS) as our target population in our study. A study[14] also states that assessing knowledge of these students is imperative and reflects their mind set. Good oral hygiene practice that gets incorporate in their lifestyle at this age, will last for a lifetime. In this study 48.8% prefer using tooth brush and tooth paste, 27.3% use tooth brush, paste and mouth wash, 9.8% use tooth brush, paste along with dental floss, 6.3% used miswak and only 8.0% were using proper interdental cleaning aids. Similar results were found in studyconducted among adult Nigerians.[15] The study suggest that the largest proportion of participants i.e. 81% were using tooth brush and tooth paste while 10.5% dental floss and 9.6% used miswak. It is assumed that use of miswak was common among Saudi population due to their cultural belief but in study of Riyadh[16] it was observed that less than 10% used miswak for oral hygiene.

The study on oral hygiene habits on basis of gender difference conducted in Nigeria[17] revealed that regular changing of toothbrush was observed in 27% of males and only 12% of females study participants. In our study it clearly signifies that females (31.3%) are more regular in changing their tooth brush after 3 months as compared to males (13%) (figure 1).

In present study, it was found that females are more aware of use of fluoride tooth paste (38.3%) than males (19%) (figure 2). In Iran[18] 37.9% of the study population had high knowledge of fluoride toothpaste and 62.9% had intermediate knowledge, but knowledge among males was more than females.

Frequency of brushing twice daily i.e. before bed and before breakfast is found common more among females (25%) than males (8.5%) in the current study. These twice daily practices are consistent with result from studies done in Georgia and Yemen respectively.[19,20] A study conducted in Lahore, Pakistan had similar results.[21]

CONCLUSION

It can be concluded that most of the students use only toothbrush along with toothpaste and are not aware of interdental cleaning aids. Interdental cleaning is much

below than our expected levels and we must create awareness through programs in educational institutions to reduce the dental disease burden.

Author's Contribution:

Concept & Design of Study:	Anjum Tariq
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Final Approval of version:	Anjum Tariq

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

The Role of Carbapenems in the Management of Diabetic Wounds

Rehan Anwar[1], Asif Javed[2], Mansoor Hassan[2] and Abdul Hamid[3]

ABSTRACT

Objective: To study the role of Carbapenems in the Management of Diabetic Wounds.
Study Design: Prospective Study
Place and Duration of Study: This study was conducted at the Idris Teaching Hospital Sialkot from January 2014-Nov 2017.
Materials and Methods: To study the role of Carbapenems in the Management of Diabetic Wounds. One hundred patients of diabetic wounds were included in this prospective study during January 2014- Nov 2017 at Idris Teaching Hospital Sialkot. Carbapenems antibiotic one gram twice daily was given to all patients in this study. The performa was designed to record age, gender, duration of treatment, grades of the wounds & area of the body involved in diabetic wounds. Informed consent of all the patients was considered before treatment and permission of ethical committee of the institute was also obtained.
Results: The diabetic wounds were more common in female 63 (63%) as compare to male 37(37%) as shown in table no.1. The common age range was 50-60 years 35 (35%) cases in female and 20 (20%) cases in male as shown in table no.1. The incidence of diabetic wounds of foot, legs, back, and hands was 86%, 3%, 5% and 6% respectively as shown table no.2. It showed that the foot was most common area involved in diabetic wounds 86 cases (86%). The incidence was in different grades of the wounds (I-V), 20 (20%), 30 (30%), 20 (20%), 15 (15%) & 15 (15%) respectively as shown in table no. 03. It showed that the incidence of grade II wounds was maximum 30 (30%). In grades of wounds from I-V, the duration was 3-7 days, 8-15 days, 16-30 days, 31-45 days, 46-60 days respectively as shown in table no.03.
Conclusion: It showed that wounds of the grade 2 have maximum incidence 30 (30%) as compared to other grade of the wounds.
Key Words: Carbapenems, Management, Diabetic Wounds

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INTRODUCTION

At some time in their life, 15% of people with diabetes develop foot ulcers. Eighty-five percent of amputations are preceded by an ulcer[1] and there is an amputation every 30 seconds throughout the world.[2] The main reason for this is that foot ulcers are highly susceptible to infection.[3] This may spread rapidly leading to overwhelming tissue destruction and the need for amputation. Guidelines on the Diagnosis and Treatment of Diabetic Foot Infections have been issued from the Infectious Diseases Society of America (IDSA)[4] and also by The International Working Group on the Diabetic Foot, which produced its International Consensus Guidelines on Diagnosing and Treating Infected Diabetic Foot in 20035 and recently guidelines for the treatment of Diabetic Foot Osteomyelitis in 2007.[6,7] New developments have recently been reviewed by Lipsky.[8]

Various classifications of infection exist and the ISDA has staged infection from mild to moderate to severe.[4] Mild infection is characterized by the presence of 2 manifestations of inflammation (purulence, or erythema, pain, tenderness, warmth or induration), with cellulitis/erythema extending less than 2 cm around the ulcer, and infection is limited to the skin or superficial subcutaneous tissue with no other local complications or systemic illness. In moderate infection, the patient has one of the following characteristics: cellulitis extending >2 cm, lymphangitic streaking, spread beneath the superficial fascia, deep-tissue abscess, gangrene, and involvement of muscle, tendon, joint or bone, but is systemically well and metabolically stable. In severe infection, the patient has systemic toxicity or metabolic instability (e.g., fever, chills, tachycardia, hypotension, confusion, vomiting, leukocytosis, acidosis, severe hyperglycemia, or azotemia). Validation of the IDSAs diabetic foot infection classification system has been reported in a longitudinal study of 1666 persons with diabetes.[9] There was an observed trend toward an increased risk for amputation, higher-level amputation and lower extremity-related

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hospitalization with increasing infection severity. Other classifications include limb threatening and non-limb threatening infections.[10]

Carbapenem is a broad-spectrum antibacterial agent of the carbapenem class. Carbapenem has excellent activity against a broad range of bacteria including many Gram-positive and Gram-negative pathogens, including many potentially resistant strains such as *Pseudomonas aeruginosa*, as well as anaerobic organisms.

Globally, diabetic foot ulcers are one of the major public health problems leading to socioeconomic burden to the suffering individuals.[1,2] Around 15% of all diabetic patients develop a foot ulcer that is highly vulnerable to infections, at some time in their life.[3] Foot ulcer infections usually spread rapidly on account of polymicrobial growth, predominantly consisting of aerobic, Gram-positive and Gram-negative organisms.[4,5] In recent years, the number of the incidents and complications-related to diabetic foot infections (DFIs) has drastically increased due to increased incidence of multidrug-resistant organisms.[6]

Adequate management of these infections needs appropriate antibiotic selection on the basis of culture and susceptibility test reports.[7] Knowledge of microbes that cause infections is helpful in determining proper antibiotic therapy.[3] Hence, this pilot study was undertaken in order to investigate the antimicrobial susceptibility pattern of microbes isolated from diabetic wounds.

MATERIALS AND METHODS

To study the role of Carbapenems in the Management of Diabetic Wounds. One hundred patients of diabetic wounds were included in this prospective study during January 2014- Nov 2017 at Idris Teaching Hospital Sialkot. Carbapenems antibiotic one gram twice daily was given to all patients in this study. The performa was designed to record age, gender, duration of treatment, grades of the wounds & area of the body involved in diabetic wounds. Informed consent of all the patients was considered before treatment and permission of ethical committee of the institute was also obtained.

RESULTS

The diabetic wounds were more common in female 63 (63%) as compare to male 37(37%) as shown in table no.1. The common age range was 50-60 years 35 (35%) cases in female and 20 (20%) cases in male as shown in table no.1. The incidence of diabetic wounds of foot, legs, back, and hands was 86%, 3%, 5% and 6% respectively table no.2. It showed that the foot was most common area involved in diabetic wounds. The incidence was in different grades of the wounds (I-V), 20 (20%), 30 (30%), 20 (20%), 15 (15%) & 15 (15%) respectively as shown in table no. 03. It showed that the incidence of grade II wounds was maximum 30 (30%). In grades of wounds from I-V, the duration of treatment was 3-7 days, 8-15 days, 16-30 days, 31-45 days, 46-60 days respectively as shown in table no.03. It showed that wounds of the grade 2 have maximum incidence 30 (30%) as compared to other grade of the wounds.

Table No. 1 Age & Gender Distribution in role of Carbadenems in Diabetic Wounds

Sr#	Age (Years)	Male (%) N=37	Female (%) N= 63
1	30-40	04 (4%)	5 (5%)
2	41-50	10 (10%)	15 (15%)
3	51-60	20 (20%)	35 (35%)
4	61 & above	3 (3%)	8 (8%)
	Total	**37 (37%)**	**63 (63%)**

Table No. 2 Distribution of Area of the body in Diabetic Wounds

Sr#	Area of the Body	Cases	Percentage %
1	Foot	86	86%
2	Legs	3	3%
3	Back	5	5%
4	Hands	6	6%
	Total	**100**	**100%**

Table No. 3 Duration of Treatment in Different Grades of Diabetic Wounds

Sr#	Duration of Treatment (Days)	Grades of Wounds	No. of Cases (%)
1	3-7	Grade I (Superficial Ulcer)	20 (20%)
2	8-15	Grade II (Excluding up to tendon, ligament or joint capsule)	30 (30%)
3	16-30	Grade III (Abscess formation or Osteomyelitis)	20 (20%)
4	31-45	Grade IV (Forefoot Gangrene)	15 (15%)
5	46-60	Grade V (Whole foot Gangrene)	15 (15%)
	Total	**100**	**100%**

DISCUSSION

Foot infections are common in individuals with diabetes.[11] Among the decisions that the clinician treating such a patient must select the most appropriate

antibiotic regimen, usually in the face of inadequate microbiological information. If too narrow a spectrum is chosen, there is a risk of missing a pathogen in these often polymicrobial infections, potentially leading to a poor clinical outcome.[12] Opting for unnecessarily broadspectrum therapy contributes to the growing problem of antibiotic resistance, and potentially increases the risk of drug toxicity and treatment expense. Some basic principles can provide guidance. First, criteria established by the Infectious Diseases Society of America[13] or the International Working Group on the Diabetic Foot[14] should be used to determine the severity of the infection. Broad-spectrum therapy is usually needed only for patients with severe infections; these require an adequate antibiotic regimen until the results of culture are available.[15] Mild, and most moderate, infections can often be treated with an agent with a more narrow spectrum of activity.[16] Even if some organisms isolated from an infection are found to be resistant to the selected regimen, most patients with non-severe infections will improve (or at least stabilise) if they receive proper supportive care,[17] debridement, pressure off-loading and wound care. Second, therapy should virtually always include coverage for aerobic Gram-positive cocci, especially Staphylococcus aureus, which is both the most frequent and virulent pathogen isolated. Whether or not empirical coverage for methicillinresistant S. aureus (MRSA) should be provided is a growing concern worldwide[18]. This decision depends largely on the overall local prevalence of MRSA, and the presence or absence of risk-factors for MRSA infection, e.g., recent hospitalisation or residence in a healthcare facility, recent antibiotic therapy or a requirement for renal dialysis. Agents that cover S. aureus will usually cover the b-haemolytic streptococci that are also relatively frequent pathogens. While enterococci are often isolated from diabetic foot infections, they are rarely primary pathogens.[19]

This is a carbapenem given once daily and is useful against Gram-positive and Gram-negative organisms and also anaerobes. It is generally given to adults as a 1 g dose, once a day, by intravenous infusion or intramuscular injection. It may be given intramuscularly as 1 g diluted with 3.2 mL of 1% lidocaine.

In a recent study ertapenem was shown to be equivalent in action with piperacillin/tazobactam in treating infected diabetic feet.[11] In the Sidestep study, 586 patients were randomized into two treatment groups to receive intravenously either ertapenem 1 g once daily (n = 295) or piperacillin/tazobactam 3.375 g every 6 hours (n = 291) for a minimum of 5 days with the option to switch to oral amoxicillin/clavulanate for a total of 5 to 28 days of treatment (parenteral and oral). Patients were assessed by their clinical response between treatment groups at the 10-day post therapy follow-up visit. Of those patients described as evaluable (ertapenem n = 204; piperacillin/tazobactam n = 202), 75.0% of the patients taking ertapenem had a favorable clinical response compared to 70.8% of the patients taking piperacillin/tazobactam (CI = 95%).

Baseline characteristics of the 108 diabetic foot ulcer patients taken for the study showed 72.2% (78/108) were males and 27.8% (30/108) were females. Increased male prevalence has been reported in other studies.[20] In our study the female prevalence was 63 (63%) & male 37 (37%) had been observed.

In our study the diabetic wounds were more common in female 63 (63%) as compare to male 37(37%). The common age range was 50-60 years 35 (35%) cases in female and 20 (20%) cases in male. The incidence of diabetic wounds of foot, legs, back, and hands was 86%, 3%, 5% and 6% respectively. It showed that the foot was most common area involved in diabetic wounds. The incidence was in different grades of the wounds (I-V), 20 (20%), 30 (30%), 20 (20%), 15 (15%) & 15 (15%) respectively. It showed that the incidence of grade II wounds was maximum 30 (30%). In grades of wounds from I-V, the duration of treatment was 3-7 days, 8-15 days, 16-30 days, 31-45 days, 46-60 days respectively.

CONCLUSION

It showed that wounds of the grade 2 have maximum incidence 30 (30%) as compared to other grade of the wounds.

Author's Contribution:

Concept & Design of Study:	Rehan Anwar
Drafting:	Asif Javed
Data Analysis:	Mansoor Hassan, Abdul Hamid
Revisiting Critically:	Rehan Anwar, Asif Javed
Final Approval of version:	Rehan Anwar

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Comparing Retrobulbar and Topical Anaesthesia in Cataract Surgery

Malik Jamil Ahmed[1], Muhammad Nasir[2] and Rida Arshad[3]

ABSTRACT

Objective: To evaluate and compare perioperative and anesthetic complication and surgeon satisfaction in retrobulbar injection of anesthetic agent and topical anesthesia for cataract surgery.

Study Design: Randomized Control Trial study.

Place and Duration of Study: This study was conducted at the Department of Anaesthesia and Ophthalmology Nishtar Hospital, Bakhtawar Amin Medical and Dental College Multan and Shahida Islam Medical College, Lodhran from April 2017 to April 2018.

Materials and Methods: Adult patients of age limit from 35 to 60 years who were selected for cataract surgery were included. Patients were divided into two groups with computer randomization system. Preoperative, post-operative complication pain score and surgeon satisfaction are main outcome variables. SPSS version was used to analyze data. P value ≤ 0.05 was considered as significant.

Results: Three hundred patients were included in this study of both genders. Capsular tear, zonular tear and vitreous loss for the patients who received topical anesthesiawas noted as n=3 (2%), n=7 (4.7%) and n=2 (1.3%) respectively. Chemosis, periorbital hematoma, subconjunctival hemorrhage and supplement periocular anesthesiafor the patients who received topical anesthesiawas observed as n=13 (8.7%), n=8 (5.3%), n=14 (9.3%) and n=19 (12.7%) respectively. Corneal edema, wound leak and IOP >30 mm Hgfor the patients who received topical anesthesiawas noted as n=2 (1.3%), n=4 (2.7%) and n=14 (9.3%) respectively. While, capsular tear, zonular tear and vitreous loss for the patients who received retrobulbar anesthesia was noted as n=6 (4%), n=7 (4.7%) and n=4 (2.7%) respectively. Chemosis, periorbital hematoma, subconjunctival hemorrhage and supplement periocular anesthesia for the patients who received retrobulbar anesthesia was observed as n=12 (8%), n=8 (5.3%), n=12 (8%) and n=4 (2.7%) respectively. Corneal edema, wound leak and IOP >30 mm Hg for the patients who received retrobulbar anesthesia was noted as n=2 (1.3%), n=7 (4.7%) and n=7 (4.7%) respectively. Supplement periocular anesthesia and IOP >30 mm Hg was statistically significant (p=0.000) and (p=0.000) respectively.

Conclusion: This study reveals that surgeon satisfaction is almost similar in both topical and retrobulbar anesthesia groups, pain score is slightly high in topical anesthesia but safety from complications in topical aesthesia is high as compare to retrobulbar group.

Key Words: Retrobulbar anesthesia, Topical Anaesthesia, Cataract Surgery, Pain score.

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INTRODUCTION

Use of anesthetic agents in retrobulbar injection for cataract surgery has been in practice from a long time[1]. On the other hand lot of modalities has been evolved to reduce the risk of intra orbital structure damage because the blind insertion of infraorbitalneedles into retrobulbar space are not safe[2]. Another attractive alternative of local anesthetic agent is topical anesthesia which was first used by Fichman.

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Topical use of anesthesia results high patient satisfaction due to fast recovery of vision[3].

Topical anesthesia have many advantages over retrobulbar injection like easy to apply, rapid Onset of anesthesia, no discomfort on administration and no risk of injection complications[4,5]. Another important difference is that it is more economical, rapid visual recovery and minimal cosmetic results[6]. Topical anesthesia only acts on trigeminal nerve and provides good analgesic effect to whole eye[7]. As many previous studies reported topical anesthesia as safe and effective on other hand some studies suggested that topical anesthesia should never be used in patient'ssevere concomitant ocular pathology[8].

In complicated cases manipulation of iris and stretching of ciliary muscles could irritateand unanesthetized the ciliary nerve ending which leads to discomfort and restrict the ciliary muscles[9]. After this mechanism surgeons require another anesthetic short through intracameral injection and use of fluid during ocular surgery[10]. This study is designed to investigate and

compare the benefits and drawbacks of retrobulbar injection and topical anesthesia.

MATERIALS AND METHODS

This randomized clinical trial was conducted in the department of Anaesthesia and Ophthalmology Nishtar Hospital, Bakhtawar Amin Medical and Dental college Multan and Shahida Islam Medical College, from April 2017 to April 2018. After permission from department ethical committee. Non probability consecutive sampling technique was used and sample size was calculated by using WHO sample size calculator. Three hundred patients selected for cataract surgery were enrolled in study. Patients with previous history of eye surgery, any traumatic injury, hypersensitivity to lidocaine or topical anesthetic, not native of operating room language and bells palsy were excluded from study. Patients were divided into two equal groupsretrobulbar andtopical anesthesia groups (150 in each group) through random number table.

Patients included in retrobulbar group were given oral sedation of 3 to 5mgof midazolambefore thirty minutes of 5% bupivacaine hydrochloride single injection 0.5 ml hyaluronidase and 2% lidocaine injection in retrobulbar space by consultant anesthetist with more than 5 years post fellowship experience. Volume was given 3.5 to 5.5ml rage but according to body weight. HonanBalloon was used for ocular compression was achievement. Effect of anesthesia was assessed by eye surgeon

Patients in topical anesthesia group were given minimum 5 doses 2% topical lidocaine. Four doses were given into inferior and superior cul-de-sac about 5 to 10 minutes before surgical procedure, draping, initial corneal Incision and finally before phacoemulsification. Additional doses of 2% lidocaine as 80 µL were given for breakthrough of pain. If all these techniques were not effective 75% bupivacaine injection subconjunctival was given.

All surgical procedures were performed by the senior surgeon who was performing cataract surgery from last five years under topical anesthesia and retrobulbar injection. Foldable IOL was inserted with standard phacoemulsification technique. Clear temporal corneal Incision was made and using three step Incision technique and eye was immobilized with Thornton fine ring. Paracenteses was done with tow sided ports each from 90 degree meridian. Pupil dilation was done where feel to be necessary after IOL implantation and removal of viscoelastic substances constriction of pupil was done with intracameral 1% carbachol. No patient required any type of suture for wound closure and leakage of fluid was tested by applying gentle compression using sponge. After surgery 50 mg of Mezlocillin and dexamethasone acetate was injected subconjunctival. Topical corticosteroids and combination of steroid and antibiotic was given in ointment form for night dose.

For pain assessment purpose visual analogue scale score was used which shows numerical representation of pain severity. Number “0” no pain and number “10” shows severe pain. Surgeon satisfaction about surgery was also asked which represents in form no difficulty, slightly difficult and extremely difficult.Complications and adverse events preoperatively, postoperatively and after 24 hours of surgery was noted in a pre-designedperforma.

Data was entered in computer software SPSS version 24 and analyzed for mean and standard deviation of numerical data like age pain score. Frequency and percentages were calculated for categorical data like gender, surgeon satisfaction and complications. Student T-test and chi square test was applied to see association. P value ≤0.05 was taken as significant.

RESULTS

Three hundred patients were included in this study, both genders. n=150 (50%) patients received topical anesthesia while n=150 (50%)patients received retrobulbar anesthesia. The mean age and pain score was 52.10±2.99 years and 1.20±0.90 respectively. There were n=97 (64.7%) males and n=53 (35.3%) females. While, the mean age and pain score was 56.34±4.06 years and 1.16±0.90 respectively. There were n=117 (78%) males and n=33 (22%) females.The difference was statistically significant for age (p=0.000) and gender (p=0.011). (Table I).

Capsular tear, zonular tear and vitreous loss for the patients who received topical anesthesiawas noted as n=3 (2%), n=7 (4.7%) and n=2 (1.3%) respectively. Chemosis, periorbital hematoma, subconjunctival hemorrhage and supplement periocular anesthesiafor the patients who received topical anesthesiawas observed as n=13 (8.7%), n=8 (5.3%), n=14 (9.3%) and n=19 (12.7%) respectively. Corneal edema, wound leak and IOP >30 mm Hgfor the patients who received topical anesthesiawas noted as n=2 (1.3%), n=4 (2.7%) and n=14 (9.3%) respectively. While, capsular tear, zonular tear and vitreous loss for the patients who received retrobulbar anesthesia was noted as n=6 (4%), n=7 (4.7%) and n=4 (2.7%) respectively. Chemosis, periorbital hematoma, subconjunctival hemorrhage and supplement periocular anesthesia for the patients who received retrobulbar anesthesia was observed as n=12 (8%), n=8 (5.3%), n=12 (8%) and n=4 (2.7%) respectively. Corneal edema, wound leak and IOP >30 mm Hg for the patients who received retrobulbar anesthesia was noted as n=2 (1.3%), n=7 (4.7%) and n=7 (4.7%) respectively. Supplement periocular anesthesia and IOP >30 mm Hg was statistically significant (p=0.000) and (p=0.000) respectively. Anesthetic-related difficulties were shown in Table 2. Intraoperative complications within 24 hours were described in Table 3.

Table No. I: **Demographic Variables among the groups**

Variables	Patients who received topical anesthesia n=150	Patients received retrobulbar anesthesia n=150	p-value
Age (years)	52.10±2.99	56.34±4.06	0.000
Pain score	1.20±0.90	1.16±0.90	0.750
Gender			
Male	n=97 (64.7%)	n=117 (78%)	0.011
Female	n=53 (35.3%)	n=33 (22%)	

Table No.2: Anesthetic-related difficulties

Variables	Patients who received topical anesthesia n=150	Patients received retrobulbar anesthesia n=150	p-value
Intraoperative			
Capsular tear	n=3 (2%)	n=6 (4%)	0.130
Zonular tear	n=7 (4.7%)	n=7 (4.7%)	1.0
Vitreous loss	n=2 (1.3%)	n=4 (2.7%)	0.409
Anesthesia related			
Chemosis	n=13 (8.7%)	n=12 (8%)	0.835
Periorbital hematoma	n=8 (5.3%)	n=8 (5.3%)	1.0
Subconjunctival hemorrhage	n=14 (9.3%)	n=12 (8%)	0.681
Supplement periocularanesthesia	n=19 (12.7%)	n=4 (2.7%)	0.000
Early Preoperative			
Corneal edema	n=2 (1.3%)	n=2 (1.3%)	1.0
Wound leak	n=4 (2.7%)	n=7 (4.7%)	0.357
IOP >30 mm Hg	n=14 (9.3%)	n=7 (4.7%)	0.000
Surgeon-related difficulties			
None to slightly difficult	n=132 (88%)	n=136 (90.7%)	0.484
Moderately difficult	n=12 (8%)	n=7 (4.7%)	
Extremely difficult	n=6 (4%)	n=7 (4.7%)	

Table No.3: Intra-operative complications

Intraoperative complications	PEX n=18 (16%)	Miosis n=128 (42.7%)	Previous surgery n=87 (29%)	Myopia n=17 (5.7%)	Hyperopia n=20 (6.7%)
Capsular tear	n=15 (31.3%)	n=17 (13.3%)	n=7 (8%)	n=5 (29.4%)	n=3 (15%)
Zonular tear	n=24 (50%)	n=26 (20.3%)	n=15 (17.2%)	n=9 (52.9%)	n=5 (25%)
Vitreous loss	n=28 (58.3%)	n=29 (22.7%)	n=17 (19.5%)	n=11 (64.7%)	n=8 (40%)

DISCUSSION

This study was a comparison between two aesthetic techniques retrobulbar injection of anesthetic agent and topical aesthesia for cataract surgery. First outcome variables are comparison complications during and after surgical procedure and second variables was pain assessment in both groups finally surgeon's satisfaction about procedure. Observations of our study shows surgeon satisfaction is almost similar in both groups, pain score is slightly high in topical anesthesia but safety from complications in topical aesthesia is high as compare to retrobulbar group.

Philip C Jacobi et al[11] conducted a similar study on this topic and concluded similar results that retrobulbar technique is quit unsafe when complications like capsular tear, vitreous loss chemosis and other anesthesia related and post-operative complications when compared with topical anesthesia but pain score is high in topical anesthesia. A similar study was conducted by Wong DH et al[12] and reported that in European countries such type of experiences are inhibited but topical anesthesia got fame due to its successful use and safety measures.

In a study Gombos K et al[13] also reported reduced use of retrobulbar anesthesia in experienced surgeons but for new surgeons it this technique is still successful, drawback of this anesthetic technique is that it will cause little anxiety in patients. In another study conducted by BoezaartA et al[14] reported that patients who received topical anesthesia and retrobulbar anesthesia preferred retrobulbar anesthesia. This preference may be due to maximum pain relief.

Patel BCet al[15] conducted a study on this topic in 1996 and reported topical anesthesia is a safe anesthetic technique for cataract surgery with little discomfort at the time administration. Not only anesthetic technique but surgical experience and technique are also important for safe and better outcomes. Intracameral, retrobulbar and topical anesthesia are common techniques used for cataract surgeries; all these techniques need no additional anesthesia[16,17].

Another study was conducted by Usitaloet al[18] and compares two techniques topical anesthesia and retrobulbar anesthesia. Results of his study reveal that both techniques have equal complication rate and discomfort. Topical anesthesia has little justification over retrobulabr anesthesia as safety and ease of use. This study is also comparable with our study.

A study was conducted by Morgan CM et al[19] on complications of retrobulbar injections and reported six complications of this injection. Most common of these complications are emboli in vasculature of optic head nerve, eboli in retinal circulation, central retinal artery occlusion and retrobulbar hemorrhage. This is a main reason of reduction in fame of retrobulbar injection of anesthetic agent in cataract surgery.

In a study Hunter Maclean et al[20] compare topical anesthesia and peribulbar anesthesia and reported efficacy and safety of topical anesthesia over peribulbar injection when compare in terms of patients comfort and surgeons satisfaction. Patient's assessment for pain relief is not outcome variable in many studies but in our

study this level of comfort also assessed and ranked in variable list for gateway of new research.

CONCLUSION

This study reveals that surgeon satisfaction is almost similar in both topical and retrobulbar anesthesia groups, pain score is slightly high in topical anesthesia but safety from complications in topical aesthesia is high as compare to retrobulbar group. Further research is needed to conclude confirm betterment of anesthetic technique.

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Original Article

Play Distraction Versus Pharmacological Treatment to Reduce Anxiety Levels in Children Undergoing Day Surgery

Muhammad Nasir[1], Malik Jamil Ahmed[2], Rana Muhammad Arshad[3] and Munir Ahmad[3]

ABSTRACT

Objective: To determine the effects of pictures, story telling and coloring books in reducing anxiety in pediatric patients preoperatively as compared to pharmacologic interventions.

Study Design: Randomized controlled trial study

Place and Duration of Study: This study was conducted at the Department of Anaesthesia Nishtar Hospital, Bakhtawar Amin Medical and Dental College Multan and Shahida Islam Medical College, Lodhran from February 2017 to February 2018.

Materials and Methods: Study was conducted upon 240 children. Patients were allocated in two groups (pharmacologic intervention versus distraction techniques). The preoperative anxiety of children was determined by using Modified Yale Preoperative Anxiety Scale (mYPAS) score. Vital signs of the patients were recorded before anesthesia and during the recovery period. Other variables include age,State–Trait Anxiety Inventory for Children(STAIC) score, Cystoscopy, EUA eyes, Excision of cyst and hernia.

Results: The mean mYPAS total score of the intervention group (play distraction) and control (preoperative medication) patients were 10.74±1.18 and 10.55±0.91 respectively. The mean difference was 0.186. The difference was statistically insignificant (p=0.172). The mean STAIC total score of the intervention group (play distraction) and control (preoperative medication) patients were 20.88±2.24 and 20.85±2.07 respectively. The mean difference was 0.037. The difference was statistically insignificant (p=0.894).

Conclusion: Distraction technique is as effective as substitute to the conventional pharmacological therapies in reducing preoperative anxiety among pediatric patients. It is safe and easily applicable technique with remarkable post operative outcome.

Key Words: Hospital anxiety, perioperative nursing care, paediatric nursing, play distraction.

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INTRODUCTION

Pediatric patients availing health services are eligible for standard management comprised of all the aspects of health combining physical, cultural, psychosocial and mental health of child's developing needs [1]. The time period of infancy is the duration of accelerated buildup for a child that impacts his whole life. This development can be interrupted by various setbacks such as illness, neglect or abuse. This brings about various forms of stress in children. That includes healthcare related anxiety, fear, depression, pain etc[2].

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This range of behavioral disturbances includes positive, tolerable, or toxic levels of stress. The positive and tolerable level of stress depicts a mild level of discomfort and it can be overcome by appropriate management and healthcare. However, failure to provide the necessary healthcare results in toxic levels of intolerance and anxiety in children[3]. These toxic stressors bring about the negative impact on child's growth, health and mental well being. It causes exorbitant depression in a child when he fails to achieve a certain milestone. This is in particular for chronically ill children[4]. One such stressor is the perioperative experience. They are thought to bring remarkable anguish and woe to the pediatric patients undergoing surgical procedures. Many researchers have been carried out in order to identify and minimize the agony of this situation. There is a dire need to determine the interventions which can enhance the experience of a child during such periods [5]. Failure to provide comfort to a child in this situation results in triggering of fierce preoperative anxiety and stress which is not only difficult for the patient but also causes complications in the anesthetic procedures. These complications may also arise as a result of conventional preoperative

pharmacological interventions[6]. The responses to these interventions include tachycardia, hypotension, respiratory depression, abnormal reactions to anesthesia. In order to avoid such circumstances, diversions and behavioral distractions are introduced[7]. They have been reported as safer and equally efficacious as pharmacological interventions in lessening the anxiety of patients. Nevertheless, further research is required to prove their fundamental role in the field of clinical surgery and psychological enhancement of pediatric patients[8]. Only then these methods can be regarded as one of the healthcare services. Although these techniques are being widely adapted some Arab countries are still hesitant in applying these methods in their hospitals[9]. Incorporating all the aspects of child's life and family (such as siblings, parents, and his favorite activities) is thought to be helpful for the child in familiarizing himself for the operative procedure and environment [10].
The goal of the current study was to determine the difference between efficacy provided by pharmacologic interventions and the play distraction by making a comparison between levels of anxiety measured through Modified Yale Preoperative Assessment Scale (mYPAS) survey". A secondary outcome was to make a comparison of vital signs and evolution among the two groups.

MATERIALS AND METHODS

It was a randomized controlled trial. Study was conducted in the department of Anaesthesia Nishtar Hospital, Bakhtawar Amin Medical and Dental College Multan and Shahida Islam Medical College, Lodhran from February 2017 to February 2018.The inclusion criteria were children between 3 and 8 years old, having ASA 1 and 2, scheduled for elective day surgery under general anesthesia. The exclusion criteria were the children had previously exposed to anesthesia, developmental delay, audiovisual impairment, or using medicines affecting their psychological status.
Children were allocated randomly into one of these groups preoperative administration of medication as a control group, or distraction and play interventions prior to surgery as experiment group. The children were given oral Midazolam thirty minutes prior to the surgery in the control group. In the experiment group, a story was made for the children regarding their surgery and they were taken to the theatre in order to distract them with colors and pictures. Different personnel and procedures were introduced in a playful manner for their familiarization with the surgical procedures. The parents of patients were handed a story and requested to tell that story to their child one hour prior to entering the theatre for surgery according to their child's taste and likings. Coloring books were given to the children and scenes from an operation theatre were depicted in it.
Parents of eligible patients were requested to participate in the study with their children. A written informed consent from the parents was taken. Children were allocated into one of the groups by envelope randomization methods. The group was disclosed by nurses and upon opening the envelope. According to their selected group, the intervention for the children was chosen. The researcher and the statistician were both blinded.
The "STAIC and mYPAS" were used for the collection of data. Vital signs were also recorded for each patient including BP, HR, and respiratory rate as indicators of child's anxiety level and psychological status.
STAIC scale is a numerical representation of anxiety level in children which indicates very and not is assigned values of 3 and 1, respectively. The order of weighting is reversed for items in which the key terms indicate the absence of anxiety, i.e., very = 1; not = 3. A value of 2 is assigned to all responses where the child checks only the adjective.
The analysis of data was done by using SPSS version 24. Mean and SD were calculated and presented for numerical data variables like age, mYPAS score and STAIC score. Frequencies and percentages were calculated and presented for qualitative data like Cystoscopy, EUA eyes, Excision of cyst and hernia. Student t-test and chi square test was used to see significance of data. P value ≤ 0.05 was considered as significant.

RESULTS

A total number of n=240 children were included in this study, n=120 in intervention group and n=120 in control group. The mean age of the intervention group patients was 5.35±2.04 years. While, the mean age of the controls was 4.60±2.23 years. Current surgery distribution of the both group was displayed in table I.

Table No.I: Surgery distribution in both groups

	Intervention n=120	Control n=120	P value
Age (years)	5.35±2.04	4.60±2.23	0.007
Current surgery			
Cystoscopy	(5%) n=6	(5.8%) n=7	0.523
EUA eyes	(1.7%) n=2	(4.2%) n=5	
Excision of cyst	(9.2%) n=11	(9.2%) n=11	
Grommet insertion	(11.7%) n=14	(12.5%) n=15	
Hernia	(14.2%) n=17	(18.3%) n=22	
Orchidopexy	(17.4%) n=21	(9.2%) n=11	
Tonsillectomy and adenoidectomy Wound repair	(40.8%) n=49	(40.8%) n=49	

The mean mYPAS total score of the intervention group (play distraction) and control (preoperative medication) patients was 10.74±1.18 and 10.55±0.91 respectively.

The mean difference was 0.186. The difference was statistically insignificant (p=0.172). The mean STAIC total score of the intervention group (play distraction) and control (preoperative medication) patients was 20.88±2.24 and 20.85±2.07 respectively. The mean difference was 0.037. The difference was statistically insignificant (p=0.894). (Table. 2).

Table No.2: Mean difference

	Intervention n=120	Control n=120	Test of Sig.
mYPAS total score			
Mean±S.D	10.74±1.18	10.55±0.91	0.172
STAIC total score			
Mean±S.D	20.88±2.24	20.85±2.07	0.894

DISCUSSION

There are various nonpharmacological techniques applied to reduce preoperative anxiety in children undergoing surgery. One such method used by Golan G et al[11] is introducing medically trained clowns. It was observed that this technique markedly decreased the modified Yale preoperative anxiety score as compared to the group upon which Midazolam was used. However, it was seen that clowns were effective as long as the child entered the operation theatre. During and after entering into an OR, clowns did not seem to be superiorly effective than midazolam in alleviating the anxiety of child[12].

In order to lessen the preoperative anxiety and consequent complexities, it is necessary to determine the "multimodal approach" to bring relief and prevent anxiety and stress from developing as a result of strange and unfamiliar surroundings (Ni CH et al[13]. It is of particular importance in the setting of day surgery when the patients are given the time for surgery and they either don't have much time to adapt to the environment or they take too long before the surgery that it induces anxiety and fears in such patients.

A study by Millet CR et al[14] shows that both forms of music either active or passive are equally effective in reducing preoperative anxiety in pediatric patients. Also the "behavior distress" is found to be reduced in these patients. These patients also escaped the complications of surgical procedures. Although the mechanism is not fully known yet, it is for sure that music therapy brings about better postoperative outcomes. it has been observed that it reduces not only the anxiety of a "young pediatric patient" but is also effective in decreasing the anxiety and stress of Care given, by family is thought to be of vital importance in providing high-quality nursing care for a pediatric patient and reducing a child's anxiety level. But still, there have been hurdles in its implementation worldwide. Coyne I et al[15] performed a study to determine the causes of this problem and he observed that there were four basic issues including the expectations, barriers to family-centered care, working out roles, and depending on patient's assistance.

Various interventions have been in use for the purpose of reducing anxiety in children prior to surgery. Some of these include presence of parents (PP), behavioral preparation programs and premedication (midazolam) says Patel A et al[16], although they all serve the same purpose, yet there are restrictions owing to the availability in resources and time, adverse effects, cost-effectiveness, etc. Video games are used widely in clinical settings as a mode of "distraction and behavior modification therapy". A study was carried out to determine the differences in effectiveness among parental presence (PP), Midazolam (M), and video game usage (VG). It showed that use of VG decreases anxiety by 63% while Midazolam decreased anxiety in 26% of patient and parental presence reduced the anxiety by 28%.Uman LS et al[17] states that various Psychical mediation such as hypnosis, distraction, coping skill training is being used as a cure for relieving the anxiety and pain which pediatric and adult patients come across before having a medical procedure involving needles.

A study was carried out by Choi YK et al[18] on the comparison of effects of music and progressive muscle relaxation upon the anxiety levels of children preparing for surgery. Both these techniques were combined as well. There was a remarkable reduction in the anxiety levels of patients as well as levels of fatigue were also reduced. Similarly, there was increased quality life index among these patients.

In a systemic review done by Chow CH et al[19], it was evident that the use of audiovisual interventions for decreasing the anxiety in children before surgery was supportive and efficacious. The results showed that audiovisual aids are more effective both qualitatively and quantitatively than standard care in decreasing anxiety levels in children. As well as behaviors, postoperative pain, increased compliance during anesthesia procedure and increased tolerance was seen. The audiovisual interventions are expected to be “attractive solution” in advancement the operative care among pediatric children. Further research should be done to explore other relative areas. Failure to manage efficiently the surgical and related procedures for a child can prove to be a devastating event in the life of a child. As said by Al-Yateem N et al[20]. It not only effects the outcome of surgery and its recovery but also adversely affects the mental health of a child in future life.

CONCLUSION

Distraction technique is an effective substitute to the conventional pharmacological therapies in reducing preoperative anxiety among pediatric patients. It is cost effective and easily applicable technique with remarkable post operative outcome.

Author's Contribution:

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Original Article

Association of Risk Factors of Burn with Mortality in Children: A Retrospective study

Risk Factors of Burn with Mortality in Children

Ehmer-Al-Ibran[1] and Syeda Hina Rizvi[2]

ABSTRACT

Objective: A Retrospective study has been devised to study the risk factors associated with the burns patients and to determine the potential complications experienced by those patients.
Study Design: Retrospective study.
Place and Duration of Study: This study was conducted at the Burns Centre, Civil Hospital Karachi from 1st January 2015-30th September 2015.
Materials and Methods: A total of 227 patients have been employed in the study. Purposeful sampling has been used to select the sample size for the specific study. The data collection procedure for the study was completed within 9 months. Children specifically from Karachi city from birth till 12 years have been entailed in the study.
Results: With the exception of 1 suicidal cause of burn, the rest 226 were accidental in nature. Only 3.1% (7) patients burnt outdoor, 0.4% (1) burnt on a ship whereas 96 % (218) patients were burnt indoors. Amongst the total admissions 89% (202) had 10-50% total body surface area burnt (being the most common category), whereas 9.7% (22) had <10% TBSA burnt while only 1.3% (3) had >50% TBSA burnt. The percentage of TBSA burnt is significantly associated with mortality (p=0.003), with 92% (59) deaths having TBSA 10-50%.
Conclusion: TBSA% is most important single predictor for mortality among children with burn.

Key Words: Risk Factors, Burn, Mortality, Children

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INTRODUCTION

According to the literature reviewed, risk factors leading to mortality in a burn victim have been reported in studies conducted worldwide. Inhalational injury[1-4] TBSA>60%,[2] burn degree,[5] the age of the patient,[6] location of wound[7] in pediatric burn victims affects the final outcome and are related with increased mortality. Death was reported due to severe pneumonia and septicemia following burn injury.[8]

First aid measures at the site of accident contribute significantly to reducing mortality. Late presentation to health facilities, lack of well-equipped burn centers and trained medical personnel and non-existing early excision and skin grafting contributes significantly to increasing morbidity and mortality.[3] Inadequate public education, injury prevention and control measures and ineffective ambulance system for transportation of burned patients to specialized burn centers are important factors responsible for most of the deaths in cases of critical burns.[3]

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Wound sepsis also contributes significantly to high mortality among burn injury patients where multi-drug resistant organisms causing significantly higher mortality.[7] Studies conducted in Pakistan show that there is highest mortality among children more than six year and least in age group between 3 - 6 years.[9] There is a need for more research in Pakistan to quest the combined effect of factors that leads to mortality in pediatric burn victims. Thereby, efforts can be made to prevent and minimize such factors and to modify the initial management accordingly.

It will be the first study conducted in Burns Unit of Civil Hospital Karachi (CHK) that will establish the factors responsible for mortality in pediatric Burn patients. By determining the variables, efforts can be made to improve preventive measures and aware general population to minimize/control such factors and the potential complications and hence mortality in a burn victim. The study has aimed to enlarge the understanding of risk factors associated with mortality in Burns Unit of CHK. The efforts made in the comprehension of risk factors have been effective in controlling these factors, likelihood complications and mortality in a pediatric burn victim.

MATERIALS AND METHODS

A Retrospective study has been devised to study the risk factors associated with the burns patients and to determine the potential complications experienced by those patients. In this regards, Civil hospital Karachi (CHK) is selected to carry forward the study.

Furthermore, patients admitted in the pediatric burn unit have been included into the study for investigation. A total of 227 patients have been employed in the study. Purposeful sampling has been used to select the sample size for the specific study. The data collection procedure for the study was completed within 9 months (1st January 2015-30th September 2015). Children specifically from Karachi city from birth till 12 years have been entailed in the study. Furthermore, the focus of this study is to include children with diseases rather than congenital anomalies, epilepsy, asthma and malignancies. Children greater than 12 years and from other cities of province Sindh will be excluded from the study.

The data collection procedure has been completed through implementing self-administered questionnaire, which include items related to patient's age, sex, cause of injury, type of injury, total body surface area (TBSA), nutritional status (total protein) and other variables. Records of patients will be obtained after taking permission from Burn Centre, Civil Hospital Karachi. Patients were employed in the study in accordance to the specified inclusion criteria.

Questionnaires were filled by the investigators using the provided records. The statistical package for the social sciences (SPSS) was used to conduct the statistical analysis for the specific study. The illustration of categorical variables was represented in the form of frequencies and percentages. Central tendency measures were used to compute the continuous variables. Moreover, categorical variables such as gender, mortality were analyzed through chi-square test and descriptive frequencies. The data will only be used by the assigned researchers. All data will be kept confidential and solely be utilized for research purpose only.

RESULTS

The results have shown that the total number of admissions were 227 with 59.5% (135) males and 40.5% (92) females with a mean age of 4.8 (SD 3.3 years). Mortality has been considered to be the major concern in the age group ranging from 1-5 years. Patients aged 2 year were at highest risk constituting about 15 % (34) admissions. Mean Duration of hospital stay was 10.6 days (SD 1.1 days). The results have also depicted that scald was the most common type of burn occurring in 139 (61.2%) of the patients, followed by fire burns 77 (33.9%), electrical burns 7 (3.1%) while chemical burn was the least common with only 4 (1.8%) patients reported chemical burn injury.

With the exception of 1 suicidal cause of burn, the rest 226 were accidental in nature. Only 3.1% (7) patients burnt outdoor, 0.4% (1) burnt on a ship whereas 96 % (218) patients were burnt indoors. Amongst the total admissions 89% (202) had 10-50% total body surface area burnt (being the most common category), whereas 9.7% (22) had <10% TBSA burnt while only 1.3% (3) had >50% TBSA burnt. The percentage of TBSA burnt is significantly associated with mortality (p=0.003), with 92% (59) deaths having TBSA 10-50%.

Table No.1: Table Showing the Region of Burns and With the Region of Burn

Region of burns	Admissions n (%) Total =227	Deaths n (%) Total =64
Head and neck	11 (4.8)	1(1.5)
Trunk	20(8.8)	3(4.6)
Upper limbs	15(6.6)	2(3.1)
Lower limbs	19(8.4)	2(3.1)
Buttocks and genitalia	6(2.6)	0(0)
Multiple	156(68.7)	56(87.5)

Table No.2: Percentage of Total Body Surface Area Burnt and Mortality associated with Severity of Burns.

% TBSA	Admission n(%) Total= 227	Death n(%) Total=64
01-10	22(9.7)	2(3)
11-50	202(89)	59(92.1)
51-100	3(1.3)	3(4.6)

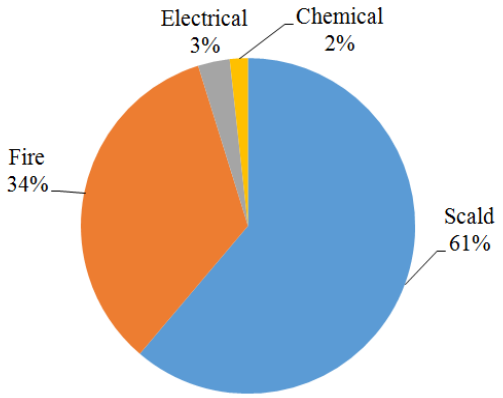

Figure No.1: Type of burns presented to burns ward

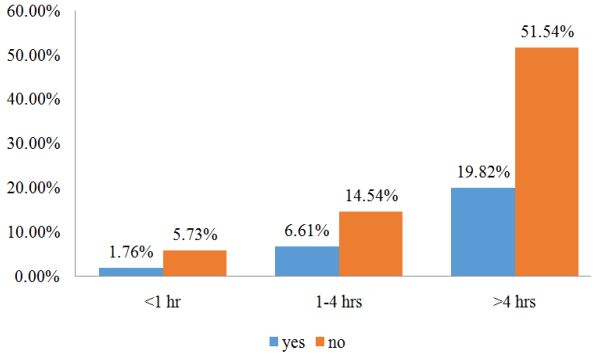

Figure No.2: Comparison showing length of time to IV access and the % of mortality

DISCUSSION

Mortality due to burn among pediatric population is serious complication and data about associated predictors of burn mortality is still scares.[10, 11] Studies predict that mortality among pediatric burn patient ranges from 4-12% and is significantly associated with age and multiple organ failure due to burn complications.[10] Fungal infection is an important cause of morbidity and mortality among burn patients.[12] Aim of this study was to rule out the factors associated with burn mortality among children admitted to CHK and plan the interventions to improve burn survival. According to our findings TBSA%, time to IV access post-burn and type of burn are significantly associated with burn mortality among children.

Most of the times burn victims lose their lives because of shocks (hypovolemic, septic etc) in initial hour of event, respiratory distress which is secondary to inhalation syndrome usually and multiple organ failure which is due to either extension or depth of wounds.[12] On the other hand infections are most prevalent cause of death among burn victims post-burn[13] Pediatric population is susceptible for infections and related complications.[14,15]Moreover loss of skin, low immunity and over the counter or misuse of antibiotics can be risk factors behind severe complications of infection among children with burn.[16] In our study, out of 227 patients more than half were males. However, gender was not significantly related to burn mortality among pediatric population, which is significant with findings of Rehmani et al.[17]

Age is most significant factor related to mortality among children with burn, specifically age less than three years, is congruent with our study findings which determines most of admissions of burn at age 2 years.[18, 19] One of the study from Ankara,[20] out of the patients under the age of 7 years , majority of subjects were found to be under age 3 years which is subsequent to study findings. It is recommended that this age group is more vulnerable and susceptible; there is need to provide training programs for parents, as ignorance or lack of awareness is huge factor behind this loss.[17]

According to our study, almost 96% burn cases took place at home. Sheckter et al from brazil reported, among children under age 13 years 86 percent burns happened at home,[21] similarly one study pointed this percentage to be 94 % under age 5years which is consistent with our findings.[22] On the contrast, one of study reported that high association of outdoor playing with high number of burns were explained by least control of parents which was inconsistent with our study findings.[23]Literature was not indicated the implications of outdoor activities with burn much.

Our study indicated that majority of burns happened from scald which is consistent with study findings from Ankara and other regions which reported most injuries caused by hot liquids (74.5%).[24, 25]Isaac et al from south Africa reported, boiled water to be main reason for type of burn,[26]in one study by Arslan et al,[27] also reported same finding. On the contrary, studies also reported positive association between cause of burn and mortality. However, flame burn victims die more as compared to scald burns which is need to be explored in our settings as well.[31, 32]

Nevertheless one more study suggested contrast finding to our findings that majority of times death occurred among fire burns, which is highly associated with parenting habits like leaving children supervised or unsupervised.[28]Wehdati et al. in one study reported, most of time, among young and adolescents patient lower limbs burns are resulted from boiling water or liquids at home.[29]

According to our findings, 2 deaths occurred among 22 mild burn covering less than 10% of TBSA%. However, 56 deaths out of total 64 were associated with TBSA% between 11-50% and 100% deaths for TBSA %> 50% which is consistent with other study findings which reported the increase number of deaths with higher percentage of TBSA% involved.[24, 30] Another study from Kuwait reported that TBSA% is most critical factor associated with burn mortality among children and adults both patients coming with burns or end up into irreversible complications.[33] Our study points out that with every hour delay in IV access death number increases and it is above 50% if IV access has been delayed for more than 4 hours. With excessive fluid loss, skin loss and burn injuries , IV access the first key step to save the lives.[34] Studies indicate that patients who receive early fluid resuscitation and adequate in terms of management face lesser complications.[35] Another study from Indonesia reported that burn survival can be increased; mortality can be declined by providing early resuscitation and IV access which is consistent with our study.

Sever burn is given more importance although and literature provides evidences about its complications. However, more explorations are needed for risk factors of moderate and mild burns among children.[36] As per burn types risk factors may be different, which need to be studies precisely; for example, mortality according to types of clothes victim was wearing and environment of victims etc. In further to previous studies, we also observed risk factor for burn mortality as whole. We recommend that risk factors of burn mortality among children according to type of injury and burn mechanism should be investigated.

We also propose referral facilities for burn patients with updating knowledge of nurse and physicians regularly. Active communications are also suggested to improvise coordination and collaboration among health care team members. Lastly, burn should be treated as a separate medical specialty in health care setting to benchmark standards of burn care. Emergency triage assessment,

early management of burn victims management and fluid resuscitation guidelines are needed to be developed to prevent mortalities by avoiding delay in care of burn victims.[35]

One of the limitations associated with our study is that we couldn't perform sub group analysis to predict the risk factors in types of burn individually or as per age or gender. Thus, it was not put the results of study at risk and compromised generalizability of study if proposed for same set of population. We conducted study as per protocol and objectives decided. Strength of our study is that we addressed main predictors of burn mortality among children.

CONCLUSION

TBSA% is most important single predictor for mortality among children with burn. Early access to fluid resuscitation is one of the most important survival predictor for burn victims, furthermore appropriate management of associated complications and proper nutritional support are important measures that should be considered at first to improve the survival and provide better management of burn.

Author's Contribution:

Concept & Design of Study:	Ehmer-Al-Ibran
Drafting:	Syeda Hina Rizvi
Data Analysis:	Syeda Hina Rizvi
Revisiting Critically:	Ehmer-Al-Ibran
Final Approval of version:	Ehmer-Al-Ibran

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When appropriate, may be included.

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List of all contributors who do not meet the criteria for Authorship, such as a person who provided purely technical help, writing assistance or department chair who provided only general support. Financial & Material support should be acknowledged.

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