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Editorial

Polio Eradication from Pakistan

Mohsin Masud Jan
Editor

Despite all efforts, Pakistan is still among a handful of countries affected by poliovirus. The areas worst hit by both polio and terrorism are Khyber Pakhtunkhwa and Balochistan, located along the border with Afghanistan.

Afghanistan is the only other country in the region that, like Pakistan, has failed to eradicate polio. There was a time when the poliovirus would somehow reach the border areas of Pakistan due to the evacuation of refugees.

A disease that was this close to being completely wiped out from the country has made a tragic return – simply because of the conspiracy theories surrounding a most basic, yet completely necessary vaccination. Pakistan had been able to keep the polio virus under better control over the past two years. 147 cases in 2019 and 87 cases reported in 2020 while only one case in 2021. This year, though, has reported twenty cases of the virus in which 17 from North Waziristan, 02 from Laki Marwat and 01 from South Waziristan, districts of Khyber Pakhtunkhwa. Polio spreads very quickly and as the number of unvaccinated children increases, the virus cannot be contained.

The International Monitoring Board (IMB) of the Global Polio Eradication Initiative (GPEI) has noted that the country has a great deal to do to ensure it wins its ongoing battle against polio, which has been disrupted due to overlooked children, children who have been missed altogether, refusals by parents to have children vaccinated and social media campaigns which suggest that the vaccine is somehow dangerous or injurious.

A polio eradication campaign has been going on in Pakistan for a long time. At one point malicious rumours were circulated to hinder universal vaccination. The gullible population was told that vaccination was an effort by the West to reduce the global Muslim population. Many bought into the propaganda. Some people found it hard to believe that the West could be spending billions of dollars for the welfare of people at war with it. Others questioned the government's priorities and motivation. Religious leaders were then enlisted in support of the campaign and the problem has eased.

There was a general perception in the Tribal Areas that polio workers were spying for the West.

The government and some human rights groups tried to allay the fears but the damage had already been done. Following the revelation, the polio campaign across the country, including in Waziristan, was presented as an anti-Islam conspiracy. Pamphlets were distributed against polio eradication campaigns and warnings were issued to the government to end these campaigns.

Fifteen months later, with the return of polio cases in 2022, Pakistan is facing yet another challenge. An unstable Afghanistan in the neighborhood is struggling with terrorism as well as polio virus.

There are four major reasons for this. First, some of the extremist organisations have declared polio workers their enemy. The second reason is our social structure. The third reason is the scourge of corruption. The fourth reason is ineffective communication by the government and health authorities.

The fourth reason for low polio vaccination coverage is miscommunication. It will be fair to say that we have not been able to tell our people that the world is worried about our polio cases because their own gains are threatened by our failure. Already, several countries require polio vaccination certificates before allowing Pakistanis entry.

Poverty and ignorance continue to hold our collective consciousness to ransom. Logic and reason are not the determinants of our discussion and decisions. Numerous polio workers in Peshawar have reported that fake videos of children suffering harm after polio vaccination.

Chronic refusals are also common. Many parents deny their children polio vaccines by hiding them.

Corruption is another major factor. Polio workers who carry out vaccination campaigns are paid around Rs.1,000 per day. These are the people we depend on for deliverables.

Pakistan remains one of the only two countries in the world still endemic to polio. The fight against polio is dependent on a consistent approach by governments and no change in policies that have been worked out successfully over a period of years.

In this final push to eradicate polio, we may need to vaccinate fewer people than before but the ones left are those who may be most difficult to find and persuade. Yet just about every other country in the world has managed – and there is no justification for us being left behind.

Original Article

Frequency of Dyslipidemia in Type 2 Diabetic Patients with Hypertension

Muhammad Nadeem Sohail[1], Muddasar Ahmed[1], Mehwish Saeed[1], Mahboob Qadir[1] and Muhammad Ibrahim[2]

ABSTRACT

Objective: To determine the frequency of dyslipidemia in type 2 diabetic patients with hypertension.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the diabetes outpatient department of Nishtar Hospital Multan in 6 months duration from January 2021 to June 2021.
Materials and Methods: A total of 145 patents with diagnosed type 2 diabetes and hypertension were enrolled in study. Detailed history and physical examination was done on all patients, fasting blood sample of all patients was drawn under aseptic measures and sent to laboratory for lipid profile to determine the status of dyslipidemia. SPSS version 24 was used for data analysis and after test of significance p values ≤0.05 was considered as significant.
Results: Presence and absence of dyslipidemia was shown as 80.7% and 19.3% respectively. Increased value of cholesterol (above 180) was observed in 57.2% patients and increased triglycerides (above 150) were observed in 70.3% patients. Low high density lipids were observed in 80% patients.
Conclusion: Type 2 diabetic patients with associated hypertension are at greater risk of dyslipidemia and most common identified abnormality of lipid profile is low level of high density lipids (HDL).

Key Words: Type 2 diabetes, Dyslipidemia, Hypertension, HDL, LDL

Citation of article: Sohail MN, Ahmed M, Saeed M, Qadir M, Ibrahim M. Frequency of Dyslipidemia in Type 2 Diabetic Patients with Hypertension. Med Forum 2022;33(11):2-5.

INTRODUCTION

Chronic metabolic disorder type 2 diabetes results from insufficiency of insulin production or action[1]. Prevalence of diabetes is increasing day by day worldwide, according International Diabetes Federation survey in 2006 about 246 million people are diabetic and this rate is will cross the figure of 380 million in next 20 years[2]. Patients of type 2 diabetes have 4 times greater risk of cardiovascular diseases which is major cause of mortality in diabetic people[3].

Some major risk factors to cardiovascular mortality include diabetic dyslipidemia, hyperglycemia, smoking, hypertension and increased BMI or obesity[4]. Numerous studies were conducted in the past and describe association between hypertension and abnormal lipid levels[5]. Prolong dyslipidemia causes damage to endothelial cells which results in loss of vasomotor action. This pathophysiologic process lead to atherosclerosis and that later developed hypertension[6].

Some prospective studies reported strong association between hypertension and increased level of plasma lipids[7]. This whole pathophysiological phenomenon named as syndrome X that involves increased concentrations of insulin, glucose and triglycerides and decreased in concentrations of high density lipids. Syndrome X with hypertension is a strong risk factor of coronary artery diseases (CAD)[8]. Both qualitative and quantitative changes can occur in lipoprotein as result of diabetic dyslipidemia. Identification and timely institution of a proper management is of utmost importance in hypertensive diabetic patients with dyslipidemia because of an established high risk of coronary heart disease and stroke in these patients.[9,10]

However, this aspect is frequently overlooked in our local setup and puts patients at higher risk of morbidity and mortality. This study will enable us to find out the burden of dyslipidemia in our local population of type 2 diabetic patients with hypertension which if found to be high will enable us emphasize a routine screening for dyslipidemia in this patient population and to start treatment at an earlier stage. This, in turn, will result in a decreased morbidity and mortality associated with micro and macrovascular complications in our patients.

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MATERIALS AND METHODS

Study was conducted at the diabetes outpatients department of Nishtar hospital Multan in 6 months duration from January 2021 to June 2021. Study was started after ethical approval from hospital ethical board. Non probability consecutive sampling technique was used. Written consent was taken from patients after detailed description of study. Sample size was calculated by using WHO sample size calculator with following statistics, 95% confidence interval, and power of study 80% and prevalence of dyslipidemia 75.8%[11].

Patients diagnosed with type 2 diabetes mellitus (on history, physical examination, and laboratory evidence of hyperglycemia) and having hypertension whether previously diagnosed or newly identified with a blood pressure above 130/80 mmHg, attending the diabetes outpatient department were included. Patients with insulin dependent diabetes mellitus (type 1 diabetes), ischemic heart disease, macrovascular complications, history of stroke, decompensated heart failure, family history of dyslipidemia, chronic liver disease, cerebrovascular accident, pregnant women and who not willing to give consent were excluded from study. Physical examination and detailed medical and surgical history was taken from patients. After aseptic measures fasting blood sample was taken by researcher himself to investigate the dyslipidemia.

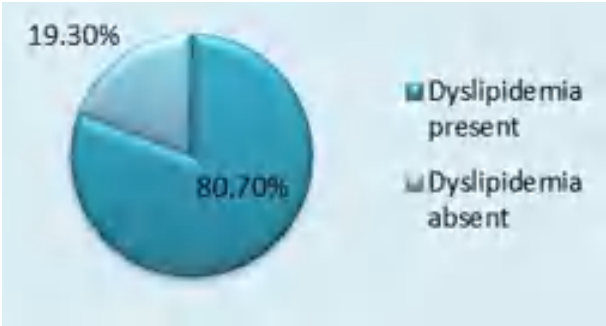
Collected data was entered in SPSS version 24 for analysis. Mean and standard deviation was calculated for numerical variables like age, duration of disease and frequency (percentages) were calculated for categorical variables like gender. Student t-test and chi square test were applied to see association among qualitative and quantitative outcome variables respectively. P value $\leq$ 0.05 was taken as significant.

RESULTS

A total of 145 patient's data was analyzed, among them 78/145 (53.8%) were male and 67/145 (46.2%) were female. Mean age, body mass index, duration of diabetes, duration of hypertension and smoking (pack year) were 54.27 $\pm$ 7.91 years, 28.63 $\pm$ 3.93 kg/m^2, 9.43 $\pm$ 4.09 years, 8.19 + 2.39 years and 7.87 $\pm$ 6.62 (pack year) respectively. Similarly total cholesterol, triglycerides, and high density lipids were 202.03 $\pm$ 39.24, 188.85 $\pm$ 48.98 and 38.82 $\pm$ 8.32 respectively (Table-1). In graph-1 presence and absence of dyslipidemia was shown as 117 (80.7%) and 28(19.3%) respectively. Increased value of cholesterol (above 180) was observed in 57.2% patients and increased triglycerides (above 150) were observed in 70.3% patients. Low high density lipids were observed in 80% patients (Table-2).

Table No.1: Demographics and lipid profile (n=145)

Characteristics	Study values mean ± SD or frequency (%)
Gender	
Male	78 (53.8)
Female	67 (46.2)
Age	54.2±7.9
Body Mass Index (kg/m^2)	28.6±3.9
Duration of diabetes mellitus (years)	9.4±4.0
Duration of hypertension (years)	8.1±2.3
Smoking (pack years)	7.8±6.6
Cholesterol (mg/dl)	202±39.2
Triglycerides (mg/dl)	188.8±48.9
High density lipoprotein (mg/dl)	38.8±8.3



FigureNo.1: Frequency of dyslipidemia in patient population

Table No.2: Effect of duration of hypertension on the frequency of dyslipidemia

Characteristics		Duration < 8 years N = 62	Duration ≥ 8 years N = 83	P-value
Dyslipidemia	Yes	51	66	0.679
	No	11	17	
Hypercholesterolemia	Yes	41	42	0.062
	No	21	41	
Hypertriglyceridemia	Yes	45	57	0.610
	No	17	26	
Low HDL	Yes	50	66	0.867
	No	12	17	

DISCUSSION

In our study mean duration of hypertension was 8.19 + 2.39 years and dyslipidemia was observed in 80.7% of population. In 2004 Ilanne-Parikka et al[12] conducted a study on this topic and observed 75% of patients with type 2 diabetes having dyslipidemia and hypertension. Targeted therapy of metabolic syndrome and preventive measures are necessary. Another study was conducted by Yadav et al[13] and reported proportion of dyslipidemia in 64.1% of population and hypertension was found in 49% type 2 diabetic patients.

In a study conducted by Shrewastwa et al[14] on Nepali population 108 diabetic patients with associated

hypertension were evaluated for their fasting lipids and dyslipidemia was recorded in 90.7% of patients. It was concluded that there was no significant association between dyslipidemia and duration of diabetes mellitus. In another Pakistani study Ahmad et al[15] observed hypertriglyceridemia in 78% type 2 diabetic patients and LDL-cholesterol border line values in 92 patients.

In our study 53.8% male patients and 46.2% were female patients and mean age of patients was 54.27 ± 7.91 years. Kengne et al[16] conducted a study and reported equal ration of male and female gender and mean age of patients was 55.8 ± 10.5 years. Metabolic syndrome was observed in 71.7% of patients and mostly in female patients. Another similar study was conducted by Marjani et al[17] in 2011 and reported that males are more prone to hypertensive and its associated problems as compare to females. Metabolic syndrome was observed in 76.7% of patients using IDF criteria.

In 2012 Janghorbani et al[18] also completed a similar study and reported that among type diabetic patients hypertension and dyslipidemia are common in females. Dyslipidemia was observed in 62% patients and hypertension in 77% of patients. Another study was conducted on Nigerian population by Osuji et al[19] and reported dyslipidemia in 55.5% of diabetic type and hypertensive patients. Both these studies are in accordance with our findings.

Sufficient clinical evidence are available on this hypothesis that presence of contributing factors type 2 diabetes, hypertension along with dyslipidemia are atherogenic, early control and treatment of these abnormalities can reduce the risk of CAD progression[20]. Gilani et al[21] conducted a study on 150 diabetic patients and observed significant proportion with hypertension and dyslipidemia.

CONCLUSION

Type 2 diabetic patients with associated hypertension are at greater risk of dyslipidemia and most common identified abnormality of lipid profile is low level of high density lipids (HDL).

Limitations: Main limitations of our study were cross sectional experimental design and small study duration which may not express the association of hypertension and dyslipidemia.

Author's Contribution:

Concept & Design of Study:	Muhammad Nadeem Sohail
Drafting:	Muddasar Ahmed, Mehwish Saeed
Data Analysis:	Mahboob Qadir, Muhammad Ibrahim
Revisiting Critically:	Muhammad Nadeem Sohail, Muddasar Ahmed
Final Approval of version:	Muhammad Nadeem Sohail

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

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Original Article

Comparing the Efficacy and Safety of Silodosin versus Extracorporeal Shockwave Lithotripsy for the Management of Lower Ureteric Stone

Abdul Razaq, Imran Hyder, Ahmad Bilal and Rana Ata ur Rehman

ABSTRACT

Objective: To compare efficacy and safety of Silodosin versus extracorporeal shockwave lithotripsy for the management of lower ureteric stone.

Study Design: Randomized controlled trial

Place and Duration of Study: This study was conducted at the Out Patient Department of Urology, Nishtar Hospital, Multan in 1 year duration from March 2021 to February 2022.

Materials and Methods: A total of 145 patients were enrolled and divided into two groups A and B by lottery method. In group A, patients were given 8 mg oral capsule of silodosin for 28 days and were advised to collect their urine and discontinue Silodosin in case of stone passage. In group B, patients were undergone extracorporeal shockwave lithotripsy (one session weekly for 3 weeks) by a single team with assistance of researcher. SPSS version 23 was used for data analysis.

Results: In silodosin group retrograde ejaculation was noted in 2.9% patients and in ESWL it was noted in 11.4% patients (p-value=0.049). In silodosin group postural hypotension was noted in 4.3% patients and in ESWL it was noted in 15.7% patients (p-value=0.024). In silodosin group dizziness was noted in 1.4% patients and in ESWL bleeding was noted in 5.3% patients (p-value=0.172).

Conclusion: Results of this study reveal that Silodosin is significantly more efficacious and safe drug in terms of outcome as compared to extracorporeal shockwave lithotripsy for the management of lower ureteric stone size of 5-10 mm.

Key Words: Extracorporeal Shockwave Lithotripsy, Silodosin, Lower Ureteric Stone**,** Stone clearance, Efficacy, Safety

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INTRODUCTION

A common health problem is urolithiasis having incidence rate of 13% in men and up to 7% in women of older age[1]. In Asian countries urolithiasis is most prevalent disease, according to a survey conducted in 2012 among Pakistani population and prevalence rate was noted up to 16%[2]. In different areas of world prevalence of urolithiasis reported as 7-13%, 5-9%, in North America and Europe respectively. But in last few years its prevalence have increased, contributing causes are involve dietary habits and living style [3].

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Recent advances and technologies used in its management enabled the medical professionals to manage urolithiasis in a better way with minimum complications[4]. Number of minimally invasive techniques is available for management of ureteric stones but associated with different side effects[5]. Conservative management have complication of prolong pain and open surgical technique may lead to trauma and post-operative complications. Lithotripsy and ureteroscopy are two successful methods having minimal complications[6].

In recent advances a non invasive treatment technique for management of ureteric stone is extracorporeal shock wave lithotripsy which is widely used in clinical management. Because of its simplicity, cost effectiveness and less pain it can be used as outpatient's department procedure[7,8]. Expulsive therapy is a usual treatment that can be helpful in removal lower ureteric calculi which include some alpha blockers that acts on smooth muscles[9,10].

The studies comparing Silodosin versus ESWL to treat lower ureteric stones are scarce. So, we have planned to conduct this study to get local evidence and in future

our study may help us to determine more appropriate method for treatment of lower ureteric stones in local setting.

MATERIALS AND METHODS

After obtaining approval from hospital ethical committee and review board, 140 patients who meet inclusion criteria, were enrolled in this study from Out Patient Department of Urology, Nishtar Hospital, Multan in 1 year duration from March 2021 to February 2022. Patients were explained about research and informed consent was taken. Patients of age 16-75 years, both genders, presenting with lower ureteric stone size 5-10 mm (as per operational definition) were included. Patients already taken trial of medical expulsive therapy, single kidney (on medical record), bilateral ureteric stones, history of previous ureteric surgery, history of stone passage, ureteric strictures, pregnancy, prior long-term α-AR blocker use for benign prostatic hyperplasia, radiolucent Stones were excluded.

Demographics like name, age, gender, BMI, duration of symptoms, history of diabetes (BSR>200 mg/dl) and history of hypertension (BP≥140/90 mmHg) was obtained. All base line investigations including computed tomography KUB plain was done. The size of stone was measured on computed tomography KUB. Two groups were made by non-random consecutive sampling technique. In group A, patients were given 8 mg oral capsule of silodosin for 28 days and were advised to collect their urine and discontinue Silodosin in case of stone passage. The date of stone passage was noted. In group B, patients were undergone extracorporeal shockwave lithotripsy (one session weekly for 3 weeks) by a single team with assistance of researcher. First 500 shocks were delivered at energy level of 2 and next 2000 shocks at energy level of 3 and 4. And patient was followed up weekly with X-Ray KUB plain. Post procedure treatment of the patient was comprised Tab. Diclofenac sodium 50mg twice a day during 1st week and was repeated later in the case of pain.

After 28 days of treatment, patients were undergone computed tomography scan to detect any residual stone or stone fragment in the ureter. If there was no stone and stone fragment, stone free status was labeled (as per operational definition). Patients were also evaluated for bleeding, pain and dizziness. Patients with complications were managed as per standard protocol. All the data was recorded in proforma.

Data was analyzed on SPSS version 22.0. Mean and standard deviation was calculated for quantitative variables like age, BMI, duration of symptoms and size of stone. Frequency and percentage was calculated for categorical variables like gender, smoking, diabetes, hypertension, lateral side and outcome (stone free status, bleeding and pain). Both groups were compared for outcome by using chi-square test and *P*-value ≤ 0.05 was considered as significant.

RESULTS

In this study total 140 patients were enrolled. The mean age of the patients was 50.74years with minimum and maximum ages of 17 & 75 years respectively. In silodosin group the mean age of the patients was 50.23±13.82 years and in ESWL group the mean age of the patients was 51.25±14.27 years. In this study 91 (65%) patients were male and 49 (35%) patients were females. In silodosin group 45 (64.3%) patients were male and in ESWL group 46 (65.7%) patients were male. The mean BMI of the patients was 26.43±3.71 kg/m2 with minimum and maximum BMI of 20 & 32 kg/m2 respectively. In silodosin group the mean BMI of the patients was 26.27±3.76 kg/m^2 and in ESWL group the mean BMI of the patients was 26.60±3.68 kg/m^2. The mean duration of symptoms of the patients was 5.45±3.29 weeks and the mean stone size of the patients was 5.52±2.15 mm. In silodosin group the mean duration of the patients was 5.17±3.42 weeks and in ESWL group the mean duration of the patients was 5.74±3.16 weeks (p-value=0.307). In silodosin group the mean stone size of the patients was 5.48±1.96 mm and in ESWL group the mean duration of the patients was 5.57±2.34 mm. According to this study 49 (35%) patient were diabetic. In silodosin group 22 (31.4%) patients were diabetic and in ESWL group 27 (38.6%) patients were diabetic. In this study 67 (47.86%) patients were hypertensive. In silodosin group 31 (44.3%) patients were hypertensive and in ESWL group 36 (51.4%) patients were hypertensive (Table-1).

In silodosin group stone clearance was noted in 57 (81.4) patients and in ESWL stone clearance was noted in 44 (62.9%) patients (p-value=0.014). In silodosin group pain was noted in 30 (42.9%) patients and in ESWL pain was noted in 45(64.3%) patients (p-value=0.011). In silodosin group bleeding was noted in 24 (34.3%) patients and in ESWL bleeding was noted in 40 (57.1%) patients (p-value=0.007) (Table-2)

Table No.1: Demographics and clinical characteristics

Characteristics	Silodosin	ESWL
Age	50.23 ± 13.8	51.25 ±14.2
Male	45 (64.3%)	46 (65.7%)
Female	25 (35.7%)	24 (34.3%)
BMI kg/m^2	26.27 ± 3.6	26.60 ± 3.68
Duration of symptoms (weeks)	5.17 ± 3.42	5.74 ± 3.16
Stone size (mm)	5.48 ± 1.96	5.57 ± 2.34
Diabetes Mellitus		
Yes	22 (31.4%)	27 (38.6%)
No	48 (68.6%)	43 (61.4%)
Hypertension		
Yes	31 (44.3%)	36 (51.4%)
No	39 (55.7%)	34 (48.6%)

In silodosin group retrograde ejaculation was noted in 2 (2.9%) patients and in ESWL it was noted in 8 (11.4%) patients (p-value=0.049). In silodosin group postural hypotension was noted in 3 (4.3%) patients and in ESWL it was noted in 11 (15.7%) patients (p-value=0.024). In silodosin group dizziness was noted in 1(1.4%) patients and in ESWL bleeding was noted in 4 (5.3%) patients (p-value=0.172) (Table-2a).

Table No.2: Comparison of complications between study groups

Characteristics		Study Groups		Total	p-value
		Silodosin	ESWL		
Stone Clearance	Yes	57	44	101	0.014
		81.4%	62.9%	72.1%	
	No	13	26	39	
		18.6%	37.1%	27.9%	
Pain	Yes	30	45	75	0.011
		42.9%	64.3%	53.6%	
	No	40	25	65	
		57.1%	35.7%	46.4%	
Bleeding	Yes	24	40	64	0.007
		34.3%	57.1%	45.7%	
	No	46	30	76	
		65.7%	42.9%	54.3%	

Table No.3: Comparison of complications between study groups

Characteristics		Study Groups		Total	p-value
		Silodosin	ESWL		
Retrograde Ejaculation	Yes	2	8	10	0.049
		2.9%	11.4%	7.1%	
	No	68	62	130	
		97.1%	88.6%	92.9%	
Postural Hypotension	Yes	3	11	14	0.024
		4.3%	15.7%	10.0%	
	No	67	59	126	
		95.7%	84.3%	90.0%	
Dizziness	Yes	1	4	5	0.172
		1.4%	5.7%	3.6%	
	No	69	66	135	
		98.6%	94.3%	96.4%	

DISCUSSION

Urolithiasis is third most common disease after pathologic conditions and urinary tract infection with an estimated prevalence of 2 to 3 % and a life time recurrence rate of approximately 50%. Urolithiasis is one of the most prevalent urologic diseases in Asia. In Pakistan the reported prevalence is 16.0% as reported in 2012[1]. In another study Sorokin et al[11] reported 7-13% prevalence rate in North American population.

Yang et al[12] conducted a meta analysis on comparison of silodosin and ureteral stones in terms of safety and efficacy and concluded that silodosin is safe as minimum side effects are associated with it and it is effective in terms of stone expulsion time and post operative analgesic requirements. In another study by Sadasivam et al[13] on Indian population concluded that Silodosin is effective management method as it is associated with shorter stone expulsion time, less pain and other complications as compare to extracorporeal shock wave lithotripsy.

Ichiyanagi et al[14] and Akin et al[15] reported in their studies that extracorporeal shockwave lithotripsy is an established modality of treatment for ureteric stones. ESWL is a non-invasive technique for the treatment of urinary stone disease. It is widely used for the management of lower ureteric stones and this method of treating stones has advantages such as a Non-invasive technique, less painful and cost effective. The stone-free rates after extracorporeal shockwave lithotripsy of renal/ureteric calculi are widely discussed in the literature.

It has also been reported that extracorporeal shockwave lithotripsy was effective in 80.7% cases for complete removal of lower ureteric stones upto 1cm of size[16]. While another trial reported that extracorporeal shockwave lithotripsy was effective in 66.25% cases for complete removal of ureteric stones ≤ 1cm of diameter[17]. Lopes Neto study conducted in 2012 reported much less success rate of extracorporeal shockwave lithotripsy in treatment of lower ureteric stones. Ureterorenoscopy is accepted globally for safe and effective ureteric stones removal and is being widely used now a day with low rate of intra- and post-operative complications. However, ureteroscopy requires considerable surgical skills and anesthesia and is associated with complications such as retropulsion of stone, postoperative bleeding, infection, and ureteral stricture[18].

The researchers concluded that efficacy of a selective α-1a antagonist (silodosin) as medical expulsive therapy in patients with ureteral calculi did not demonstrate a benefit to the entire length of ureter. It had been reported that the silodosin was successful in complete removal of stones in 91.94% cases within 24-48 hours, while 94.64% in 28 days of treatment[19].

A study was conducted by Catalin Pricop et al[20] reported that after ESWL use of alpha-blocker along with silodosin (8 mg) have stone free rate similar to tamsulin (0.4 mg). Silodosin at lower doses of 4 mg is not having good results and it is statistically significant that stone size does not mean it.

CONCLUSION

Results of this study reveal that Silodosin is significantly more efficacious and safe drug in terms of outcome as compared to extracorporeal shockwave lithotripsy for the management of lower ureteric stone size of 5-10mm.

Author's Contribution:

Concept & Design of Study: Abdul Razaq

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Data Analysis:	Ahmad Bilal, Rana Ata ur Rehman
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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 Ultrasound Diagnosed Fatty Liver Disease in Adult Patient in a Hospital in North West of Pakistan: A Community-Based Study

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ABSTRACT

Objective: To find the prevalence of ultrasound-diagnosed fatty liver disease in adult patients in a hospital in the northwest of Pakistan.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Combined Military Hospital, Nowshera from October 2021 to April 2021.

Materials and Methods: Each subject underwent an ultrasound examination by radiologists with a 3.5 MHz probe. This is a study based on the relationships between hepatic structure and the lab investigations related to metabolic disorders like LDL, HDL, Cholesterol, and TG. Standard deviation (SD) and mean with SPSS 20 were used to express the data. The cutoff for significance was ≤0.05.

Results: 500 patients were included in this study and 148 adult patients were diagnosed with fatty liver disease (FLD) with a mean age of 43.23± 14.22 years, out of which 84 were males (56.8%) and 64 were females (43.2%). 62 (41.9%) out of 148 patients had grade 1 fatty changes on ultrasound, 65 (43.9) had grade 2, and 21(14.2) had grade 3 fatty liver disease.

Conclusion: Fatty liver disease is frequently diagnosed in patients referred for abdominal ultrasound examination, it was also observed that fatty liver disease is a hepatic manifestation which associated with metabolic syndrome as all indicators of metabolic syndrome found deranged.

Key Words: Fatty Liver Disease, Metabolic Syndrome, Cholestrol

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INTRODUCTION

Nonalcoholic fatty liver disease (NAFLD) has been identified as a major public health issue and is a well-known cause of chronic liver disease all over the world [1]. It is thought to affect 20% to 40% of the general population and is the most common liver condition in Western nations.

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It was once believed to be rare in Asia, but prevalence has increased quickly, reaching up to 30% of the general population [2]. Around ten years ago, the estimated prevalence of NAFLD in Western nations was, respectively, 25% and 34% in Italy and the USA. NAFLD would be a frequent disorder in Malaysia.Diabetes mellitus (DM), overweight, and obesity has all been reported to be on the rise in Malaysia.

Until it progresses to inflammation and fibrosis, simple hepatic steatosis is still regarded as a benign condition [3]. NAFLD disease is shown by fat buildup in hepatocytes that is greater than 5% of the weight of the wet liver without alcohol consumption. Without a history of alcohol consumption, NAFLD alterations resemble those seen in alcoholic fatty disease of the liver [4].

Nonalcoholic fatty liver disease (NAFLD) is the most common liver disease, with prevalence estimates of 20–30% in the general population of Western nations [5]. Simple steatosis and nonalcoholic steatohepatitis (NASH) are two subtypes of the histological spectrum of diseases known as NAFLD [6]. It was first believed to be a benign disorder, but it is now more and more

understood to be a significant contributor to liver-related morbidity and mortality. A person's chance of developing type 2 diabetes mellitus, atherosclerotic cardiovascular disease (ASCVD), and chronic renal disease is significantly increased by metabolic syndrome [7].

Central obesity, disorders of lipid metabolism, elevated systolic blood pressure, elevated plasma glucose, along with pro-inflammatory state appear to be the most significant underlying risk factors [8].

Because of the tight relationship between the two illnesses, metabolic syndrome (MS) and non-alcoholic fatty liver disease (NAFLD) are now regarded as having a hepatic component. Diabetes mellitus, obesity, and other metabolic risk factors are becoming more common, which is raising the prevalence of NAFLD in Asia [9]. On long-term follow-up, patients with NAFLD are at risk for cardiovascular disease and an increased prevalence of diabetes mellitus in addition to liver-related morbidity and mortality. Obesity, the metabolic syndrome (MetS), and cardiovascular risk factors all have a strong correlation with NAFLD, which is more prevalent in obese patients [10]. Nevertheless, despite having a body mass index (BMI) that is generally within the normal range, a lesser but still considerable percentage of people acquires NAFLD [11]. The main objective of the study is to find the incidence of fatty liver diagnosed by ultrasonography in adult patients in a hospital in the northwest of Pakistan.

MATERIALS AND METHODS

This cross-sectional study was conducted at Combined Military Hospital Nowshera from October 2021 to April 2021. In this study, we focus on finding the prevalence of fatty liver disease and its association with metabolic syndrome. We looked specifically at associations between hepatic histology and LDL, HDL, cholesterol, and TG, four indicators of the metabolic syndrome. All the patients presenting to the outdoor department during the study period having hypertension (blood pressure >150/90 mmHg), diabetes mellitus (Hba1c > 7 %) were subject to ultrasonography and the diagnosis of NAFLD was made.

The existence of macrovesicular steatosis, lobular inflammation (with or without), hepatocellular degeneration, and fibrosis were all determined by the ultrasound results. Additionally to having normal copper and iron levels, all individuals tested negative for viral hepatitis. All participants consumed 14 standard drinks of alcohol each week.

In this investigation, individuals were screened using an ultrasound machine with a 3.5 MHz probe. Each subject underwent an ultrasound examination by radiologists with at least ten years of experience. NAFLD was identified based on two of the following criteria: decreased visualization of intrahepatic vascular walls, decreased liver echogenicity (brighter liver) in comparison to the right renal cortex and spleen, and poor visualization of the diaphragm and posterior right liver lobe. In order to grade liver biopsies, a pathologist who was blind to the patient's details assigned a score ranging from zero to four for the previously mentioned fibrosis, steatosis, and inflammation. All biopsies were stained with Masson's Trichrome for additional fibrosis assessment, and the percentage of fibrosis was assessed in three replicates by microscopic examination and image analysis, and was represented as mean & percentages. Using SPSS 20, the data from the various baseline variables was examined. SD and mean were used to express the data. The cutoff for significance was 0.05.

RESULTS

A total 500 patients were included in this study A section of 148 (29%) adult patients were diagnosed with fatty liver disease (FLD). In these 148 patients, the mean age of 43.23± 14.22 years, out of which 84 were males (56.8%) and 64 were females (43.2%). 62 (41.9%) out of 148 patients had grade 1 fatty changes on ultrasound, 65 (43.9) had grade 2, and 21 (14.2) had grade 3 fatty liver disease. Statistical tests were applied to compute relationships between the Grades of fatty changes and diabetes mellitus, lipid profile, BMI and serum AST, ALT and ALP. After applying the one way anova test it was found that the serum values of ALT, AST and ALP were significantly higher in patients with grade 3 fatty liver disease changes on ultrasonography as compared to those with grade 1 fatty changes (p-value <0.001).

Mean serum ALT levels in patients with grade 1 FLD changes were 57.14U/L, in grade 2 were 75.6 U/L and grade 3 were 101.5 U/L. Mean serum AST levels in patients with grade 1 FLD changes were 53.12 U/L, in grade2 were 55.6U/L and in grade 3 were 74.3U/L. Mean serum ALP levels in patients with grade 1 FLD changes were 97.2U/L, in grade 2 were 207U/L and in grade 3 were 279 U/L. Similarly, a significant relationship was found between diabetes mellitus and the grade of fatty liver disease (p<0.001). 80% of the patients with diabetes for more than 10 years had grade 3 fatty changes. 50% of the patients with diabetes for 5 to 10 years had grade 3 fatty changes whilst only 5% of patients with no history of diabetes had grade 3 FLD changes. Similarly a significant relationship was found between BMI and the grade of fatty liver disease (p<0.001). 100% of obese patients had grade 3 fatty liver changes on USG, whereas 7.8% of overweight patients had grade 3 fatty liver disease changes and a mere 4.2% of normal BMI patients had grade 3 fatty liver changes on USG. Similarly, a significant relationship was found between lipid profile and the grade of fatty liver disease (p=0.02). 51% of the patients having grade 3 fatty liver disease had deranged lipid profiles whereas 32.4% of patients with grade 2

FLD had deranged lipid profiles and 16% of patients with grade 1 FLD had deranged lipid profiles.

Table No.1: Relation of FLD grades on USG with Serum liver enzyme levels

LFT's Levels	Grade I	Grade II	Grade III	P-value
ALT U/L	57.174± 8.9	75.6± 22.6	101.52± 11.6	<0.001
AST U/L	53.129± 4.4	55.6923± 10.5	74.30± 11.8	<0.001
ALP U/L	97.22± 28.2	207.7± 52.7	279.52± 46.14	<0.001

Table No.2: Relation of USG Grades of FLD with Diabetes Mellitus

Diabetes Mellitus	Fatty liver on USG			P- Value
	Grade 1	Grade 2	Grade 3	
No	59(50%)	53(45%)	6(5%)	<0.001
<5Years	3(33%)	3(33%)	3(33%)	
5-10Years	0	8(50%)	8(50%)	
>10years	0	1(20%)	4(80%)	

Table No.3: Relation of fatty liver disease with BMI (body mass index)

Body Mass Index (BMI)	Fatty liver on USG			P-Value
	Grade1	Grade2	Grade 3	
Normal	37(79%)	8(17%)	2(4.2%)	<0.001
Overweight	25(28%)	57(64%)	7(7.8%)	
Obese	0	0	12(100%)	

Table No.4: Relation of fatty liver disease with Lipid profile

Lipid Profile	Fatty liver on USG			P- Value
	Grade 1	Grade 2	Grade 3	
Normal	56(50%)	53(47%)	2(1.8%)	0.02
Deranged	6(16%)	12(32.4)	19(51%)	

DISCUSSION

The fifty patients included in this study were having the fatty liver disease (non-alchohol) and they were studied to see a co-relation of metabolic disorders with the prevalence of fatty liver disease. While measurements of adiposity were connected with hepatic steatosis, the prevalence and severity of the metabolic syndrome were correlated with hepatic inflammation and fibrosis [12]. This finding has practical ramifications because liver biopsies are now used to confirm the diagnosis and provide a prognosis [13], while hepatic ultrasonography and liver function tests have limited value in foretelling hepatic swelling and fibrosis. We propose that characteristics of the metabolic syndrome might serve as a better indicator of which individuals should be taken into account for a biopsy and subsequent targeted therapy [14].

NAFLD in its entirety, from pure fatty liver to nonalcoholic steatohepatitis (NASH), has come to light in recent investigations as a potential additional MS characteristic. Insulin resistance and hyperinsulinemia play a significant role in the development of both MS and nonalcoholic fatty liver, according to pathophysiologic considerations, clinical correlations, and laboratory research [15]. The findings of studies revealed that NAFLD is characterised by clinical and laboratory findings that are comparable to those of hyperglycemia and obesity, such as reduced insulin sensitivity and lipid metabolic anomalies [16] in the presence of normoglycemia and normal or mildly increased body weight.

90% of people with NAFLD have at least one risk factor for MS, and 33% have all of its symptoms. Independent of age, gender, and body mass index, the study found that people with MS had considerably higher liver fat content than those without the illness[17]. The prevalence of metabolic syndrome increased from 18% in people of normal weight to 67% in people who were obese in 304 NAFLD patients without diabetes mellitus[18]. A possibly progressive, severe liver disease is linked to the existence of various metabolic disorders such diabetes mellitus, obesity, dyslipidemia, and hypertension[19–21]. 30–100% of people with NAFLD19 have obesity. Steatosis is 4.6 times more common in obese people than in people of normal weight [22].

CONCLUSION

Fatty liver disease is frequently diagnosed in patients referred for abdominal ultrasound examination, it was also observed that fatty liver disease is a hepatic manifestation which associated with metabolic syndrome as all indicators of metabolic syndrome found deranged.

Recommendation: For correctly diagnosing NAFLD and all other medical liver illnesses, a thorough USG evaluation, careful consideration of clinical and laboratory parameters, and effective communication with the ultrasonologist are essential.

Author's Contribution:

Concept & Design of Study:	Sardar Muhammad Daud Khan
Drafting:	Muhammad Farooq Malik, Naila Mumtaz
Data Analysis:	Asif Afzal Khalid Anjum, Nargis Alam
Revisiting Critically:	Sardar Muhammad Daud Khan, Naila Mumtaz
Final Approval of version:	Sardar Muhammad Daud Khan

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Original Article

Frequency of Atopic Dermatitis and Allergic Rhinitis in Known Patients of Bronchial Asthma

Asif Afzal, Muhammad Farooq Malik, Hamid Shafi, Sardar Muhammad Daud and Aisha Farooq

ABSTRACT

Objective: To examine the incidence of the atopic dermatitis and allergic rhinitis in adult known patients of bronchial asthma.

Study Design: cross-sectional study

Place and Duration of Study: This study was conducted at the department of Medicine, CMH hospital, Nowshera, from January 2021 to September 2021.

Materials and Methods: A total of 100 patients suffering from bronchial asthma were included in this study and patient that had history of COPD were excluded from the study. They were interviewed by an independent researcher. The age, gender, smoking status, residence, exposure to animals /livestock and the duration of asthma was noted in a predefined proforma. The frequency of asthma was calculated and the degree of asthma was also classified. SPSS version 24 was used for data analysis and cutoff for significance was $p \leq 0.05$.

Results: Out of total patients, 39 (39.0%) were suffered with atopic dermatitis and 61 (61.0%) and 72 (72.0%) suffered from allergic rhinitis. The average age in atopic dermatitis and non-atopic dermatitis patients was almost equal, (p=0.882). Males were most common in atopic dermatitis patients as 33 (84.6%) and females were most common in 61 (100.0%) in non- atopic dermatitis patients, (p<0.001). Smoking was the most common 38 (97.4%) in atopic dermatitis patients, (p<0.001). All the atopic dermatitis patients lived in urban area, (p<0.001). Further, all the atopic dermatitis patients had animal livestock, (p<0.001). Atopic dermatitis patients was most common in allergic rhinitis, Asthma class and Allergic rhinitis class, (p<0.001).

Conclusion: There is a higher prevalence of atopic dermatitis and allergic rhinitis in patients that are treated as bronchial asthma patients. Further studies are needed to ascertain the risk factors associated with atopic dermatitis, allergic rhinitis and bronchial asthma.

Key Words: Atopic dermatitis, Asthma, Allergic asthma, Bronchial asthma

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INTRODUCTION

Asthma and rhinitis, which affect the lower and upper airways, have historically been considered two separate biological entities. Both illnesses, however, have recently been identified as symptoms of the chronic inflammatory respiratory syndrome of the common airways, or unified airways disease. Atopic dermatitis (AD) is an inflammatory skin condition that can last a lifetime. The increased frequency of AD in juvenile and adult patients with asthma has been well documented.

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Because asthma and rhinitis frequently coexist, every patient with asthma should be evaluated for the presence and severity of allergic rhinitis. Furthermore, proper care of both disorders is required for maximum therapy results. The prevalence of the relationship between asthma allergic rhinitis and atopic dermatitis in adult asthmatic patients attending allergy outpatient clinics is investigated in this study. Asthma and rhinitis, for example, have traditionally been viewed as separate biological entities. But more recently, it has been found that both ailments are symptoms of united airways disease, a persistent respiratory illness with inflammatory symptoms that affects the common airways [1,2].

Since the entire respiratory system is affected, allergic rhinitis and asthma should be viewed as an illness that affects both diagnosis and treatment. Asthma and allergic rhinitis frequently coexist. This connection has been demonstrated by clinical findings, epidemiological research, immunological discoveries, and therapeutic outcomes[1,2]. The widespread cohabitation of these illnesses led to the development of the WHO recommendations. A thorough overview of the biology,

diagnosis, and treatment of allergic rhinitis was released in 2001 by the World Health Organization (WHO) and the ARIA Initiative (Allergic Rhinitis and Its Impact on Asthma)[2]. The main goals of this study were to develop evidence-based diagnostic and treatment recommendations and to further medical understanding of allergic rhinitis.

Asthma affects between 4% and 11% of the general population, and allergic rhinitis affects between 10% and 30% of persons. Between 20% and 50% of those with allergic rhinitis also have asthma, which affects 30% to 90% of those with allergic rhinitis [3-5].

The cause of the illness has little bearing on whether rhinitis and asthma develop at the same time. Asthma development as well as the frequency and severity of allergic asthma have also been linked to allergic rhinitis[6]. Whether the degree of allergic rhinitis correlates with the severity of asthma is unknown. Every asthma patient should be assessed for the presence and severity of allergic rhinitis due to the common coexistence of asthma and rhinitis. For the best possible results from therapy, both illnesses must be treated properly.

An inflammatory skin disorder called atopic dermatitis (AD) can last a lifetime. Asthma patients of all ages are more likely to develop AD, which has been extensively documented[4]. Genetic risk factors and environmental triggers are to blame for this.[5] Filaggrin deficiency may result in a weakened skin barrier that makes certain AD patients more susceptible to allergens. This minority may go on to develop asthma after repeatedly being exposed to the same allergens in the airways. T-helper (Th) 2 cells in both AD and asthma produce IL-4, IL-5, IL-10, and IL-13, which might further raise type 2 immunological reactivity and encourage eosinophil recruitment. This study examines the incidence of the connection between atopic dermatitis and asthma allergic rhinitis in adult asthmatic patients.

MATERIALS AND METHODS

This prospective cross-sectional study was conducted at CMH Nowshera from January 2021 to September 2021. Before the start of the study, ethical approval was sought form the hospital ethical review committee. All the patients with diagnosed bronchial asthma that presented in the OPD during the study period were included in this study, any patient that had history of COPD were excluded from the study. Every participant in this study received an interview where they were asked questions regarding their personal and family histories of atopy, asthma, and rhinitis, as well as their demographics (age, gender, and place of residence) (frequency and intensity of symptoms, exacerbations, disease duration). The Global Initiative for Asthma (GINA) [13] classification were used for the severity of asthma, performed spirometry in accordance with ERS recommendations, and predicted normal values for spirometry were based on ERS recommendations for adult patients. Asthma was divided into the following categories: intermittent (symptoms occur less than once a week; brief exacerbations Nocturnal symptoms occurring no more than twice per month, FEV1 or PEF expected to be at 80%, and PEF or FEV1 fluctuation below 20%). Exacerbations may interfere with activity and sleep if they are mild persistent (symptoms more than once a week but less than once a day). Symptoms at night more than twice every month. Variability in PEF or FEV1 between 20 and 30 percent), somewhat persistent (symptoms present every day; exacerbations may interfere with activities or sleep; frequent nocturnal symptoms). Regular use of an inhaled short-acting 2-agonist, severe persistent (regular exacerbations), and FEV1 or PEF variable greater than 30% regularly occurring nighttime asthma symptoms Physical activity restriction (FEV1 or PEF 60% predicted). During the study period 100 patients were included in the study. They were interviewed by an independent researcher. The age, gender, smoking status, residence, exposure to animals /livestock and the duration of asthma was noted in a predefined proforma. The frequency of asthma was calculated and the degree of asthma was also classified.

RESULTS

Total 100 patients agreed to be a part of this study and were interviewed. Out of these, 39 (39.0%) were suffered with atopic dermatitis and 72 (72.0%) suffered from allergic rhinitis. The average age in atopic dermatitis and non-atopic dermatitis patients was almost equal, (p=0.882). Males were most common in atopic dermatitis patients as 33 (84.6%) and females were most common in 61 (100.0%) in non- atopic dermatitis patients, (p<0.001). Smoking was the most common 38 (97.4%) in atopic dermatitis patients, (p<0.001). All the atopic dermatitis patients lived in urban area, (p<0.001). Further, all the atopic dermatitis patients had animal livestock, (p<0.001). (Table. I).

Table No.1: Association of atopic dermatitis with demographic characteristics

Variable	Atopic Dermatitis		p-value
	Yes	No	
Age (years)	46.56±1.94	46.62±1.91	0.882
Gender			
Male	33 (84.6)	0 (0.0)	<0.001
Female	6 (15.4)	61 (100.0)	
Smoking status	38 (97.4)	0 (0.0)	<0.001
Area of residence			
Urban	39 (100.0)	4 (6.6)	<0.001
Rural	0 (0.0)	57 (93.4)	
Animal livestock	39 (100.0)	20 (32.8)	<0.001
Duration of	4.48±0.91	4.48±0.88	0.967

asthma			

Table No.2: Outcome variable and associated allergy diseases

Variable	Atopic Dermatitis		p-value
	Yes	No	
Allergic rhinitis	39 (100.0)	33 (54.1)	<0.001
Asthma class			
Intermittent	28 (71.8)	0 (0.0)	<0.001
Persistence of mild illness	11 (28.2)	6 (9.8)	
Persistence of moderate illness	0 (0.0)	37 (60.7)	
Persistence of severe illness	0 (0.0)	18 (29.5)	
Allergic rhinitis class			
Mild intermittent	18 (46.2)	0 (0.0)	<0.001
Moderate-severe intermittent	21 (53.8)	5 (8.2)	
Mild persistent	0 (0.0)	40 (65.6)	
Moderate severe persistent	0 (0.0)	16 (26.2)	

Atopic dermatitis patients was most common in allergic rhinitis, Asthma class and Allergic rhinitis class, ($p<0.001$). (Table 2).

DISCUSSION

In number of previous researches atopic dermatitis and other allergy diseases have studied and a pathogenic overlap of one or more endotypes was observed. As a result, the underlying immunological dysfunction of AD and asthma, along with type 2 immunity and higher IgE serum levels[6] could explain some of their coexistence. The considerable illness reduction found in asthma and Alzheimer's disease trials after treatment with the IL-4 receptor -antagonist dupilumab indicates the close link between the two disorders,[7] and warrants additional research into potential monotherapy of these two conditions in selected patients.

The result of this study shows that the prevalence of allergic rhinitis and atopic dermatitis is very high in the patients that are diagnosed cases of bronchial asthma.

In a study conducted by hong et al,[8] they conducted a study on children and assessed the frequency of allergy disorders in children. They discovered that (p for trend 0.001), 9.3% of children aged 0 to 3 years, 19.7% of children aged 4 to 6 years, 16.7% of children aged 7 to 9 years, and 14.5% of children aged 10 to 13 years experienced obesity. Asthma prevalence was 16.5%, 9.8%, 6.5%, and 5.4%, respectively, in these age groups (p for trend 0.001). In these age groups, allergic rhinitis was prevalent in 28.5%, 38.0%, 38.5%, and 35.9% of cases (p for trend = 0.043).

In another study conducted by Pedersen et al,[9] in Bangladesh, they studies the pattern of prevalence of asthma, atopic dermatitis in children as they progressed to adulthood. They found out that the prevalence of atopic dermatitis and allergic rhinitis increases with the age and the results of this study are comparable to the results of our study that show a similar trend of increasing prevalence of (6.0%, (95% CI% 4.5 to 7.4%).

Ravnborg and colleagues[10] conducted a recent metanalysis using 39.503 articles, 213 studies were included as per inclusion and exclusion criteria. They found that the prevalence of asthma was 25.7% in atopic dermatitis patients. They found that there was a significant association between the atopic dermatitis and bronchial asthma. They concluded that asthma is common in the patients of atopic dermatitis.

In a study conducted by Okui[11] in Japan, they examined using age-period-cohort (APC) analysis, trends in the prevalence of asthma, allergic rhinitis, and atopic dermatitis in Japan. From 1999 to 2017, data on disease prevalence in Japan were gathered from patient surveys. In 5-year increments, the data were broken down into age groups ranging from 0–4 years old to 65–69 years old. With a one-year shift, a cohort was formed for each age group of each year, and the cohorts born from 1930–1934 through 2013–2017 were studied. They came to the conclusion that atopic dermatitis and bronchial asthma are strongly correlated.

In another study conducted by Bekic et.al[12]. The purpose of the study was to look into the relationship between comorbidity in general practice and atopic dermatitis. A retrospective study on the proportion of patients with atopic dermatitis in the entire population and their concomitant disorders was carried out at the specialized family medicine practice Osijek between January 1 and July 1, 2016. The E-chart served as the data source. Out of 2056 patients, the results revealed that 195 (10.53%) had atopic dermatitis, 80 (41%) had atopic dermatitis and allergic rhinitis, and 34 (17.4%) had asthma. The findings of this study illustrated the "atopic march's" steps. Most patients with atopic dermatitis experience skin abnormalities that spread to other organ systems. [13-14]

The results of our study clearly show a high prevalence of atopic dermatitis and allergic rhinitis in bronchial asthma patients. There are however some limitations to this study. This study does not take in to account the associated risk factors and their relation to the prevalence of allergic rhinitis and atopic dermatitis. This study does not assess the levels of IgE as an indicator for an allergic process. However, this study emphasizes on a need for further, detailed studies to establish relation of asthma, its associated risk factors with with frequency of atopoic dermatitis and allergic rhinitis.

A study was conducted Gupta et al[15] on British population and reported prevalence of allergy diseases up to 11% in children of age below 10 years and 10% in age of 15 years. Simpson et al [16] conducted a study and reported incidence of allergy diseases and reported highest incidence in population of older age.

Another study by Su et al[17] evaluated incidence of atopic dermatitis in different areas of Finland mad reported 15.4% atopic dermatitis in urban areas and 15.9% in industrial areas. Hahn et al[18] also observed an increase in frequency of atopic dermatitis, allergy rhinitis and asthma. In a study by Shokouhi Shoormasti et al[19] reported incidence of atopic 3.9% and allergy rhinitis 28.3% and found that there was no association among other allergy diseases and atopic dermatitis.

CONCLUSION

There is a higher prevalence of atopic dermatitis and allergic rhinitis in patients that are treated as bronchial asthma patients. Further studies are needed to ascertain the risk factors associated with atopic dermatitis, allergic rhinitis and bronchial asthma.

Author's Contribution:

Concept & Design of Study:	Asif Afzal
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Data Analysis:	Sardar Muhammad Daud, Aisha Farooq
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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 Staging of Oral Squamous Cell Carcinoma

Oral Squamous Cell Carcinoma

Raja Muhammad Daniyal[1], Jehan Alam[1], Tariq Mahmood[2], Ambreen Mahboob[1], Sumaira Babar[2] and Ghulam Shabbir[3]

ABSTRACT

Objective: To evaluate the potential impact of TNM classification in determination of staging of oral squamous cell carcinoma and consequent treatment.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Oral & Maxillofacial Surgery and Radiology departments of Jinnah Postgraduate Medical Center, Karachi from January 2018 to June 2021.

Materials and Methods: A total of 343 patients of squamous cell carcinoma of oral cavity were included. Main variables of study were stage of OSCC based on TNM7 classification which was performed on CT scan imaging of the head and neck with contrast, and site of carcinoma. Data stratification was done by using SPSS version 24. Frequency percentages and mean standard deviations were calculated.

Results: The most common tumor category was T2 and T4a, 37.0% and 33.8%, respectively. Most common node category was N0 and N1, 53.3% and 42.0%, respectively. Mostly distant metastasis was not evaluated Mx, 78.7%. Buccal mucosa and tongue were the most common cancer sites being 46.7% and 44.0%, respectively. Majority of the patients had stage 3 and stage 4a cancers, 36.2% and 30.8% respectively.

Conclusion: This study is a reflection of current practices in JPMC. It reflects the use of TNM7 staging which has now been updated by TNM8 edition. Lack of local staging using MRI with contrast leads to incorrect staging as far as invasion of essential structures are concerned which are better demonstrated on MRI due to higher soft tissue contrast resolution. Lack of HPV testing in or pharyngeal cancers which are required in TNM8 edition and variable practices which do not necessarily work up patients for distant staging as reflected in this study.

Key Words: Cancer stage, oral squamous cell carcinoma, TNM classification

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INTRODUCTION

Oral cancer or cancer of the mouth is a serious health problem that causes increased mortality and mortality. A recent global survey reported 177,384 deaths every year from 354,864 new cases[1]. Most common causes of oral cancer are alcohol abuse and tobacco use. Among oral cancers squamous cell carcinoma (OCSCC) is most common and its incidence rate is increasing in young population[2]. But on comparison between old and young patients there was no significant difference was observed regarding grade and stage of OSCC[3].

Tongue is more prone and associated with high rate of OSCC for two main reasons, firstly due to pooling of carcinogen with saliva in the floor of mouth second reason is repeated trauma from sharp cusps of tooth. Other common subsites include buccal mucosa, gingivae, retromolar trigone and floor of mouth. Management options of OSCC include surgical excision along with chemotherapy, radiotherapy or chemo radiotherapy[4,5]. Adjuvant therapy is usually recommended after histopathology of resected sample based on the degree of differentiation, excision margins, depth of invasion, bone involvement, vascular invasion, number of lymph nodes, extra capsular spread of disease, size of metastasis and staging[6].

TNM staging is based on primary tumor size (T), locoregional lymph node involvement (N), and metastasis (M). Treatment planning, recurrence risk prediction, and survival rate can be better estimated using the TNM classification system[8].

Several modifications have been made since the development of TNM system about 60 years ago but primary goal of development (AJCC and UICC) remains the same. Among malignant neoplasm of oral cavity squamous cell carcinoma comprise 90% of cancers with neoplasms of minor salivary glands comprising 10%.

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MATERIALS AND METHODS

Study was retrospective in design and was conducted after taking permission from department of radiology in Jinnah Postgraduate Medical Center, Karachi. Study was conducted using patient records and included those that were diagnosed with oral squamous cell carcinoma. Patients diagnosed as SCC on biopsy samples of oral cavity. Furthermore, staging of disease was done using TNM7 classification.

SPSS version 23 was used for data entry and analysis. Proportions or frequency percentages were calculated for qualitative variables like gender and mean SD were calculated for quantitative variables like age of patients. Test of significance was applied and p value ≤0.05 was taken as significant.

RESULTS

Three hundred & forty-three patients were enrolled, in our study. The average age of the patients was 57.67±10.99years. Majority of the patients, 183 (53.4%) were between 36-60 years of age. There were 260 (75.8%) males and 83 (24.2%) were females. Most of the patients lived in urban areas 250 (72.9%). (Table. I).

Table No.1: Demographic and socioeconomic characteristics of the patients

Characteristic	Mean±S.D	N (%)
Age (years)	**57.67±10.99**	
≤18		0 (0.0)
19-35		12 (3.5)
36-60		183 (53.4)
>60		148 (43.1)
Sex		
Male		260 (75.8)
Female		83 (24.2)
Area of residence		
Urban		250 (72.9)
Rural		93 (27.1)

Table No.2: Presence of tumor category among the study patients

Tumor category	N	%
Tx	1	0.3
T0	0	0.0
Tis	0	0.0
T1	45	13.1
T2	127	37.0
T3	53	15.5
T4a	116	33.8
T4b	1	0.3
Total	343	100.0

The most common tumor category was T2 and T4a, 127 (37.0%) and 116 (33.8%), respectively. (Table. 2). The most common node category was N0 and N1, 183 (53.3%) and 144 (42.0%), respectively. (Table. 3). Most of the patients were not worked up for distant metastasis Mx, 270 (78.7%). (Table. IV). Buccal mucosa and tongue were the most common cancer sites, 160 (46.7%) and 151 (44.0%), respectively. (Table. V). Majority of the patients had stage 3 and stage 4a cancers, 124 (36.2%) and 106 (30.8%), respectively (Table. 4).

Table No.3: Presence of node category among the study patients

Node category	N	%
NX	4	1.2
N0	183	53.3
N1	144	42.0
N2	0	0.0
N2a	8	2.3
N2b	0	0.0
N2c	1	0.3
N3	3	0.9
Total	343	100.0

Table No.4: Distant metastasis category among the study patients

Metastasis category	N	%
Mx	270	78.7
M0	63	18.4
M1	10	2.9
Total	343	100.0

Table No.5: Cancer sites among the study patients

Site	N	%
Buccal mucosa	160	46.7
Tongue	151	44.0
Hard palate	26	7.6
Retromdartrigone	6	1.7
Total	343	100.0

Table No.6: Cancer stages among the study patients

Stage	N	%
Stage 0	0	0.0
Stage 1	34	9.9
Stage 2	65	19.0
Stage 3	124	36.2
Stage 4a	106	30.8
Stage 4b	4	1.2
Stage 4c	10	2.9
Total	343	100.0

DISCUSSION

Patients of oral squamous cell carcinoma have varied prognosis because of variation in clinical features and histology[11]. TNM system has been adopted for histological staging and planning for treatment evaluation of patients. In patients with advance stages of tumor prognosis is poor. In this study few clinical

findings were discussed and evaluated that can help a practitioner in treatment planning[12].

In our study 75.8% were male and 24.2% were female having overall mean age of 57.67±10.99. A study was conducted by Costa ALL et al[13] in 2005 on 55.2% male patients with age range 50-70 years and reported that borders of the tongue was the most common site (19 patients) followed by the lower lip (10 patients). Another study was conducted by Woodhouse EC et al[14] and described the mechanism involved in metastasis and described that pattern of metastasis can be explained with TNM classification system.

It is difficult to assess infiltration of adjacent structures on clinical examination and therefore imaging helps in the evaluation of disease extent which cannot be seen with the naked eye or on endoscopy, especially muscle involvement, bone erosion, vascular encasement and perineural extension[5]. Accuracy of TNM was reported upto 80% when gold standard was taken as magnetic resonance imaging (MRI) and computed tomography (CT) for staging of neoplasms[15]. In our study T3 pattern was observed in 15.5% of cases and T4 in 34% of patients. N0 was noted in a high proportion 53.3% of cases.

A study was conducted by Lopes et al[16] in 2002 showing T1/T2N? tumors in majority and T3/T4N0 were observed in 65% of cases with invasive pattern. Results were statistically significant $p<0.05$. In a study conducted by Garavello et al[17] on squamous cell carcinoma patients distant metastasis M1 was observed in 9.2% of SCC patients and most of them were younger (below 45 years) in age. In our study distant metastasis M1 was observed in 2.9% patients of squamous cell carcinoma which is likely an under estimation since a large majority were not evaluated for distant staging.

Brougham et al[18] carried out a study on squamous cell carcinoma patients and observed cheeks and lips were most common primary sites and mean age of patients was 74 years. Daniyal et al[19] carried out a study on distant metastasis in SCC patients and reported that in a major portion of squamous cell carcinoma developing distant metastasis, T3 was the most common stage of metastasis 41.8% followed by T4a. Most common M stage was M0 in 43.6% of cases.

CONCLUSION

This study is a reflection of current practices in JPMC. It reflects the use of TNM7 staging which has now been updated by TNM8 edition. Lack of local staging using MRI neck with contrast for suprahyoid cancers which leads to incorrect staging as far as invasion of essential structures are concerned which are better demonstrated on MRI due to higher soft tissue contrast resolution. Lack of HPV testing in oropharyngeal cancers which is required in TNM8 edition. And variable practices which do not necessarily work up patients for distant staging as reflected in this study. This can be due to lack of awareness by the clinicians, resource constraints of the current health infrastructure such as lack of sufficient MRI scanners and sufficient centres with HPV testing, or financial constraints of the patients as JPMC caters to mainly the lower socio economic class and the healthcare costs are borne out of the patient's pocket.

The limiting factors need to be identified and consequently rectified to improve staging and subsequent management of head and neck cancer patients.

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

Where Has the Childhood Gone? Adolescent Pregnancy, A Continuing Obstetric Challenge

Shehla Arif, Farah Deeba Nasrullah, Riffat Jaleel, Pushpa Bai Makhijani and Namia Nazir

ABSTRACT

Objective: We aimed to analyze the frequency and adverse maternal and perinatal outcomes of adolescent pregnancy in a tertiary care setting.

Study Design: retrospective case-control study

Place and Duration of Study: This study was conducted at D. Ruth K. M. Pfau Civil Hospital Karachi from Nov, 2020 to Oct, 2021.

Materials and Methods: We recruited 921 women delivering between 15 to 35 years during this period. Participants were divided into two groups as adolescents and adults according to their age. First group comprised of adolescents (n) aged between 15-19 years and second consisted of adults (2n) between 20-35 years as control. Case records were reviewed and information collected on a specially designed proforma. This data included socio demographic characteristics, birth mode and maternal and fetal outcomes. Data stored and analyzed by SPSS version 21.

Results: Our results revealed frequency of teenage pregnancies as 9.5%. Majority of these adolescents were aged between 17-19yrs (96.7%), were urban residents (60.9%), un-booked (67.7%) and married (96.4%). However 3.6% comprised of unmarried girls also. About a quarter delivered by cesarean section (24.4%). Significant fetomaternal outcomes included anemia (35.8%), preterm delivery (25.4%), PPROM (9.4%), sepsis (7.2%), non-progress of labor (8.1%), Eclampsia (4.6%), stillbirth (13.4%) and neonatal deaths (7.2%).

Conclusion: Adolescent pregnancy poses serious health risks and is associated with adverse fetomaternal outcomes like anemia, preterm delivery, sepsis, eclampsia and poor perinatal outcomes.

Key Words: Adolescent pregnancy, perinatal outcome, maternal outcome.

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INTRODUCTION

Adolescent or teen age pregnancy refers to pregnancy occurring in girls aged between 13 to 19 years [1]. Across the globe 21 million adolescents give birth every year, with 12 million in developing countries [2]. It is a major public health problem with huge consequences to maternal health, psychology and pregnancy outcomes [3]. The increased incidence of adolescent pregnancy is mainly because of their physiological and psychological immaturity and limited reproductive knowledge[4].

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These young girls are never able to enjoy their childhood, are not allowed to go to school and are forced to become wives and mothers. It is more likely to occur in indigenous underdeveloped communities driven by low economy, lack of education, early sexual activity, sociocultural expectations to produce a child soon after marriage and lack of employment opportunities[5]. Adolescent fertility rate in Pakistan is one of the highest in the world with 44 of every thousand live births [6]. It is considerably associated with adverse maternal and perinatal outcomes like pre-eclampsia and eclampsia, preterm labor, anemia, sepsis, low birth weight, perinatal deaths and maternal mortality. The risk of dying from pregnancy and child birth related complications is leading cause of death in 15-19 girls worldwide [7].

Continuing high rates of teenage pregnancies has pushed government at both national and international levels to set targets for reduction in number. Millennium Development Goals (MDGs) were set in year 2000 to improve maternal health and reduce maternal mortality by 2015. Unfortunately much of it was not accomplished as teen pregnancies were not given desired attention because of competing priorities [8]. Other reasons were lack of antenatal care in remote areas, less no. of skilled birth attendants, inadequate

transportation and poor identification and tracking of maternal deaths in community. This fact based the development of Sustainable Development Goals (SDGs) by United Nations in 2015 with an aim to decrease maternal mortality and promote wellbeing for all by 2030 [9]. The key strategies for accomplishment will be to reduce adolescent pregnancies, provision of health for all women and universal coverage of skilled birth attendants. The burden of this problem is quite under estimated across Pakistan and there's still a long way to reduce teen marriages and related adverse outcomes. We aimed to determine the frequency and analyze adverse maternal and perinatal outcome of teenage pregnancy in a tertiary care setting..

MATERIALS AND METHODS

This was a retrospective case control study conducted at Dr. Ruth K. M. Pfau Civil Hospital Karachi Obs. and Gyn unit II. Civil Hospital is a 2000 bedded tertiary care public sector hospital. The study was conducted from Ist, Nov, 2020 to 31st Oct, 2021over a period of one year. Permission from institutional review board taken. There were 3230 deliveries in the unit during this period. A total of 921 singleton pregnancies coming through emergency or outpatient department between 15-35 years of age meeting inclusion criteria were enrolled and divided into two groups as adolescents between 15-19 years and adults 20-35 years, according to their age as cases (n) and controls (2n). There were 307 teenage girls and 614 adults. Patients with multiple pregnancy, having preexisting medical problems, gestational age <28weeks, birth weight <1 kg, anomalous baby and patients with incomplete data were excluded. Case records of those patients were reviewed thoroughly and information collected on a specially designed proforma by trained doctors. This data included socio-demographic features, booking status, obstetric risk factors, mode of delivery, ante/post natal complications, birth weight, still birth, neonatal deaths and admission to neonatal intensive care unit.

The adverse maternal outcomes included: Cesarean section, GDM (fasting sugar >5.1mmol/L), PIH or pre eclampsia (blood pressure >140/90 mmHg after 20 weeks of gestation on two occasions with or without proteinuria of >300mg/dl), HELLP syndrome (Syndrome comprising of hemolysis, elevated liver enzymes and low platelets associated with PIH), anemia (< 10.5gm/dl), packed cell transfusion, preterm delivery (delivery before 37 weeks of gestation), PPROM (preterm prelabor rupture of membranes at<37 weeks), placenta previa (placenta located in lower uterine segment), placental abruption, eclampsia (hypertensive disease of pregnancy with seizures), ICU/ ventilatory support, postpartum hemorrhage (blood loss >1000ml after delivery of baby), sepsis, non-progress of labor, acute kidney injury and maternal mortality. The adverse perinatal outcomes included: Low birth weight (< 2.5 kg), still birth (death of fetus in utero after the age of viability), neonatal death (death of baby after delivery till 7 days of life).

Data was entered and analyzed through SPSS version 21.0. Generalized screening was performed for missing data. Any missing data was entered from case records by serial number initially assigned to each participant. Descriptive characteristics were presented as frequencies and percentages. The association of adverse pregnancy outcomes with age and parity was checked by applying Chi- Square test. P value of less than 0.05 was considered statistically significant.

RESULTS

Table No.1: Socio-demographic and obstetric characteristics of adolescent girls

Mean Age	**18.11 ± 0.9 Years**
Ethnicity	**n (%)**
Sindhi	161(52.4)
Punjabi	29(9.5)
Pathan	35(11.4)
Balochi	25(8.1)
Urdu Speaking	57(18.6)
Marital Status	
Married	296(96.4)
Unmarried	11(3.6)
Parity	
Primiparous	214(69.7)
Multiparous	93(30.3)
Booking Status	
Booked	99(32.3)
Un-booked	208(67.7)
Residence	
Urban	187(60.9)
Rural	120(39.1)

Table No.2: Adverse maternal & perinatal outcomes by age

Outcomes	**Adolescents (15-19 Years) n (%)**	**Adults (20-35 Years) n (%)**	**P-Value**
Caesarean section	75(24.4)	99(16.1)	0.009
Anemia	110(35.8)	169(27.5)	0.010
Gestational diabetes	07(2.3)	34(5.5)	0.024
PIH/ pre-eclampsia	54(17.6)	80(13.0)	0.064
Eclampsia	14(4.6)	11(1.8)	0.015
HELLP Syndrome	13(4.2)	17(2.8)	0.237
Abruptio placentae	11(3.6)	30(4.9)	0.366
Placenta previa	03((1.0)	20(3.3)	0.037
PPH	23(7.5)	42(6.8)	0.716
Acute kidney	09(2.9)	08(1.3)	0.083

Injury			
Sepsis	22(7.2)	24(3.9)	0.032
ICU care	28(9.1)	35(5.7)	0.053
Blood transfusion	52(16.9)	73(11.9)	0.035
Non progress of labor	25(8.1)	16(2.6)	0.000
Maternal mortality	04(1.3)	09(1.5)	0.843
PPROM /PROM	29(9.4)	23(3.7)	0.000
Small for gestational age	78(25.4)	107(17.4)	0.004
Preterm delivery	78(25.4)	99(16.1)	0.001
NICU care	30(9.8)	60(9.8)	1.000
Still birth	41(13.4)	46(7.5)	0.004
Neonatal death	22(7.2)	13(2.1)	0.000

We analyzed 921 women in our study by dividing them into adolescent and adult groups. The frequency of teenage pregnancy was 307(9.5%). The mean age of adolescent girls was 18.11±0.9 years. In adolescent group, number of 15yrs old was 4(1.3%), 16 years old 6(1.9%), 17 years old 68(22.14%), 18 years old 104(33.87%) and 19 years old was 125(40.7%). The socio-demographic and obstetric characteristics of these girls are shown in table 1. Most belonged to Sindhi community, were primiparous and didn't receive any prenatal care (unbooked). A small proportion was single (unmarried) as well. Table 2 shows adverse pregnancy outcome comparison of adolescent and adult group. Majority delivered vaginally with statistically significant increased number of cesarean sections in adolescent group ($p<0.009$). When compared with adults, risk of GDM ($p< 0.024$) and placenta previa ($p<0.03$) was significantly less in adolescents. Teenage girls had significantly increased risk of anemia , pack cell transfusion , preterm birth, PPROM , non-progress of labor, sepsis, small for gestation , stillbirth, neonatal death. The results between adolescents and adults were insignificant for abruptio placentae, postpartum hemorrhage, acute kidney injury, NICU care and maternal mortality.

Table 3 displays association of parity with adverse fetomaternal outcomes in both the groups. Anemia was more common in primiparous in adolescents and in multiparous in adults. Gestational diabetes and abruptio placentae were also significantly associated with multi-parity in adult group while insignificant association in adolescents. Similarly preterm delivery and PPROM found more commonly in primiparous adolescents with insignificant association in adults. Small for gestational age was significantly associated to primiparity in both the groups ($p<0.01$, $p<0.003$).

Table No.3: Adverse maternal & perinatal outcomes by parity

Outcomes	Adolescents (15-19 Years) n (%)			Adults (20-35 Years) n (%)		
	Primi n(%)	Multi n(%)	P-Value	Primi n(%)	Multi n(%)	P-Value
Anemia	87(40.6)	23(24.7)	**0.0008**	27(16.4)	142(31.5)	**0.000**
Gestational diabetes	04(1.8)	03(3.2)	0.464	02(1.2)	32(7.1)	0.005
PIH/ pre-eclampsia	40(18.6)	14(15)	0.442	19(11.5)	61(13.5)	0.521
Eclampsia	07(3.2)	07(7.5)	0.100	04(2.4)	07(1.5)	0.465
HELLP Syndrome	12(5.6)	01(1.0)	0.070	03(1.8)	14(3.1)	0.392
Abruptio placentae	09(4.2)	02(2.1)	0.373	02(1.2)	28(6.2)	0.011
Placenta previa	03(1.4)	00(0)	0.251	04(2.4)	16(3.5)	0.490
PPH	17(7.9)	06(6.4)	0.648	08(4.8)	34(7.5)	0.245
Acute kidney Injury	06(2.8)	03(3.2)	0.840	00(0)	08(1.7)	0.086
Sepsis	15(7.0)	07(7.5)	0.872	04(2.4)	20(4.4)	0.257
ICU care	18(8.4)	10(10.7)	0.513	08(4.8)	27(6.0)	0.596
Blood transfusion	44(20.5)	08(8.6)	0.010	15(9.1)	58(12.8)	0.205
NPOL	18(8.4)	07(7.5)	0.795	10(6.1)	06(1.3)	0.001
Maternal mortality	02(0.9)	02(2.1)	0.388	01(0.6)	08(1.7)	0.287
PPROM /PROM	25(11.6)	04(4.3)	0.042	07(4.2)	16(3.5)	0.681
Small for gestational age	63(29.4)	15(16.1)	0.014	41(25)	66(14.6)	0.003
Preterm Labor	64(29.9)	14(15.0)	0.006	27(16.4)	72(16)	0.890
NICU care	23(10.7)	07(7.5)	0.382	14(8.5)	46(10.2)	0.534
Still birth	25(11.6)	16(17.2)	0.191	10(6.1)	36(8.0)	0.428
Neonatal death	18(8.4)	04(4.3)	0.199	03(1.8)	10(2.2)	0.765

DISCUSSION

According to our study most of the pregnancies occurred between 17-19 years despite law forbids early marriages in our country. It complies with a study conducted at rural Bangladesh[10]. The rate of adolescent pregnancy was high i.e. 9.5% which is consistent with other studies as well. It was reported to be 19.3% in Sub-Saharan Africa [11]. One of the study conducted in public sector hospital of Pakistan previously also reported the same incidence of 11% highlighting the fact that there's very little or almost no decrease in their number[12]. The other alarming fact which our study revealed was increasing number in unmarried girls

(3.6%) as a result of sexual assault or by their own will, which poses challenge for health care providers, community workers and policy makers. Majority of them belonged to Sindhi community in both groups just because the hospital is based in province Sind. The adolescent population mainly belonged to urban areas (Table 1) which is in accordance with a study from Africa [13], unlike of the fact which other studies stated where patients belonged to rural areas as incidence is directly linked to low income, lack of education and childhood marriages [4, 14, 15] . Major proportion of teenage girls was unbooked (67.8%) during their pregnancy receiving no antenatal care and attended labor ward directly for delivery which is self-explanatory for poor pregnancy outcomes.

Most of the adolescent delivered vaginally (74.6%) which is supported by other studies as well [14, 16], but cesarean section rates (24.4%) were significantly higher as opposed to adults (16.1%). Increased risk of cesarean was due to small underdeveloped pelves and increased incidence of poor progress of labor, obstructed labor and fetal compromise in this age group. We observed lower rates of GDM as compared to adults in consistent with a study reported by China[17], also it was more common in multiparous compared to primiparous in our study (Table 2,3). The risk of anemia and packed cell transfusion was far higher in adolescents compared to adults in our study because soon after achieving growth spurt they get married and enter pregnancy with poor reserves, in addition poverty, lack of nutritional supplementation of iron and folic acid and inadequate prenatal care also play role [16,18,19]. We found eclampsia more commonly in teenage population which is also suggested by a study conducted in Finland where girls were 3.2 times more likely to develop it [20]. The frequency of PIH and severe pre-eclampsia was higher in adolescents in our study but not statistically significant as earlier studies reported [16, 19, 24].The preterm labor and delivery, preterm prelabor rupture of membranes was much more common in adolescents compared to adults as quoted by many studies across the world including Pakistan [14, 16, 17, 21, 22]. These complications were also significantly associated with primiparity (Table 3). This is because of maternal malnutrition, poor antenatal care, increased chances of pregnancy related complications and reproductive developmental phase which make their developing uteri compete for blood supply to placenta. Our study also reported increased risk of chorioamnionitis and sepsis in adolescents as their immune system is not mature, most belonged to low socioeconomic class, received no antenatal care and higher prevalence of prelabor rupture of membranes, correlating well with a previous multicenter study conducted in Pakistani [21].

We also noticed low birth weights and small for gestation babies in teenage girls [14, 23, 25], attributed mostly to increased preterm deliveries and poor blood supply to fetus due to physiological immaturity. SGA was also associated with primiparity in both groups (Table 3) Consistent with many other studies from different parts of the world we also found increased rates of still births and neonatal deaths in adolescents[18,24- 26]. Deaths in adolescent girls contribute a large share to maternal mortality and they are at double risk of death due to pregnancy related complications [7]. Our study did not find an increase in mortality in adolescent group compared to adults as other studies reported. It is likely due to study area setting as our hospital being largest tertiary care of province received complicated referrals in large number, also lack of medical facilities and delay in transportation from primary place of care accounted for increased number of deaths in adults group.

There were some limitations to our research like data was collected from a tertiary care only so results cannot be generalized. Other was our case records did not include all information like about smoking and other addictions, socioeconomic status and BMI of patients which can be potential confounders affecting the pregnancy outcomes.

CONCLUSION

Adolescent pregnancies has significant adverse maternal and perinatal outcomes especially anemia, preterm labor and PPROM, eclampsia, sepsis and perinatal mortality compared to adults. We should raise awareness about sexual and reproductive health, education of teen agers esp. males, childhood marriages and women empowerment. At the same time provision of contraceptives, training of health care workers and community based campaigns are also important. Strategies should be set by government and policy makers and strengthening of health care system is needed to decrease the number and improve the outcomes of teenage pregnancies.

Author's Contribution:

Concept & Design of Study:	Shehla Arif
Drafting:	Farah Deeba Nasrullah, Riffat Jaleel
Data Analysis:	Pushpa Bai Makhijani, Namia Nazir
Revisiting Critically:	Shehla Arif, Farah Deeba Nasrullah
Final Approval of version:	Shehla Arif

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

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Original Article

An Analysis of Aluminium Phosphide (Wheat Pill) Poisoning Cases in Bahawalpur

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ABSTRACT

Objective: To analyze demographic profiles, frequency, morbidity and mortality of Aluminium Phosphide (wheat pill) poisoning cases reported at accident and emergency department of Bahawal Victoria Hospital Bahawalpur between the years 2019 to 2021.

Study Design: Retrospective Study

Place and Duration of Study: This study was conducted at the A&E Department B.V Hospital Bahawalpur, over a period of three years from 1st January 2019 to 31st December 2021.

Materials and Methods: Data of a total of 104 cases was analysed with regard to age and gender distribution, morbidity and mortality.

Results: Out of 104 cases, most common age group was 20-40 years and commonly, the female predominance of 72% is noted among all cases. The mortality rate calculated as 54.8%.

Conclusion: Aluminium Phosphide is a readily available lethal poison and with no specific antidote. Aluminium Phosphide poisoning is associated with high mortality and suicide predominantly among females and in younger age groups.. Multiple approaches are required to reduce mortality and morbidity associated with intentional poisoning.

Key Words: Aluminium Phosphide, Wheat pill, Bahawalpur, Punjab

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INTRODUCTION

Wheat pill or Aluminium phosphide poisoning is common in the sub-continent especially in many countries of South Asia that primarily thrive on agriculture. It is used as an insecticide and rodenticide to prevent the wheat and rice crop infestation. It is widely available and used in several developing countries like Pakistan, India, Iran, Morocco and Nepal.[1]

Wheat pill or rice pill is a commonly available pesticide that consists of 65% Aluminium or Zinc phosphide and the remaining constituents are inert to prevent decomposition of the pill.

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Available in the form of pellets, sachets, or powder, it is a highly potent insecticide, as it is effective against all stages of insect life and leaves very small amounts of non-toxic residue on food crops.[2] Globally about 2 million people are affected due to suicidal attempts with self-poisoning according to WHO estimates, while incidence of accidental poisoning amount to 1 million.[3] In European countries the sale of Aluminum Phosphide pills is restricted to qualified users therefore for the developed world, most of the cases are due to accidental exposure to fumigants such as improper storage and disposal, re-entry in the fumigant structures and drift from the agricultural fields.[4] Contrary to this in South Asia, suicidal attempts due to poisons are calculated as 35.3% which is second only to hanging (55.8%).[5] According to Mehrpour et al. the Aluminum Phosphide poisoning accounts for 25 % of all suicide attempts in India and 31% of the fatal suicide attempts in Iran.[6] In a large study done in India, the mortality was reported as 60%.[7]The incidence is high in developing countries because of easy market access, lack of regulation, poor surveillance or information systems, absence of proper training and awareness and inadequate protective gear.[8] Pakistan is no exception and the incidence of Aluminum Phosphide poisoning is on the rise in Pakistan as well since it is a cheap and readily available poison.[9]

This study aimed at evaluating the trends of acute AlP poisoning, number of cases, either suicidal or accidental, general outcome of poisoning and related

parameters like demographic profile, patient mortality and morbidity by a comprehensive retrospective analysis of patient records over a span of three years in the Bahawal Victoria Hospital, Bahawalpur. The current research also posed a question of whether AlP poisoning is a true public health problem that urges the reinforcement of proper preventive and control measures to limit its rising morbidity and mortality.

MATERIALS AND METHODS

This work is a retrospectively cross-sectional study performed at accident and emergency department Bahawal Victoria Hospital Bahawalpur. A total number of 104 cases that presented with the history of wheat pill ingestion were analyzed covering a period of three years from1st January 2019 to 31st December 2021.

Study population (patients): All cases of Aluminium Phosphide poisoning that were brought to accident and emergency department of Bahawal Victoria Hospital Bahawalpur from January 2019 to December 2021.

I.Inclusion criteria: All patients with a sure history of absolute exposure to AlP only without any other toxic exposures, of all ages, both sexes, and from all areas served by the hospital in the study.

II.Exclusion criteria: Patients with uncertain history of exposure, those with a history of co-ingestion of other poisons, drugs, or insecticides, and those with unknown poisoning outcomes e.g. those who left the hospital against medical advice. All those cases that were brought to accident and emergency department after death, were excluded from the study

Methods:

I.Tools of the study and technical design: We examined all patient records of accident and emergency department Bahawal Victoria Hospital, Bahawalpur during the last three years and, using a checklist, we extracted data about patients of Aluminium phosphide poisoning including their age, gender, residence, occupation, mode of exposure, the lag time between exposure and hospital presentation. Frequency and percentage was calculated for age group and gender.

All patients were divided according to their poisoning outcome into recovered and dead (non-recovered). All the above-mentioned data were statistically evaluated among each year and compared in both recovered and dead patients to detect their impact on patient outcomes.

II.Administrative and Ethical design: The design of the study was approved by the Ethical Committee of the Quaid-e-Azam Medical University with the letter number IRB:#.. All patient data were kept confidential and used only for research purpose.

The collected data was analysed on SPSS v 22.0.

RESULTS

Data of 104 cases was recorded starting from 1st January 2019 to 31st December 2021. Table-1 and Fig.1 reflect that most common age group is 20-40 years n=52 (50.0%), while >40 years of age have shown the least number of cases n=5(4.8%). Table-1 shows the maximum number of Aluminium phosphide poisoning cases was registered in 2020, n= 48 with a female predominance of 72.9%, while minimum number of cases was noted in 2019 n=26.

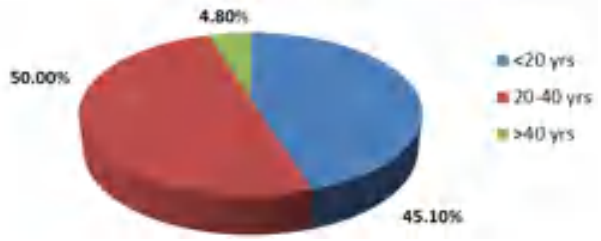

Figure No.1: Percentage distribution of cases from 2019-2021

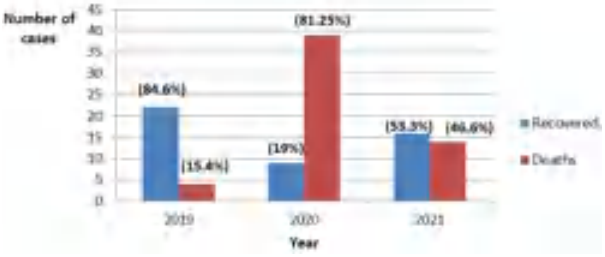

Figure No.2: Outcome of Aluminium phosphide poisoning cases fron the year 2019 to 2021

Table No. 1: Age groups with gender distribution

Age(Years)	2019		2020		2021		Total
Gender	Male	Female	Male	Female	Male	Female	
< 20	2	4	7	18	7	9	47 45.1%
20-40	7	9	6	17	4	9	52 50.0%
>40	2	2	0	0	1	0	5 4.8%
Total	11	15	13	35	12	18	104
	26		48		30		
Percentage	42.3%	57.7%	27.0%	72.9%	40.0%	60.0%	Mean28.4 ± 7.32

Figure No.3:.Percentage of cases according to mode of poisoning

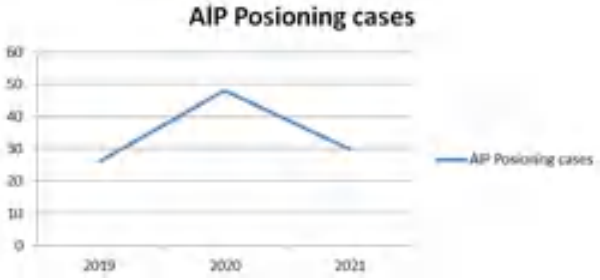

Figure No.4: Frequency of cases from 2019-2021

Figure.2 portrays, the maximum number of deaths from aluminium phosphide poisoning was registered in 2020 i.e. 39(81.25%), and the number of recovered patients was 9. The year 2019 saw the least number of deaths i.e 4(15.4%) and highest number of recovered patients i.e 22(84.6%). All these 22 presented early for treatment or were immediately attended. Figure. 3 shows that a large proportion of cases was suicidal, 72.3% and the remaining were accidental or occupational whereas figure.4 highlights the frequency of Aluminium phosphide cases from 2019 to 2021.

DISCUSSION

The world has seen a phenomenal hike in death toll due to suicide over the past decade. According to WHO estimate, around 20% of global suicides are due to pesticide self-poisoning, most of which occur in rural agricultural areas in low and middle-income countries. A similar trend has followed at home in Pakistan. In a recent study, Safdar et al reported that that pesticides (organophosphates and aluminium phosphide) are the most frequently used agents for suicide across Pakistan.[10]

Pakistan's economy thrives profoundly on the country's agriculture. The need to meet the ever-increasing demand is one of the major driving forces of the extraordinary rise in pesticide use in farming and agriculture, thus making them readily available for consumers. The increasing number of poisoning cases can also be attributed to the marketing of modern agrochemicals while their toxic effects are not known to the users.[11] Several studies have investigated minimal or a complete lack of knowledge and awareness of pesticide hazards in these regions.[12,13,14]

Our study found that females were the most predominantly affected group in all three years with a female to male (F:M) ratio of 60:40 in the year 2021 (Table.1). Moreover approximately same ratios were observed in 2020 and 2019. This can be attributed to limited involvement of women in decision making about pesticide use and work in the fields or at home where pesticides are stored. Women could be at the receiving end of negative cultural influences. This along with added stress of raising a family, managing domestic finances compounded by the Covid-19 pandemic and its impact may have contributed to unprecedented behavioral and psychological changes inducing extreme life-threatening thoughts. A cluster of factors like illiteracy, low self-esteem, emotionally unstable behavior and easy availability of such poisons thus contributes to increased frequency of poisoning among females. A similar pattern of gender distribution with female preponderance was reported by Qureshi et al in 2018 and several other studies in Pakistan.[3,15,16] The findings of local studies were also consistent with studies conducted in North India, Bangladesh, and Egypt where female predominance was reported in studies based on Aluminium phosphide poisoning.[7,17,18,]

The mean age of patients in our study was 28.4 ± 7.32, while most commonly involved age group for Aluminium phosphide poisoning in this study was 20-40 years, for both males and females (Table-1). This can be attributed to the fact that people in this age group face maximum hardships of life leading to psychological struggles and suicidal tendencies. These results are comparable with a study conducted at Dhakka, Bangladesh (2015), where Saha et al noted that the maximum number of cases ranged between 15 to 45 years of age.[17] A similar age range, that is 18 to 45 years was also predominant in recent Egyptian studies.[18,19]

In this study the highest mortality rate was registered in 2020 with 39 (81%) deaths and just 9 recoveries (19%) from a total of 48 patients that year (Fig.2). A high mortality rate in 2020 can be attributed to late presentation and hence delayed resuscitation and emergency medical care. During the lockdown due to the covid-19 pandemic, there was widespread panic, anxiety and fear associated with visiting hospitals which may have resulted in late presentation of cases. Elikana et al reported in 2020 that patients who reached hospital early within a few hours had better chances of survival as compared to those who suffered any delays to medical treatment after ingestion.[20] Early resuscitation with lavage and drugs improved prognosis. The same was true for our study where the least mortality rate (15.4%) was observed in the year 2019, where all 22 patients who survived out of a total of 26, presented in time and were attended early.

Alarmingly, this study highlights that 72.3% cases of Aluminium phosphide poisoning were suicide attempts and a little over 27 percent were accidental or occupational. Social determinants such as financial

problems, gender and cultural stressors influence suicide. Safdar et al identified economic issues, family conflicts, illicit spousal relationships, serious illness and failed romances as commonly identified reasons for suicide. [11] Pakistan is an economically strained country with a high unemployment rate. Previous studies similarly found a range of socially and culturally specific domestic family conflicts, typically involving spouses, in-laws, parent–child conflicts, unfulfilled expectations at work or failure in school, mental turmoil from violence, financial loss, anxiety depression, and other pre-existing mental health conditions to be causative factors in suicide attempts.[21]Pathirathna et al reported in the year of 2021 that unexpected behavioral changes during the Covid-19 pandemic may have contributed to the rising trend of suicidal attempts reported.[20]

A drop in the number of cases of Aluminium phosphide poisoning was seen in the year 2021.One plausible explanation to this finding can be resumption of normal life following the pandemic lockdown; strict monitoring of over the counter sales of wheat pill by the retailers and lastly, a decline in use of pesticide induced self-poisoning for attaining suicide by the patients. However more research is needed to confirm this. Similar changing trends were noted by Arafat et al, observing that hanging is more common method of suicide with a growing penchant towards firearm inflicted suicidal attempts.[21]

CONCLUSION

Aluminium Phosphide (ALP) is termed as 'agent of sure death' since it is a cheap and readily available lethal poison with no specific antidote and the treatment is only supportive. Aluminium Phosphide poisoning is associated with very high mortality and suicide rates especially in younger age groups (20-40 yrs) and in females. Multiple approaches are required to reduce mortality and morbidity associated with intentional poisoning. Interdiction or enforcing strict regulations on open sales of Aluminium Phosphide or wheat pills would be one approach. Search for safer alternatives and raising the population's awareness about appropriate handling or storage through community education programs or campaigns could help curb this problem. Moreover, awareness on early intensive care with availability of sub-specialties or an independent poisoning control center separate from accident and emergency department of hospitals, can help reduce mortality rate. On the patient assessment scale, further extensive and comprehensive clinical studies aiming to design a reliable prognostic system through more specific and sensitive parameters could improve morbidity and mortality rates.

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Original Article

Incidence and Risk Factors for Low Bone Mineral Density in Inflammatory Bowel Disease

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ABSTRACT

Objective: Inflammatory bowel disease often causes osteoporosis. Inflammatory bowel disease patients' BMD falls due to clinical causes (IBD). Despite little data, BMD prevalence and risk factors are poorly known. Thus, this research investigated IBD's low BMD prevalence and causes.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Isra University Hospital's Gastroenterology Department included 65 adult ulcerative colitis patients from August 2021 to July 2022.

Materials and Methods: Patients' ages, BMIs, illnesses, sex, sickness durations, vitamin D levels, and steroid use histories were recorded. Dual-energy X-ray absorptiometry evaluated lumbar and femur bone mineral density (DEXA). Bone metabolism biochemical markers included deoxypyridinoline, serum calcium, osteocalcin, and phosphorus. Low bone mineral density was compared to medications, steroid usage, disease duration, age, and body mass index. SPSS 25 analyzed the data.

Results: The diagnosis of ulcerative colitis was made in 30 women (46.2% of the total) and 35 males (53.8% of the total). 38.6 3.54 years. 68.9% (n=45) had abnormal bone mineral density. 35.4% and 33.8% of 45 individuals with abnormal BMD had osteoporosis and osteopenia. Steroid use and illness duration substantially correlated with low bone mineral density in univariate analysis. Poor bone mineral density predicted disease duration in multivariate studies. Poor BMD was unrelated to age, body mass index, gender, vitamin D status, or steroid usage.

Conclusion: High levels of osteoporosis and osteopenia were seen in this study of people with inflammatory bowel disease. Poor bone mineral density was strongly associated with disease progression. Illness seems to be the biggest risk factor for low bone mineral density. Early detection of low MBD allows for prevention.

Key Words: Unknowns Inflammatory colitis, Bone deficiency

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INTRODUCTION

Inflammatory bowel disease patients had 2% to 42% osteoporosis [1,2]. In numerous studies [2,3], inflammatory bowel disease patients had lower bone mineral density. Age, gender, body mass index, sickness duration, smoking, steroid history, and reduced food intake were negatively correlated with bone mineral density [4]. Many processes link inflammatory bowel disease to osteoporosis. Genetics, low body mass index, small intestinal resection, malabsorption, corticosteroid treatment, hypogonadism, and vitamin D deficiency may cause low bone mineral density [5-7].

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Crohn's disease increases bone mineral density risk. Crohn's disease may be diagnosed with low bone density. Crohn's disease patients with low bone mineral density demonstrated a greater connection with treatment than ulcerative colitis patients [8]. Crohn's disease is a major cause of osteopenia/osteoporosis, since azathioprine-induced remission increased BMD in patients. Steroids for low BMD may not work. Corticosteroids may lower BMD, however studies disagree [9].

Research on low bone mineral density has shown conflicting results (BMD). Jahsen et al. [10] observed no association between vitamin D and BMD in 120 IBD patients. Maldonado et al. [11] observed no association between vitamin D and calcium intake and bone mineral density in premenopausal inflammatory bowel disease patients. Khadgawat [12] found a positive connection between poor BMD and calcium intake in Indian patients with inflammatory bowel disease. Despite their assumptions, steroid usage, age, and sickness duration did not affect BMD. Bishop et al. [13] found that corticosteroid usage, male gender, and inadequate vitamin D intake increased the risk for low BMD in 166 IBD patients, while age and disease site did not. Hip and vertebral fractures are prevalent in IBD

patients. Breaks may be caused by osteoporosis factors. To monitor and treat low bone mineral density, this study investigated its prevalence and causes.

MATERIALS AND METHODS

This cross-sectional research at Hyderabad's Isra University Hospital's Gastroenterology Department included 65 adult ulcerative colitis patients from August 2021 to July 2022. Ages, BMIs, diagnoses, illness durations, vitamin D levels, and steroid use were documented. Dual-energy X-ray absorptiometry measured lumbar and femur BMD (DEXA). Deoxypyridinoline, serum calcium, osteocalcin, and phosphorus measured bone metabolism. Low bone mineral density was compared to drugs, steroids, illness duration, age, and BMI. DEXA eliminated isolated proctitis individuals without steroid history. Medical records and questionnaires provided demographic and clinical data. Endoscopic, clinical, histological, and radiographic tests identified IBD. Cancer, diabetes, chronic liver disease, pregnancy, and blood creatinine >1.5 mg/dL were excluded from this research.

Conventional DEXA assessed femur and L2-4 spine BMD. BMD produced T or Z-scores. Z-scores measure standard deviations from age- and gender-specific mean values, whereas T-scores relate to a young adult's bone mass peak. The WHO distinguishes osteoporosis from osteopenia using standard deviation. Osteoporosis is a WHO-defined T score of -2.5 SD, whereas osteopenia is -1 SD but not >2.5 SD [14]. Normal, insufficient, or deficient vitamin D 25-hydoxy levels were 20–30 ng/mL.

Comparing healthy and abnormal BMD patients (osteoporosis and osteopenia). SPSS 25 analyzed data. Low BMD was linked to illness duration, age, BMI, steroid use, gender, and vitamin D. Chi-square and Student's tests analyzed category and numeric variables. Univariate odds ratios have 95% confidence intervals.

RESULTS

Thirty females (46.2% of the total) and thirty-five boys (53.8% of the total) were diagnosed with ulcerative colitis. 38.6 years. 68.9% (n=45) had abnormal BMD. 35.4% and 33.8% of 45 abnormal BMD patients had osteoporosis and osteopenia. Steroid usage and illness duration were linked with poor bone mineral density in univariate analysis. Multivariate analyses predicted illness duration with low bone mineral density. Poor BMD was unrelated to age, BMI, gender, vitamin D status, or steroid use. Gender ratios. Figure 2 shows BMD abnormality. Table-I shows baseline features of DEXA-tested inflammatory bowel disease patients. Mann-Whitney.

DISCUSSION

The study's major findings showed that inflammatory bowel disease patients had a higher risk of osteoporosis and osteopenia. Bowel resection and corticosteroid medication most typically caused osteopenia or osteoporosis in IBD patients. Disease-related activities were independent risk factors. Similar to tertiary care referral studies, this study found higher incidence of osteopenia and osteoporosis [15]. In our study, inflammatory bowel disease patients had a higher rate of osteoporosis [16,17]. Inflammatory bowel disease patients with osteopenia and osteoporosis benefit from bisphosphonates in addition to vitamin D and calcium.

Pathological BMD in IBD patients showed that the femoral neck was less effective than the lumbar spine. Most studies show femoral neck osteoporosis is more common [18,19], yet this may not be true. Corticosteroids deplete trabecular bone. Bokemeyer et al. found reduced BMD in Chinese IBD patients [20]. In a study of 50 patients, 26 of whom had ulcerative colitis, inflammatory bowel disease patients had inadequate bone mineral density 63% more often than healthy young adults of the same age and gender. The recent study found that low bone mineral density prolonged sickness. Azuma et al. [21] found similar findings in 41 ulcerative colitis patients. Low BMI has long been linked to poor BMD. Poor BMD was not linked to BMI in this study. Asians may eat better than Westerners due to the BMI-nutrition link. In a cross-sectional study of 1250 postmenopausal women, reduced bone mineral density (BMD) was associated with higher BMI and worse socioeconomic status [22]. In this study, vitamin D levels did not affect BMD. The patient's limited capability may relate. Inflammatory bowel illness may cause vitamin D insufficiency due to poor diet, malabsorption, sun exposure, or circulation [23]. Hilmi et al. [24] observed no association between vitamin D and low BMD in 74 inflammatory bowel disease patients. Mouli et al. found that inflammatory bowel disease patients with vitamin D deficiency had low BMD [25].

In IBD patients, corticosteroids are typically utilized as first-line treatment for active BMD, which decreases intestinal calcium absorption, impairs osteoblast function, increases renal calcium excretion, and induces osteoblast death [26]. This study found no link between steroid usage and BMD. Alireza et al. [27] found a significant positive connection between poor BMD and steroid usage in 122 people with inflammatory bowel illness. Steroids cause osteopenia and osteoporosis, Abraham said. Corticosteroids have been linked to osteoporosis in Crohn's disease, and patients with abnormal BMD receive more steroids. 110 g of steroids may decrease bone mineral density (BMD) [28].

CONCLUSION

Osteoporosis and Osteopenia were shown to be prevalent in this study's population of individuals with inflammatory bowel disease. Furthermore, a strong correlation between disease progression and poor bone mineral density was found. The greatest risk factor for

poor bone mineral density seems to be the illness itself. If patients with low MBD can be identified in the early stages, an appropriate preventative approach may be devised.

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Original Article

Gender-Based Comparison of Sensory & Motor Nerve Conduction Velocities among Healthy People of Gadap Town, Karachi

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ABSTRACT

Objective: In this study, healthy individuals' nerve conduction velocities (NCVs) in the peripheral sensory (ulnar) and motor (ulnar and personal) systems of the upper and lower limbs were examined in relation to their age and genders.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Physiology at Baqai Medical University, Karachi, from January 2017 to July 2017.

Materials and Methods: 500 healthy adult males and females from the local population of Gadap town between the ages of 18 and 45 were enrolled in this study, which was done in the physiology department of the Baqai Medical University. By stimulating the ulnar nerve at the wrist and the peroneal nerve using Power Lab, the NCV of the two nerves was determined. The fundamental parametric values were then examined using the statistical tool "Statistical package for Social science" (SPSS) software version 22.0.

Results: The comparison of NCV on the basis of gender Mean values of ulnar motor and peroneal motor nerves gave statistically significant ($p<0.05$) differences for males and females and non-significant ($p>0.05$) in ulnar sensory nerve.

Conclusion: According to the study male and females had an inverse association with the ulnar sensory, ulnar motor, and peroneal motor nerves.

Key Words: Nerve conduction velocity (NCV), American Association of Neuromuscular and Electro-diagnostic Medicine (AANEM), Normative Data Task Force (NDTF).

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INTRODUCTION

A nerve conduction study (NCS) is a test that is frequently used to assess the electrical conduction capabilities of the motor and sensory nerves in the human body.[1] During the test, it is typical to assess the nerve conduction velocity (NCV), which gauges how rapidly nerves are traversed by electrical impulses.[2] It is commonly employed to identify peripheral nerve system problems. Damage and devastation to the nervous system can be identified using NCS. Other physiological parameters that affect it include age, gender, temperature, BMI, the relative use of the upper and lower extremities, the nerve diameter, myelination, and internodal distance. Consequently, a specific nerve's reference value cannot be determined globally, [1,2,3] As a result, there is no one reference value for a given nerve that takes global climate fluctuation into account. As a result, various areas and laboratories have their own standard reference values. [3,4] By observing the generated response to electrical stimulation of peripheral nerves, NCS is a crucial method for estimating peripheral nerve functioning. [5] Nerve impulses can be triggered by enough stimulation from an electrical stimulator. Electrical impulses from nerve fibers travel at a rate of 100 m/s once the action potential threshold is crossed, and the velocity is inversely related to temperature and the width of the myelin sheath around the fiber. [6,7] Conduction velocity and latency, two NCS parameters, measure the speed of nerve impulse propagation and assess how demyelinating illnesses affect the ability of motor and sensory nerves to transmit electrical signals. Amplitude, which measures the quantity of active nerve

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fibers, is diminished under conditions that lead to axonal degeneration. [8]

This technique, which records the evoked response to electrical stimulation of peripheral nerves, is regarded as the gold standard in clinical assessment of motor and sensory functions. It aids in determining the size and location of the neural lesions and measures how much nerve damage there is to differentiate between demyelination and axonal degeneration, two major peripheral nerve diseases.[9] The locations of the stimulation and recording sites as well as the distances between these locations are clearly described in normative papers. [10]

These investigations have been employed in clinical settings for many years to identify the sites of peripheral nerve illnesses inside a single nerve, along the length of nerves, as well as to distinguish between disorders of muscles and neuromuscular junctions. They also help in accurately characterizing the functioning of peripheral nerves and locating the locations of the lesions. [8,11] Late-life weakness is associated with poor physical function, mobility impairment, hospitalization, and mortality. Investigating the risk factors for strength reduction in older persons is crucial given its significant impact on late-life outcomes. [12] Maintaining or growing muscle mass does not ensure protection of strength loss with ageing, even if age-related muscle atrophy plays a significant part in diminishing strength. [12] Later in life, as adults, the nerve velocity slows down with age, more so in the lower limbs than the upper, as NCS primarily focuses on the evaluation of three different types of nerves: motor, sensory, and mixed. [12]

Power Lab will be the tool used in the investigation. It is an HTML-based software application that regulates the sampling, digitizing, and archiving of experimental data as well as their display, manipulation, and analysis. [4]

Nerve conduction studies (NCS) can be used to assess the health and function of peripheral nerves. Demyelination and axonal degeneration are the two main categories of peripheral nerve illnesses that are distinguished by NCS, which aids in defining the amount and distribution of neural lesions. [1] These techniques have been steadily improved upon, and they have been standardized, making them reliable testing in clinical settings.

MATERIALS AND METHODS

This study was conducted in the Department of Physiology at Baqai Medical University, Karachi, from January 2017 to July 2017 utilizing a comparative cross-sectional, analytical method using a dual bioamplifier from the Power lab 8/30 series by AD Instruments Australia (Model No. ML870). The Baqai Medical University Ethical Committee gave their approval for this investigation. 500 people between the ages of 18 and 45 made up the study's subjects, including 250 men and 250 women from the Gadap town's local population.

Sample Technique: An appropriate sampling method was used.

Electrophysiological Methods: Power Lab, an HTML-based software programmer, was used to conduct all of the tests. Its basic hardware unit is a multichannel recording instrument for the measurement of electrical signals and includes an isolated stimulator for electrical stimulation of nerve and muscle as well as integrated two channel Bio Amplifiers for the best recording of biological signals. [4,10,11] The orthodromic approach is more appropriate for near-nerve recording. The NDTF suggests using predetermined fixed distances and precise electrode placement rather than anatomical markers. [13]

Analysis:

1. Calculate and note the distance between the wrist and elbow markers. The separation between stimulation sites is shown here.
2. Two locations along the nerve that are at least 10 cm apart from one another will be stimulated in order to determine the conduction velocity.
3. To get the conduction velocity, divide the difference between the onsets latencies obtained at the two locations by their separation. The speed is determined in meters per second.
4. To determine the latency of a single waveform in the Lab Tutor panel, follow the same procedures as those described for wrist stimulation.
5. Enter the value of the latency in the table.

Conduction velocity = ___Distance (cm)____X 10

- Latency 2 — Latency 1 (m/sec)
- The formula-derived nerve conduction velocity will be represented in meters/second.

$$\text{Velocity} = \frac{\text{Distance between stimulation sites (mm)}}{\text{Difference between latencies (ms)}}$$

RESULTS

Table I revealed that among the 500 total samples, 50% of the male respondents and 50% of the female respondents had mean ages and standard deviations of 47.50 8.47 years and 37.01 10.2 years, respectively.

Table No.1: Demographic factors and BMI distribution in Males and females

Characteristics	Males (n=250) Mean ± SD	Female (n=250) Mean ± SD	p-Value
Age (Years)	47.50±8.47	37.01±10.2	<0.01*
Height (cms)	165.89±8.8	158±8.2	<0.01*
Weight (Kg)	65.09±9.1	58.38±10.4	<0.01*

According to Table II's comparison of the genders, there is a significant mean difference between males

and females for the ulnar motor nerve and peroneal motor nerve with a p-value of less than 0.05.

Table No.2: Nerve Responses distribution on the basis of gender

Nerve(s)	Gender	Mean ± SD (m/sec)	p-value
Ulnar Sensory Nerve	Male	56.22 ± 4.36	0.34
	Female	55.88 ± 3.49	
Ulnar Motor Nerve	Male	55.17 ± 6.31	0.03*
	Female	54.03 ± 5.75	
Peroneal Motor Nerve	Male	49.23 ± 4.1	<0.01*
	Female	48.24 ± 4.31	

*P<0.05 considered significant using independent sample t-test

DISCUSSION

On peripheral nerves, nerve conduction velocities (NCVs) can be quickly determined. Nerve impulses can be triggered by enough stimulation from an electrical stimulator. A nerve fiber's electrical impulses will spread at a rate of 100 meters per second if the action potential threshold is crossed.[14] The diameter of the myelinated fibers directly affects the velocity. Therefore, the purpose of this study is to examine how age and height affect the NCVs of the ulnar sensory, ulnar motor, and peroneal motor nerves in healthy local volunteers. Peroneal NCV showed an inverse correlation with height and estimated axonal length, but no discernible correlation with median motor or sensory NCV.[23] Numerous studies have been conducted in the past to assess how anthropometric parameters like age and height affect nerve velocities. [15] However, the majority of these studies used data from people in the west. Therefore, a goal of our research is to determine how age and height affect the conduction rates of the ulnar sensory, ulnar motor and peroneal nerves.

The crucial technique of nerve conduction studies, which has received extensive validation, is employed in clinical practice. [16] Numerous research and reviews on nerve conduction studies have been released. These include the elements that have an impact on nerve speeds. These variables can be broken down into biological variables (age, height, and gender) and physical variables that have to do with the health of the nerve and muscle. [17] Our main concern was how age and height, two biological parameters, affected NCV. Most neurophysiology laboratories maintained other parameters, including temperature, at the optimal level in order to minimize variability. Age has a considerable impact on sensory nerve conduction, according to one study [18]. At birth, the conduction velocity is roughly 50% of adult values; it then gradually rises until it reaches adult values by the time a child reaches the age of three. The nerve velocity slows down as people get older, more so in the lower limbs than the upper. Another study [19] for motor nerve conduction made a similar finding. In their investigation on the impact of ageing on sensory NCV, Amato AA et al [20] found that the median nerve changed characteristics at a substantially faster rate than the ulnar nerve. Our research revealed that the peroneal motor and ulnar sensory nerves slowed down as people aged. Similar findings were made with the ulnar nerve's motor and sensory velocities. [21] We Numerous investigations have demonstrated that taller persons have considerably slower NCV, both motor and sensory. Peroneal nerve conduction velocities were found to be inversely connected with height but median nerve (both motor and sensory) NCV showed no significant association with height. It is anticipated that the velocity reduces by 2-3 m/s per 100mm in height. While comparing NCVs in the median and ulnar nerves across various height groups, we were unable to find any clear trend. [24] With increasing height, we saw that NCVs in the common peroneal nerve slowed down. The sural nerve, however, did not show any observable pattern.

CONCLUSION

In conclusion, conduction velocities can be impacted by height and age. Across various age groups and heights, we noticed a decrease in the median, ulnar (apart from sensory conduction), common peroneal, and sural nerves' velocities. To understand the discrepancy in the pattern of conduction velocities among various height groups in these participants, additional research is required. It is statistically significant that nerve conduction velocity decreases with height.

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Author's Contribution:

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Original Article

Role of Mediator Complex Subunit 12 Mutation in Fibro-adenoma and Phyllodes Tumour of Breast

Ayesha Iftikhar[1], Muhammad Mansoor Iqbal[2], Al-Farah Rehmat Ullah[3], Jawed Iqbal[4], Aun Ali[2] and Mohammad Ahmed[2]

ABSTRACT

Objective: To determine the role of mediator complex subunit 12 mutation in fibro-adenoma and phyllodes tumour of breast.

Study Design: Retrospective observational

Place and Duration of Study: This study was conducted at the department of Pathology, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Centre, from January, 2016 to December, 2020.

Materials and Methods: A total of 52 cases of fibro-adenoma and 5 cases of phyllodes tumour of breast were received and evaluated for mediator complex subunit 12 gene mutations by using polymerase chain reaction method. The results were analyzed using SPSS version 22.

Results: Out of 52 cases of fibro-adenoma only 17 (32%) found to be positive in gene mutation whereas 3(60%) cases out of 5 of phyllodes tumour were positive. The phyllodes tumour was divided into benign, borderline and malignant. Cases of borderline and malignant phyllodes tumour could not be retrieved in our study

Conclusion: Present study concludes that MED12 gene exon 2 mutation in fibro-adenomas and benign phyllodes tumors of breast is not substantial.

Key Words: Mediator Complex Subunit 12 (Med 12), Fibro-adenoma, Phyllodes tumour, Polymerase Chain Reaction (PCR)

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INTRODUCTION

MED12 is a gene located on chromosome X at position q13. It is believed that MED12 protein is involved in early development of cells and chemical signaling pathways within the cells (Kämpjärvi, Mäkinen et al. 2012).[1] MED12 gene gives instruction to form a protein called mediator complex subunit 12. This protein makes one subunit of mediator complex, which is a group of 25 proteins which work together for gene regulation. The mediator complex links transcription factor with an enzyme called polymerase II.

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Once the transcription factors are attached, the enzyme initiates gene transcription (Kämpjärvi, Mäkinen et al. 2012).[1] MED12 along with MED13, Cyclin C (CycC), and either CDK8 or CDK19 forms the kinase part that reversibly links with the core Mediator. MED12 starts the kinase action of CDK8 by linking the contact between MED13 and CycC-CDK8. The kinase-exciting activity of MED12 depends on its direct contact with CycC. CycC is an extremely conserved cyclin family member which consists of a negatively charged surface groove mediating its CDK8 attachment in addition to a CycC precise surface for MED12 attachment. MED12 binds to CycC through its N-terminus determined largely by exons 1 and 2 where the hotspot mutations commonly occur in hormone dependent tumors (Kämpjärvi, Mäkinen et al. 2012) [1] (Zhang, O'Regan et al. 2020)[2] (Alkutbi, Ameen et al. 2021).[1]

It is believed that MED12 protein is involved in early development of cells and chemical signaling pathways within the cells, such as cell growth, cell movement and cell differentiation MED12 gene (Kämpjärvi, Mäkinen et al. 2012)[1]. Mutations in MED12 genes lead to various conditions such as schizophrenia, FG syndrome, Lujan syndrome and Ohdo syndrome which are characterized by intellectual disability, behavioral problems, hypotonia, imperforate anus, tall stature and distinctive facial features (Vulto-van Silfhout, De Vries et al. 2013).[4]

Fibro-epithelial tumors of breast include fibro-adenoma and phyllodes tumor. They are biphasic tumors and arise from epithelial and stromal components of breast. Fibro-adenoma is the most common benign tumor of breast. Phyllodes tumors are occasional fibro-epithelial lesions (Piscuoglio, Murray et al. 2015).[5] Based on histological features which include margins (pushing or infiltrating), stromal cellularity and atypia, stromal overgrowth (absent, slight, or severe), and the number of mitosis per high power field, phyllodes tumor can be classified into benign, borderline and malignant groups (Tan, Acs et al. 2016)[6].

MED12 mutations are commonly seen in estrogen-dependent benign growths and in several malignant lesions, proposing that mutation of MED12 could be a tumor beginning incident(Lim, Ong et al. 2014).[7] Somatic mutations in MED12 genes are found in uterine leiomyomas and leiomyosarcomas (Nagasawa, Maeda et al. 2015)[8]. The present study was designed to evaluate MED12 mutation in fibro-adenoma and phyllodes tumor of breast. Since MED12 gene is involved in cell development, somatic mutation in this gene may be involved in the development of these tumors of breast.

MATERIALS AND METHODS

The present study is an observational, retrospective study carried out at the department of Pathology, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Center Karachi from 1st January 2016 to 31st December 2020. Non probability purposive sampling technique was used to select cases. Paraffin embedded tissue blocks and slides were retrieved of cases diagnosed as fibroadenoma, phyllodes tumor received at the department of Pathology, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Center Karachi. All cases were anonymized before selection. Total 57 diagnosed cases were selected which include 52 cases of fibroadenoma and 5 cases of benign phyllodes tumor with the help of senior pathologist. Selected cases were evaluated for MED12, exon 2 gene mutation by using polymerase chain reaction. The DNA was extracted from formalin fixed paraffin embedded tissue blocks. The DNA purification from tissue was carried by using Epicenter Kit (MCD 85201) and the protocol was followed accordingly. PCR was performed in a tube containing 200µl of reaction mixture made up of the following components: 20pmol of each primers (Forward and reverse) 500µm of four deoxynucleotides, 2.5 U of Taq polymerase (Promega), 10 X PCR buffer containing and 1.5Mm $MgCl_2$. Primer pair that amplifies a 278bp fragment encompassing exon 2 of the *MED12* gene was employed

Forward 5'-TGTTCTACACGGAACCCTCCTC-3' 278 bp
Reverse 5'-CTGGGCAAATGCCAATGAGAT-3

The amplified product was compared with 100-bp DNA ladder (GibcoBRL, Life Technologies) and mutation was detected and compared with control positive and negative cases.

RESULTS

Table No.1: Frequency of Med 12 Mutation in Selected Cases Subjected To PCR (n= 57)

MED12	Fibro-adenoma (n=52)	Phyllodes Tumor (n=5)
	n (%)	n (%)
Positive	17 (32.7)	3 (60)
Negative	35 (67.3)	2 (40)

Pearson Chi Square value 1.49, p = 0.228

Out of 52 cases of fibro-adenoma 17 (32.7%) were positive for MED12 exon 2 mutation and 35 (67.3%) were negative. Out of 5 cases of benign phyllodes tumor 3 (60%) were positive for MED12 mutation and 2 (40%) were negative. Pearson Chi Square test did not give any significant association of MED12 with subject to PCR (p=0.228).

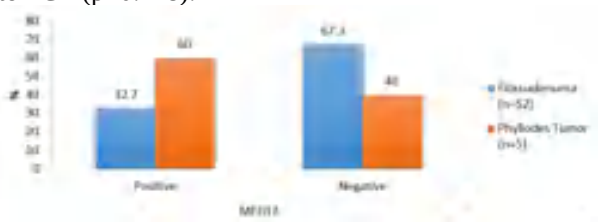

Figure No.1: Association of MED 12 Mutation in selected cases subjected to PCR

DISCUSSION

This study showed 32.7% cases of fibro-adenoma positive for MED12 exon 2 mutation and 67.3% cases negative for mutation. (Piscuoglio, Murray et al. 2015)[5], (Lim, Ong et al. 2014)[7] and (Nagasawa, Maeda et al. 2015)[8] reported 65%, 59% and 67% cases positive for mutation.

MED 12 exon 2 mutation respectively. MED12 exon 2 mutation have been reported in uterine leiomyomas by (Mittal, Shin et al. 2015)[9], (Wu, Zou et al. 2017)[10] and (Lee, Cheon et al. 2018)[11] suggested that MED12 gene is a gene which interacts with estrogen receptors and its mutation is associated with dysregulated estrogen signaling and may be responsible in the development of fibro-adenoma and uterine leiomyomas. (Firdaus, Agrawal et al. 2021)[12] reported that uterine leiomyomas possibly will not have a clonal origin but variants in exon-2 of MED-12 may perhaps be responsible in its development. (da Silva, Beca et al. 2022)[13] reported stromal mutation of MED12 exon 2 in 17% cases of complex fibro-adenoma cases. (Je, Kim et al. 2012)[14] reported that MED12 mutation appeared to be ethnically different. Mediator is a big macromolecular complex with multipurpose roles having at least 31 subunits. Hence any change in MED12 disturbing the kinase module can have negative effects on its

controlling functions. Both exons 1 and 2 encode the cyclin C binding domain of MED12. Therefore, mutations in these exons disturb MED12 cyclin C binding and effect in decreased affinity for cyclin C-CDK8 and loss of mediator-associated CDK function. Therefore proper exon sequence is cruical for the protein's performance (Alkutbi, Ameen et al. 2021)[3] (Klatt, Leitner et al. 2020)[15]. This explains the possible pathogenesis of the cases that were negative for MED12 mutation. However, the exact cause for the pathogenesis of fibro-adenoma is still not known.

Cases for benign phyllodes tumor were 05 which were included in this study. Cases of borderline and malignant phyllodes tumor were not included. The reason was that borderline and malignant phyllodes are rare tumors therefore the cases were not found in the archives of department of Pathology, Basic Medical Sciences Institute, Jinnah Postgraduate Medical Center Karachi. Our study showed 60% cases of benign phyllodes tumor positive for MED12 exon 2 mutation. (Nagasawa, Maeda et al. 2015)[8] reported 45% positivity in benign phyllodes tumor. (Yoshida, Sekine et al. 2015)[16] determined that MED12 exon 2 mutation was common among phyllodes tumor regardless of tumor grade. In contrast (Piscuoglio, Murray et al. 2015)[5] and (Garcia-Dios, Levi et al. 2018)[17] reported higher percentage of MED12 mutation in benign phyllodes tumor than in borderline and malignant phyllodes tumor. (Mishima, Kagara et al. 2015)[18] also reported higher frequency 74.1% positivity in benign phyllodes tumor. We could not analyze borderline and malignant phyllodes tumor due to its non-availability. (Mishima, Kagara et al. 2015)[18] found fibro-adenomas with polyclonal stroma and showing a focal monoclonal overgrowth of stroma. They found MED12 mutation in secondary phyllodes tumor, which originated in one case out of three cases of metachronous multiple tumors of fibro-adenoma. MED12 gene mutation was not found in primary fibro-adenoma of that case. This finding suggests that secondary phyllodes tumor was related to the primary fibro-adenoma for its pathogenesis.

CONCLUSION

Present study concludes that MED12 gene exon 2 mutation in fibro-adenomas and benign phyllodes tumors of breast is not substantial.

Recommendations:

A large sample size should be studied which include

1. Multiple fibro-adenomas from same patient, in same breast or both breasts.
2. Borderline and malignant phyllodes tumor.
3. Clinical history of the patients.

Other exons of MED 12 gene could be studied along with exon 2 in order to come to a strong conclusion

Author's Contribution:

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Original Article

Availability of Iodized Salt & its Utilization among Household of Urban Area of Taluka Mirpurkhas

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ABSTRACT

Objective: To determine the availability of iodized salt and concentration of iodine by using rapid test kit among the households of urban area of District Mirpurkhas.

Study Design: Cross-section study

Place and Duration of Study: This study was conducted at the households situated in urban Taluka of District Mirpurkhas, Sindh from December 2019 to June 2020.

Materials and Methods: A sample size of 260 households was obtained and selected by using a sample random sampling technique, the participants were household members and present at the time of the survey and willing to participate in the present study were included after taking written informed consent. The Ethical approval was taken from the ethical committee of LUMHS, Jamshoro. The data was collected on a pre-tested self–structure questionnaire while iodine concentration in the salt was assess by using the rapid test kit for iodine. The SPSS version 23.0 version was used for data analysis and P-values <0.05 were considered as significant.

Results: The overall response rate (n=260) was 100 percent and the majority of the respondents were female 205(78%) whereas 55(21.5%) were male. The majority 123 (47%) of the respondents were between 26 to 35 years of age group. A substantial number of the respondents 138 (53.1%) were having qualification at degree or above level. Regarding the utilization of the iodized salt the majority of the households 191 (73.5%) were using iodized salt whereas 69 (26.5%) were using non-iodized salt for cooking the food. The salt samples of households using the iodized salt were tested for the iodine concentration which showed that a majority of samples 178 (68%) were having ppm between 10ppm to 20ppm which is consider as an inadequately iodized salt whereas only 43 (16.5%) samples results showed more than 30ppm and utilizing an adequate iodized salt as per the recommended concentration of iodine in salt. While 39 (15%) households who were utilizing non-iodized salt their samples results showed a Zero ppm of iodine in the salt.

Conclusion: This study revealed that a majority of the households consumed the iodized salt for food preparation while there were inadequate iodine concentration in the salt used by them then the recommended iodine concentration of more than 30 ppm.

Key Words: Iodized salt, rapid test kit, Iodine utilization

Citation of article: Hassan Z, Bijarani SA, Shaikh SR, Memon KN, Memon ZR, Siddiqui MI. Availability of Iodized Salt & its Utilization among Household of Urban Area of Taluka Mirpurkhas. Med Forum 2022;33(11):44-46.

INTRODUCTION

Iodine deficiency is a major preventable public health problem and remains a considerable challenge worldwide and It is estimated that more than 1.88 billion people have insufficient iodine intake.[1] In Pakistan accordingly to WHO and UNICEF, iodine deficiency is in alarming situation and considered one of the severely iodine deficient country in the region.[2] Pakistan was classified in 2004 as a severely iodine deficient country despite the implementation NNID1994[3] Iodine is an essential trace element [4] which is needed for the biosynthesis of thyroid hormones which are vital for the normal growth and development of children.[5] Deficiency of iodine can cause many serious health problems such as, intrauterine growth retardation, cretinism, mental retardation, physical sluggishness and also responsible for the reduction in the IQ levels and eventually effects work capacity and contribute for the increased number of childhood mortality and abortion.[6-7] WHO recommend 120 µg per day intake of iodine to prevent

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Iodine Deficiency Disorders.[8] Many studies revealed that lack of consumption of iodine rich food such as sea foods, dairy products or lack in drinking water in diet is one of the main factor of iodine deficiency disorder. [9-10] The most efficient method to prevent iodine deficiency at gross level is regular use of iodize salt.[11] The iodine concentration of salt is assessed by Rapid Test Kit methods which is recommended monitoring indicator by WHO for the "assessment & utilization of iodized salt at household level. [12]

MATERIALS AND METHODS

A sample size of 260 households were obtained and selected by using a sample random sampling technique, the participants were household members and present at the time of the survey and willing to participate in the present study were included after taking written informed consent. The Ethical approval was taken from the ethical committee of LUMHS, Jamshoro. The data was collected on a pre-tested self–structure questionnaire while iodine concentration in the salt used by household were tested by using the rapid test kit for iodine assessment iodine concentration in salt.using rapid test kit for the iodine content in salt. SPSS version 23.0 version was used for data analysis and P-values <0.05 were considered significant.

RESULTS

A sample size of 260 households was obtained and selected by using a sample random sampling technique, the participants were household members and present at the time of the survey and willing to participate in the present study were included after taking written informed consent. The overall response rate was (n=260) 100%. Regarding the socio-demographic status of the respondents, the majority of the participants were female 205 (78%) while 55(21.1%) were male, whereas the majority 123 (47%) of the respondents were between 26 to 35 years of age group. A substantial number of the respondents 138 (53.1%) were having qualifications at a degree level or above. Regarding the utilization of the iodized salt the majority of the households 191 (73.5%) were using iodized salt whereas 69 (26.5%) were using non-iodized salt as shown in figure no:1. The salt samples of households using the iodized salt were tested for the iodine concentration which showed that a majority of samples 178 (68%) were having ppm between 10ppm to 20ppm which is consider as an inadequately iodized salt whereas only 43 (16.5%) samples results showed more than 30ppm and utilizing an adequate iodized salt as per the recommended concentration of iodine in salt. While 39 (15%) households who were utilizing non-iodized salt their samples results showed a Zero ppm of iodine in the salt as shown in table no:1.

Table No.1: Rapid Test Kid results (n=260)

PPM	RTK results	Frequency (%)	Type of Salt
0 PPM		39 (15.0%)	Non-Iodized Salt
10 PPM		71 (27.3%)	Inadequate Iodized Salt
20 PPM		107 (41.2%)	Inadequate Iodized Salt
30 PPM		43 (16.5%)	Adequate Iodized Salt

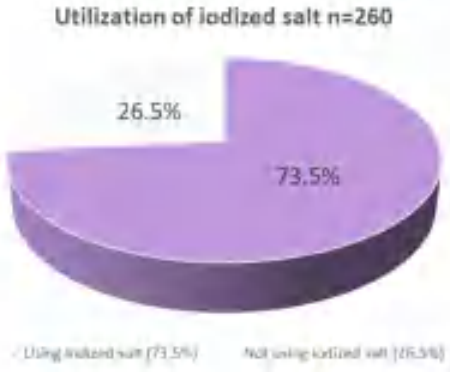

Figure No.1: Utilization of iodized salt n=260

DISCUSSION

The aim of our study is to assess the iodized salt availability and its utilization by using the recommended Rapid Test Kit (RTK) for the assessment of iodine concentration in the table salt at household level among the households situated in urban area of District Mirpurkhas. A total 260 households gave the consent and were interviewed as well as the sample of table salt were collected and tested for the iodine concentration. Regarding the socio-demographic status of the respondents, Majority of the participants were female 205 (78%) while 55(21.1%) were male, near about half of respondents 123 (47%) were between 26 to 35 years of age group and a substantial number of the respondents 138 (53.1%) were having qualification at degree or above level, a similar finding were found by a study conducted at household level in Ethiopia, [13] and inconsistence with the finding of other study. Regarding the utilization of the iodized salt the majority of the households 191 (73.5%) were using iodized salt whereas 69 (26.5%) were using non-iodized, almost similar findings revealed by study conducted by Rupali Roy,[14] while inconsistence to that revealed by a study conducted in the rural population of south India.[15] The salt samples (n=260) of households using the iodized salt were tested for the iodine concentration showed a majority of households 178 (150) (68%) were utilizing an inadequately iodized salt whereas only 43 (16.5%) households were utilizing an adequate iodized salt whose result was more than 30ppm accordingly to the

recommended concentration of iodine in salt. Only 16.5% households were utilizing adequately iodized salt whose ppm was 30ppm (Dark Purple Color) which is showed less number of household were utilizing adequately iodized salt which are similar as revealed by K.et.al.[16] While 39 (15%) households who were utilizing non-iodized salt showed zero ppm of iodine in the salt samples.

CONCLUSION

This study revealed that a majority of the households consumed the iodized salt for food preparation while the Rapid Test Kit results revealed, inadequate iodine concentration in the salt used by them then the recommended iodine concentration of more than 30 ppm.

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Original Article

Patterns of Injuries in Pillion Riders, Associated with Gender in Karachi, Pakistan

Farzana Azam Khan[1], Mehreen Fatima[2], Ramlah Naz[2], Summaiya Waseem[3], Sono Mal[4] and Farah Waseem[5]

ABSTRACT

Objective: To analyze the injury pattern among pillion riders
Study Design: Retrospective study
Place and Duration of Study: This study was conducted at the Trauma Centers of Civil Hospital, Jinnah Hospital and Abbasi Shaheed Hospital, Karachi from January, 2017 to December, 2021.
Materials and Methods: Eight thousand, five hundred and thirty victims injured in two wheeler accidents and injuries occurred to pillion riders were compiled from the three major medico legal centers of Karachi.
Results: The highest number of accidents observed between the age group of 20 to 29 years. Male 62.13% were found more susceptible as compare to females. Frequent fractures were seen in lower limp region. 2018 was the year with 21.91% highest autopsies rate. Least number of autopsies were 16.6% in 2020. We observed laceration was the major type of injury seen in maxillofacial/skull region and abrasions were most frequent in lower limb region followed by fracture.
Conclusion: Effective preventive measures needed to be made at both government and individual level to decrease the road accidents in Karachi, Pakistan.
Key Words: Pillion riders, Long clothing, Dupatta, Injuries, two wheeler accidents

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INTRODUCTION

The burden of injuries raised globally becomes the fourth leading cause of mortality and disability worldwide by 2030. More than million bear injuries, massive young potential is being destroyed, which is not ignorable.[1] Around 90% deaths occur in low middle income countries relate to trauma.[2]

The economic damage associated with road accidents equals their gross domestic products. In some nations, the number of people experiencing motorcycle-related injuries is sharply rising.[3]

Increased incidence of RTA are caused by a variety of factors, such as poor roads, unpredictable traffic, and the widespread use of motorbikes as a form of transportation due to the high cost of fuel and low cost of motorcycles in comparison to other modes of transportation.[4] Motorcyclists are 35 times more likely than occupants to die from a crash than a passenger car in a crash and eight times more likely to be injured.[5] Therefore, injuries due to motorcycle accidents may have a significant impact on population health and healthcare facilities.[6]

This research was carried to analyze pattern severity of injuries especially the pillion riders get involved in accidents and earliest possible associated feature due to lack of protection. The way that female pillion riders sit causes them to either come into direct contact with the object that is being struck or have their clothing become caught in the motorbike's chain.[7] Long scarf/duppatta has a particularly high incidence of getting trapped in the spokes of the wheel or the driving chain of the bikes, which can lead to serious accidents and life threatening injuries, especially to the female passenger.[8] In case of children their feet's are in hanging position get entangled with the spoke of the wheel of motorcycle.[9]

Abrasions, lacerations, and fractures were the predominant types of injuries reported in numerous

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articles on motorcycle accidents.[10] we conducted this study to see the pattern of injuries in pillion riders.

MATERIALS AND METHODS

In this retrospective study data were collected from the three biggest emergency departments of the city which receive almost all the major emergencies of the city. There were three government run hospitals, Abbasi Shaheed Hospital, Trauma center CHK, and Trauma ward JPMC. Data was obtained after seeking permission of Police surgeon Karachi. Five year data was evaluated retrospectively from 1st January 2017 to 31st December 2021. The admissions registers of the departments were used to get the registration numbers of the patients. These were then used to retrieve patients' case notes. The information retrieved from the case notes included patients 'demographics, injuries sustained, date of the injuries, cause of the injuries, types of collision and whether death occurred. Ethical approval was obtained from the custodian of data, police surgeon Karachi assuring with privacy and confidentiality. The data were then entered into SPSS-21 for analysis.

RESULTS

The majority of the pillion riders involved in two-wheeler accidents belong to the age group of 20-29 years, 3530 (41.38%) followed by individuals in age group 30-39 years 2210(25.19%) and 989 (11.59%) of age group 50-59years. Males were found more susceptible as compared to females with 5300 (62.13%). (Table 1)

Among victims of accidents, maxillofacial/skull region received most frequent injuries (2015) with 130 (6.45%) fractures observed in this region. Majority fractures 330(17.71%) were seen in lower limb region while minimum injuries (570) were observed in pelvic region with 170(29.82%) fractures whereas minimum number of fractures (63) seen in spine region (Table 2).

The frequency of autopsies conducted on two-wheeler accident victims (pillion) who died on the road throughout a five-year period between 2017 and 2021 (Table 3). The majority of autopsy, 557 (21.91%), were performed in 2018, while the fewest number, 424 (16.68%), were carried out in 2020.

Table No.1: Characteristic of the pillion riders (n=8530)

Characteristics	No.	%
Age (years)		
10-19	880	10.32
20-29	3530	41.38
30-39	2210	25.91
40-49	621	7.28
50-59	989	11.59
60-69	151	1.77
70-79	149	1.75
Gender		
Male	5300	62.13
Female	3230	47.81

Table No.2: Anatomical site of injury and number of fracture

Region	Fracture	% of fracture	Total injuries
Maxillofacial /skull	130	6.45	2015
Lower limb	330	17.71	1863
Neck/cervical	132	8.10	1630
Upper limb	250	23.81	1050
Ribs	141	17.41	810
Spine	63	10.64	592
Pelvis	170	29.82	570

Table No.3: Autopsy examination of two wheelers pillion riders

Year of autopsies	No.	%
2017	552	21.72
2018	557	21.91
2019	498	19.59
2020	424	16.68
2021	511	20.10

Table No.4: Pattern of injury to the pillion riders

Region of injuries	Bruises		Abrasions		Lacerated wounds		Crush injuries		Total Injuries
	No.	%	No.	%	No.	%	No.	%	
Maxillofacial /skull	507	25.16	574	28.49	702	34.84	102	5.06	2015
Lower limbs	442	23.73	536	28.77	502	26.95	53	2.84	1863
Upper limbs	248	23.62	233	22.19	272	25.90	47	4.48	1050
Pelvis	130	22.81	98	17.19	100	17.54	72	12.63	570
Spine	186	31.42	192	32.43	128	21.62	23	3.89	592
Ribs	193	23.83	202	24.94	230	28.40	44	5.43	810
Neck/cervical	138	8.47	403	24.72	902	55.34	55	3.37	1630

The pattern of injuries involving different regions of body observed among victims (pillion) of two-wheelers accidents depict that most frequent injuries were observed in maxillofacial/skull region (2015), with laceration as the most common type of injury (702). Abrasions were the most frequent type of injury seen in lower limb region (502) and in spinal region (192), while (1050) injuries were found in upper limb, where laceration is most frequent pattern of injury seen in 272 victims.

DISCUSSION

Motor cycle accidents are renowned, common society health problems, in all under develop countries. Fatality rates among the people involved in road accidents show an alarming increase.[11] In our study we revealed that probability of severe injury increase for motor bike accidents, affecting young and middle aged pillion riders (20-39 years). More than half of the pillion riders involved in accidents were male, another study conducted in Pakistan contradict these findings where females reported to have increased like hood of injuries.[12] There is no speed limit for the local roads and similarly for the number of pillion riders.

The most common injury sites were the lower limb, upper limb and skull. Similar findings were reported by another study where anatomical bodily parts that are most affected are the head and limb. Death typically results from head involvement and affects riders more than pillion passengers.[14] Bone fractures were the common injury pattern in lower limb followed by upper limb and head injuries, similarly Fitzharris et al. reported that pillions were more likely than riders to suffer lower extremities crush injuries.[15] In our findings we observed that children are the victim of motor cycle accidents as pillion passengers, another study reported that children are often spotted at front and back of a rider as pillion passenger who are more susceptible to injuries.[16,17] In our study lacerations were the most common type of injury seen in maxillofacial/skull region and abrasions were most frequent in lower limb region followed by fracture, these findings correlate with the results of other studies.[18,19]. This study reported that in majority of autopsies, traumatic head injuries together with other injuries were determined to be the cause of death although motorcycle accidents cannot always be averted, female faces more difficulties as pillion with their seating style taboo, like she must balance herself on one side saddle position and cross her fingers that she won't fall off, [20,21] clothing, helmets, and safety that concern female passengers.[22,23] Protective gear like motorcycle safety helmets can help to prevent or lessen head injuries and their severity. Both riders and pillion must wear safety helmets. Study conducted in Karachi revealed, helmets are regarded as the primary method of preventing head injuries, lowering the risk of mortality by 42% and the risk of head injuries by 69%. 9 for both rider as well as pillion.[24] Similar association observed in other studies as well.[25,26] The motor vehicle act which makes helmet use mandatory for both rider and pillion riders.[24] Despite the fact that the majority of Pakistani women do not personally wear helmets when driving or riding a motorcycle, however, the majority agree that drivers and riders of motorcycles should be obliged by law to wear helmets.[27]

CONCLUSION

In Karachi, the growing number of motorcycles raises safety concern. Due to the rising number of injuries caused by two wheeler accidents, with increased involvement of pillion riders, it is crucial to change the public's perspective on safety. The most likely way to modify the attitude of riders in Pakistan is through television media campaigns for safety measures and injury prevention. However, programs for rider education and injury prevention should be made available to potential pillions as well. There should be early education on the importance of helmets in traffic incidents in conjunction with government laws and enforcement.

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Original Article

Frequency of Leakage in Primary Repair of Acute Colonic Injury

Ajmal Khan[1], Marium Khurshid[2], Sana Israr[3], Faryal Saeed[4], Kamran Khan[5] and Ibrar Ahmed[6]

ABSTRACT

Objective: To determine the frequency of Leakage in primary repair of acute colonic injury patients admitted in Surgical B Ward, Ayub Teaching Hospital, Abbottabad.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of General Surgery, Ayub Teaching Hospital, Abbottabad from January 2022 to June 2022.

Materials and Methods: Eighty-nine patients who attending the surgery department for any type of trauma, ages ranging from 22 to 50 years of either gender were enrolled. After patient selection, their history, examination, investigations (complete blood count, renal functions tests, serum electrolytes, liver functions examinations, screening tests for hepatitis C, hepatitis B, abdominal ultrasound, chest x-ray), surgery was carried out.

Results: The mean age group of subjects the patients was 36.69±8.325. The age group ranged between 22 and 50 years, and the frequency of gender of the subjects, 63(70.8%), was male, and 26(29.2%) were female. In the frequency of the type of trauma, patients presented with a firearm injury to the abdomen with colon were 38(42.7%), with blunt abdominal trauma were 20(22.5%), and stab wound abdomen was 20(22.5%). In contrast, other types of trauma e.g. fall from the roof and RTA etc. were 1 to 4%. In the frequency of anastomotic Leakage, 21(23.6%) patients were found to have a postoperative complication, i.e. anastomotic Leakage, while the remaining 68(76.4%) had no leakage.

Conclusion: Colonic wounds continue to be a clinical issue for trauma surgeons that are both prevalent and occasionally difficult. Those improvements in both death rates and morbidity amply illustrate the extraordinary advancement in caring for these wounds.

Key Words: Anastomotic Leakage, primary repair, acute colonic injury

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INTRODUCTION

Over the past thirty years, there has been a change in how penetrating colon wounds are managed. Before that, a significant portion of these colonic wounds of the populace was treated with either proximal colostomy or exteriorization of the area out of concern for a high risk of breakdown.

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There has been a growing tendency for primary repair during the past 20 years.[1] The prevention of a colostomy, the subsequent decrease in its morbidity, the expenditure of colostomy aftercare, and the last hospitalization for closures are benefits of primary repair. The death rate and morbidity linked to repairing failure are potential downsides of primary repair.[2] Even though an advanced surgeon has much greater success doing an intestinal anastomosis than a surgeon from a generation ago, the outcomes have not always been flawless.[3]

Research shows that executing delayed anastomosis (DA) in people getting damage control laparotomy (DCL) for destructive colonic injuries is safe and practicable. There are still concerns about pinpointing individuals with higher risk and reducing the frequency of anastomosis-related problems, despite the fact that primary colonic anastomosis has proved viable in trauma patients. Additionally, around 13% of individuals with primary anastomosis experienced an anastomotic leak.[3,4] Recognizing avoidable factors that increase the risk for suture line failure following colon anastomosis is crucial for maximizing anastomotic healing.

The surgical techniques used to treat colonic damage have generally been agreed not to impact the result. However, there exist some separate risks for issues. Research is continuously being conducted to clarify these risk variables because they are currently unclear.[5]
Traumatic colon injuries are challenging to treat and are linked with high morbidity. A thorough understanding of the various approaches and care strategies for colonic wounds would help doctors reduce unnecessary consequences and death.[6]
The final section of the digestive system and the gastrointestinal tract in vertebrates is the large intestine, also known as the colon or big bowel. The residual waste is received here as water, and before being eliminated by defecation, it is contained as excrement.[6]
The anal canal is not included in all authors' definitions of the large intestine, typically including the colon, cecum, anal canal and rectum. The beginning of the large intestine is located in the human right iliac area of the pelvis, just below the waist. The ileocecal valve connects the large intestine to the cecum, the end of the small intestine, where it terminates.[7,8] The large intestine in humans is generally approximately 1.5 meters or 5 feet long, approximately one-fifth of the entire stretch of the gastrointestinal tract. It then proceeds as the colon moves up the abdomen, throughout the circumference of the abdomen as the transverse colon, and then goes down to the rectum and its ending point at the anal canal.[9,10]
The digestive system ends with the colon. Before elimination from the body, it draws water and salt from waste materials. It is also where flora-aided (primarily bacterial) decomposition of un-dissolved material occurs.[11] Unlike the small intestine, the colon does not significantly contribute to food and healthy digestion. The colon receives around 1.5 liters, or 45 ounces, of water daily. The average adult male colon measures 166 cm (80 to 313 cm), whereas the typical adult female colon measures 155 cm (80 to 214 cm).[12,13]

MATERIALS AND METHODS

This cross-sectional (descriptive) study has been performed at the Ayub Teaching Hospital's Surgical Department, Abbottabad from 1st January 2022 to 30th June 2022 and 89 patients were enrolled. All patients age between 22-50 years, both gender and any type of trauma were included. Those patients over 80 kg weight, history of lower abdominal surgery (appendectomy and TVP), comorbid conditions or suffering from a terminal illness and sufferers of any recognized mental conditions were excluded. Following clearance from the hospital ethics committee for the research of particular patients by the criteria for inclusion and procedure of sampling, data was gathered on a questionnaire after receiving the patient's complete, accessible, and informed permission describing the risk of leaking. The investigator(s) have collected. After patient selection, their history, examination, investigations (complete blood count, renal functions tests, serum electrolytes, liver functions tests, screening tests for hepatitis B and C, abdominal ultrasound, chest x-ray), and surgical procedure was conducted. SPSS-24 was used to analyze the data. Age, gender, and trauma type were used to stratify the outcome variable (leakage). At a 5% level of significance, the post-stratification chi-square test was performed.

RESULTS

The mean age was 36.698.325 years with a range of 22 to 50 years (Table 1).
The patients presented with firearm injury to the abdomen with colon were 38 (42.7%), with blunt abdominal trauma were 20 (22.5%), stab wound abdomen was 20 (22.5%), while another type of traumas, e.g. fall from the roof and RTA was 1 (2%) [Table 2.]
The frequency of the type of trauma-associated injury, patients presented with no trauma-associated injury were 58 (65.2%), liver laceration 12 (13.5%), splenic injury 6 (6.7%), while other associated injuries, e.g. multiple fracture mesenteric tear was 1 (2%) [Table 3].
The frequency of anastomotic leakage, 21(23.6%) patients found postoperative complication, i.e. anastomotic leakage whiles the remaining 68(76.4%) found no leakage [Table 4].
When the data was stratified, 35 (39.3%) were between the ages of 41 and 50, while 28 (31.5%) were between the ages of 31 and 40. Fifteen (23.8%) male and 6 (23.1%) female patients were found to have anastomotic leakage, while the remaining 68 (76.4%) from both genders. Thirteen (34.2%) were patients of firearm injury to the abdomen and 2(10.0%) were with blunt abdominal trauma; the result is also not statistically significant (p=0.309). Six (50%) were found to have liver laceration, and 2(100.0%) were found with multiple ribs fractures; this finding was also not statistically significant (p=0.088). Four (15.4%) were from the age group of 22 to 30 years, 7(25.0%) from the 31 to 40 years of age group and 10(28.6%) were from 41 to 50 years of age group, this finding is not found statistically significant (p=0.476) [Table 5].

Table No.1: Descriptive statistics of age (n=89)

Age (years)	Mean±SD
	36.69±8.32

Table No.2: Comparison of gender according to anastomotic leakage

Gender	Leakage	
	Yes (n=21)	No (n=68)
Male	15 (71.4%)	48 (70.5%)
Female	6 (28.6%)	20 (29.5%)

Chi square value = 0.005 P value = 0.941

Table No.3: Comparison of type of trauma according to anastomotic leakage

Type of trauma	Leakage	
	Yes (n=21)	No (n=68)
Blunt abdominal trauma (colonic perforation)	2 (9.6%)	18 (26.6%)
Fall from roof (abdominal trauma)	-	2 (2.9%)
Fire arm injury to abdomen (colon)	13 (61.8%)	25 (36.6%)
Fire arm injury to sigmoid colon	-	1 (1.5%)
Penetrating to abdomen with glass	-	2 (2.9%)
RTA (abdominal blunt trauma)	2 (9.6%)	2 (2.9%)
RTA (dressing colon perforation)	-	2 (2.9%)
Stab wound abdomen (colonic injury)	4 (19%)	16 (23.7%)

Chi square value = 8.278 P value = 0.309

Table 4: Comparison of associated injury according to anastomotic leakage

Associate injury	Leakage	
	Yes (n=21)	No (n=68)
Nil	13 (61.8%)	45 (66.2%)
Abdominal wall cut	-	2 (2.9%)
Anterior abdomen wall	-	2 (2.9%)
Humorous fracture	-	1 (1.5%)
Liver laceration	6 (28.6%)	6 (8.9%)
Mesenteric tear	-	2 (2.9%)
Multiple bone fracture	-	1 (1.5%)
Multiple ribs fracture	2 (9.6%)	-
Skin abrasions	-	1 (1.5%)
Splenic injury	-	6 (8.8%)
Tibia fracture	-	2 (2.9%)

Chi square value = 16.412 P value = 0.088

Table 5: Comparison of age according to anastomotic leakage

Age (years)	Leakage	
	Yes (n=21)	No (n=68)
22 – 30	4 (19%)	22 (32.4%)
31 – 40	7 (33.4%)	21 (30.8%)
41 – 50	10 (47.6%)	25 (36.8%)

Chi square value = 1.484 P value = 0.476

DISCUSSION

Primary repair is increasingly being used to treat all penetrating colon injuries, regardless of where they occurred. In recently published literatures[16-18], the contribution of primary repair in treating colon wounds was examined. It was noted that in situations where general and local trauma was of comparable intensity and intraoperative observations were comparable, primary repair performed better in terms of deaths, complications and final success. Only damaging colon injuries that require resection still raise debate over whether a diversion technique should be used to treat them. Three risk factors for intra-abdominal septic sequelae, irrespective of the manner of repair, were found in the AAST data of a prospective multicenter trial.[19] severe faecal contamination, single antibiotic prophylaxis, and transfusion of more than four blood units.

But the definition of "severe faecal contamination" is still debatable. Comparing information from some of the other findings, Dente et al[20] emphasized that there are just two primary clear indicators for conducting a 2-stage process: severe colon edema (because of whichever reason) and doubtful colon blood supply. However, even these three criteria could not be strongly supported by the data.

In the present study, the mean of the age group of subjects of the patients was 36.69±8.325. The age group ranged between 22 and 50 years, and the frequency of gender of the subjects, 63(70.8%), was male, and 26(29.2%) were female. The frequency of the type of trauma, subjects presented with firearm injury to the abdomen with colon were 38(42.7%), with blunt abdominal trauma were 20(22.5%), stab wound abdomen was 20(22.5%) while another type of traumas, e.g. fall from the roof and RTA etc., were 1 to 4% and frequency of the type of trauma associated injury, patients presented with no traumas associated injury were 58(65.2%), liver laceration 12(13.5%), splenic injury 6(6.7%) while other associated injuries, e.g. multiple fracture mesenteric tear etc. were 1 (2%.) The anastomotic Leakage, 21(23.6%) patients found postoperative complication, i.e. anastomotic Leakage, while the remaining 68(76.4%) found no leakage; results of our study has been supported by Schnuriger et al[3] 13% as its anastomotic Leakage shows from the age group of 13 to 30 years as our sample was 89 patients aged 22 to 50 years. This minor difference may be due to this reason, and frequency of age stratification, 26(29.2%) subjects were found between 22 to 30 years, 28(31.5%) included from 31 to 40 years, and 35(39.3%) were included, from 41 to 50 years of age.

In our study, the frequency distribution of gender concerning anastomotic Leakage, 15(23.8%) male and 6(23.1%) female patients were found to have anastomotic Leakage which supports the same results as previously shown [19-21]. The remaining 68(76.4%) from both genders were found to have no leakage. The frequency of type of trauma concerning anastomotic leakage, 13(34.2%) found with anastomotic leakage were the patients of firearm injury to the abdomen, and 2(10.0%) were with blunt abdominal trauma; this finding was not statistically significant at p=0.309 as shown in previous studies [21,22]

The present research supports the previous research results and shows the frequency distribution of associated injury concerning anastomotic Leakage, 6(50%) were found with liver laceration, and 2(100.0%) were found with multiple ribs fractures; the result proved not to be statistically significant at p=0.088 and in the frequency distribution of age group in relation with anastomotic leakage, 4(15.4%) found from the age group of 22 to 30 years of, 7(25.0%) from 31 to 40 years and 10 (28.6%) included 41 to 50 years, the result proved to be not statistically significant at p=0.476. Primary repair was performed in 89 cases; this mist likely indicates an ample usage of primary repair.[23] Traditionally, left-sided colon lesions are treated with resection and proximal colostomy, mainly when associated with intra-abdominal lesions. No convincing evidence shows a significant difference in postoperative complications when comparing right and left colon injuries [24]. A good blood supply is the cornerstone of a successful colonic anastomosis and should always be ensured when repairing colonic injuries.

Higher mortality has been suggested in patients with severe abdominal injury requiring colostomy formation rather than primary colon repair or anastomosis [25]. However, current literature has shown that despite multiple intra-abdominal lesions, management of colonic lesions does not significantly affect the incidence of significant complications, particularly intra-abdominal sepsis [26]. Some studies have even suggested that bypass colostomy formation in these high-risk patients may contribute to a higher incidence of intra-abdominal sepsis [27-29].

CONCLUSION

The colonic wounds continue to be a clinical issue for trauma surgeons that are both prevalent and occasionally difficult. The improvements in death rates and morbidity amply illustrate the extraordinary advancement in looking after these and similar wounds. In recent years, many evidence-based studies have enabled more proactive care, with the majority of injuries having primary repair or resection and anastomosis with an acceptable low suture line failure rate.

Author's Contribution:

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Original Article

Prevalence of Depression and Anxiety among Patients of Pulmonary Tuberculosis in Outpatient TB Clinic of Bahawalpur Medical and Dental College, Bahawalpur

Anoosha Yousaf, Muhammad Sharjeel and Tehreem Fatima

ABSTRACT

Objective: The objective of this study is to assess the prevalence of anxiety and depression among patients of pulmonary TB in Bahawalpur City, Punjab, Pakistan where such a study has not been done previously and may prove advantageous in constructing strategies to ensure coordination between physicians, psychiatrists and psychologists in managing both physical and psychological aspects of pulmonary TB leading to overall improved quality of life.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Outpatient TB Clinic of Bahawalpur Medical and Dental Hospital, Bahawalpur, Pakistan for a period of 10 months from 1st December, 2021 to 30th August, 2022.

Materials and Methods: Patients aged 18 to 60 years with lab diagnosed primary pulmonary TB receiving anti-TB treatment for less than 3 months were included. Depression and anxiety were assessed by HADS scoring (Hospital Anxiety and Depression Scoring). A cut-off score of 11 or greater was considered clinically significant depression and anxiety. Data analysis was done by Statistical Packages for Social Sciences (SPSS) version22.0.The frequencies of patients were noted and chi square test was applied.

Results: The relative frequencies of depression and anxiety are 240 (60%) and 224 (56%). Depression was present in 137 (62.2%) males and 117 (65%) females with a p – value of 0.537. Anxiety was found in 128 (58.2%) males and 115(63.8%) in females with a p- value of 0.2449.

Conclusion: Depression and anxiety are quite prevalent among patients with TB, irrespective of gender.

Key Words: Pulmonary Tuberculosis, Depression, Anxiety, Gender, Prevalence

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INTRODUCTION

Tuberculosis is a chronic Mycobacterial infection which causes a multitude of pulmonary and extra pulmonary symptoms. It is associated with considerable morbidity and deterioration of quality of life. In terms of mortality from infectious diseases, TB is second only to HIV/AIDS worldwide. [1]

TB is highly prevalent in Pakistan owing to poor sanitation, overpopulation, immunosuppression with concomitant HIV/AIDS, rising multidrug resistance and hindrance to timely diagnosis and proper treatment.

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Data from the WHO reveals an estimated 510,000 new cases of TB are recorded annually, ranking Pakistan fifth among high burden countries worldwide. [2]

Among psychiatric disorders, depression has a prevalence of 2.3% to 4.9% among general population throughout the world. [3] Being the largest contributor to non-fatal health loss, the incidence of depression and anxiety increases significantly in patients living with chronic diseases. [4] The severity and chronicity of the illness as well as the debility associated with it are notable determining factors of depression and anxiety among such patients in addition to social stigma and discrimination experienced in society [5]. This is further compounded by the financial and socioeconomic burden of frequent hospitalizations and relapsing and recurring symptoms of the disease.

Patients with TB, in particular, are prone to developing depression and anxiety owing to the naturally debilitating chronicity of the disease, prolonged isolation and undesirable adverse effects of anti-TB drugs. If not adequately managed, it may ultimately result in non-adherence to therapy and worsening prognosis.[6] The bidirectional association between depression and TB is evident by the fact that

inflammatory mediators and disturbance of hypothalamic-pituitary-axis associated with the disease process can further worsen depression and anxiety. [7]
With an incidence of 56% in Pakistan [8], 74% in Utar Pardesh, India[9], 41.1% in Nigeria and 61.1% in Cameron [8], the concomitant diagnosis and appropriate management of anxiety and depressive disorders is of utmost importance in patients of TB. Multidisciplinary approach to develop collaboration between physician, psychiatrists and psychologists can prove beneficial in managing depression and anxiety as comorbids in patients of TB as well as improving the overall quality of life. [8]

MATERIALS AND METHODS

A cross sectional study was carried out at the outpatient TB clinic of Bahawalpur Medical and Dental Hospital, Bahawalpur, Pakistan from 1st December, 2021 to 30th August, 2022. The sample size was 400, taking frequency as 56% based on a previous study conducted at Pir Syed Abdul Qadir Shah Jeelani Institute of Medical Sciences, GAMBAT, kairpur, mirs, Sindh, Pakistan. P-value was 56% +/- 5 with an absolute precision of 5%. Permission was taken from the Ethical Review Committee of the institute before the start of study.
Informed consent was taken from patients before enrollment. All the patients of both genders aged 18 to 60 years having lab diagnosed primary pulmonary TB receiving anti-TB treatment for less than 3 months were included. Unwilling patients, patients with comorbidities such as Diabetes, Hypertension, malignancy, relapsed or remittent cases and patients receiving anti-TB treatment for 3 months or more were excluded from the study. Uneducated patients included those who didn't qualify primary education. Depression and anxiety were assessed by HADS scoring (Hospital Anxiety and Depression Scoring) which uses a questionnaire having 7 components each for anxiety and depression and a total score of 21. A cut-off score of 11 or greater was considered clinically significant for depression and anxiety. Data analysis was done by Statistical Packages for Social Sciences (SPSS) version22.0. The frequencies of patients were noted and chi square test was applied to the data. A P value of less than 0.05 was considered significant.

RESULTS

Out of the 400 participants, 220 (55%) were males and 180 (45%) were females. The relative population of married and unmarried were 207 (51.75%) and 193 (48.25%). The majority of patients (296) were uneducated with a percentage of 74%, while 104 (26%) were educated. A significant population (145) was unemployed with a percentage of 36.25%, while 56 (14%) were employees, 84 (21%) were farmers, 58 (14.5%) were businessmen and 57 (14.2%) were students as show in Table 1.
As shown in bar graph 2, the relative frequencies of depression and anxiety are 240 (60%) and 224 (56%). Table 3 shows the incidence of depression and anxiety among males and females. Among males, depression was present in 137 (62.2%) patients and anxiety was found in 128 (58.2%).

Table No.1: Demographic characteristics

Demographic Data	N (%)
Gender	
Male	220 (55%)
Female	180 (45%)
Marital Status	
Married	207 (51.75%)
Unmarried	193 (48.25%)
Education	
Educated	104 (26%)
Uneducated	296 (74%)
Occupation	
Employed	56 (14%)
Unemployed	145 (36.25%)
Farmer	84 (21%)
Businessman	58 (14.5%)
Student	57 (14.2%)

Table No.2: Frequency of depression and anxiety among patients of primary pulmonary TB based on HADS scoring

Depression/Anxiety	Present	Absent	Total
Depression	240 (60%)	160 (40%)	400
Anxiety	224 (56%)	176 (44%)	400

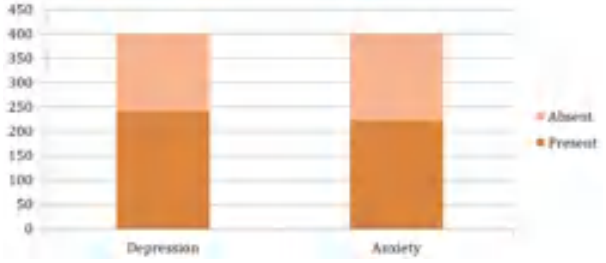

Figure No.1: Frequency of depression and anxiety.

Table No.3: Bar graph showing relative frequencies of depression and anxiety in patients of pulmonary TB based on HADS scoring

Psycho-logical Factor	Males		Females		p - Value
Depression	Present	Absent	Present	Absent	0.5730
	137	83	117	63	
Anxiety	128	92	115	65	0.2449

In females, the relative frequencies of depression and anxiety were 117 (65%) and 115 (63.8%) respectively.

For depression, chi squared equals 0.318 with 1 degree of freedom and a p value of 0.537, thus the relation is non-significant. For anxiety, chi squared equals 1.352 with 1 degree of freedom and a p value of 0.2449 which is also non-significant.

DISCUSSION

In this study, the frequency of depression and anxiety is 60% and 56% which is very close to a previous study conducted in Pakistan in 2021 [8] where the frequencies were 62% and 59% respectively and also similar to a study conducted in Southwest Ethiopia in 2020 where the relative frequencies were 55.9% and 54.6% respectively. [10] However, this prevalence is higher than another study done in Pakistan in 2008 where the frequencies of depression and anxiety were 46.3% and 47.2% [11] and a study conducted in Romania in 2021 where the prevalence of anxiety and depression in patients suffering from rifampicin-resistant TB was 46% and 43% at baseline and 50% and 39% at follow up. [12] The prevalence was lower than in a study conducted in Utar Pardesh, India in 2016 where 74% patients suffered from psychiatric symptoms. [9] This shows a considerable rise is psychiatric morbidity associated with pulmonary tuberculosis in the past decade owing to the mounting socioeconomic and population burden along with more focus on psychological illnesses as consequential comorbidity associated with chronic illnesses. A similar study conducted in Brazil showed the prevalence of depression 60.5%, similar to our study; however, the incidence of anxiety was 26% which is much lower than the level observed in our study. [13].

This study shows that there is no statistically significant difference in the incidence of psychiatric comorbidities among male and female patients. This observation was also seen in a study conducted in Ethiopia where the incidence of anxiety among TB patients was almost comparable. [1] However, this is in contrast to the study conducted in Utar Pardesh India where males had a much higher incidence of psychiatric symptoms than females [9]. Females were more affected than males in a study conducted in Peshawar, Pakistan [14] and it was also found to be highly prevalent in female TB patients in a study conducted in China. [15]

CONCLUSION

Depression and anxiety are quite prevalent among patients of TB irrespective of gender.

Recommendations: As depression and anxiety are extremely common in TB patients, we should evaluate them during the initial appointments and refer them to psychologists as necessary. Since financial hardship and isolation are the main causes, actions should be taken to assist the patient financially and offer social support through support groups. Psychological issues should be addressed because they might cause non-compliance, which is one of the main causes of relapse.

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Original Article

Assessment of Gingival Biotype and Keratinized Gingival Width of Maxillary Anterior Region in Individuals with Different Types of Malocclusion

Laila Azher Jawa[1], Zehra Azher Jawa[2] and Zubair Hassan Awaisi[1]

ABSTRACT

Objective: To explore the association of gingival thickness and width of keratinized gingiva and amount of crowding in adult population.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the department of Orthodontics at Nishtar Institute of Dentistry, Multan from May 2021 to February 2022.

Materials and Methods: For the abovementioned purpose we enrolled 80 subjects with good gingival condition. Then each individual was examined clinically and the findings were recorded. We divided the selected participants into three main groups according to the Angle classification of crowding in Class I, II, and III, and then each group in relation to the expanse of irregularity in their dentition was divided into mild, moderate, and severe. A clinical examination was performed in all subjects, WKG was measured in vertical direction as the distance between mucogingival junction and free gingival margin, and on the other hand either gingival biotype was thick or thin was assessed by trans-gingival probing technique.

Results: Gender distribution of our study cases male 22 (27.5%) and 58 (72.5%) were female with age ranged between 12-25 years. Thin gingival biotype was observed in upper canines. For tooth numbers 13 and 23 the width of keratinized gingiva was also narrower in the severe crowding group. However, there was no significant relationship ($p>0.05$).

Conclusion: This cross-sectional study results failed to demonstrate significant correlation between keratinized gingival width and the gingival thickness in the anterior region of upper arch and malocclusion.

Key Words: Gingival biotype, width of keratinized gingiva, trans-gingival probing, thin tissue biotype, thick tissue biotype.

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INTRODUCTION

In clinical practice of orthodontics, a great emphasis on proper diagnosis of the periodontal biotype is placed as this is an important factor with respect to the decision-making and treatment planning.

If the teeth are to be protected and positioned correctly, the gingival complex should be in good condition. Generally healthy periodontal tissues are categorized into thin, scalloped or thick flat according to Ochsenbein & Ross in 1969[1].

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The term "periodontal biotype" was described into different types by Seibert and Lindhe[2]. Gingival biotype is simply the buccolingual thickness of the gingiva. It is determined by the shape and size of the dental root and contour of the alveolar bone[3]. According to Claffey and Shanley[4] the thin tissue biotype is when GT is less than 1.5 mm, and the thick tissue biotype was referred to as having a tissue thickness more than 1.5 mm. Different individual factors contribute to biotype variances including genes, morphology and position of teeth, age, gender and type of growth[5]. A healthy periodontal tissue is an essential factor that should be considered before the orthodontic treatment as other factors that may have a critical role in the incidence of failures.[6] During orthodontic tooth movement, sometimes, there are changes in the mucogingival complex and this is an important tool that should be evaluated before and during the planning process, as also an evaluation of the thickness of the gingival tissue, in order to avoid periodontal complications, as gingival recession or bone and root resorption.[7] It was shown that a gingival thickness more than 0.5 mm reduce the risk of gingival

recession, possibly due to the reason that different periodontal biotypes respond in a different way to inflammation and trauma induced by inappropriate insult during treatment[8].

Therefore, the aim of the present study was to inspect the association between gingival thickness and width of keratinized gingiva with the Angle's classification of malocclusion groups.

MATERIALS AND METHODS

In this cross-sectional study total 80 (22 male and 58 female) subjects were enrolled between age 12-25 years, all the participants were those who visited the Orthodontic department at Nishtar Institute of Dentistry. The mean age in males was 14.2±2.5 and in females was 16±2.1. Informed consent was obtained from all patients.

The study population comprises of periodontally healthy subjects, who have no history of orthodontic treatment or other surgical treatment, have completed permanent dentition and have no missing anterior maxillary teeth, and with no crowns or extensive restorations, with no periodontal disease and those were also excluded from the study who were taking certain medications with known effects on the gingiva. The participants of the study were separated into three groups on the basis of Angle's classification of malocclusion that is Angle Class I, Angle Class II, and Angle Class III. Further divided into mild (0-3 mm), moderate (4-6 mm), and severe (>6 mm)[10]groups according to the measure of the irregularity present. In this study we selected anterior region of maxilla to be evaluated.

In this study we calculated width of keratinized tissue of anterior teeth in upper arch by measuring the distance between the two points, one point was marked at the end of free gingival margin and the second point was positioned at the mucogingival junction[3]. Periodontal probe was used to attain the width. For trans-gingival probing, Xylocaine spray if necessary was applied before probing. Gingival thickness in the study region was achieved by penetrating the tissue with an endodontic file with stopper. After removal, the file was measured using a digital caliper. All the measurements were obtained by the single examiner.

We used chi-square test to assess any correlation present among gingival biotype and Angle classification, crowding, age and gender. P-value less than 0.05 were considered significant for all tests.

RESULTS

In this specific study there was no significant difference found between the different groups. Distribution and the percentage of patients is shown in table 1 and distribution of gingival biotype is shown in table 2.

Table No.1: Distribution and percentage of patients

		Amount of crowding		
		Mild	Moderate	Severe
Angle Class I	Count % within Angle classification % within crowding amount % of total	12 27.9% 50% 15%	8 18.6% 53% 10%	23 53% 56% 28.7%
Angle Class II	Count % within Angle classification % within crowding amount % of total	10 33% 41%	5 16% 33%	15 50% 36.5%
Angle Class III	Count % within Angle classification % within crowding amount % of total	2 4.6% 8.3% 2.5%	2 4.6% 8.3% 2.5%	3 42.8% 7.3% 3.75%

(P>0.05)

Table No.2: Distribution of gingival biotype according to Angle classification, amount of crowding, and gender

		Gingival biotype		P
		Thin (n =%)	Thick (n=%)	
Angle Classification of malocclusion Angle Angle	class I	20 25%	23 28%	0.82
	class II	6 7.5%	24 30%	0.87
	class III	2 2.5%	5 6.25%	0.85
Amount of crowding	Mild	6 7.5%	10 12.5%	0.76
	Moderate	19 24.37%	23 28.75%	0.76
	Severe	10 12.5%	19 23.75%	0.758
Females		23 28.75%	35 43.75%	0.11
Males		5 6.25%	17 21.25%	0.10
Total		28 35%	52 65%	

(P>0.05)

The thin gingival biotype in all groups was 35%. Although thin biotype was more common in severe crowding and in females than males but the difference was not significant enough to be considered. When the maxillary anterior teeth were evaluated, mostly tooth numbers 13 and 23 with thin gingival thickness were observed. Gingival thickness of upper lateral incisors with thick biotype was higher especially in the severe crowding group than other crowding groups. Assessment of keratinized gingival width in different amount of crowding according to angle classification shows that in severe crowding it is narrower than mild and moderate amount of crowding. In tooth number 13 and 23 it is narrower when they are buccally placed in severe crowding group. WKG is determined to be wider in class II and mild crowding. The Angle classification and width of keratinized gingiva did not appear to have

a statistically significant relationship in the following study.

DISCUSSION

In orthodontic treatment, the characteristics and thickness of the gingival tissue plays an important role especially, for aesthetic reasons, in the maxillary anterior area,[9] a decrease gingival tissue thickness during orthodontic treatment can be a cause of gingival recession or other risk factors such as dehiscence or fenestrations, while thick flat biotype is linked with deep periodontal pockets[10]. Therefore, to identify gingival biotype more accurately in order to avoid any kind of complications is momentous.

Careful evaluation of the periodontal tissues is a key to avoid any problem associated with thin gingival biotype especially in cases where protrusion or proclination of the incisors is required. The author of several studies in the literature presented that It to identify the amount of protrusion, biological factors and width of keratinized gingiva in the relevant region is important[11]. According to Yared et al[7] gingival biotype is important than other parameters, and it should be evaluated and considered in treatment planning.

Several studies have advocated that the gingival biotype is associated with gingival thickness and described different methods for measuring gingival thickness. Invasive and non-invasive methods have been employed to assess periodontal biotype, such as trans-gingival probing, probe transparency and CBCT[3,12]. The literature review showed that techniques such as visual assessment and ultrasonic devices have also been used in determining gingival thickness[8,13]. Among these techniques invasive methods are injection needle or probe, histologic analysis or radiographs, and non-invasive methods includes visual examination, ultrasonic devices, gingival probing and CBCT[9]. The visual assessment technique is not reliable[3]. The cone beam computed tomography is more accurate but it has potential side effects of radiation[14].

In our study the prevalence of thin gingiva is more common in females (28.7%), the results were similar to the other studies like study done by Zawawi et al[15], in their study they also found that thin biotype is more frequent in females.

In our study this difference between the gender is not statistically significant.

The keratinized gingival width is another factor which was thought to be associated with severity of crowding. According to the study by Yared et al[9] WKG <2mm would be insufficient to maintain periodontal health gingival width <2mm would be In this study we noted that keratinized gingival width of the maxillary anterior teeth was between the range of 2 to 7 mm depending upon the different amount of crowding and angle classification. In our study we found that WKG of tooth numbers 13 and 23 were smaller in the severe crowding group than in the mild and moderate crowding groups, but the overall results were not significant enough to found any difference among the groups. The results of our study were similar to the study conducted by Alkan et al[16].Similar to the results of Younes et al[17], we found that while evaluating the gingival thickness of the maxillary anterior teeth gingival biotype of the teeth number 13 and 23 was thin than central and lateral incisors.

In our present study there was no significant correlation found among gingival biotype and amount of crowding in maxillary anterior teeth like studies by Zawazi and Al-Zahrani[18], they also concluded that association between gingival biotype and amount of crowding no significant correlation was observed similar to the studies done by Alkan et al[19].

CONCLUSION

It was observed that Results are not statistically significant the location of the teeth in the dental arch affect gingival thickness and keratinized gingival width like buccally placed canines have thin gingival biotype and palatally placed lateral incisors have thick gingiva. The WKG was lower in the canines placed buccally.

Author's Contribution:

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Original Article

Frequency of Histological Types, Common Sites and Nodal Involvement in Patients of Oral Squamous Cell Carcinoma Presented to Nishtar Institute of Dentistry, Multan

Zehra Azher Jawa[1], Tauseef Zahra[1], Laila Azher Jawa[2] and Asif Nazir Ch[1]

ABSTRACT

Objective: To find out common site, histological type and nodal metastasis in the SCC patients visiting outdoor of NID.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the department of Oral and maxillofacial surgery (surgical unit 2), NID, Multan, Pakistan from July 2021 to February 2022.

Materials and Methods: Total 112 patients of both genders and all age groups were included. The parameters assessed were site of the lesion, histological type and presence or absence of cervical lymphadenopathy. Diagnosis of SCC was made with proper history, clinical examination and histopathology. The demographic data of all the subjects were recorded on a structured questionnaire; they were also asked about harmful habits like betel nut and quid chewing, snuff dipping, cigarette smoking and alcohol intake.

Results: In our study, age of mostly patients was in between 41-61years. Mean age was 50.7±2.5. In this study 53.57% were males, in 34.82% of cases lesion was on buccal mucosa and 43.75% patients had well differentiated carcinoma. Most of the patients in this study showed metastasis to lymph nodes N2b (42.85%), while 33.03% patients had no lymph node involvement at all.

Conclusion: Oral SCC affects both genders but the ratio of males is slightly higher. Chiefly, buccal mucosa was involved, common histopathological pattern was Grade I followed by Grade II and several patients reported with associated cervical lymphadenopathy.

Key Words: Oral squamous cell carcinoma, Histopathology, Cervical, Lymphadenopathy

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INTRODUCTION

An oral cancer has considerable impact on the patient's quality of life and is one of the most common causes of death in the world[1]. Along with the patients their family also suffers. The whole process of diagnosis to treatment of oral carcinoma is difficult for both the patients and their families. Squamous cell carcinoma of oral cavity and oropharynx is the major cancer of head and neck region[2].

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Etiology of SCC is multifactorial[3], a plethora of factors have been recognized as the predisposing factors of SCC. But in Pakistan habits like chewing betel nut, betel quid, tobacco, gutka and smoking are considered as major risk factors [4]. The incidence of SCC is rising in our country and also other South Asian countries because of low price and easy availability of these hazardous materials.

The habitual of these harmful substances have less or no knowledge about deleterious effects of these substances on their health. Health professionals have to conduct awareness campaigns at local, regional and provincial level. The people should be informed about importance of oral hygiene and side effects of using such substances. They should know that addiction of these substances sometimes results in unfortunate consequences. People must value their lives and the happiness of their loved ones which is associated with them. Our government must take measures that discourage the use of these injurious substances.

Clinically oral SCC may present as an ulcer, exophytic lump or cervical lymphadenopathy[5]. \

The sites mainly involved in SCC are; buccal mucosa, lateral borders, dorsum or ventral surfaces of the tongue, hard or soft palate, gingival tissue , floor of the mouth, lip or labial mucosa, alveolar ridge and retromolar region. However, buccal mucosal tissue is a frequent site in South Asians[6].

The objective of current study was to evaluate the frequency of histological types, also to find out most common site of the lesion and to document the involvement of cervical lymph nodes among the patients of OSCC presented in OPD of oral and maxillofacial department of NID.

MATERIALS AND METHODS

This cross-sectional study was carried out from July 2021 to February 2022 at department of Oral and maxillofacial surgery (surgical unit 2), NID, Multan. Approval was obtained from Institutional ethical committee. Sample size of about 112 patients was in our study. Diagnosis of SCC was made with proper history, clinical examination and histopathology. Informed consent was taken from all the subjects. Both gender of age between 21 to 82 years was part of this study. The demographic data of all the subjects were recorded on a structured questionnaire; they were also asked about harmful habits like betel nut and quid chewing, snuff dipping, cigarette smoking and alcohol intake.

After medical history and thorough clinical examination of the subjects biopsy was done and the specimen was sent to laboratory for the purpose of histopathology. Presence of palpable cervical lymph nodes was also documented. The extent of the lesion and involvement of neck nodes were further evaluated on CT scan or MRI. Data was entered in SPSS 22.

RESULTS

Among 112 subjects, 60 were males and 52 were females. The frequent site of the cancerous lesion observed in this study was buccal mucosa followed by SCC of tongue.

Table No.1: Demographic data

Variables		Number of Patients (n=112)	age (%)	P value
Gender	Males	60	53.57	
	Females	52	46.42	0.00
Age distribution	21-41	18	16.07	
	42-61	74	66.07	0.001
	62-82	20	17.85	
Socioeconomic status	Middle	30	26.78	
	Low	82	73.21	0.000

According to histopathology reports of the subjects, 49 patients had Grade I while 42 patients were suffering from Grade II SCC. Most of the patients in this study showed metastasis to lymph nodes N2b (42.85%), while 33.03% patients had no lymph node involvement at all.

Table No.2: Clinical presentation

Site	n	%
Buccal mucosa	39	34.82
Labial mucosa/lip	02	1.78
Tongue	27	24.11
Retromolar region	06	5.35
Alveolar ridge	09	8.03
Floor of the mouth	07	6.25
Maxilla and hard palate	22	19.64

Table No.3: Histological types and level of lymph nodes involved

	Presentation	n	%
Histopathology	Grade I = well differentiated SCC	49	43.75
	Grade II = moderately differentiated SCC	42	37.5
	Grade III = poorly differentiated SCC	16	14.28
	Grade IV = undifferentiated SCC	05	4.46
Nodes involved (N)	N0	37	33.03
	N1	16	14.28
	N2a	01	0.89
	N2b	48	42.85
	N2c	10	8.92

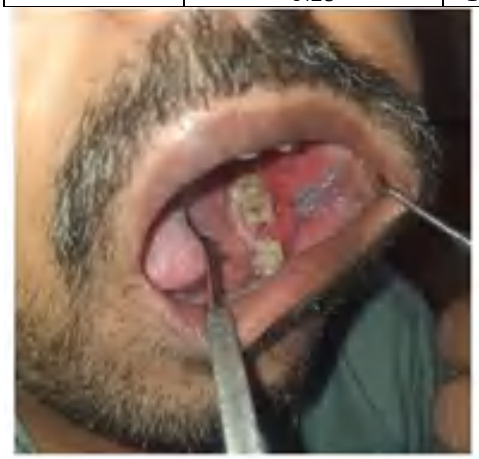

Figure No.1: Intra-oral lesion

Figure No.2: Extra-oral clinical presentation

DISCUSSION

Squamous cell carcinoma is a most common malignant cancer of oral cavity. Oral cancers pose a continuous threat to human health and impose a heavy burden on countries. By far cancer is the most common cause of death in developed countries and second most common cause in developing countries [7].

In Pakistan among cancers of head and neck OSCC has the highest rate of incidence and it is also the most common cancer in males and second most common in females[8]. Majority of the patients, report to health centers in an advance stage of OSCC with poor prognosis.

In our study, age of mostly patients was in between 41-61years. Mean age was 50.7±2.5. There is a significant association of age with habits of chewing harmful substances that coincides with some studies published in Pakistan and India[8, 9, 10, 11]. In this study about 43% patients had habit of smoking which is almost same as study conducted by Schmidt et al[12] who reported that almost 41% had smoking as causative factor of oral squamous cell carcinoma. In our study 32% patients were betel nut or betel quid chewers. Other studies by Huss et al.[13] and Huang et al.[14] have also suggested that smoking is main cause of oral cancer followed by areca nut chewing which is similar to our study.

Majority of the patients in our study belongs to low socioeconomic status (SES). In this class chewing habits like betel nut, quid and cigarette smoking is considered to be an inexpensive source of entertainment and it is assumed that these substances can enhance alertness, repress hunger and can also increases persons work capacity[15]. They lack awareness about dreadful consequences of these carcinogenic substances. Therefore, as health professionals it is our duty to make some efforts in this regard, awareness programs especially in population of low socioeconomic status should be conducted as people of this class are more prone to adapt such habits. These programs will not only help to educate people but also helps health professionals in early diagnosis of oral SCC. This timely identification of oral SCC will minimize the rate of mortality and morbidity. Government should also take strict measures such as to ban import of betel nut and increase the price of cigarettes and betel quid in this way their use could be minimized.

In our study predominant site of lesion was buccal mucosa which was similar to the study of Bhurgri Y et al[16] and Sahaf a et al [17] unlike study by Hernandez et al in which tongue was common site[6]. Deo et al[18] found that buccal mucosa was the most common, whereas lip was the least common site which coincides with the results of our study. Most common histological pattern observed in our study was well differentiated SCC which was similar to study conducted by Tandon A[19].

Nodal status (N) categorization was done as N0 means no regional lymph node involvement, N1 means metastasis in single ipsilateral node size equal or less than 3cm in greatest dimension, N2a is metastasis in a single ipsilateral node which is 3cm to 6cm in size, N2b is metastasis in multiple ipsilateral nodes, N2c means contralateral/bilateral lymph nodes involved but none of which is more than 6cm. N3 is metastasis in a lymph node size more than 6cm without extra-nodal extension or single ipsilateral node or less than 3cm with extra-nodal extension or multiple ipsilateral, contralateral or bilateral lymph nodes of any size with extra-nodal extension.

One limitation encountered in this study was that the selected participants were from Multan and its surroundings therefore, it cannot be considered generalized hence, further studies in this regard should be done in different cities of Pakistan.

CONCLUSION

We concluded that oral squamous cell carcinoma is more in males; age group mostly affected is in between 42-61 years. Frequent site is buccal mucosa followed by tongue. Most of the cases reported at OPD of NID during the time of this study had well differentiated squamous cell carcinoma. Cervical lymphadenopathy was seen in many patients. The incidence of SCC is continuously increasing in our country. To minimize the occurrence and to avoid dreadful consequences of SCC public awareness programs should be scheduled all over the country.

Author's Contribution:

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Original Article

Frequency of In-Hospital Mortality in Acute Myocardial Infarction Patients Having Stress Hyperglycemia

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ABSTRACT

Objective: To determine the frequency of in-hospital mortality in acute myocardial infarction patients having stress hyperglycemia.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the medicine department of Nishtar hospital, Multan in six months duration from November 2021 to May 2022.

Materials and Methods: A total of 140 patients presented with acute myocardial infarction and stress hyperglycemia were enrolled. All baseline investigations were collected and patients were followed till discharge from hospital. Main variables of study were in hospital mortality, hypertension, smoking status and increased body mass index (BMI). SPSS was used for data entry and analysis.

Results: Among total 140 patients 35.7 % were living in rural areas and 64.3 % was living in urban areas. About 57.1% patients were having poor socioeconomic status 42.9% were having middle income in their resources. Similarly 26.4 % were smokers and 52.9 % were hypertensive of our study cases.

Conclusion: High frequency of in – hospital mortality was noted among patients with acute myocardial infarction and stress hyperglycemia which is significantly associated with male gender, increased age, urban residential status and hypertension.

Key Words: Stress hyperglycemia, In-hospital mortality, Myocardial infarction, Hypertension, Socioeconomic status

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INTRODUCTION

It is now proven that Ischemic heart disease (IHD) is the leading cause of morbidity and mortality world wide[1,2]. The prevalence of Myocardial infarction (MI) is going to be increased in developing nations and males are more commonly affected than females before menopause[3].

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The cardiovascular risk factors for ischemic heart disease and diabetes are increasing worldwide as well in our country due to life style changes including sedentary life style, altered eating habits increased body weight[4].

Along cardiovascular diseases myocardial infarction is the leading cause of associated morbidity and in hospital mortality[5]. In a study on Turkish population reported that about 230,000 new cases of coronary artery diseases diagnosed every year among them men and women were 66000 and 61000 respectivel[6]. It was also observed that stress hyperglycemia can cause increased blood sugar level even in non-diabetic peoples and ultimately myocardial infarction and death[7].

Stress hyperglycemia has gained popularity among patients presenting with acute myocardial infarction even they do not have diabetes previously and associated with high morbidity and mortality, different stress mechanism are responsible for this in critically ill patients [8,9] .The blood glucose varies in the range of 140–300 mg/dl[10]. We conducted this study to determine the frequency of stress hyperglycemia in patients presenting with acute myocardial infarction and its associated mortality in our patients and to collect local

data about it to estimate the burden of the problem and further gate way to research on it.

MATERIALS AND METHODS

Study was conducted at medicine department of Nishtar hospital, Multan in six months duration from November 2021 to May 2022. Study was started after ethical approval from hospital ethical board. Informed consent was taken from patients after detail description of study. Acute myocardial infarction was labeled when patients presenting with typical chest pain for more than 30 minutes , ST segment elevation on ECG and elevated cardiac enzymes (trop-I >0.03) on laboratory tests. Mortality was death of the patient during current hospitalization due to AMI. Non Diabetic Patients were defined as patient with HbA1C < 5.7 % at admission. Random Blood Sugar was taken as blood sugar level measured at any time regardless of meals. Stress Hyperglycemia was defined as blood sugar levels above 140 mg/dl on 3 times in 24 hours after admission of the patient with acute MI and not previously diagnosed with diabetes mellitus as determined by HbA1C below 5.7%.

Patients of both genders above 35 years of age who presented with typical chest pain having ECG changes and raised troponin levels were enrolled for the study. Patients with previous known case of DM and IHD, patients with other co-morbid like chronic renal failure, decompensate liver cirrhosis (on USG abdomen) and COPD and pregnant women were excluded from the study. Their blood sugars level monitored and who have blood sugars levels above 140mg/dl on 3 occasions in first 24 hours having HbA1C below 5.7% were included in the study after getting the consent of the patients describing the objectives of the study. ALL necessary lab tests including HbA1C, RBS, RPMS, LFTS, USG Abdomen and X-ray chest were done to include proper patients. Those who gave history or found to have CRF, COAD, cirrhosis and previous IHD were excluded from the study. All information about patient age, gender, weight, height (BMI), hypertension, DM, socioeconomic status including residence urban or rural and smoking habits were NOTED on described Performa. The patients were followed till discharge or death to observe mortality. Acute myocardial infarction was labeled when patients presenting with typical chest pain for more than 30 minutes , ST segment elevation on ECG and elevated cardiac enzymes (Trop-I >0.03) on laboratory tests. Mortality was death of the patient during current hospitalization due to AMI. Non Diabetic Patients were defined as patient with HbA1C < 5.7 % at admission. Random Blood Sugar was taken as blood sugar level measured at any time regardless of meals. Stress Hyperglycemia was defined as blood sugar levels above 140 mg/dl on 3 times in 24 hours after admission of the patient with acute MI and not previously diagnosed with diabetes mellitus as determined by HbA1C below 5.7%. Sample size is determined by the formula; $n= z^2 p q / d^2$ Where z=1.96, p= 10.1 % 8, (frequency of mortality) and d= 5 %. Thus sample size n = 140 patients.

Data analysis was done by using SPSS version 24, frequency percentages and mean standard deviation were calculated for continuous and qualitative variables. Test of significance (t-test and chi square) were applied to see association among variables. P values were taken significant as it was below or equal to 0.05.

RESULTS

Table No.1: Demographics of Patients

Gender	Frequency	Percentage
Male	87	62.1
Female	53	37.9
Up to 50 Years	48	34.3
More than 50 Years	92	65.7
Residential status		
Rural	50	35.7
Urban	90	64.3
Socioeconomic status		
Poor	80	57.1
Middle Income	60	42.9
Smoking Status		
Yes	37	26.4
No	103	73.6

Table No.2: Association between in hospital mortality and study variables

Gender	In Hospital Mortality		P-Value
	Yes (n=21)	No (n= 119)	
Male (n=87)	18	69	0.016
Female (n= 53)	03	50	
Up to 50 years (n=48)	14	34	0.002
More than 50 years (n= 92)	07	85	
Rural (n=50)	13	37	0.012
Urban (n=90)	08	82	
Smoking			
Yes (n=37)	09	28	0.104
No (n=103)	12	91	
Hypertension			
Yes (n=74)	04	70	0.001
No (n=66)	17	49	
Obesity			
Yes (n= 26)	03	23	0.765
No (n= 114)	18	96	

In this study 140 patients were enrolled after analysis it was observed that male were higher in proportion as compare to female 87 (62.1 %) and 53 (37.9 %)

respectively. Mean age of patients was observed 55.27 ± 10.07 years with age range 35-70 years. Among male gender mean age of patients was 51.82 ± 10.60 years and female gender was having 60.94 ± 5.70 years which is significant observation statistically (p=0.001). Mostly patients of our study 92 (65.07 %) were having age above 50 years (Table-1).

Among total 140 patients 35.7 % were living in rural areas and 64.3 % was living in urban areas. About 57.1% patients were having poor socioeconomic status 42.9% were having middle income in their resources. Similarly 26.4 % were smokers and 52.9 % were hypertensive of our study cases (Table-2).

DISCUSSION

Our study included total 140 patients 62.1 % were male patients while 37.9 % were female patients, as international data suggests that male are more commonly suffered from MI than females. Same findings were observed by Umar et al[11] from Abbottabad who reported 65.9 % male patients with AMI vs 34.1 % female patients with MI admissions. Few other studies like one from Multan by Malik et al[12] showed approximately 80% of male patients with myocardial infarction due to stress hyperglycemia.

Difference in proportion of male gender and MI could be due to different inclusion and exclusion criteria of selected patients. Another study by Jaffery et al[13] from Jamsoroo showed 77% of male patients having AMI and this ratio is increasing day by day, these numbers are even higher from the result of our study. A study conducted by Shahzad et al[14] reported 67 % male patients have MI event that is may be due to stress hyperglycemia in diabetics or non-diabetics. Ahmed A et al[15] from Bahawalpur also reported 64 % patients with AMI and in another study Cinar et al[16] in their study showed that mortality of 10.1% in patients having AMI and stress hyperglycemia vs 1.3% in those do not have hyperglycemia.

Mean age of patients was observed 55.27 ± 10.07 years with age range 35-70 years. Among male gender mean age of patients was 51.82 ± 10.60 years and female gender was having 60.94 ± 5.70 years which is significant observation statistically (p=0.001). These results are clearly showing that females with AMI present in latter ages as compared to male patients already proven by different literature. A study conducted by Atta et al[17] which is close to our study results. Similar results were also shown by Malik et al[12] in their study where mean age of the patients with AMI was 54.99±11.25 years. Shahzad [14] and Jeffery et al[13] reported 54.78 ± 8.82 years mean age of the male patients and 53.64 ± 10.82 years mean age of the female patients in their studies which is close to the results of our study.

In our study hypertension was observed in 52.9% of patients and incidence of in hospital mortality was 15% in our study. Umar et al[11] reported frequency of hypertension in 34.1 % patients who were presented with acute myocardial infarction, these findings are much lower as compare to our study results. Ahmed S et al[18] from Bahawalpur 86 reported 46 % frequency of hypertension in patients with AMI, these findings are much close to our results. Cinar et al[16] conducted a study on 259 patients with 80.3 % male and 19.7% females having mean age 60 years (32 – 104 years) has reported 10.1 % mortality in AMI patients having stress hyperglycemia compared with 1.3% without stress hyperglycemia.

A study was conducted by Chen et al[19] in 2021 and reported that there was strong association between stress hyperglycemia and worse in hospital outcomes like in hospital mortality, as increased glycemic values were observed in all 341 patients who were presented with acute myocardial infarction ($P < 0.001$). Gao et al[20] in a study reported that stress hyperglycemia is positively associated with worse clinical conditions even that it is responsible for in hospital mortality.

CONCLUSION

High frequency of in – hospital mortality was noted among patients with acute myocardial infarction which is significantly associated with male gender, increased age, urban residential status and hypertension. Stress hyperglycemia should always be considered and treated among patients presenting with acute myocardial infarctions, which is associated with prolonged hospital stays and increased in-hospital mortality.

Author's Contribution:

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Data Analysis:	Salahudin Mahmood, Shahid Mukhtar, Arooj Fatima
Revisiting Critically:	Muhammad Tahir, Gohar Ali Arshad
Final Approval of version:	Muhammad Tahir

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

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Original Article

Comparing the Intraumbilical and Periumbilical Incision in Laparoscopic Appendectomy

Saim Athar, Muhammad Osama Rauf Hiraj, Abdul Aleem, Amjad Hussain, Mamoon Haider and Masood ur Rauf Hiraj

ABSTRACT

Objective: To compare outcomes of periumbilical incision and intraumbilical incision in patients of laparoscopic appendectomy

Study Design: Randomized controlled trial

Place and Duration of Study: This study was conducted at the Surgical department of Nishtar Hospital, Multan from August 2021 to July 2022.

Materials and Methods: A total of 200 patients who were admitted for elective or emergency laparoscopic appendectomy were enrolled in study. All included patients categorized into two groups (I and P) by lottery method. Group I patients who were operated with periumbilical incision method and Group P were operated with intraumbilical incision method. Main variables of study were duration of surgery, hospital stay, VAS score, and analgesia requirement and wound infection. SPSS version 24 was used for data analysis.

Results: The average operative time of I and P groups was 85.33±4.22 minutes and 85.38±4.01 minutes, respectively (p=0.922). The average length of hospital stay of I and P group was 6.17±1.84 days and 6.34±1.91 days, respectively (p=0.531). The mean morphine equivalent of I and P was 4.23±1.26 mg and 4.16±1.33 mg, respectively (p=0.705). Further, visual analogue scale of I and P group was 4.39±0.86 and 4.56±0.82 respectively (p=0.165). Wound infection in I group was 13.9% and 11.8% in P group, (p=0.655). Hernia in I group was 6.1% and 7.1% in P group (p=0.783). Further, internal organ injury in I group was 8.7% and 9.4% in P group, (p=0.861).

Conclusion: No statistically significant difference between both techniques regarding duration of surgery and hospital stay, pain score and analgesia requirement but periumbilical incision technique is associated with more incidence of wound infection as compare to intraumbilical incision group.

Key Words: Intraumbilical incision, Laparoscopic appendectomy, Periumbilical incision, Wound infection

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INTRODUCTION

Appendix is an out pouching of the cecum, located at its posteromedial region. It is 2.5 cm below the ileocecal valve[1]. During pregnancy embryologically appendix developed at 5th and 8th week. It subsequently becomes fixed in the right lower quadrant of the abdomen. Functionally it is useless in adult age but in early age it has some contribution in immune function[2]. Sometime appendix become inflamed which is an emergency must be treated as early as possible. Appendectomy is a surgical treatment of appendicitis.

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Now in these days laparoscopic surgery accepted as a treatment technique worldwide and got fame in field of general surgery[3].

Initial trocar placement and creation of pneumoperitoneum are two important steps of laparoscopic surgery[4]. There are many ways of insertion of port into the body such as perforation of stomach, vigina and rectum but this approach is not ethical, umbilicus is a naturally suitable orifice for some laparoscopic procedures. In few cases laparoscopic techniques ends with conversion to open surgical technique according to the needs and complications during surgery, so choice of a safe incision technique need of the time[5]. A small incision on the superior or inferior border of umbilicus named as periumbilical area is a useful method for insertion of laparoscope into the abdomen[6].

A U shaped skin incision passing through the fat of subcutaneous tissues and fascia above and below the umbilicus. On other hand a vertical linear incision extends to the length of umbilicus called intraumbilical incision also a useful method in laparoscopic surgery[7].

If only fat and fascia needs to be divide then intraumbilical incision is a best choice, it is less time taking and easy to perform. Intraumbilical incision technique has better cosmetic results in conventional laparoscopic surgery. Umbilicus has more bacteria then its surrounding areas because it is deeper. A recent report by Beldi et al found > 1400 different types of bacteria from 95 different umbilical bacterial cultures[8].
Complication of both intraumbilical and periumbilical incision were not assessed by in any previous study of this south Punjab region. Some authors hypothesize that if umbilicus and its surrounding areas sterile properly than there is no significant difference in both methods[9].
Some studies found that at the end of laparoscopic appendectomy methods of appendix ligation also have infection concerns[10]. Number of materials and techniques like endoscopic stapler, absorbable clips and loop or thread are in practice. Among these techniques endoscopic stapler found associated with lesser complication or infection rate[5], but these proportions vary region to region[11].
Aim of this study to compare the complication rate in periumbilical incision and intraumbilical incision in laparoscopic appendectomy to adopt a better method of incision with less infection rates.

MATERIALS AND METHODS

All the patients full filling the inclusion criteria were admitted in surgical department of Nishtar Hospital, Multan. Study was preceded after permission from hospital ethical board. Written informed consent was taken from patients after detailed information about study purpose and confidentiality of their names and other data. Essential documentation like contact numbers and addresses were also taken for follow up purpose. Patients of age above 16 years, either gender male or female and ultrasound based diagnosed patients of acute appendicitis were included. Conversion to open appendectomy because of complication during surgical procedure, patients with sepsis (fever or wound infection), chronic kidney disease, respiratory failure, ischemic heart disease, using steroid for any chronic illness were excluded from study.
Patients were divided into two groups (I and P) by using lottery method, in group I surgical procedure was done by means of intraumbilical incision technique and in P group periumbilical incision type was used. All surgical procedures were done by same surgeon with minimum 5 years surgical experience. Another surgeon was allocated for follow up assessment of outcomes that was unaware of study pattern and technique.
All the data entered and analyzed using computer software SPSS version 10. Numerical data like age, hospital stay, VAS score and time to analgesia requirement shown in mean and standard deviation form. Qualitative variables like wound infection and gender were shown in proportions and percentages. Test of significance were applied to see association among variables. A p value 0.05 was considered statistically significant.

RESULTS

Overall, 200 patients were included in our study. Intraumbilical incision was performed for 115 (57.5%) patients and periumbilical incision was performed for 85 (42.5%) patients. The demographic characteristics of both the groups were shown in table. I. The Demographic characteristics of both the groups were almost equal and the differences were not statistically significant, (p>0.050). (Table. I).
The average operative time of I and P groups was 85.33±4.22 minutes and 85.38±4.01 minutes, respectively, (p=0.922). The average length of hospital stay of I and P group was 6.17±1.84 days and 6.34±1.91 days, respectively, (p=0.531). The mean morphine equivalent of I and P was 4.23±1.26 mg and 4.16±1.33 mg, respectively, (p=0.705). Further, visual analogue scale of I and P group was 4.39±0.86 and 4.56±0.82, respectively, (p=0.165). Wound infection in I group was 16 (13.9%) and 10 (11.8%) in P group, (p=0.655). Hernia in I group was 7 (6.1%) and 6 (7.1%) in P group, (p=0.783). Further, internal organ injury in I group was 10 (8.7%) and 8 (9.4%) in P group, (p=0.861). (Table II)

Table No.1: Demographic characteristics of the study groups

Variable	Group		p-value
	I, N (%)	P, N (%)	
Age (years)	39.52±5.97	39.01±4.91	0.512
Sex			
Male	68 (59.1)	61 (71.8)	0.065
Female	47 (40.9)	24 (28.2)	
BMI (kg/m^2)	24.89±3.22	23.93±2.95	0.032
Hypertension	13 (11.3)	14 (16.5)	0.291
Diabetes	13 (11.3)	8 (9.4)	0.666

Table No.2: Postoperative clinical characteristics of the study groups

Variable	Group		p-value
	I, N (%)	P, N (%)	
Operative time (min)	85.33±4.22	85.38±4.01	0.922
Postoperative hospital stay (day)	6.17±1.84	6.34±1.91	0.531
Morphine equivalent (mg)	4.23±1.26	4.16±1.33	0.705
Visual analogue scale	4.39±0.86	4.56±0.82	0.165
Wound infection	16 (13.9)	10 (11.8)	0.655
Incisional hernia	7 (6.1)	6 (7.1)	0.783
Internal organ injury	10 (8.7)	8 (9.4)	0.861

DISCUSSION

Since the beginning of laparoscopic appendectomy a continuous effort and different inventions were made to overcome the cosmetic and other clinical problems. In our study there was significant difference was observed regarding wound complications in both groups. A study was conducted by Chow et al[12] on single incision laparoscopic surgery and performed using intraumbilical incision and reported that this incision technique left no scar on skin of patients. In another study by Vidal et al[13] reported that periumbilical incision is a low lying incision which is associated with better cosmetic outcomes.

Lee et al[14] compared single incision of intraumbilical in laparoscopic surgery with open appendectomy and reported that in intraumbilical incision group wound infection was less common. Another cause of less wound infection is that in this incision type subcutaneous layer of skin is not penetrated that reduce the incidence of hematoma formation. Another study by Lee SY et al[15] compared intraumbilical and periumbilical incisions and reported that there was no difference regarding surgery time, analgesia requirement and hospital stay but wound infection is 6% patients in intraumbilical group and 2.5% in periumbilical group.

In our study wound infection in I group was 13.9% and 11.8% in P group (p=0.655). In a study conducted by Rajkhowa et al[16] reported that intraumbilical incision is better technique associated with less complication as hospital stay and operative time in both groups was almost same and wound infection in intraumbilical group was 1.2% and in periumbilical group 3% infection was observed. A study was conducted by Rafique et al[17] on comparison of both incision techniques and concluded that intraumbilical incision technique is associated with less complications than periumbilical incision group (1.5% vs 3.5%).

In our study male patients dominancy was observed male were 59.1% and 40.9% female. Study conducted by Ali et al[18] reported male gender dominancy and supported intraumbilical incision technique as wound infection in IU group was 1.54% and 3.85% infection in PU incision group, hospital stay and surgical time was not assessed in this study between the groups. In a study conducted by Awan et al[19] observed number of male patients were higher in this study and infection rate is also greater in male gender as compare to female.

Furthermore, numerous studies were conducted on comparison of both incisional techniques for abdominal laparoscopic surgery and observed intraumbilical incision is safe alternative of open surgery as periumbilical incision is associated with more complications especially surgical wound infection and cosmetic results later on [20,21].

CONCLUSION

There was no significant difference between both techniques regarding duration of surgery and hospital stay, pain score and analgesia requirement but periumbilical incision technique is associated with more incidence of wound infection as compare to intraumbilical incision group.

Recommendations: Multi-center study with larger sample size and better follow up are recommended.

Author's Contribution:

Concept & Design of Study:	Saim Athar
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Original Article

Early Cardiac Rehabilitation to Reduce Heart Failure Readmissions

Ledi NEÇAJ

ABSTRACT

Objective: The purpose of this study was to examine if early involvement in cardiac rehabilitation (CR) decreases readmissions after heart failure (HF) hospitalization.

Study Design: A Retrospective Study

Place and Duration of Study: This study was conducted at the University Hospital Center "Mother Teresa" in Tirana, University Hospital "SHEFQET NDROQI", AMERICAN Hospital, HYGEA Hospital, and "Our Lady of Good Counsel, Tirana" from January 2019 - November 2021.

Materials and Methods: There were 120 patients of both gender had heart failure included in this study. Age of the patients was between 18-80 years of age. Patients were equally divided in two groups. Group I had 60 patients were discharged after getting 30-days hospitalization without getting cardiac rehabilitation while in group II 30-patients received at-least 1-sesssion of cardiac rehabilitation in hospitalization. Outcomes among both groups were compared in terms of readmission because of HF. SPSS 24.0 was used to analyze all data.

Results: Among 120 patients, 69 (57.5%) were males and 61 (42.5%) were females. Mean age of the patients was 53.24±11.64 years and had mean BMI 24.11±6.37 kg/m^2. There were 71 (59.2%) patients had hypertension and diabetes mellitus was found in 44 (36.7%) cases, Smoking history was found in 57 (47.5%) cases. There were 10 (8.3%) cases had heat stroke among all cases. Early cardiac rehabilitation dramatically decreased hospital readmissions and cardiac mortality in patients. The cardiac rehabilitation group that had re-hospitalization had higher rates of diabetes, hyperkalemia, and low $P_{ET}CO_2$. An independent risk factor for re-hospitalization was low $P_{ET}CO_2$ (Partial pressure of end-tidal carbon) at anaerobic threshold (≤33.5 mmHg).

Conclusion: We found that people with acute myocardial infarction who started cardiac rehabilitation right away had fewer major cardiac events later on. As a risk factor for readmission, decreased PETCO2 at the anaerobic threshold can be utilized to evaluate the efficacy of early cardiac rehabilitation.

Key Words: Heart Failure, Cardiac Rehabilitation, Readmission, $P_{ET}CO_2$, Hyperkalemia

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INTRODUCTION

According to estimates, HF affects roughly 2% of adults in wealthy nations like Sweden and increases to 10% of those who are over 70.[1,2] There have been reports of readmission rates as high as 45% within the first six months.[3] According to Statistics Sweden, a government organization, the number of Swedes above the age of 80 will have climbed by 50% in ten years.[4] Since HF is a disease mostly affecting the elderly, the population's demographics are changing and a greater proportion of individuals are living longer lives.[2]

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Hospitalizations and nursing facility charges together accounted for 75% of the high health care costs associated with HF.[5,6] Since there will be more people with HF overall as a result of demographic changes, the economic cost of HF is anticipated to rise until the incidence of hospital admissions declines.[7]

Hospital readmissions for HF have been linked to a variety of variables, including deteriorating HF (disease-centered factors), poor care (healthcare-centered factors), and particular forms of follow-up (such as multidisciplinary team interventions), which have been demonstrated to minimize hospitalizations.[8] A patient's clinical status and the need for hospitalization can be affected by a number of factors, all of which are subject to change over time. For instance, it has been shown that new drugs can reduce the need for hospitalization.[9] A number of changes have been made to the health care system, including the introduction of home-based and/or palliative care, as well as specialized disease management teams that make house calls. Patients with the highest risks of readmission were classified as high-impact users in a prior research; this category included those who had

experienced three or more emergency hospitalizations in a given year.[10]

Low activity levels are associated with worse survival and quality of life in those with chronic heart failure. Constant fatigue and shortness of breath are symptoms. This condition makes it difficult to participate in physical exercise (QOL). Reduced cardiac and pulmonary reserve, dysfunction of respiratory and peripheral skeletal muscles, and impaired cardiac and pulmonary function are among pathophysiological mechanisms that contribute to exercise intolerance in CHF[11]. Secondary prevention with intensive cardiac rehabilitation (CR) is the most costly strategy shown to enhance exercise capacity, quality of life, and hospital readmissions in patients with congestive heart failure (CHF) above standard care alone[12]. Both passive and active CR exercise are beneficial for patients with mild to severe CHF[13]. The peak VO2 and VE/VCO2 gradient gains shown in HF patients following six weeks of passively electrical activity are most pronounced during periods of intermittent exercise as opposed to continuous activity. Opportunities for secondary prevention at home among CR patients are typically made possible through the use of web and mobile applications, phone interviews, and different wearable activity-tracking gadgets. And it has the potential to greatly expand accessibility, lower prices, and enhance results[14]. However, it is not often documented that patients who acquired CHF immediately after such an AMI with PCI attained an early CR. Houchen L, et al[15] conducted a trial showing that early CR can help reduce sadness, improve exercise tolerance, and minimize CHF-related hospitalizations.

MATERIALS AND METHODS

This retrospective study was conducted at the University Hospital Center "Mother Teresa" in Tirana, University Hospital "SHEFQET NDROQI", AMERICAN Hospital, HYGEA Hospital, and "Our Lady of Good Counsel, Tirana" and comprised of 120 patients. Age, sex, body mass index, comorbidities, and smoking history were among the specific demographics of patients who had been included after receiving informed written consent. Exclusion criteria included multiple organ failure, stroke history, and ankylosing spondylitis, among others, because exercise prescription could not be carried out.

After hemodynamic stability was achieved 24 hours after PCI for patients with AMI, an ultrasonography cardiogram was performed. Using the patient's history and laboratory results, the nursing team established a baseline profile of the patient. Patients were classified as having either heart failure with ejection fraction (HFrEF) (LVEF 40%) or heart failure with mid-range left ventricular (HFmrEF) (LVEF 40%–49%). The patients were subsequently placed into two groups: group I consisted of people who did not improve with exercise treatment, and group II consisted of those who improved (group II). Participants in the non-CR group was counselled on maintaining a healthy lifestyle upon discharge, with suggestions such as engaging in regular physical activity and using the Borg's rate of exercise intensity (RPE) to gauge intensity. After percutaneous coronary intervention (PCI), the CR subgroup was told to start and complete a 48-hour educational and counselling programme, risk factor management, and fitness training routine for 2 weeks. According to Borg's RPE scale, the exercise should be "very low" to "extremely hard." Three PRMs oversaw the CR training, which included three weekly sessions on a stationary bike (resistance system: electrically charged braked significant resistance, power requirements: ego, watt: 250 Watts, heart rate monitor Wi-Fi and contact groups) and four sessions of electrical activity on days when daily exercise was not done. A average exercise took 20 minutes, including warm-up and cool-down. Three 3-minute efforts, depending on experience, targeted Borg 11–13, followed by 2-minute recoveries at 0 W. The skin was stimulated four times a week for 30 minutes with an electrical stimulation (Elpha-II 3000; DANMETER® A/S; Odense, Danish) powered by two AAA batteries. The stimulator supplied a 25-hertz biphasic current. A "on-off" stimulus pattern with a pulse width of 300 us and rise and fall periods of 1 s was programmed into the electrical current (3 s stimulation, 6 s rest). Patients would experience a muscular contraction without discomfort at the stimulation level set. Top and bottom athleisure, lateral and medial quadriceps, and adhesive patches were electroded. After two weeks of CR, patients were told to continue their tailored workout routine at home. Endurance exercise testing (CPX) was necessary before discharge to create tailored exercise routines. The at-home exercise plan consisted of 30 to 60 minutes of walking or biking three to four times a week at a pulse rate that matched the ventilator threshold (VT).

After consent, patients' phone numbers were recorded. After discharge, patients were called every three months or until cardiac death to obtain follow-up data. After a cardiac emergency, individuals were readmitted often. Due to their non-response to phone interviews, population registration bureau discovered cardiac patients who died. On average, we maintained in contact with them for two years.

Medians were displayed for discrete data, whereas continuous data included averages and standard deviations (interquartile range). The data was displayed graphically and numerically, making category correlations easier to analyze. Each analysis of variance, Mann-Whitney U test, or Chung test was used to compare continuous parameters across groups, and the chi-square test was employed to analyze dichotomous data. The statistical significance criterion

for all tests was 0.05. SPSS 24.0 was used for statistical analysis.

RESULTS

Among 120 patients, 69 (57.5%) were males and 61 (42.5%) were females. Mean age of the patients was 53.24±11.64 years and had mean BMI 24.11±6.37 kg/m^2. There were 71 (59.2%) patients had hypertension and diabetes mellitus was found in 44 (36.7%) cases, Smoking history was found in 57 (47.5%) cases. There were 10 (8.3%) cases had heat stroke among all cases (table -1).

Table No.1: Cases' pre-enrollment features

Variables	Frequency	Percentage
Mean age (years)	53.24±11.64	
Mean BMI (kg/m^2)	24.11±6.37	
Gender		
Male	69	57.5
Female	61	42.5
Hypertension		
Yes	71	59.2
No	49	40.8
Diabetes Mellitus		
Yes	44	36.7
No	76	63.3
Smoking History		
Yes	57	47.5
No	63	52.5
Heat Stroke		
Yes	10	8.3
No	110	91.7

We found that ALT and AST was significantly higher among cases of group I with p value 0.004 as compared to group II while there was no any significantly difference observed in both groups in terms of HDL-c, creatinine, blood potassium, TC and urea nitrogen among both groups (table-2).

Table No.2: Comparison of biochemical parameters among all cases

Variables	Group I	Group II
ALT (U/l)	58.12±14.87	42.7±8.38
AST (U/l)	118.7±13.91	102.16±5.44
HDL-c (mmol/l)	1.3±2.20	1.4±3.14
Creatinine (umol/l)	76.8±9.19	75.3±6.27
blood potassium (mmol/l)	3.7±4.15	4.0±1.22
TC (mmol/l)	1.26±0.88	1.34±1.11
urea nitrogen (mmol/l)	5.3±7.17	6.7±3.37

Early cardiac rehabilitation dramatically decreased hospital readmissions and cardiac mortality in patients. (Table-3)

Table No.3: Comparison of readmission and mortality among both groups

Variables	Group I	Group II
Readmission		
Yes	37 (61.7%)	7 (11.7%)
No	23 (38.3%)	53 (88.3%)
Mortality		
Yes	15 (26.7%)	2 (3.3%)
No	45 (73.3%)	58 (96.7%)

The cardiac rehabilitation group that had re-hospitalization had higher rates of diabetes, hyperkalemia, and low $P_{ET}CO_2$. An independent risk factor for re-hospitalization was low $P_{ET}CO_2$ (Partial pressure of end-tidal carbon) at anaerobic threshold (≤33.5 mmHg). (Figure-1)

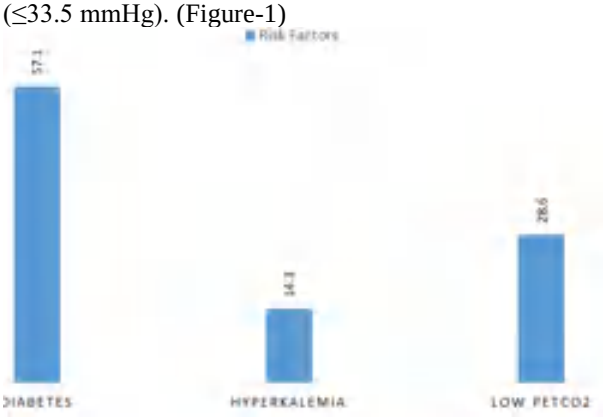

Figure No.1: Risk factors for readmission among patients of group II

DISCUSSION

This study is a retrospective look at the effects of active and passive exercise in the early stages of cardiac rehabilitation (CR) for patients with heart failure following acute myocardial infarction and percutaneous coronary intervention (AMI and PCI). According to our findings, patients with HFmrEF who undergo early CR at two weeks after an AMI had a lower risk of re-hospitalization and those with HFrEF have a lower risk of cardiogenic death. In addition, we found that the VT PETCO2 level was a significant independent risk factor for readmission.

It has been shown that exercise-based CR is more successful than no exercise in improving QoL, reducing all-cause and HF-dependent hospital admissions, and perhaps reducing death in HF patients.[16,17] In current study 120 patients were presented. Mean age of the patients was 53.24±11.64 years and had mean BMI 24.11±6.37 kg/m^2. Among 120 patients, 69 (57.5%) were males and 61 (42.5%) were females. There were 71 (59.2%) patients had hypertension and diabetes mellitus was found in 44 (36.7%) cases, Smoking history was found in 57 (47.5%) cases. There were 10 (8.3%) cases had heat stroke among all cases. These findings were comparable to the previous

researches.[18,19] 30-day readmission rates for all causes were 61.7% in the non-CR group and 11.7% in the CR group, which is consistent with earlier research.[20] Researchers have already looked for ways to identify people who use a disproportionately large amount of healthcare resources by being readmitted to the hospital frequently. Using data from a large British registry study conducted in 2018, Rao et al. analyzed the reasons for and patterns of hospitalization among HF patients. Patients were categorized as either high-impact users, who required multiple hospitalizations, or low-impact users, who required fewer hospitalizations.[21] Patients were classified into different groups according on their tendencies, as opposed to utilizing a predetermined number of readmissions. Despite the fact that Rao et al. found that the high-impact group had a higher percentage of patients aged 75 and up in comparison to the low-impact group, we did not find any difference in the ages of patients who had been readmitted or who had never been readmitted.[21]

Congestive heart failure has been linked to a poor prognosis and decreased functional abilities. One of the symptoms of congestive heart failure is an intolerance to movement. People who have CHF are increasingly thought to have a diminished lung reserve and worse muscle tissue function[22], which are the underlying reasons of exercise intolerance in these individuals. People who have CHF can benefit from exercise in a number of ways, including, but not limited to, enhancements in quality of life[27,28], reductions in hospitalizations[26], improvements in cardiac remodeling[24], and gains in neurovascular functional competence[25].

According to our findings, the cardiovascular outlook was more favorable for patients with early CR who had a VE/VCO2 slope that was lower than 36. The VE/VCO2 slope is a valid independent predictor of long-term prognosis in CHF[27], and the only way to get it is to exercise at a lower intensity than your maximum capacity. This is true even while taking into account the highest possible VO2 production.

Heart rate recovery (HRR) is an assessment of the drop in heart rate during the first minute following exercise. This decrease in heart rate is a sign of vagal tone, which is a powerful predictor of mortality in patients with coronary artery disease[28] and in older persons.

After making adjustments for factors like as age, gender, diabetes status, blood potassium levels, and ejection fraction, PETCO2 at VT is a metric that may be used to predict re-hospitalization in patients with CHF who have suffered an AMI. Inadequate PETCO2 levels may be a sign of poor pulmonary arterial perfusion, reduced cardiac output, or impaired CO2 generation in the body's routine physiological operations[29]. This may be the case if the cardiac output is lowered. Patients with HF who are exposed to high levels of acidity or who have their sympathetic nerves activated have increased sensitivity in their respiratory chemoreceptors. Inadequate expansion as well as bigger empty spaces between the artery and the alveolus both lead to reduced CO2 diffusion, which in turn leads to a reduction in PETCO2[30]. It has been demonstrated that among patients who suffer from congestive heart failure, an inability to exercise is associated with an increased risk of readmission (CHF). The decrease in PETCO2 that occurs during VT may be the result of many factors, including lower respiratory capacity, poor action of peripheral skeletal muscles, and weakened cardiac reserve. However, PETCO2 at VT is an independent risk factor for readmission, in contrast to high blood potassium levels and a previous history of diabetes.

CONCLUSION

We found that people with acute myocardial infarction who started cardiac rehabilitation right away had fewer major cardiac events later on. As a risk factor for readmission, decreased PETCO2 at the anaerobic threshold can be utilized to evaluate the efficacy of early cardiac rehabilitation.

Author's Contribution:

Concept & Design of Study:	Ledi NEÇAJ
Drafting:	Ledi NEÇAJ
Data Analysis:	Ledi NEÇAJ
Revisiting Critically:	Ledi NEÇAJ
Final Approval of version:	Ledi NEÇAJ

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

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Original Article

Analysis of the Medicolegal Examination of Alcoholism among Various Occupational Groups

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ABSTRACT

Objective: The present study aimed to determine the frequency, various characteristics, and clinical findings of medicolegal cases of alcoholism.

Study Design: Retrospective analysis

Place and Duration of Study: This study was conducted at the Peoples Medical College Hospital, Nawabshah District, Shaheed Benazirabad from January, 2020 to December, 2021.

Materials and Methods: One hundred and ninety five cases of alcoholism were found in medicolegal records were enrolled.

Results: All of the cases were males and the majority of alcoholic cases was 31 to 30 years old (48.21%), belonged to religion Islam (92.82%) and rural locality (80.00%), had the occupation of shop keeping (55.38%), and was presented with disordered clothing (32.31%). The analysis of clinical findings revealed that most of the alcoholics had slurred (42.56%) and incoherent (31.79%) speech, had positive signs for finger nose test (~80%) and Romberg's sign (82.56%), were abusive (47.18%), and could not stand upright (48.20%).

Conclusion: The Muslim males of 21 to 30 years old from rural areas and having the occupation of managing a shop presented the largest proportion of medicolegal cases of alcoholism. The congestion of the eyes and impaired speech, attention, coordination and gait were found in the major portion of the sample.

Key Words: Medicolegal examination, Alcoholism, Occupational

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INTRODUCTION

Alcohol is a psychoactive drug and is also utilized as an excipient in various medicinal and consumer products. The alcoholic drinks are usually available as beverages, contain ethyl alcohol (ethanol)[1], and are consumed by man as one of most favourite recreational substances.[2] The absorption of ethanal is quite rapid from the mucosa of the stomach and small intestine leading to the peak blood concentration of ethanol within 30 to 90 minutes of ingestion.[3]

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The passage of alcohol from the stomach to the duodenum is rapid in the fasting state as compared to the fed state resulting in further higher blood ethanol concentration in fasted individuals.[4] The use of alcohol has been identified as a major risk factor in increasing health burden by causing diseases and injury. For instance, the association of alcohol drinking has been associated with 50% of all deaths that were caused by liver cirrhosis.[5] The subsequent liver damage diminishes its capacity to metabolize the alcohol and consequently the alcohol intoxication is escalated.[4]

Alcohol intoxication is considered by medical and forensic practices as the most prevalent substance abuse that exerts the most common lethal effects on human beings.[6] The cases of alcohol drunkenness are most frequently presented to forensic/ Medicolegal sections of the hospital because of the strong link between alcohol usage and different types of criminal activities.[2] Alcohol drinking has also been linked with homicide, bodily harm, violent and aggressive behaviour, domestic violence, and sexual assaults.[2,7] Additionally, drunkenness impairs the consumers' ability to perform skilled tasks such as driving. A substantial portion (30%-50%) of deaths on the roads in European nations and the US involved the use of alcohol or drunken drivers[8].The WHO introduced the global strategy to reduce the harmful use of alcohol and to increase the

awareness about the magnitude of negative consequences on health, social and economy that are caused by alcohol abuse.[9]

Although the use of alcohol is prohibited in Pakistan by law, Enforcement of Hadd Order (4 of 1979), the crimes and road traffic accidents under influence of alcohol have been recently reported from the country.[10,11] Therefore, the current study aimed to determine the frequency and characteristics of the alcoholics that were presented to the Medicolegal section of Peoples Medical College Hospital, Nawabshah District Shaheed Benazirabad.

MATERIALS AND METHODS

The study was conducted retrospectively at the Forensic Section of Peoples Medical College Hospital, Nawabshah District Shaheed Benazirabad. A proforma was designed for data collection and the data was collected from medicolegal reports that were recorded from 1st January 2020 to 31st December 2021. The ethical permission for the present study would be obtained from the Institutional Review Board of Peoples Medical University. The data was collected for various characteristics and clinical findings including age, gender, occupation, religion, locality, clothing, general disposition, muscular coordination, Romberg's sign, and Finger Nose Test. The collected data were descriptively analyzed by IBM SPSS Statistics for Windows, version 24.

RESULTS

The frequency of various characteristics of alcoholism is given in Table 1. All of the cases were males mostly belonging to the age group of 21 to 30 years old (48.21%). The second highest frequency of age-wise distribution was seen for adults aged 31 to 40 years. The faith-wise distribution shows that majority of the alcoholics were Muslims (~93%). A higher number of alcoholic cases were presented from rural areas (80%) than from urban localities (20%). The occupation of shop keeping outnumbered any other occupation by contributing a proportion of 55.38%. The laborers and students presented second and third highest frequency, respectively, with a negligible difference. The clothing of a larger portion of alcoholics was disordered (32.31%) and soiled (26.67%). The clothing of about 21% of alcoholics was torn whereas only 8.72% of individuals were dressed decently.

The clinical findings of the alcoholics are presented in Fig. 1 which showed that the speech was slurred and incoherent for 42.56% and 31.79%, respectively. The normal speech was noted for only a small portion (~8%) of all cases. The Romberg's Sign and Finger Nose Test appeared positive for 161 and 155 individuals respectively. With reference to general disposition, the majority of alcoholics were abusive (47.18%). The second highest frequency in this regard appeared normal whereas the smallest number of individuals were identified as talkative (~8%). The alcoholics were mostly unable to stand upright (48.20%) while unsteady muscular coordination was observed for 37.44% of drunk individuals. The alcohol intake was confirmed by laboratory testing in 85% of the cases.

Table No.1: Different characteristics of medicolegal cases of alcoholism (n=195)

Characteristics	No.	%
Gender		
Male	195	100.0
Female	-	-
Age (years)		
0 – 15	21	10.77
16 - 20	23	11.79
21 - 30	94	48.21
31 - 40	39	20.00
41 - 50	18	9.23
Area		
Rural	181	80.00
Urban	39	20.00
Religion		
Muslim	181	92.82
Non-Muslim	14	7.18
Occupation		
Student	29	14.78
Shopkeeper	108	55.38
Labourer	30	15.38
Landlord	9	4.62
Unknown	19	9.74
Clothing		
Decently	17	8.72
Dressed	23	11.79
Disordered	63	32.31
Soiled	52	26.67
Torn	40	20.51

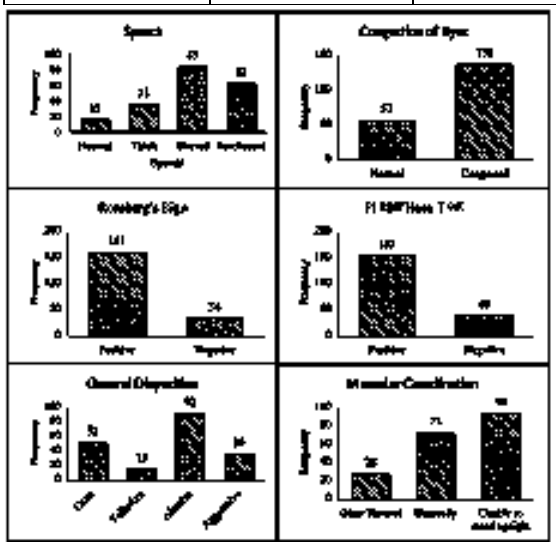

Figure No.1: Clinical findings

DISCUSSION

The findings of the present study reveal that males are more inclined towards alcohol intake. Similar gender distributions have been reported by Memon et al[12] and Aslam et al[13] from hospitals of neighbouring districts. A medicolegal study of alcohol intake in people of Quetta also found that majority of consumers were males (96.9%).[14] Similarly, an epidemiological study of alcohol intoxication found that alcohol intake was only related to the male gender.

The higher frequency of alcohol consumption by people aged 21 to 30 years is consistent with other studies. A study from Lahore reported the maximum number of medicolegal cases of alcoholism in the third decade of their life.[11] Mirza and Arif[3] studied the prevalence of acute alcoholism in three major public hospitals of Karachi and found that majority of alcoholics were aged between 26 and 35 years. Contrarily, Abbasi et al[14] found a higher prevalence of alcoholics at the age of 31 to 40 years. The variation may pertain to the difference in sample size between the two studies. The higher percentage of younger people in the current study may attribute to the probability of their increased involvement in evil for sake of their social company or to obtain pleasure from alcohol intake and then they consequently become addicted to alcohol.[14]

The faith-wise distribution of the present study is consistent with other studies from Pakistan showing more than 90% proportion of Muslims among medicolegal cases of alcoholism.[11,15] The occupational distribution indicates that shopkeepers represent a higher frequency of alcoholism which is contrary to other studies where laborers have represented the highest frequency.[14-16] The findings of the present study may suggest that alcohol consumption has a substantial frequency among students. The increasing level of alcohol consumption by students has been reported in international[17] and local[18] studies. A higher frequency of alcoholic cases related to shopkeeping and laborers from rural areas that were brought in for medicolegal examination may be due to higher aggravation they create at public places in comparison to other occupations which might exhibit better tolerance.[15]

The slurred speech and lack of coordination are characterized as obvious signs and symptoms of alcohol intoxication.[2] A medicolegal examination of alcoholism found slurred speech and congestion of eyes respectively in 79% and 93% of all cases.[16] Similarly, Haider and Chaudhry[15] reported slurred speech in 78.65% and congestion of eyes in 90.67% of alcoholics that were brought to the forensic department. The attention, general disposition, and coordination were disturbed in most of the cases of the present study. The strong associations between the presence of alcohol in the blood and muscular in coordination, increased reaction time, diminution of attention, and impaired balance have been reported for forensic purposes in the literature.[2]

CONCLUSION

A majority of the cases of medicolegal alcoholism were males of adult age (21-30 years) from rural localities having shopkeeping as their occupation. The majority of the cases were characterized by congestion of the eyes and impaired speech, attention, coordination and gait.

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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

Role of Educational Intervention Regarding Liver Transplant Care on Nurse's Performance for Post-Liver Transplant

Sehrish Imtiaz, Adnan Yaqoob and Hajra Sawar

ABSTRACT

Objective: To determine the effect of liver transplant care on nurses' performance regarding care of patients and on complications among patients undergoing liver transplant.

Study Design: Quasi-experimental study

Place and Duration of Study: This study was conducted at the Pakistan Kidney & Liver Institute and Research Center and Bahria International Hospital Lahore from January, 2022 to June, 2022.

Materials and Methods: 86 nurses were enrolled. All diploma general and BSN nurses (both gender) aged 20 to 50 years, who were working in the liver transplant surgery department, having at least 1-year experience were enrolled in current study. The Intervention group was educated for 12 weeks through different learning and teaching methods like brain storming, lecture, discussion and handout. Educational workshops session was. Post assessment of both groups study participants were performed after the completion of Liver transplant care interventions. Performance questionnaire was a concern to assess nurses' practices regarding the post liver transplant care. The questionnaire has 20 questions. The statements are provided with yes (performed) and no (not performed) options.

Results: The mean age was 29.00±5.34 years in group A and 29.67±5.70 years in group B. In group A, there were 16 (37.2%) males and 27 (62.8%) were females, whereas in group B there were 7 (16.3%) nurses who were male and 36 (83.7%) were females. Most nurses were diploma holders [A= (67.4%) Vs. B= (46.5%)] and have up to 5 years of experience [A= (72.1%) Vs. B= (74.4)]. Nurses performances were assessed in both groups before and after intervention regarding practices of the post liver transplant care. The results revealed that, the mean ranks performance scores were significantly higher (p-value < 0.001) in control group (A) as compared to Intervention group (B) after the intervention. 3 (7.6%) nurses in group A had satisfactory performance level while in group B, 39 (90.7%) nurses had satisfactory performance level after intervention implemented on Group B as Group received no intervention (P-value <0.05).

Conclusion: The performance of nurses in terms of patient care improved after LT after implementation of intervention. Nurses are the important factor for educating patients which can lead to significant change in their behavior, management skills and quality of life as well.

Key Words: Liver transplant, Nurses performance, patient care, Educational guidelines

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INTRODUCTION

Transplantation of the liver (LT) has become a frequent surgical technique all around the world. LT may be the best hope for patients with end-stage liver disease or acute liver failures who have not responded to conventional medical or surgical care, as well as those suffering from liver damage caused by hepatitis C infection.[1]

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Liver transplantation is a high-risk surgical technique used to treat individuals with irreversible liver damage. It is a topic of public health concern and social relevance. As a result, it is becoming increasingly necessary to build competence in this field in order to improve professional practice, particularly for nurses.[2] Moreover, Worldwide, roughly 350,000 deaths occur due to pathological hepatocellular complications caused by HCV. High fatality rate of HCV-infected individuals can be correlated to the fact that persistent and untreated HCV infections can lead to the development of hepatic cell carcinoma.[3] Adherence is difficult to maintain and is impacted by both patient- and treatment-related variables. Personal values and beliefs, personality characteristics, socioeconomic situation, general health, and degree of functioning are examples of patient-related factors. The number and dosage of medications, the occurrence of side effects, and the development of physical and cognitive symptoms as a

consequence of the treatment are all examples of treatment-related issues.[4,5]

The majority of chronic diseases now have a patient-centered care philosophy instead of one that is centered on the healthcare professional. Self-management is seen as a complement to adherence and a valuable component of patient treatment. It consists of tasks that chronically disease patients must complete in order to maintain their health and live the lives they desire.[6] The quality of nursing care is influenced by the level of knowledge, skills, values, and judgment of those participating in providing care for patients, and the nurses' cognitive to decide on a plan of action that depends on other factors as their educational level, experience, and training course in caring for those patients. Therefore, the quality of care that is given to the patients and patients' outcomes depend on the nurse.[7]

Nurse staffing could play a critical role in improving patient care and preventing problems. The quality of medical assistance makes a big difference in patient outcomes and safety. Appropriate talent, caring attitudes, efficient communication, economical structure and management systems, and successful involvement are all determinants of medical aid quality.[8] The nurse must remember that he or she is responsible for the quality of care provided to patients, as well as the establishment, ethics, laws, and skilled standards, as well as performance that contributes to the care analysis. The nurse is an important member of any team of health-care professionals involved in patient care.[8]the nurse, as a part of the multidisciplinary team, is critical to the transplant program's success and must keep their knowledge and skills up to date in this highly specialized and complex field. Nursing competence is defined as a set of knowledge and abilities that allow nurses to perform appropriately at all times.[9]

Nursing care necessitates the development of abilities in order to meet the physiological, pathological, and psychological demands of customers, families, and communities. Such interventional study will bridge the gap between health care teams and families. That is why there is a need to educate the nurses with advanced practices regarding the critical care of post liver transplant patients.[10]

The educational programme aims to empower nurses to enhance their knowledge and practices regarding liver transplantation care. Moreover, it also empowers patients by giving them more control over their care process and daily activities, thereby increasing their independence. Therefore, there was a need to better address liver transplant care on nurses' performance regarding care of patients to improve their quality of life and self-management skills.

MATERIALS AND METHODS

This quasi-experimental study was conducted at Liver transplant surgery unit, Pakistan Kidney and Liver Institute and Research Center and Bahria International Hospital Lahore. After taking the informed consent total 86 nurses were enrolled. All diploma general and BSN nurses (both gender) aged 20 to 50 years, who were working in the liver transplant surgery department, having at least 1-year experience were enrolled in current study. The Intervention group was educated for 12 weeks through different learning and teaching methods like brain storming, lecture, discussion and handout. Educational workshops session was. The workshop was conducted twice a week. Each session last for 45 minutes. The pre assessment scores of nurses' performances was observed and documented at both study settings. Then the liver transplant care intervention was delivered to the interventional group only and for the control group they were observed only and no intervention was performed. Post assessment of both groups study participants were performed after the completion of Liver transplant care interventions. Data was collected on a predesigned nurses performance questionnaire regarding post liver transplant care and socio demographic characteristics for nurses including age, gender, qualification, duty shift and work experience were noted. Performance questionnaire was a concern to assess nurses' practices regarding the post liver transplant care. The questionnaire has 20 questions. The statements are provided with yes (performed) and no (not performed) options. Each yes answer got a score one, while each no answer got score zero. The nurses who achieved score >60% on nurses' performance questionnaire was considered as satisfactory whereas score ≤60% was considered as unsatisfactory nurses' performance. Normality was assessed through Kolmogrov-Smirnov test. Comparison regarding performance of nurses was made through Mann Whitney U test. P-value <0.05 was considered statistically significant.

RESULTS

The mean age was 29.00±5.34years in group A and 29.67±5.70years in group B. In group A, there were 16 (37.2%) males and 27 (62.8%) were females, whereas in group B there were 7 (16.3%) nurses who were male and 36 (83.7%) were females. Most nurses were diploma holders [A= (67.4%) Vs B= (46.5%)] and have up to 5 years of experience [A= (72.1%) Vs. B= (74.4)]. Wilcoxon signed rank test was used to compare the pre and post mean change performance score in both groups. Results indicated that there was an insignificant change (P = 0.172) in performance score in group A (Control), pre and post mean ranks performance score was 9.69 and 10.67 respectively with p-value >0.05. Whereas, a significant change has been observed regarding performance scores in group B (p<0.001), mean ranks performance score in pre intervention was 21.98 and post intervention was 2.00 with p-value <0.05 (Tables 1-2).

Chi square test was used to determine the association of knowledge levels with groups. Results indicated that 3 (7.6%) nurses in group A had satisfactory performance level while in group B, 39 (90.7%) nurses had satisfactory performance level after intervention implemented on Group B as Group received no intervention. This difference was statistically significant (p<0.001) (Fig. 1).

Table No.1: Comparison of pre and post intervention performance scores in group A

Group A	Mean Rank	Z	P value
Pre Intervention	9.69	-1.365	0.172
Post Intervention	10.67		

Table No.2: Comparison of pre and post intervention performance scores in group B

Group B	Mean Rank	Z	P value
Pre Intervention	21.98	-5.631	<0.001
Post Intervention	2.00		

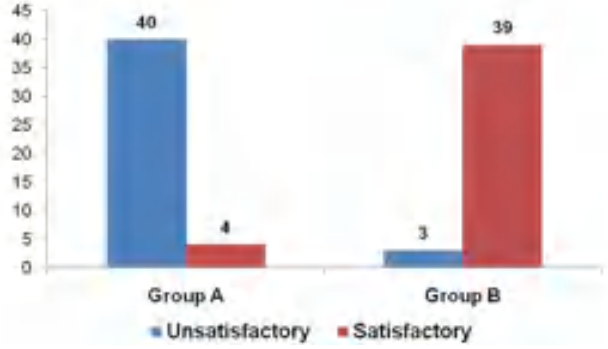

Figure No.1: Comparison of performance score among both groups

DISCUSSION

Liver transplantation (LT) has become a frequent surgical technique around the world. The primary goal of a Liver Transplant is to relieve limitations resulting from liver disease or failure. The level of knowledge, skills, values, and judgement of those providing care for patients has an impact on the quality of nursing care. Having the knowledge and abilities to always act in a professional manner is what is meant by competent nursing. This educational programme aim to empower nurses to enhance their knowledge and practices regarding liver transplantation care. Moreover, it also empowers patients by giving them more control over their care process and daily activities, thereby increasing their independence. Therefore, there was a need to better address liver transplant care on nurses' performance regarding care of patients to improve their quality of life and self-management skills.

Regarding the basic information of nurses, the present study that the mean age was 29.00±5.34 years in group A and 29.67±5.70 years in group B. In group A, there were 16 (37.2%) males and 27 (62.8%) were females, whereas in group B there were 7 (16.3%) nurses who were male and 36 (83.7%) were females. Most nurses were diploma holders [A= (67.4%) Vs. B= (46.5%)] and have up to 5 years of experience [A= (72.1%) Vs. B= (74.4)]. This finding is consistent with Seliman's findings that just 6% of the participants in his study received technical nursing institution diplomas, while 94% received secondary school nursing diplomas.[11]

Another study reported that the nurses working in anesthesia and ICU were more than 35 years is which is in contrast with our findings.[12] However, it has been considered that nursing is a feminine profession. The current study also reported that the female's nurses were majority in number among both groups. These findings were in consistent with the study which reported that the majority of nurses were females who work in ICUs.[13] It was also reported in another study that about 90% of nurses around the world were female. [13]In context to this the current study showed that the regarding performance of patient care after liver transplantation nurses have unsatisfactory practices. They have inadequate knowledge to perform post-operative care. But after the intervention the performance of nurses was significantly improved to satisfactory only in intervention group. Nurses performance was assessed in both groups before and after intervention regarding practices of the post liver transplant care. The results revealed that, the mean ranks performance scores were significantly higher (p<0.001) in control group (A) as compared to Intervention group (B) after the intervention. These findings can relate to a study conducted on nurses to find out the effect of educational program to improve knowledge after renal transplantation. The results showed that about 26.4% have poor knowledge before implementation of the program but after the intervention it was significantly increased. The study found that following the programme, there was a noticeable improvement in the knowledge and abilities of the nurses who work in the renal transplantation facilities. Hospital nurses must participate in frequent and scheduled training programs to keep up with current theories and procedures.[14]

A nurse knowledge questionnaire and an observational study were also used in a qusai experimental investigation. The study's findings revealed a statistically significant correlation between nurses' overall knowledge and skills regarding the assessment of liver graft function and post-transplant intensive care, indicating a beneficial relationship between knowledge and skills. It was also shown that, following intervention, nurses' comprehension and evaluation of liver transplant function in the ICU achieve a satisfactory level.[15] As a result of liver transplantation the present study's findings indicate that around majority of nurses' knowledge of medications has improved between pre- and post-educational programs. These similar to the study conducted Seham et al[16] findings that knowledge had improved following educational programs compared to knowledge before to educational programs. The findings of the current study indicate that the majority of nurses have poor

knowledge prior to educational programs compared to knowledge after programme implementation, and nurses score satisfactory practices. These similar to the study conducted by Mohamed[17] reported that the knowledge levels of nurses were unsatisfactory before to programme implementation and satisfactory post programme implementation, with a significant difference. However, this showed that the teaching session had a satisfactory positive effect on their prior knowledge of post-operative care. This finding is quite comparable to the London study's findings, which were intended to improve understanding and knowledge of the long-term care of patients receiving kidney transplantation.[18]

CONCLUSION

The performance of nurses in terms of patient care improved after LT after implementation of intervention. However, there was significant improvement in the post-operative care provided by nurses and complication rate was also reduced. Nurses are the important factor for educating patients which can lead to significant change in their behavior, management skills and quality of life as well.

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Original Article

Assess the Suicide Knowledge among Medical Students of Peoples University of Medical & Health Sciences for Women, Nawabshah District Shaheed Benazirabad, Sindh, Pakistan

Naseem Akhter[1], Shahla Imran[2], Jamshed-ul-Qadir Memon[2], Perwaiz Ahmed Makhdoom[3], Abdul Samad[4] and Ishrat Bibi[4]

ABSTRACT

Objective: To analyze the level of knowledge among medical students of Peoples University of Medical & Health Sciences for Women (PUMHSW) Nawabshah, District Shaheed Benazirabad, Sindh, Pakistan.

Study Design: Descriptive cross sectional study

Place and Duration of Study: This study was conducted at the Peoples University of Medical and Health Sciences for Women Nawabshah, District Shaheed Benazirabad Sindh from June, 2021 to November, 2021.

Materials and Methods: Three hundred and seventy seven students were taken part in this study. Only 3rd, 4th and 5th year students were included. A series of questions were asked for assessing the knowledge of suicide, their factors and how to manage.

Results: All were belonged to female gender because university is only for female gender. There were 126 from 3rd year with 33.42%, 137 from 4th year with 36.33% and 114 from 5th year with 30.24%. One hundred and thirty seven said yes about to get training questions while 242 said no, 54 said yes about management training questions while 323 said no and 62 said about counseling training while 315 said no.

Conclusion: A special workshop and symposium was also arranged to enhance the skills and knowledge among graduates. Further it was also noticed that no proper counseling sessions were arranged so another recommendation is to arrange the counseling session with patients and to create the awareness among the local community.

Key Words: Suicide, Assess, Medical students

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INTRODUCTION

Worldwide, Suicide is one of major problem that affects developed and underdeveloped countries.[1]

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Many factors may lead to the rising rate of suicide. Financial crisis is one of factor was noticed. Malnutrition is also another factor that leads to high rate of morbidity due to suicide. Health care professionals has great role to identify the underlying causes of suicide and proper management. They should be comprehensive in decision regarding assessment to treatment and in last management. They should have sufficient knowledge and communication skills to identify the reasons from the patients and their caregivers. By proper management from health care professionals may influences to decrease the rate of suicide. Moreover, to analyze the behaviour, attitude is one of main factor.[2] To assess the suicide knowledge among medical students are always a complex task but its importance may reduce the rate of morbidity and mortality. A very limited number of studies were available that focus on suicide knowledge in previous years. Some of studies were assess the knowledge among nursing students and professionals mentioned in references.[3-7]

In one study suicide may defined a person is going to half itself by knowing its dangerous consequences by their own will and wish. This is one of great problem in field of mental health sciences. It is also one of great public concern. This suicide is also listed in E from International classification of disease, injuries and causes of death (ICD-10).[8] Another renowned association from America that depression episodes are one of link to cause suicide. A number of issues may link with suicide i.e., legal, ethical, social, moral and many other.[9] According to various reports of World health Organization (WHO), the data gathered from more than fifty countries showed the exponentially high rate during the past years were noted and mostly in male gender as compared to female. There are various percentages found in different countries i.e., more than 60 found in Mexico and 17% in china in same period.[10] A diverse nature was found in the patients who committed suicide especially in European countries. A great impact of social, ethical and life values were seen in the patients who survived after the suicide commit. Moreover, treatment of management of suicide patients is science as well as art. In management of patients, counseling is the key part. A patient needs treatment and a social worker who discussed the issues with the patients. As far as attitude is concerned, mostly psychiatrist treated the patients of suicide as mental disorder and in first instance with some symptoms such as schizophrenia, alcoholism and ultimately depression. Further for better treatment, knowledge of psychology and psychopathology is of great importance for better decision in treatment of suicide.[11] A total of four types of suicide model were presented by Durkheim i.e., fatalistic, egoistic, altruistic and anomic. Another author best described the suicide that results from relationship between two individuals, between families and individual with institutions.[12] Therefore, a current study was designed to assess the suicide knowledge among medical students at tertiary care hospital of Jamshoro, Sindh, Pakistan.

MATERIALS AND METHODS

This descriptive cross sectional study was conducted among medical students of Liaquat University of Medical and Health Sciences Jamshoro from 1st June 2021 to 30th November 2021. The sampling technique was random based on availability of students after their verbal consent. A total of 377 students were taken part in this study regardless the gender. Only 3rd, 4th and 5th year students were included while rest of the students was excluded. A series of questions were asked for assessing the knowledge of suicide, their factors and how to manage. A validated Suicide knowledge and skill questionnaire was used in the study. This questionnaire contains 13 questions that identify the behaviour of a suicidal patients and knowledge of medical students perceived. It contains two scales i.e., knowledge and confidence level of health care professionals. Then the data were presented in the form of tables with the help of Microsoft Excel.

RESULTS

There were 126 from 3rd year with 33.42%, 137 from 4th year with 36.33% and 114 from 5th year with 30.24% (Table 1). One hundred and thirty seven said yes about to get training questions while 242 said no, 54 said yes about management training questions while 323 said no and 62 said about counseling training while 315 said no (Tables 2-3).

Table No.1: Sample enrolment from 3rd, 4th, and 5th year (n=377)

Year of studies	No.	%
3rd	126	33.42
4th	137	36.33
5th	114	30.24

Table No.2: Assessment of skills among samples

Questions regarding Skills	No.	%
Received training how to ask questions from suicide patients		
Yes	135	35.81
No	242	64.81
Received management training how to treat the patients		
Yes	54	14.32
No	323	85.68
Received counseling training how to counsel the patients		
Yes	62	16.44
No	315	83.56

Table No.3: Assessment of knowledge questionnaire among samples

Questions regarding knowledge	Correct Response	Uncorrected Response
Correct definition of Suicide	218	159
Particular age of suicide in which mostly patients committed	145	232
Rate of suicide related with mental illness	176	201
Suicide attempt in very serious patients	269	108
Suicide patients counseling point and to convince them away	232	145
Suicide may relate with age	297	80
Suicide is predictable or unpredictable	154	223
Suicide peoples want to die	241	136

Suicide may also relate to grab the intentions of others	283	94

DISCUSSION

The Present study highlighted to assess the level of knowledge and understanding of suicide their factors among undergraduate medical students. Therefore, we use knowledge assessment scale that included skills and knowledge both. A significant number of undergraduate students have not sufficient skills and training regarding suicide. Moreover, around 35% has the skills while remaining has no any skills regarding this mental problem. Previous studies also highlighted the same but the findings are better because they have sufficient training and workshops for health care professionals regarding suicide knowledge and their management.[13,14] Other studies discussed the findings of knowledge among health professionals. It was concluded that more than 40% of samples have not proper training regarding suicide knowledge while the current study also showed that no proper training has received. Only a limited knowledge of suicide has received by the medical undergraduate students.[15,16] Another study was conducted on nurse health care professional and it was found that only 25% of the nurses has knowledge regarding suicide and the current study also had limited knowledge.[17]

CONCLUSION

The current study highlighted the need of suicide knowledge among medical students. Moreover, a special workshop and symposium will also be arranged to enhance the skills and knowledge among graduates. Further it was also noticed that no proper counseling sessions were arranged so another recommendation is to arrange the counseling session with patients and to create the awareness among the local community. Further a mass program will also be arranged at government level for awareness and importance of lives.

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Original Article

Is Pre-Operative Acute Rise in Blood Pressure before Eye and ENT Surgery A Genuine Excuse for Postponement of the Procedures?

Rise in Blood Pressure before Surgery for Postponement

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ABSTRACT

Objective: This study was carried out to alleviate the unnecessary taboos attached to it by studying the incidence and outcome of this unexpected finding.

Study Design: Observational cross section study

Place and Duration of Study: This study was conducted at the Rai Medical College Teaching Hospital (RMCTH), Sargodha from Jan –June, 2022.

Materials and Methods: All subjects between 20-90 years of age of both sexes, presenting for pre-operative assessment before any planned Eye and ENT surgery were assessed by measuring their BP. If it was found to be above 140/90 mmHg, they were included in this study. Consenting patients were referred to the physician for proper assessment and management prior to surgery.

Results: During the study period 288 surgeries were planned by Eye (67%, n192) and ENT (33%, n96) department. 25% (n72) were found to have their BP above 140/90 mmHg. Only these patients were referred to physicians for review and management and enrolled in the study. 42% were known hypertensives. Out of these 38% missed the morning dose of their antihypertensive medicine. The other 58%, both known hypertensives and previously normotensive had clear cut evidence of anxiety manifesting as palpitation, tremors and cold sweaty palms.

Conclusion: The available literature doesn't support the common notion that pre-existing hypertension or pre-operative hypertension are associated with peri-operative hemodynamic instability or a poor surgical outcome. One must appreciate the difference between the increased chances of having complications in hypertension but the actual degree of being above the normal BP have no association with increased risk of complications. It can be concluded from this study It is perfectly safe to proceed with surgery till pre-operative BP is below 180/110 mmHg. Any such decision must be weighed against urgency and potential risk for postponement on individual basis with special emphasis in diabetics, CHD and renal disease.

Key Words: Hypertension, Pre-operative Hypertension, Eye and ENT surgery

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INTRODUCTION

Normal vitals especially BP is a pre-requisite for surgery and anesthesia fitness. Many a time a person is found to have raised BP for the first time at the time of pre-assessment for fitness without any documented history of hypertension (HTN) or a well-controlled hypertensive patient on medication is found to have a high BP at this assessment. This becomes a reason for postponement of the surgical procedure in planned cases. In the light of available literature this is purely an over-reaction[1]. The global incidence of HTN is around 30% with wide variations mainly in different age groups, ethnicity and clustering of factors of metabolic syndrome.

The available literature doesn't support the common notion that pre-existing hypertension or pre-operative hypertension are associated with peri-operative hemodynamic instability or a poor surgical outcome. The joint guidelines from AAGBI and the British Hypertension Society states that it is perfectly safe to proceed with surgery till pre-operative BP is below 180/110 mmHg.[1]

Every preoperative assessment shall be taken as a screening unique opportunity for common diseases according to the age, gender, genetic lineage and geography. According to American Heart Association

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(AHA) guidelines, for patients with mild to moderate hypertension, alternatively defined as Stage 1 and Stage 2 respectively (below 180/110 mmHg) there is no increased risk for peri-operative adverse outcomes. However BP shall be brought within acceptable range (140/90 mmHg) before proceeding for surgery in patients presenting with severe HTN or Stage 3 HTN (≥ 180/ 110 mmHg). For diabetic and renal patients recommended targets are <130/85 mmHg and <125/75 mmHg. For patients 80 years and above the targets shall be a little bit relaxed, around 150/80 mmHg.[2,3]

This study was carried out to alleviate the unnecessary taboos attached to it by studying the incidence and outcome of this unexpected preoperative high BP and to highlight that joint guidelines from the AAGBI and the British Hypertension Society states that it is perfectly safe to proceed with surgery till pre-operative BP is below 180/110 mmHg. Special care is recommended for only diabetics, Ischemic Heart disease and renal patients.

MATERIALS AND METHODS

Patients having BP above 140/90 mmHg, between 20-90 years of age of both gender, presenting for pre-operative assessment before any eye and ENT surgery were included in this study. Consenting patients were referred to the physician for proper assessment. Their BP was reassessed as per standard practices. Physicians reviewed the fitness for surgery.

Inclusion Criteria: 20-90 years age, both sexes, presenting for eye and ENT surgery.

Exclusion Criteria: Seriously sick patient or terminally ill patient.

Secondary Hypertension and pregnancy

Major end organ disease, liver, kidney, heart, lungs

Hypertensive urgency and emergency

Sample size and sampling technique: A minimum sample size of 196 patients was calculated to maintain a 5 percent margin of error, a 95 percent confidence interval and a 75 percent response distribution, using a raosoft sample size calculator.

RESULTS

During the study period 288 surgeries were planned by Eye [(67%) (n 192)] and ENT [(33%) (n 96)] Departments. 25% (n 72) were found to have their BP above 140/90 mmHg which raised alarm bells for the anesthesia team. These were referred to physicians for review and management. Only these 72 patients were enrolled in the study. Out of these 42% (n 30) were known hypertensives.

4 (5.56%) patients were below 40 years and 6 (8.33%) patients were above 80 years, there were 31 (43%) patients in both 40 to 60 and 60 to 80 years age group.

Out of 72 patients 30 (42%) were known hypertensive and were well controlled, otherwise these wouldn't have been given appointment for surgery. 1 (3.33%) patient was below 40 years and 2 (6.67%) patients were above 80 years, majority 17 (56.67%) were between 40 to 60 years and 2 (6.67%) were between 60 to 80 years age group. All these previously well controlled hypertensives had their BP above 140/90 mmHg unexpectedly on the morning of surgery.

Out of these known hypertensives, 11 (37%) missed the morning dose of their antihypertensive medicine as they were asked to come in fasting state or as per common belief that fasting is mandatory for each surgery. The other 58%, both known hypertensives and previously normotensive had clear cut evidence of anxiety manifesting as palpitation, tremors and cold sweaty palms. HTN is most prevalent in 40s through 70s, so is the distribution in our study, 86% (N 62) were in 40-80 years age group.

Statistical Analysis: Data analysis was conducted using Microsoft Excel version 2016 and Statistical Package for Social Sciences software version 25 (SPSS 25). Descriptive statistics (i.e. frequency distribution, percentages, mean and standard deviations) were used.

Table No.1: Demographic features. n 72

Age	EYE (MALES)	EYE (FEMALES)	ENT (MALES)	ENT (FEMALES)
< 40	n3 (2.16%)	n0	n0	n1 (1.39%)
40-60	n13 (18.05%)	n10 (13.89%)	n5 (6.94%)	n3 (2.16%)
60-80	n16 (22.22%)	n10 (13.89%)	n3 (2.16%)	n2 (2.78%)
>80	n4 (5.56%)	n0	n2 (2.78%)	n0

Table No. 2: Known hypertensive. 42% (n30)

	EYE (MALES)	EYE (FEMALES)	ENT (MALES)	ENT (FEMALES)
< 40	n0	n0	n0	n1 (3.33%)
40-60	n8 (26.67%)	n5 (16.67%)	n3 (10%)	n1 (3.33%)
60-80	n5 (16.67%)	n4 (13.33%)	n1 (3.33%)	n0
>80	n2 (6.67%)	n0	n0	n0

Table No. 3: Preoperative BP, normotensive and hypertensives. n 72

	EYE (MALES)	EYE (FEMALES)	ENT (MALES)	ENT (FEMALES)
< 40	n3 (2.16%) 165-170/95-100 Mean,166.7/96.7 Median, 165/95 Mode,165/95 SD, 2.89	n0	n0	n1 (1.39%) 165/100
40-60	n13 (18.05%) 150-195/80-105 Mean,175/94 Median,175/100 Mode,180/100 SD,13.9/8.9	n10 (13.89%) 155-210/95-115 Mean,179.5/99.5 Median,180/100 Mode,170/100 SD,18.5/5.9	n5 (16.67%) 155-170/85-95 Mean,160/88 Median,155/85 Mode, 155/85 SD, 7/4.5	n3 (2.16%) 155-170/90-100 Mean, 163/92 Median, 165/90 Mode, 165/90 SD, 7.6/5.8
60-80	n16 (22.22%) 175-195/95-105 Mean, 180/99 Median, 180/100 Mode, 190/100 SD, 10/3.4	n10 (13.89%) 165-190/95-105 Mean, 179/99 Median, 180/100 Mode, 190/100 SD, 10.3/3.4	n3 (2.16%) 165-185/85-100 Mean, 172/90 Median, 165/85 Mode, 165/85 SD, 11.5/8.7	n2 (2.78%) 190/100 Mean, 190/100 Median, 190/100 Mode, 190/100 SD, 0/0
>80	n4 (5.56%) 180-190/95-100 Mean, 188/99 Median, 190/100 Mode, 190/100 SD, 5/2.5	n0	n2 (2.78%) 180/105 Mean, 180/105 Median, 180/105 Mode, 180/105 SD, 0/0	n0

DISCUSSION

Perioperative HTN increases the chances of postoperative increase in CV events like ischemia or dysrhythmias, cerebrovascular events, bleeding, and overall mortality. BP over 180/110 mmHg is arbitrarily taken as a cut off limit to postpone elective surgery in the absence of universally accepted guidelines. (4) This notion is fueled by the fact that both HTN and DM are the commonest underlying comorbidities in senior years.[5]

NICE first issued guidance for the management of hypertension in primary care in 2004. This was followed by a rapid update in 2006, 2011 and 2019 in the chapter for pharmacological treatment.[6,7]

As discussed above AHA guidelines clearly mentions that in Stage 1 and Stage 2 HTN, it is perfectly safe to proceed with surgery as the risk of peri-operative adverse outcomes is same. However in Stage 3 HTN or in patients with diabetes and renal disease patients recommended targets of <130/85 mmHg and <125/75 mmHg shall be achieved by pharmacotherapy before proceeding for surgery. Similarly in patients 80 years and above relatively relaxed targets around 150/80 mmHg shall be ensured pre-operatively.[2,3]

During the study period 288 surgeries were planned and every fourth (BP above 140/90) patient was referred for revaluation to the physicians due to the concerns by anesthetist. This group comprised of both previously normotensive and known hypertensives (42%). Out of these 37% (n11) missed the morning dose of their antihypertensive medicine as they were asked to come in fasting state or as per common belief that fasting is mandatory for each surgery. The other 58%, both known hypertensives and previously normotensive had clear cut evidence of anxiety manifesting as palpitation, tremors and cold sweaty palms.

Blood pressure variability (BPV) is a newly developing concept to stress upon the dynamic fluctuations in cardiovascular (CV) regulation under varying environmental (seasons, altitude, stress), physical (posture or volume), and emotional factors as part of BP homeostasis. Evidence is fast emerging to suggest its predictive and prognostic role as a CV risk stratification in addition to average BP levels.[8] Twenty four hour BP monitoring can gauge the target organ damage at subclinical level and can better predict the CV risk than the spot office measurement.[9] Though central BP is better reflection of carotid intima–media thickness and left ventricular mass and hence is taken as a better marker of future CV events than peripheral BP, being invasive it can't be used in day-today clinical practice. It can be measured indirectly and non-invasively by tonometry using arterial flattening to get an almost identical pulse waves when applied to radial, carotid or femoral artery.[10]

BP can be measured by using the reference method of arterial catheterization or non-invasively by intermittent

oscillometry and by continuous finger cuff methods recording. The reference method is limited being technically challenging and having potential complications such as permanent ischemic damage, bleeding and infection. Accuracy of non-invasive intermittent inflatable cuff oscillometry is dependent on appropriate cuff size and cuff positioning. Finger cuff–based also referred to as the volume clamp method is new promising technology having better agreement with intra-arterial measurements than oscillometry.[11]

Cataract surgery is associated with non-ocular peri-operative complications in 2-15% of cases, 90% cases accounted for by labile BP, dysrhythmias and bronchospasm depending upon age and pre-existing disease. Known hypertensives with or without proper preoperative good control and with or without other comorbidities, are always more problematic during peri-operative period. One must appreciate the difference between the increased chances of having complications in hypertensive but the actual degree of being above the normal BP have no association with increased risk of complications. It implies that the actual per-operative readings in stage 1 and 2 range does not increase the chances of adverse events and shall not be a reason for concern or postponement of surgery. Any such decision must be weighed against urgency and potential risk for postponement on individual basis. These patients are definitely at increased risk, though small, of dysrhythmias and even silent myocardial ischemia.[12]

It is established that in non-cardiac surgeries very tight prei-operative blood pressure control doesn't significantly affect the surgical outcome, one just need to maintain it in close proximity to the individuals baseline. Here the approach needs to be personalized considering the routine BP and presence of complications, associated components of the metabolic syndrome and the type of surgery.[13] In the absence of these risk factors, a single preoperative reading below 180/110 mmHg shall not become the reason for panic and postponement of planned surgery.

CONCLUSION

Perioperative HTN increases the chances of postoperative increase in CV events like ischemia or dysrhythmias, cerebrovascular events, bleeding, and overall mortality. BP over 180/110 mmHg is arbitrarily taken as a cut off limit to postpone elective surgery in the absence of universally accepted guidelines. Blood pressure variability (BPV) is a newly developing concept to stress upon the dynamic fluctuations in cardiovascular (CV) regulation under varying environmental, physical, and emotional factors as part of BP homeostasis. AHA guidelines clearly mentions that in Stage 1 and Stage 2 HTN it is perfectly safe to proceed with surgery as the risk of peri-operative adverse outcomes is same. However in Stage 3 HTN or in patients above 80 years or in patients with diabetes and renal disease patients recommended targets of <130/85 mmHg and <125/75 mmHg shall be achieved by pharmacotherapy before proceeding for surgery.

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Original Article

Quality of Health Care Services in Medical OPD

Patient Satisfaction Regarding Quality of Health Care Services in Medical Outpatient Department at Secondary Care Hospital in District Jamshoro

Adil Ali Shaikh[1], Sadia Tabassum[2], Gulshad Wagan[3], Azfar Ahmed Mirza[4], Razia Asif[3] and Ramsha Awan[3]

ABSTRACT

Objective: To determine patient satisfaction level and factors related to patient satisfaction and dissatisfaction, at Secondary Care Hospital of District Jamshoro.

Study Design: A Mix Method Study

Place and Duration of Study: This study was conducted at the Outpatient department (OPD) of Civil Hospital – District Headquarter Hospital (DHQ) Kotri, District Jamshoro from July to September 2017.

Materials and Methods: A sample of 110 patients was selected according to inclusion criteria. Sampling interval was every 10th patients coming out of medical OPD. Data was analyzed on SPSS 19.0. Quantitative data was analyzed as frequencies, and %, while variables as mean ± SD analyzed at 95% CI ($P \leq 0.05$). The health care providers & health managers were interviewed through key informant interviews. The qualitative analysis was done through manual transcription and content analysis. The triangulation of results was carried out in order to get the final results.

Results: Of 110 participants; 59 (54%) were female and 51 (46%) were male. 91% of participants mentioned the location of OPD was easy. 90%, 89% and 87% were satisfied with physical examination, doctor`s attitude and time given to patients. 71% participants agreed of getting medicine from hospital pharmacy and 65% agreed of patient examination with done with equipment.97% responded wash rooms were dirty enough.

Conclusion: Overall a good level of patient satisfaction was recorded from this study with major contribution of interaction with physician services and least by the overall physical environment. Furthermore, appropriate and timely patient satisfaction surveys help in optimizing the performance of outpatient department to achieve better health outcomes. Initiating a quality improvement process in resource limited setting is in itself a huge task, taking into consideration the number of challenges these facilities face.

Key Words: Patient Satisfaction, Health Care Quality, Civil Hospital, Kotri

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INTRODUCTION

Increased competitions in the health business sector has increased the customer`s expectations of providing excellent health services. Customer`s requirements are also increasing putting the most organizations at critical situation making it too difficult to satisfy and retain their customers and their satisfaction.[1,2]

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Similarly, the improved living standards and health delivery care have increased the medical services expectations of the public. Sudden increases in medical professionals and hospitals have created an inevitable competition among medical institutions. Increasing level of public expectations from health sector has put the medical institutes at too much stress to maintain their standards and sustainability.[3] In this era, the health care system has already been shifted from supplier – oriented to customer oriented trend. Medical industry is now growing towards the patient – oriented trends in the country. Hence there is need of improving the standards and providing high-quality medical services desired by customers, is becoming an emerging culture. Essence of patient – oriented marketing is to base on provision of best medical services by the healthcare organizations.[3] Medical institutions in Pakistan are continuously increasing in number. Thus, for the survival of healthcare system, a patient – oriented approach is needed to meet the quality medical services

and these needs to be revisited. Donabedian[4]classified the health care quality into health care provider`s professional skills, and patient's perception of health delivery services. Bopp categorized health care quality into technical and functional qualities as perceived by patient and argued the functional quality is of prime importance[5]. Dramatic increase in private sector hospitals has led to a decline in patient's number in the public sector hospitals. Role of public sector is decreasing due to avoidance phenomenon by the health care providers. This is caused by several reasons such as low attention of health care provider, lack of facilities, public image of old fashioned, avoidance by hospital staff and perception of low standards due to deteriorating financial conditions of public sector hospitals.[6] Nowadays, the patients are well aware of fact that the public sectors hospitals are ignorant in providing a quality service.[7] A hospital with low standards of health delivery results in loosing of capital invested by the government and patients will never visit again. Hence patient satisfaction is the pivotal key of assessing the performance of hospital. There is always need to renew the factors affecting the patients satisfaction as the interest of public is always changing to the best services as the awareness is increasing. The present study was conducted to determine patient satisfaction level and factors related to patient satisfaction and dissatisfaction, health care providers and health managerial perspectives for implementing better health strategies. This study will help improving quality of health delivery system of public sector hospitals in the country.

MATERIALS AND METHODS

The present mix method study was conducted from July to September 2017 to analyze and focus on health care delivery system as per six building blocks of an ideal health system. Study was conducted at the Medicine outpatient department (OPD) of Civil Hospital – District Headquarter Hospital (DHQ) Kotri, District Jamshoro. Catchment area of hospital includes surrounding five million populations. Research objectives were explored at maximum through quantitative & qualitative methods. Quantitative information was observed in exit interviews from patients and qualitative information as key informants from participants. Sample size was calculated by OPEN EPI Software using calculation $n=Z^2\ p\ (1-p)/d^2$at 1.96 margin of random error, precision degree of $\pm$9%, confidence interval (CI) of 95% and average patient satisfaction of 68% as cited previously from Sindh.[8] Sample (n = 103) calculated as $n = (1.96)^2\ 0.68(1-0.68) / (0.09)$.[7] Final sample was (n=110) for adjusting with the non-response rate of 10%. Every 10th patient exiting out of medical OPD was interviewed.[9] Inclusion criteria for exit interviewers were; age 18 – 60 years, both genders, volunteers, willing for written informed consent and understanding the language. Too ill to answer and not understating local language were excluded. Participants were informed they have to sign the consent proforma voluntarily**.** Data was collected on a pre–structured proforma designed by the principal investigator adopted from a previous study.[9] Proforma was edited in Sindhi, Urdu and English languages for better understanding. Ethical permission was taken from the institute – the Aga Khan University and Directorate health department. Privacy of participant data was maintained and kept confidential. Printed proforma was saved in lockers. Data variables were analyzed on SPSS 19.0 (IBM, Incorp, USA). Qualitative variables were analyzed as frequencies, and %, while quantitative variables as mean ± SD. Level of significance was taken at 95% CI ($P\leq0.05$).

All Health care providers of medicine department and health managers were interviewed through a questionnaire developed by the researcher and the results were transcribed after manual transcription and content analysis.

Keeping in view the results from quantitative and qualitative sections data triangulation was done to come up with more robust and authentic information.

RESULTS

Of 110 participants; 59 (54%) were female and 51 (46%) were male. Majority of participants belonged to 18 – 30 years age group (54%), followed by 31 – 45 years (31%) and 15% belonged to 46 – 60 years. 91% of participants mentioned the location of OPD was easy (Table – 1). 56% agreed enough are in rooms, 34% satisfied of clean tidy OPD, and 44% quoted OPD area was spacious, lightning and ventilated. 97% responded wash rooms were dirty enough. 71% participants agreed of getting medicine from hospital pharmacy and 65% agreed of patient examination with done with equipment. 90%, 89% and 87% were satisfied with physical examination, doctor`s attitude and time given to patients (Table – 2). Table – 3 and Graph – 1 shows the overall patient satisfaction of hospital.

The Key informant interviews revealed that most of the patients are satisfied from the overall services, but on the administrative part there was unnecessary involvement of paramedical staff.

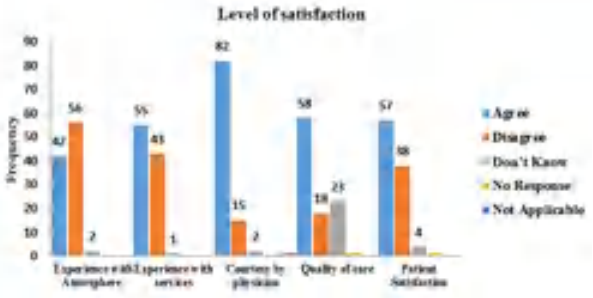

Figure No.1: Graphical presentation of overall patient satisfaction level coming out from Medical OPD

Table No.1: Patient Satisfaction Status After Outpatient Clinic Consultation From Medicine Department at A District Hospital In Jamshoro - Experience from OPD Environment & Services

	Satisfied		Unsatisfied		Don't Know	
	No.	%	No.	%	No.	%
Overall OPD environment						
OPD was easy to locate	100	91	10	09	-	-
OPD was clean and tidy	37	34	73	66	-	-
Waiting areas were separate	41	37	69	63	-	-
Enough waiting chairs present	36	33	74	67	-	-
Spacious, bright and airy rooms	49	44	59	54	02	02
Washrooms were clean	03	03	95	86	12	11
Drinking water was clean	19	17	85	77	06	06
Physical examination in separate rooms for male and females	78	71	31	28	01	01
Consultation room was capacious	62	56	47	43	01	01
Services Experience						
Equipments were used (BP apparatus,, thermometer, weighing machine, etc)	72	65	33	30	05	05
Pharmacy medicine available	78	71	32	29	-	-

Table No.2: Patient Satisfaction Status After Outpatient Clinic Consultation From Medicine Department At A District Hospital in Jamshoro - Experience of Doctor's Interaction

	Satisfied		**Unsatisfied**		**No Comments**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Courtesy						
Doctor welcomed	94	86	16	14	-	-
Doctor listened to complaints carefully	97	88	13	12	-	-
Doctor examined physically	99	90	10	09	01	01
Doctor gave enough time	96	87	14	13	-	-
Doctor advised for the follow-up	90	82	20	18	-	-
Doctors' attitude was friendly	98	89	12	11	-	-
Record kept confidential	77	70	27	25	06	05
Privacy maintained	73	67	18	16	19	17
Quality Care						
Doctor had adequate skills	76	69	06	06	28	25
Equipment used was in working order	37	34	32	29	41	37

Table No.3: Patient Satisfaction Status After Outpatient Clinic Consultation From Medicine Department At A District Hospital In Jamshoro - Patient`s Satisfaction of overall health care services

Component	Satisfied		Unsatisfied		No Comments	
	No.	%	No.	%	No.	%
Patient Satisfaction						
Service level is close to my expectations	35	32	68	62	07	06
Service level is fairly satisfactory	39	35	63	57	07	06
Come again for medical services	92	84	16	14	01	01
Recommend to others	87	79	21	19	02	02

DISCUSSION

Patient satisfaction is a business point score and plays pivotal role in the most of hospitals regarding quality of health care provision and health care providers. With the advent of telecommunication, curiosity of patients is inclining for health provision demanding best services making them more anxious towards the health services offered and their expectations.[10,11] Growing concern of health facilities and delivery has made it too difficult to reach to their expectations, has been problematic for majority of hospitals. Improved economic levels of urban civilization has raised the health care demands of patients and shifted minds towards a healthier care of health delivery system.[10] Patient satisfaction is of prime

importance for determining successfulness of health care facilities. We analyzed the patient's satisfaction through standard proforma using Donabedian's[4] framework with clear mentions of different levels of patient's demands and satisfaction in the public health sector of Pakistan.[10] The present study observed that patients were satisfied with physical examination, doctor`s attitude and time given to patients were 90%, 89% and 87% respectively and 71% participants agreed of getting medicine from hospital pharmacy and 65% agreed of patient examination with done with equipment. The findings are in agreement with a previous study[11] that has shown 99%, 88% and 84% satisfaction of doctor availability, paramedical staff and specialist availability respectively. However, 97% responded wash rooms were dirty enough. The findings are supported by previous studies from Pakistan.[12,13] The overall observation of patient satisfaction was good for health facilities provided expect of wash rooms that were found dirty enough to use. Major contribution of HCPs and HM was good and quality of health provided by them was satisfactory to the patients. Soomro et al[14] (2018) conducted study on patient satisfaction at Bibi Asifa Dental College Hopsital Larkana concluded the health care delivery was overall satisfactory as responded by the patients. Patient satisfaction fulfilled positively when the patient`s perception of health services and their quality is satisfying and to the expectations.[15] Although patient satisfaction is a subjective indicator that may not be relied upon, but it tells many flaws of the health system that need to be corrected form time to time. The present study conducted focusing on different levels of health delivery system of country at secondary care level that is being reported may be for the first time, and results show overall good performance of health department. Overall, the patients were satisfied with health care services offered by public sector hospital. Another previous study[16] witnessed 94.4%patient's satisfaction with of hospital services from a provincial teaching hospital. In present study, 97% patients responded wash rooms were dirty enough that is in disagreement with a previous study form a developing country[17] that reported 50% patients were satisfied with cleanliness of the hospital. Cleanliness in OPD and timing of physicians of present study is supported by other studies[9,18] that showed patients were fully satisfied of seating arrangement, OPD cleanliness and timings that is almost similar to the present study. By comparative literature search and critical comparison, overall, the findings of present study are satisfactory that needs to be improved as there is always space of improving the things and similar is the condition of public health sector of the country that needs special attention in terms of health care facilities provision, patient satisfaction and some other domains. Based on the outcomes of present study, it is concluded the public health sector still needs improvement in the basic infrastructure and health delivery system to their clients. The present study provides directions for the future research on the topic and measures to be improve the hospitals.

CONCLUSION

The present study found patient satisfaction with the quality of healthcare services at the District Headquarter Hospital of Kotri, Jamshoro. However, many discrepancies and deficiencies were complained by the patients that need to be improved properly. Level of patient's satisfaction was satisfactory that may be upgraded to better and then best by implementing essential measures that are missing due to financial constraints and lack of medical and paramedical staff. Patient's satisfaction was on lower side regarding hospital environment, however, satisfaction level was on higher side considering the services rendered and care offered by the health care providers. Overall infrastructure of hospitals needs to be resolved on priority basis for making them attractive to patients. Present study may help health policy makers for understanding and formulating proper strategies to be implemented for good quality of health care service delivery and improving the patient satisfaction.

Author's Contribution:

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Original Article

Education of Parents Regarding Oral Health of Pre-School Children

Muhammad Junaid Lakhani[1], Muhammad Wasay Latif[1], Syed Muhammad Umer Hasan[4], Anjum Tariq[2], Marium Iqbal[2] and Maria Khadija[3]

ABSTRACT

Objective: To find out the knowledge and attitude of the parents regarding the oral health of their preschool children.

Study Design: Cross-sectional descriptive and analytical study

Place and Duration of Study: This study was conducted at the Department of Oral Maxillofacial Surgery, Jinnah Medical and Dental College, Karachi from October to December 2016.

Materials and Methods: A questionnaire based cross sectional study was conducted, the statistical population in this study was 100. The questionnaire was thoroughly explained to the parents and consent was obtained. Data were stored and analyzed using IBM-SPSS version 23.0. Independent sample t-test and One way ANOVA was done to compare the scores with occupation and number of children. Post hoc analysis was done using Tukey's HSD test. The linear regression analysis was used to predict the scores of oral health awareness using gender and occupation of parents as independent variables. P-values less than 0.05 were considered statistically significant.

Results: Results of this study showed 63% of the parents knew that the most common dental disease is tooth decay. 62% of the parents agreed that it is important to take the children for regular dental visits. 59% of the parents agreed that the nighttime bottle feeding causes dental caries. Similarly, 49% of the parents knew that eating sweets between meals cause caries. 55% of the parents believed that primary teeth caries is preventable. Toothbrush remained the most popular choice among the cleaning aid.

Conclusion: It is strongly recommended to facilitate activities that help parents acquire essential education of oral health practices of their children since parents are the first role model for their children.

Key Words: Parent's knowledge, attitude, oral hygiene, pre-school children, dental diseases, tooth decay

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INTRODUCTION

Parent's knowledge and positive attitude towards dental care of pre-school children is essential for maintenance of oral hygiene and the prevention of dental caries in pre-school children[1,2,3]. There are two common factors leading to oral health issues in early childhood. First, most of the parents think that it's not important to brush and visit the dentist for preschool children and second, regular consumption of sugary drinks through nursing bottles.[4,5] Enamel defects and malnutrition may also play a role in initiating oral health issues in early childhood[6]. There is a great possibility of getting permanent teeth affected if the primary teeth get decayed. It may cause early shedding or extraction of deciduous teeth, leading to mal-alignment of permanent teeth[7].

World Health Organization recommends that programs should be conducted focusing on the awareness and maintenance of oral hygiene in children for effective prevention of dental caries.[8] Such education will only be effective if it is directly targeted towards the attitudes, bearing in mind the socio-economic status of the targeted population. International data shows that there have been several studies regarding the practices of oral hygiene in pre-school children.[0-11] Relatively fewer studies have been reported relating to awareness of parents in maintaining the oral hygiene of their children.[12-14] A study conducted in Saudi Arabia reflected a diffuse correlation between the attitudes and practices of parents regarding the oral hygiene of their children. Similar studies have been carried out on locally.

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MATERIALS AND METHODS

A questionnaire based cross sectional study was conducted in Karachi, Pakistan during the period of October to December 2016. The statistical population in this study was 100. The questionnaire was trialed on 15 participants prior to incorporation in the study. The questionnaire was thoroughly explained to the parents and consent was obtained. All parents who had children up till 6 years of age were invited to participate in the study. Parents with mentally handicapped children were excluded from the study. In cases where questionnaires were not completely filled or the subjects did not provide consent, the data were excluded and not recorded. Data was stored and analyzed using IBM-SPSS version 23.0. Counts with percentages were reported for baseline qualitative characteristics and outcomes on parent's oral health awareness of preschool children, whereas mean with standard deviation were given for quantitative parameters of study. Independent sample t-test was used to compare the mean scores on parent oral health awareness with age group and gender and One Way ANOVA was done to compare these scores with occupation and number of children. Post hoc analysis was done using Tukey's HSD test. The linear regression analysis was used to predict the scores of oral health awareness using gender and occupation of parents as independent variables. P-values less than 0.05 were considered statistically significant. Pie Chart and bar diagrams were also used to give graphical presentation of data.

RESULTS

There were one hundred samples. Among them 64% were between age group 20 – 30 years old, 90% were female gender, 66% were housewife and 32% samples found with two children in family. The Cronbach's alpha gives the reliability of parent oral health awareness tool found 0.60 statistically adequate.

Table-1 gives the percentage of correct responses on parent oral health awareness of preschool children. Results showed there were 65% samples known to brush the teeth twice daily, 57% know about twenty count of milk teeth, 74% disagreed that milk teeth do not require good care as it is going to fall anyway, 98% agreed that good oral health is related to good general health, 63% know that tooth decay is the most common dental disease in child, 92% agreed that healthy milk teeth are essential for children to chew the food properly, 55% know that tooth brushing prevents tooth decay, 21% know that cleaning of a child's teeth should commence after eruption of first milk tooth, 81% use a tooth brush to clean their child's teeth, 53% said they brush their child's teeth twice a day or after every meal, 94% use tooth paste as material to clean their child's teeth, 31% change their child's tooth brush once a month, 29% said their child rinses after meal, 68% said that the tooth paste they were using contains fluoride, 42% were familiar that fluoride in the tooth paste prevents tooth decay, 55% know about all causes of gum diseases, 61% think that regular brushing prevent gum disease, 62% agreed that it is necessary to take the child for regular dental visits, 85% agreed that cleaning of the child's teeth should be done by mother, 63% agreed that it is necessary to clean the child's teeth after every meal, 49% agreed that eating sweets between meals contribute to dental caries, 59% agreed that night time bottle feeding with sugar contribute to dental caries, 44% agreed that primary teeth can affect permanent teeth and 55% agreed that primary teeth caries is preventable.

The mean scores on parent's oral health awareness shows that there were 59% parents found with 51 – 75% knowledge on oral health awareness with mean scores 61.08 (SD=±6.22), 31% parents found with less than 50% knowledge with mean score 42.43 (SD=±7.3) and 10 % samples found with more than 75% knowledge on oral health awareness with mean scores 80. 0 (SD=±3.97).

Table No.1: Outcomes on Parents Oral Health Awareness of Pre School Children

Items	Response	%
How often do you brush your teeth?	Twice daily	65
How many milk teeth are there in a child's mouth?	Twenty	57
Milk teeth do not require good care as it is going to fall anyway?	Disagree	74
Good oral health is related to the good general health?	Agree	98
What is the most common dental disease in child?	Tooth decay	63
Healthy milk teeth are essential for children to chew the food properly?	Agree	92
Which of the following do you think prevents the tooth decay?	Tooth brushing	55
When did you commence the cleaning of your child's teeth?	After first milk tooth erupt	21
Which of the following aids are used to clean your child's teeth?	Toothbrush	81
How many times do you brush your child's teeth?	Twice a day / After every meal	53
What material do you use to clean your child's teeth?	Tooth paste	94
When do you change your child's tooth brush?	Once a month / Once bristles fray out	31
Does your child rinse the mouth after eating/drinking?	Yes	29

At what time do you give the sugary food items to your child?	With meals	9
Does the tooth paste you are using contain fluoride?	Yes	68
What is the role of fluoride in the toothpaste?	Prevents tooth decay	42
Causes for gum diseases?	All of the above	55
Which of the following do you think prevent the gum disease?	Regular brushing	61
When do you take the child to visit the dentist?	Every 6 months	11
It is necessary to take the child for regular dental visits?	Agree	62
Cleaning of the child's teeth should be done by mothers?	Agree	85
It is necessary to clean the child's teeth after every meal?	Agree	63
Eating sweets between meals contribute to dental caries?	Agree	49
Night time bottle feeding with sugar contributes to dental caries?	Agree	59
Primary teeth can affect permanent teeth?	Agree	44
Primary teeth caries is preventable?	Agree	55

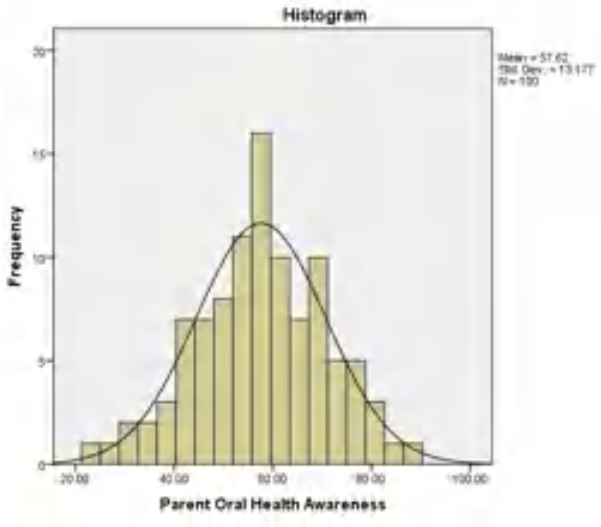
Table No.2: Mean Comparison of Parents Oral Health Awareness with Studied Parameters

Parameters		Mean	SD	p-value
Age (years)	20-30	57.69	14.13	0.93
	30-40	57.48	11.48	
Gender	Male	48.85	12.44	0.026*
	Female	58.59	12.96	
Occupation	Housewife	58.22	13.46	0.048*
	Dentist/doctor	63.85	11.92	
	Businessman/woman	47.44	10.36	
	Other	56.92	11.74	
Number of children	One	61.07	11.61	0.25
	Two	57.33	14.44	
	Three	54.68	14.62	
	Four	54.49	9.54	
*p<0.05 was considered significant				

Table No.3: Association of Gender and Occupation with Parent Oral Health Awareness using Regression Analysis

Para-meters	Beta Coefficient		t-value	95.0% C.I for Beta		p-value
	B	S.E		Lower Bound	Upper Bound	
(Constant)	47.921	4.081	11.743	39.821	56.021	<0.01*
Female	9.075	4.281	2.120	0.578	17.572	0.037*
Doctors/ dentist	5.91	4.31	1.372	-2.642	14.469	0.17
Dependent : Oral Health Awareness Scores , Independent : Gender, Number of Children ,Model R^2 = 26% , Overall Model Significance using ANOVA test p=0.03						

Table-2 gives the mean comparison of Parents oral health awareness scores with studied parameters. Results showed parents with age 20 – 30 years old having mean score 57.69 (SD=±14.13) and age group 30–40 years old having mean scores 57.48 (SD=±11.48). The mean score of mothers was 58.59 (SD=±12.96) and fathers was 48.84 (SD=±12.44). The mean score of housewives was 58.22 (SD=±13.46), dentist/doctor was 63.85 (SD=11.92) and business woman was 47.44 (SD=10.36). The mean score of one child parent was 61.07 (SD=±11.61) and four child parent was 54.49 (SD=±9.54). Statistically significant mean difference in scores of oral health awareness were observed with respect to gender of parents and occupation. Mothers have more knowledge as compared to fathers and housewives have more knowledge on oral health awareness as compared to businessman/woman p<0.05.



Histogram : Distribution of Parents Oral Health Awareness Scores

Table-3 gives the regression results on prediction of knowledge on oral health awareness. Results showed that female gender is 9.07 times more likely for greater knowledge as compared to the male gender found statistically significant with p<0.05 and doctors / dentist also have greater knowledge as compare to other occupation samples. The overall model was found statistically significant with p<0.05 and R2 showed 26% variation in the model as explained by the studied predictors.

DISCUSSION

Maintenance of oral health of children is vital as it leads to development of healthy habits. Parents play a vital role in the development and maintenance of oral hygiene practices but it is imperative that they too practice them along with their children.

63% of the parents in this study identified tooth decay as the most common dental disease which is similar to

the results reported by Sehrawat et al[15], Suresh et al[16] and Wyne et al[10].

In the present study, it was seen that majority of the parents were aware about the importance of deciduous teeth. Similar results were reported by a study conducted at Civil Hospital, Karachi[17].

Good oral health is related to good general health as healthy deciduous teeth are required to chew food properly. This was positively reflected in our study. Whereas, Sehrawat et al and Suresh et al reported that the study population had partial knowledge about the significance of deciduous teeth.

A significant part of the study population failed to recognize the importance of maintaining the hygiene of the deciduous dentition as it eventually sheds off. 55% of the respondents in this study stated that tooth decay can be prevented by regular tooth brushing. On the other hand, a similar percentage of parents stated that there was no particular time for sugar intake of their child. This is in conjunction with the studies reported by Gussy et al[18] and Suresh et al.[14] This reflects knowledge and awareness regarding popularly held beliefs that sugar intake combined with lack of brushing can lead to poor oral hygiene but the attitude towards practicing oral hygiene measure requires improvement.

Around one-fourth of the parents in our study cleaned their child's teeth after the eruption of 4 to 6 milk teeth which was similar to the results reported by Sehrawat et al[13] where 34.1% of the parents started cleaning their child's milk teeth after all teeth have erupted. This is contrary to the results of a study conducted in rural Australia where 95% of the parents commenced cleaning of their child's teeth as soon as the first tooth has erupted. It is imperative that oral hygiene measures shall be undertaken with the eruption of the first tooth in the oral cavity as this will culminate in good independent oral hygiene practice of the child.

In our study, it was seen that the majority (59%) of parents did not restrict the sugar intake of their child and only 9% of the parents restricted the sugar intake to meal times only. This means that the parents are not fully aware about the restriction of sugar intake and the role of sugar in caries development. This was contrary to the results of Blinkhorn et al[19] where 62% of the parents restricted the sugar intake to mealtimes only. Majority of the parents in this study agreed that the teeth should be cleaned after meal but only 29% made their children rinse their mouth after meals. Similar results were reported by Sehrawat et al.[13] This combined with unrestricted sugar intake indicates that there is lack of implication between knowledge and practice of maintaining the oral hygiene.

Parents should be encouraged to maintain good oral hygiene and take their children for dental checkups as soon as the first tooth erupts. The age at which the child visits the dentist for the first time will reflect the future and quality of his oral health.[20] Focus group discussions, involving parents and oral health care providers can be an effective way of providing guidelines to the parents of pre-school children.[21]

CONCLUSION

Our study concluded that parents did not have sufficient knowledge towards the oral health of their children. Few parents had good oral health practices for themselves but did not know enough about the correct age at which they should commence the cleaning of their child's teeth. Most of them did not have any clue about how important are the dental visits for children right after their first tooth eruption. There is some variation in the knowledge and attitude of working parents and non-working ones. The more educated ones had a fair idea about oral health as compared to the ones who were not educated enough because a parent's education has a strong impact on overall health of their children.

Recommendations: It is strongly recommended to facilitate activities that help parents acquire essential knowledge regarding good oral health practices for their children since parents are the first role model for their children.

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Original Article

Modified Radical Neck Dissection in Thyroid Malignancy and Its Complications

Neck Dissection in Thyroid Malignancy

Sadam Hussain[1], Zahid Mehmood[1], Shoaib Malik[2] and Naseem Baloch[1]

ABSTRACT

Objective: To assess the complications of Modified Radical Neck Dissection in thyroid Malignancy.
Study Design: Cross-sectional descriptive study
Place and Duration of Study: This study was conducted at the Department of Surgery, Jinnah Postgraduate Medical Centre, Karachi from April 2011 to April 2021.
Materials and Methods: A total of 198 cases of thyroid malignancies treated with modified radical neck dissection surgery were included. Type of Thyroid malignancy was classified as papillary carcinoma, follicular carcinoma, and medullary carcinoma. Surgeries carried out were classified as isolated MRND, thyroidectomy with MRND and completion thyroidectomy with MRND. Outcome of MRND was assessed by complications which were recorded as transient hypocalcemia, permanent hypocalcemia, temporary change in voice, permanent hoarseness, wound infection, seroma formation, and thoracic duct injury.
Results: Out of 198 cases 135 were females with mean age of presentation of 41years and males were 47 with mean age of 46years. Female to male ratio was nearly 2:1. Papillary carcinoma was found in 165 (84.1%) cases, Medullary carcinoma in 19 (9.7%) cases, and follicular carcinoma in 14(5.6%). Isolated MRND was performed in 33 (16.7%) cases, total thyroidectomy with MRND in 87(43.9%) cases and completion thyroidectomy with MRND in 78(39.4) cases. Most common postoperative complication was found to be transient hypocalcemia in 16 (8.1%) cases followed by seroma formation and wound infection.
Conclusion: MRND is a safe procedure with low rate of complications when performed by experienced and skilled surgeon in a dedicated endocrine surgery unit.
Key Words: Thyroid Malignancy, MRND, Complications

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INTRODUCTION

Thyroid disorders are one of the commonest disorders found in every part of the globe. Around 27 million Americans have thyroid pathology and more than half are still undiagnosed. Thyroid malignancy which accounts for 11% of total malignancies in USA remains to be the most common endocrine malignancy [1]. Females get affected more often than male with ratio of 3:1. The number of people who are told they have cancer has risen dramatically in recent years. This is because x-rays, which can sometimes show nodules in glands, are becoming increasingly common. Thyroid cancer can only be diagnosed with absolute certainty with a FNA biopsy.

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About 88% of primary thyroid cancers are papillary carcinoma, while 8% are follicular carcinoma, 1% are medullary carcinoma, and 1% are anaplastic. Despite the rarity of squamous cell carcinoma, lymphoma, and sarcoma, which are all included in the third clause. Papillary and follicular carcinomas are well differentiated thyroid carcinomas with better prognosis and 10year survival rate of 95% and 85%[4,5]. Medullary carcinoma arise from neuroendocrine parafollicular cells 3:1. These have 10-year survival rate of 75% while the anaplastic carcinomas are undifferentiated and have aggressive course with low survival rate[6]. Risk factors of thyroid malignancy vary according to the histological type. Hereditary and environmental factors play important role like family history of thyroid cancer are associated with familial medullary thyroid carcinoma while ionizing radiation is highly associated with papillary carcinoma[7]. Treatment option for the thyroid cancer depends upon the stage whether it is localized or have already metastasized. Most commonly it metastasizes to nearby lymph nodes mainly cervical group in 30-80%. Surgery remains the mainstay of treatment with total thyroidectomy. Other treatment options are radioactive iodine therapy, thyroid suppression therapy, chemotherapy and external beam radiation therapy.

With the recent advancement and awareness, challenges are faced by the surgeons. As, nowadays quality of life of patient is of paramount importance along with the survival rate[8,9]. For the definitive and effective treatment, neck dissection play an important role as this can directly affect the post-operative quality of life of the patients. Radical neck dissection remained the mainstay of cervical lymphadenectomy for the treatment of thyroid malignancy with adjacent lymph node metastasis. Martin, in 1952, began to address the morbidity associated with radical neck dissection (RND) like shoulder discomfort and other post-operative complications. With more public awareness of RND's risks, surgeons looked for ways to refine time-honored procedures. For this reason, a variant of the radical neck dissection technique was developed (MRND). RND most frequently causes discomfort, stiffness, and impaired range of motion in the shoulders and neck. While MRND did not have quite as many of these negative effects, it was still effective against cancer10,. Thyroidectomy is a common procedure in endocrine surgical departments and can be performed with or without neck dissection. The purpose of this research is to determine the incidence of complications during a modified radical neck dissection for the treatment of thyroid cancer.

MATERIALS AND METHODS

Participation in this study took place at the Jinnah Postgraduate Medical Centre's Department of Surgery in Karachi, Pakistan. This is a cross-sectional, descriptive study. Patients in this study ranged in age from 12 to 70, and all had been diagnosed with thyroid cancer, necessitating a treatment known as modified radical neck dissection. The data was compiled by reviewing surgical procedure records from April 2011 to April 2021. The institution's ethical review board gave permission to retrieve the data, so that it could be studied.

Thyroid carcinoma that had spread to the lymph nodes was diagnosed in all cases. Thyroid solitary nodules were sorted into their proper categories using the Bethesda System for Reporting Thyroid Cytopathology (TBSRTC). Each patient had a CT scan before surgery to assess the effects of the enlarged gland on the patient's trachea, esophagus, and other major blood vessels. Patients' ages and sex identities were recorded at the time of diagnosis. Thyroid cancer can manifest as one of three distinct forms: papillary carcinoma, follicular carcinoma, or medullary carcinoma. The microscopic characteristics of the malignancy were used to classify it into these subgroups. The operation was performed by a top consultant with over ten years of experience in thyroid surgery. After getting a signed consent form from the patient, the surgeon went through with the procedure. In terms of surgery, you might choose between MRND alone, thyroidectomy with MRND, or whole thyroidectomy with MRND. Serum calcium concentration was determined three times: the day before surgery, 24 hours after surgery, and 14 days later. There were several postoperative problems for the patient, including hypocalcemia (both temporary and permanent), voice alteration (temporary and permanent hoarseness), wound infection, seroma formation, and thoracic duct injury. The patient also suffered from lifelong hoarseness and a brief change in voice. The information was collected using a pre-made Performa.

SPSS version 25 was used for the data analysis. Quantitative variables were measured with mean and standard deviation. Quantitative and qualitative factors were measured by frequency and percentage, respectively.

RESULTS

This study included 198 cases of MRND including both genders aged between 12 to 70 years. Females were 135(68.18%) with age of presentation as low as 12years and as high as 70 years.

Mean age of female patients 41 years. Males were 63(31.8%) with age of presentation between 17 to 70 years with mean age of 46 years. Female to male ratio was found to be 2:1. Based on histopathology, papillary carcinoma was the most common thyroid malignancy found in 165 (84.6%) cases, followed by Medullary carcinoma in 19 (9.7%) cases, and follicular carcinoma in 14(5.6%) Total thyroidectomies with MRND was done in 87(44.6%) cases, completion thyroidectomy with MRND in 75(38.5) cases and Isolated MRND was performed in 33 (16.9%) cases. The most common Post-operative complication in all methods was found to be transient hypocalcemia (Table).

Transient hypocalcemia was found in 6(6.89%) cases of total thyroidectomy with MRND, 7(8.97%) cases of completion thyroidectomy with MRND, and 3(9.09%) cases of Isolated MRND. While, permanent hypocalcemia was not found in any of the case. Temporary change in voice was found in 2(2.29%) cases of total thyroidectomy with MRND, 3(3.84%) cases of completion thyroidectomy with MRND, and 1(3.03%) case of Isolated MRND. While permanent hoarseness was not found in any of the case. Wound infection was found in 3(3.44%) cases of total thyroidectomy with MRND, 4(5.12%) cases of completion thyroidectomy with MRND, and 2(6.06%) cases of Isolated MRND. Seroma formation was found in 3(2.29%) cases of total thyroidectomy with MRND, 4(5.12%) cases of completion thyroidectomy with MRND, and 1(3.03%) cases of Isolated MRND. Thoracic duct injury was found in 2(2.29%) cases of total thyroidectomy with MRND, 4(5.12%) cases of completion thyroidectomy with MRND, and 1(3.03%) case of Isolated MRND.

Table No.1: Post-Operative Complications after MRND

	Procedure			
Complication	Total Thyroidectomy+MRND (n=87)	Completion Thyroidectomy+MRND (n=78)	MRND (n=33)	Percentage
None	72	57	25	77.8%
Transient Hypocalcemia	6	7	3	8.1%
Permanent hypocalcemia	0	0	0	0
Temporary Change in Voice	2	3	1	3%
Permanent Hoarseness	0	0	0	0%
Wound Infection	3	4	2	4.5%
Seroma Formation	2	3	1	3%
Thoracic Duct Injury	2	4	1	3.5%
Total	87	78	33	100%

DISCUSSION

The results of this study suggest that females, in comparison to males, are at greater risk of acquiring thyroid cancer. The number of males taking part in this survey was about equal to the number of women. Patients tended to be relatively young. Similar results were found by Unnikrishnan AG et al. 11 in India. The men outnumbered the women by a factor of 1.18 to 1. There were 3.3 males for every female in Europe, as found by Owens PW et al. 12. Tsegaye B et al.13 found that the prevalence of the condition was 1.41 times higher among women than among men. Despite a 3:1 male to female ratio, Nguyen QT and his 2 coworkers all reached the same conclusion.

Based on the histopathological classification, Papillary carcinoma was found to be the most common malignancy of thyroid gland (84.6%) in this study followed by medullary (9.7%) and follicular carcinoma (5.6%) (Table 1). Nguyen QT et al.[2] also found the papillary carcinoma in his study (70-80%), follicular carcinoma (14%) and medullary (3%) and anaplastic carcinoma (2%). In our neighbor country India, Unnikrishnan AG et al [11] found the same trend of thyroid malignancy with papillary carcinoma on the top followed by follicular carcinoma. In another study conducted in USA, Davies L et al.[14] also found the papillary carcinoma to be the most common malignancy. In china, Du L et al. [15] also found the same result with papillary carcinoma (92.3%). Tsegaye B et al. conducted study in Ethiopia, where he also found the same results[13]

In our setup, the incidence of the postoperative complications was found to be 22.2% following MRND. The most common complication following MRND was found to be transient hypocalcemia (8.1%), followed by wound infection (4.5%), thoracic duct injury (3.5%), seroma formation (3%), and temporary change in voice (3%). Permanent hoarseness and permanent hypocalcemia were not found in any of the case. In one study conducted by Cheah WK [16], which included 115 surgeries, he found transient hypocalcemia in 23%, with permanent hypocalcemia and permanent hoarseness. In one study conducted in Bulgaria conducted by Rossen S. Dimov [17,] found transient hypocalcemia in 24% of the cases. In another study conducted by Filho JG[18] in Brazil including 316 patients, transient hypocalcemia was found to be the most common complication (27.5%) followed by permanent hypocalcemia in 5.1% which was not found in this study. In another study which also correlated to this study was conducted by Jandee Lee including 128 patients in which he found transient hypocalcemia in 34.8%, followed by wound infection and seroma formation in 6.1%, temporary change in voice in 4.5%.

CONCLUSION

Modified radical neck dissection is worldwide accepted technique for thyroid malignancy.it is safe with few complications in skilled surgical hands.

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Original Article

Course Evaluations Over the Years at College of Medicine; King Saud Bin Abdul Aziz University Jeddah

Yearly Course Evaluations of Medicine in King Saud Bin Abdul Aziz University

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ABSTRACT

Objective: The purpose of our study is to inform the audience about the working and establishment of the evaluation unit at COM-JKSAU-HS, the challenges that the evaluation unit faced, to assess 'students' satisfaction with the courses over the years

Study Design: Descriptive cross-sectional study

Place and Duration of Study: This study was conducted at the College of Medicine, King Saud Bin Abdul -Aziz University for Health Sciences– Jeddah, Saudi Arabia July 2021 to June 2022.

Materials and Methods: All the medical students using consecutive sampling techniques were included in the study after IRB approval. Data for the academic years 2013 till 2020 was retrieved from the evaluation "units' records. SPSS version 20.0 was used for data analysis.

Results: Our data showed that students were satisfied with the curriculum and the faculty. Over the years, students remained satisfied with the faculty, and courses taught. There was a decline, followed by a steady improvement in students' satisfaction as we progressed towards institutionalizing a quality-conscious culture through accreditation. In addition, the students from clinical years were more satisfied with all the domains assessed than those from the preclinical years.

Conclusion: Though Establishing an evaluation unit and maintaining efficient learning and student satisfaction is tedious, but truly a worth mentioning experience in terms of institutional gains. Feedback should be valued and considered a guide to assessing the curriculum's effectiveness; it can act as a mirror to reflect on institutional performance and help reform accordingly. Students in the clinical phase tend to be more satisfied than those from the preclinical phase.

Key Words: Course evaluation, Evaluation unit, Student's satisfaction, College of Medicine Saudi Arabia

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INTRODUCTION

With changing trends worldwide to a culture of quality improvement and customer satisfaction, feedback and evaluation have become integral in all walks of life.

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Evaluation at an educational institute is an important tool to give an insight into institutional teaching and performance [1] Feedback has been considered a guide to improving curricular execution, student experience, and satisfaction by addressing their needs. [2] It helps build a relationship between the students and the institute.[3] This information can be used for institutional accreditation, 'faculty's performance appraisal and to motivate the faculty by honoring them with awards [4] as it is practiced at COMJ KSAU-HS.

Students are considered an essential stakeholder of any educational institution, and their feedback can help improve the system, thus leading to better satisfaction and improved learning experience [5,6] COMJ KSAU-HS is one of the institutes striving hard for excellence and considers student's feedback as a vital guide [7].

The first batch of male students joined this prestigious institute in 2012, followed by female students in 2016. Furthermore, considering the importance of evaluation and the leadership's commitment to excellence, evaluation unit was established under the banner of the department of medical education in 2013.

At COM-J, there were 21 courses, including two medical research and one medical elective or field experience; there were ten courses in preclinical years) and 8 in clinical years Later from the academic year 2020, keeping stakeholders' feedback and institutional needs in mind, curricular reform took place, and each course duration was restructured to eight weeks. Previously, the duration of course execution was variable.

Courses are evaluated using a validated questionnaire. This evaluation helps us thoroughly examine course execution, helps us make judgments, and take action for further improvements accordingly. Data collection, analysis and compilation as the end-of-course evaluation report is followed by a meeting with the course coordinator. Action plans are carefully crafted, followed by recording meeting minutes, segregation, and disseminating concerns to the parent departments. Every possible step is taken to ensure that the issues raised are addressed before executing that particular course in the upcoming academic year.

As in other reputed educational institutes around the globe; evaluation reports are expected to work like brand ambassadors and add worth to our 'institute's performance on the competitive podium of education [6,8] Listening to 'students' feedback would make them inclusive to the process of decision making [9]

In this paper, we will discuss course evaluation over the years, and working of the evaluation unit at College of Medicine (COMJ-KSAUHS).

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted at the College of Medicine, King Saud Bin Abdul -Aziz University for Health Sciences– Jeddah, Saudi Arabia. All the male and female medical students using consecutive sampling techniques were included in the study after IRB approval. The data retrieved from evaluation units' record included data from the academic year 2013-14 till the academic year 2019-20. The frequency and percentage were computed for categorical variables. For inferential statistics, ANOVA and Independent t-test was used. A value less than 0.05 was considered significant.

SPSS version 20.0 was used for data analysis. This study included all the course evaluation reports whose response rate was above 60%. The questionnaire was designed by medical educationists with input from different stakeholders, followed by pilot testing and validation.

RESULTS

Trends over the years: Over the years, students remained satisfied with the faculty and courses taught with a decline followed by a steady improvement in student satisfaction.

Table No.1: Demographic Characteristics.

Academic year	Number of courses	Level of study	Number of courses
2013-2014	10	*Phase II	101
2014-2015	14	**Phase III	52
2015-2016	18	Total	153
2016-2017	23	Gender	Number of courses
2017-2018	28		
2018-2019	26	Male	114
2019-2020	34	Female	39
Total	153	Total	153

*Preclinical (Phase II)

**Clinical years (Phase III)

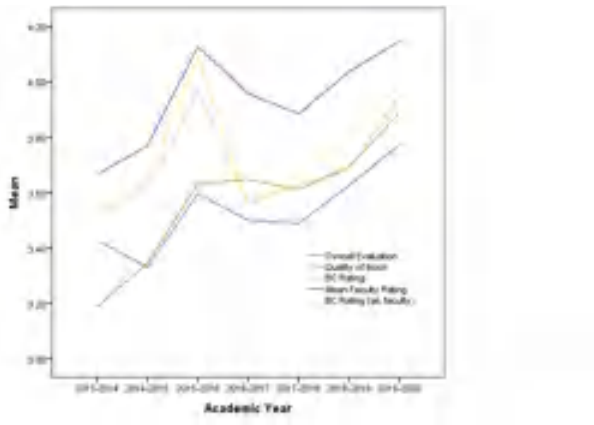

Figure No. 1: Academic Year with Mean

Trends based on the level of study that is the difference in preclinical (Phase II) and clinical years (Phase III): On analyzing data to determine any difference based on the level of study, it was seen that the students from clinical years were more satisfied with all the domains assessed than those from the preclinical years. In addition, a statistically significant difference in mean faculty rating of clinical years was seen.

Table No.2:

		N	Mean	SD	95% CI		p-value
Overall Evaluation	2013-2014	10	3.43	.535	3.046	3.812	0.376
	2014-2015	14	3.33	.983	2.763	3.897	
	2015-2016	18	3.60	.731	3.233	3.960	
	2016-2017	23	3.50	.589	3.245	3.755	
	2017-2018	28	3.48	.674	3.221	3.744	
	2018-2019	26	3.63	.814	3.305	3.963	

	2019-2020	34	3.80	.628	3.583	4.022	
	Total	153	3.58	.712	3.464	3.692	
Quality of	2013-2014	10	3.19	.519	2.815	3.559	0.014
	2014-2015	14	3.35	.856	2.851	3.839	
	2015-2016	18	3.63	.654	3.306	3.956	
	2016-2017	23	3.65	.490	3.436	3.860	
	2017-2018	28	3.62	.536	3.408	3.824	
	2018-2019	26	3.70	.681	3.429	3.979	
	2019-2020	34	3.91	.504	3.737	4.089	
	Total	153	3.65	.618	3.552	3.749	
*Course coordinator Rating	2013-2014	10	3.51	.930	2.847	4.177	0.371
	2014-2015	14	3.62	1.257	2.890	4.342	
	2015-2016	18	3.97	.851	3.542	4.388	
	2016-2017	23	3.56	.778	3.227	3.901	
	2017-2018	28	3.64	.796	3.331	3.948	
	2018-2019	26	3.70	.910	3.335	4.071	
	2019-2020	34	3.98	.582	3.776	4.182	
	Total	153	3.74	.841	3.608	3.877	
Mean Faculty Rating	2013-2014	10	3.67	.264	3.477	3.855	<0.001
	2014-2015	14	3.77	.382	3.548	3.989	
	2015-2016	18	4.13	.279	3.989	4.267	
	2016-2017	23	3.96	.290	3.833	4.084	
	2017-2018	28	3.89	.360	3.750	4.030	
	2018-2019	26	4.04	.431	3.864	4.212	
	2019-2020	34	4.16	.270	4.064	4.252	
	Total	153	3.99	.360	3.930	4.045	
Course coordinator Rating (as faculty)	2013-2014	10	3.53	1.201	2.666	4.384	0.465
	2014-2015	14	3.64	1.354	2.860	4.423	
	2015-2016	18	4.09	.958	3.615	4.568	
	2016-2017	23	3.55	.996	3.117	3.979	
	2017-2018	27	3.66	.873	3.311	4.002	
	2018-2019	24	3.79	1.108	3.321	4.257	
	2019-2020	30	3.98	.669	3.731	4.231	
	Total	146	3.77	.985	3.610	3.932	

ANOVA *Course coordinator rating as coordinator

Table No.3:

		N	**Mean**	**SD**	**95% CI**		**p-value**
Overall Evaluation	*Phase II	101	3.5	.66	-.425	.086	0.191
	**Phase III	52	3.7	.80			
Quality of Course	Phase II	101	3.6	.57	-.402	.011	0.064
	Phase III	52	3.8	.69			
***Course coordinator Rating	Phase II	101	3.7	.82	-.358	.211	0.610
	Phase III	52	3.8	.88			
Mean Faculty Rating	Phase II	101	3.8	.30	-.529	-.329	<0.001
	Phase III	52	4.3	.29			
Course coordinator Rating (as faculty)	Phase II	96	3.7	.98	-.461	.220	0.484
	Phase III	50	3.9	.99			

Independent t-test *Preclinical (Phase II) **Clinical years (Phase III)
*** Course coordinator rating as coordinator

Table No.4:

		N	Mean	SD	95% Cl		p-value
Overall Evaluation	Male	114	3.6	.71	-.338	.185	0.564
	Female	39	3.6	.74			
Quality of Course	Male	114	3.6	.63	-.369	.083	0.214
	Female	39	3.8	.57			
*Course coordinator Rating	Male	114	3.7	.87	-.396	.222	0.581
	Female	39	3.8	.74			
Mean Faculty Rating	Male	114	4.0	.37	-.148	.116	0.810
	Female	39	4.0	.32			
Course coordinator Rating (as faculty)	Male	113	3.8	1.03	-.285	.488	0.604
	Female	33	3.7	.84			

Independent t-test * Course coordinator rating as coordinator

Table No.5:

			N	Mean	SD	95% CI		p
Phase II	Overall Evaluation	Male	70	3.5	0.66	-.376	.191	0.519
		Female	31	3.6	0.68			
	Quality of Course	Male	70	3.5	0.59	-.407	.079	0.183
		Female	31	3.7	0.51			
	Course coordinator Rating	Male	70	3.7	0.87	-.424	.284	0.695
		Female	31	3.8	0.73			
	Mean Faculty Rating	Male	70	3.8	0.31	-.237	.020	0.096
		Female	31	3.9	0.27			
	Course coordinator Rating (as faculty)	Male	69	3.8	1.05	-.262	.626	0.418
		Female	27	3.6	0.81			
Phase III	Overall Evaluation	Male	44	3.7	0.78	-.785	.453	0.593
		Female	8	3.8	0.95			
	Quality of Course	Male	44	3.7	0.68	-.778	.290	0.363
		Female	8	4.0	0.75			
	*Course coordinator Rating	Male	44	3.8	0.90	-.890	.478	0.548
		Female	8	4.0	0.82			
	Mean Faculty Rating	Male	44	4.3	0.28	-.279	.165	0.607
		Female	8	4.3	0.31			
	Course coordinator Rating (as faculty)	Male	44	3.8	1.01	-1.172	.575	0.495
		Female	6	4.1	0.93			

Independent t-test * Course coordinator rating as coordinator

Overall Trends based on gender: No statistically significant gender-based difference in 'students' satisfaction was found. Further details can be found in the table 4.

Gender-based trends on segregating data for Preclinical (Phase II) and Clinical years (Phase III): Females were found to rate most of the domains higher, but no statistically significant gender-based difference in 'satisfaction was found. Further details can be found in the table 5

DISCUSSION

Establishing an evaluation unit was quite challenging as it took time for all the stakeholders to accept the need and importance of a fully functional evaluation unit. However, this challenge was overcome by personal and professional development activities targeting the audience to understand the importance of feedback in a quality-conscious culture. Apart from discussing establishing an evaluation unit and the faced challenges, this study intended to measure students' satisfaction with the courses over the years and to determine any difference in satisfaction based on gender or year of study.

For this study, satisfaction on overall course evaluation is considered a rating of 3.5-3.9, while a rating of 4 and above is considered highly satisfactory. Generally speaking, our students were satisfied with the courses taught. A steady increase in satisfaction followed by a decline—was followed by another steep rise in satisfaction in the academic year 2018 onwards. It is worth mentioning that the college worked hard to achieve excellence and accreditation from the National Commission for accreditation, awarded in AY 2020-21. Tedious efforts to achieve accreditation led to a

holistically improved system and thus could be related to the gradual increase in satisfaction.

A carefully designed well balanced questionnaire with limited number of questions aim to avoid 'respondents' fatigue and maintain a satisfactory response rate. [10] Maintaining an adequate response rate is considered crucial to assure data validity. [11]

Though clinical years are considered very stressful, [12] here in our study, students' ratings in the clinical years were higher than that of preclinical years. At COMJ, a supportive environment of regular feedbacks and close faculty contacts could have led to higher student satisfaction. [13] In clinical years, students tend to have more real-life exposure where they can critically link their theoretical knowledge to real-life clinical practice[14] Our study found a statistically significant difference with higher students' satisfaction in the clinical years. Regarding basic sciences, many studies support that students fail to recall or link basic science-related knowledge, thus could impact students' satisfaction with basic sciences [15] Regular reviewing and revisiting basic science curriculum could enhance student's satisfaction[16]

At COMJ KSAU-HS, Evaluation reports are considered an essential guide to improve and build up a relationship of mutual trust between the institute and students. [17] Stakeholders satisfaction is considered one of the most important key performance indicators.

Course evaluations target the content, infrastructure, and faculty involved in the teaching process. There might be single or multiple questions related to the faculty [18] At COM-JKSAU-HS, each Faculty member is rated individually on a five-point Likert scale. Close-ended questions are followed by an open-ended segment where the students are encouraged to speak their heart out. [19] – The Faculty's role and importance cannot be denied. [20]. They play a pivotal role in the overall environment, students' experience, and satisfaction. [21] Statistically significant difference was found in the mean faculty rating, where students from clinical years rated their faculty higher than in the preclinical years. Mean course coordinator rating for clinical years was higher than that of the preclinical years but not statistically significant. It is worth mentioning that the course coordinators in both phases are clinicians and carefully selected based on previous performance.

As found in our study, other studies found most students to be satisfied with clinical outpatient training compared to theoretical teaching. [22] Some studies suggest that students have raised their voices in favor of clinical teaching and limiting preclinical teaching to self-directed ones. This would facilitate to acquire real-life practical experience. [23]

Acting on the feedback is vital to ensure the vitality of the whole process. [24] If loops are not closed, issues raised are not addressed, then the purpose of evaluation dies. At COMJ feedback on faculty's performance is reviewed with important stakeholders, and decisions are made accordingly for the upcoming academic year. The course coordinator's opinion based on his personal experience is also considered, e.g. if someone were not good at submitting MCQs, that would be addressed personally by the course coordinator and assessment unit by sending reminders to submit timely MCQs. Those who were not good at writing MCQ would be referred to the faculty enhancement unit to encourage them to attend workshops. Issues raised and discussed are disseminated to concerned departments for remedial measures.

Since the inception of the evaluation unit, this unit has faced multiple challenges. First, the low-rated faculty was unwilling to accept its rating and would become defensive. Following a track record of student's feedback over the years from different students at different levels helped us make a convincing impression on the performance of individual faculty members. Open-ended questions helped us get a detailed impression of their performance and identified some weaknesses. Collecting data and maintaining an optimum response rate remains another challenge; specifically, the response rate from the faculty remains very low. Initially, the issues raised were forwarded to the concerned departments they were reluctant to own and respond. The commitment of higher-level leaders and the need for institutional accreditation, ensured a gradual but sustained shift to a culture of responding to feedback.

Constant reminders and encouragement by the presence of representatives from the evaluation unit in important committees and meetings helped stakeholders realize the importance of feedback. This was reiterated by NCAAA's demands for accreditation, which emphasized on responding to feedbacks. Gradually with time, some behavior modification is seen in the form of support and ownership to feedbacks, but still, we have a long way to go.

We consider student feedback as a rich source of information. If this rating is not used for development, stakeholders might lose trust in the process. [25] Thus, evaluation data collected at our institute is used to improve teaching and overall experience, as suggested by many studies [19] Apart from planning future involvement or training our faculty, this feedback is used to modify the curriculum based on need.

Our institute follows a clear and systematic approach where all the requests by the faculty and students are assessed and weighed for feasibility by stakeholders. Some of the decisions taken based on feedback were; reviewing of curriculum to avoid repetition of objectives, dividing heavy lecture objectives, reviewing the sequencing of educational activities & different exam components, and selecting appropriate days for PBL sessions, improvement in clinical teaching by

introducing residents as effective support, to add new topics, review and modification of lecture titles, review and updating Problem-based learning cases, equal credit hour distribution among all the courses, Improving learning resources and infrastructure, providing sufficient self-directed learning time before exams and many more. Introducing change is a challenge, but taking all the stakeholders aboard facilitated a smooth transition to change.

Multiple social, academic, and environmental factors can affect student satisfaction [7] Characteristics of students can predict Student satisfaction, and gender is one of them. Some of the studies found females to be more satisfied as compared to male medical students [22] which is contrary to our study, where no statistically significant gender-based difference was found in 'students' satisfaction. The female medical college is still budding and is at its initial stages. This comparison would be better in the years to come.

Quality assurance is of concern in higher education, all walks of life, and worldwide. [17] Maintaining a culture of quality is challenging and needs constant monitoring. Feedbacks help maintain a culture of checks and balances. COMJ gradually institutionalized a culture of quality, while preparing for accreditation, we grew and built a quality-conscious team. After multiple reviews and acting on feedbacks, COMJ was accredited by National Center for Academic Accreditation and Evaluation.

CONCLUSION

Student feedback is an essential indicator of the quality of education and should be used as a guide for future institutional and curricular development. Though establishing an evaluation unit and responding to feedback to maintain efficient learning and student satisfaction is tedious, but truly a worthwhile experience in terms of institutional gains.

Feedback is a direct way to assess the effectiveness of the curriculum; it can act as a mirror to reflect on institutional performance and help reform accordingly. Students in the clinical phase tend to be more satisfied than those from the preclinical phase.

Limitation and Recommendations: This study is just a single-center experience, so the results are not generalizable. Nor did we use a standardized, internationally recognized questionnaire. If a validated, globally accepted questionnaire is developed in future it will allow a holistic insight from all around the globe. In addition; a globally unified questionnaire could easily allow us to make a standardized comparison. It is the need of the hour to consider student's feedback as a vital guide that could lead to improvement.

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Original Article

Prevalence and Severity of Temporomandibular Disorders among Medical and Non-Medical Undergraduate Students

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ABSTRACT

Objective: To compare the prevalence and severity of temporomandibular joint disorders among undergraduate medical and non-medical students.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the two different institutes, CMH Lahore Medical College and Institute of Dentistry (NUMS) and Punjab University, Lahore from April 2021 and October 2021.

Materials and Methods: This cross-sectional study was carried out among 900 students with age ranging from 17-27 years, by distributing a self-administered questionnaire among them. The participants belonged to two different institutions of Lahore (CMH LMC & IOD and Punjab University).The questionnaire comprised of some general questions about patient's history and ten specific questions about temporomandibular joint. The questionnaires were scored and sum of points was used to classify TMD into mild, moderate, and severe forms of disease.

Results: The prevalence of TMD among medical/dental students was 63% and among non-medical students it was 48%. Mild and moderate forms of TMD were more prevalent in female students in both groups i.e., medical/dental students and non-medical students. The elder age group (≥22 years) suffered more from mild form of TMD in both groups. A decline in TMD free cases was seen with the increasing study year among the participants in both categories of students.

Conclusion: Temporomandibular disorders are common among medical/dental students. Prevalence of mild and moderate form of disease was seen more in females. An increase in disease prevalence was seen with increasing age.

Key Words: Temporomandibular disorders (TMD), Temporomandibular joint, Fonseca Amnestic Index (FAI).

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INTRODUCTION

Temporomandibular disorders (TMDs) is a comprehensive term used to describe musculoskeletal ailments which affects the temporomandibular joint and its associated structures.[1,2] The disorder often presents as pain in TMJ, cervical spine or preauricular region,[3] muscle fatigue mainly of the masticatory muscles, diminished jaw movement and unusual joint sounds[4].

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The etiology of TMD is quite complex and remains controversial with multiple potential factors involved. The causative local factors may include malocclusion, partial edentulism, occlusal interferences, clenching or bruxing, masticatory muscle dysfunction, postural variation, internal or external changes within the joint structure and traumatic injury.[5,6] The systemic factors may include genetic predisposition, psychosocial disability, stress[7], impaired general health, an immune-mediated disorder, or a neoplasm.[8] These factors individually or in combination may act as predisposing, precipitating or prolonging factors.[7]

The prevalence of TMDs ranges from 20% to 50%.[8] Despite being quite common, having high prevalence rates it is often misdiagnosed as the pain of dentoalveolar origin and therefore poorly managed causing its progression to severe forms of the disease[1].Screening a population for TMD remains a challenge till to date and a universal diagnostic criterion is still lacking although many tools have been proposed.[8] Fonseca's amnestic index developed in 1994 for Brazilian Portuguese population has gained popularity as a preliminary diagnostic tool having the advantage of being self-administered, simple, cost effective, less time consuming and easily applicable.[9] It

allows multidimensional evaluation including assessment of disease severity.[10]

MATERIALS AND METHODS

This cross-sectional study was carried out in two different institutes, CMH Lahore Medical College and Institute of Dentistry (NUMS) and Punjab University, Lahore. The study was carried out between April 2021 and October 2021. The data was collected using a self-administered questionnaire which was distributed among conveniently selected sample of 900 students of both institutions. Full time undergraduate students with ages between 17-27 years of both the medical and non-medical institute, who gave consent for participation were included in this study. Students with history of trauma to the temporomandibular joint, undergoing orthodontic treatment, suffering from any musculoskeletal or neurological disorders, regularly taking analgesic, anxiolytic medications and having systemic illness were excluded from the study.

Ethical approval was taken from Institutional Review Board (Case#550/ERC/CMH/LMC). A questionnaire proposed by Fonseca[1,2,4,5]for identifying TMDs and classifying its severity was distributed among the participants. Fonseca's questionnaire has proven reliability, it offers the advantage of providing a severity index with less influence from examiner and minimal variation in measurements.[11,12]

Non-probability convenience sampling technique was used for data collection. The questionnaire was distributed among 900 students by the researchers who fulfilled the inclusion criteria. The participants were instructed to answer the questionnaire with "yes" (10 points), "no" (0 points) or "sometimes"(5 points). Only one answer was allowed for each question. The sum of points was used to classify participants into four categories: TMDs free(0–15), mild TMDs(20–40), moderate TMDs(45- 65), and severe TMDs(70–100).

Data was entered in SPSS version 24. Mean and standard deviation was calculated for quantitative variables, frequency with relative percentage was calculated for qualitative variables and R x C contingency tables were included. Chi-Square analysis was applied to see significant association on the basis of age, gender, and type of university with other variables. A p-value of ≤ 0.05 was considered significant.

RESULTS

A total of 900 forms were included in the study and analyzed. 450 students belonged to medical /dental college whereas 450 belonged to the non-medical university. Among them 538 (60%) were females and 362 (40%) were males. Among the female students 285 (53%) were studying in the medical college and 253 (47%) were studying in non-medical university. Fourty six % (165) males were studying in medical college and 54% (197) males were studying in non-medical university. The prevalence of TMD among medical/dental students was 63% and among non-medical students it was 48%.

Table No.1: Age wise TMD status

University Category	Age		TMD_Status				P-Value
			TMD Free	Mild TMD	Moderate TMD	Severe TMD	
Medical & Dental College	17-21	Count	107	74	24	2	0.000
		% of Total	23.8%	16.4%	5.3%	0.4%	
	>=22	Count	61	119	59	4	
		% of Total	13.6%	26.4%	13.1%	0.9%	
Non-Medical University	17-21	Count	123	80	23	1	
		% of Total	27.3%	17.8%	5.1%	0.2%	
	>=22	Count	112	97	13	1	
		% of Total	24.9%	21.6%	2.9%	0.2%	

Table No. 2 Gender wise TMD Status

University Category	Gender		TMD_Status				P-value
			TMD Free	Mild TMD	Moderate TMD	Severe TMD	
Medical & Dental College	Male	Count	58	69	33	5	0.24
		% of Total	12.9%	15.3%	7.3%	1.1%	
	Female	Count	109	125	50	1	
		% of Total	24.2%	27.8%	11.1%	0.2%	
Non-Medical University	Male	Count	103	87	7	0	
		% of Total	22.9%	19.3%	1.6%	0.0%	
	Female	Count	133	90	28	2	
		% of Total	29.6%	20.0%	6.2%	0.4%	

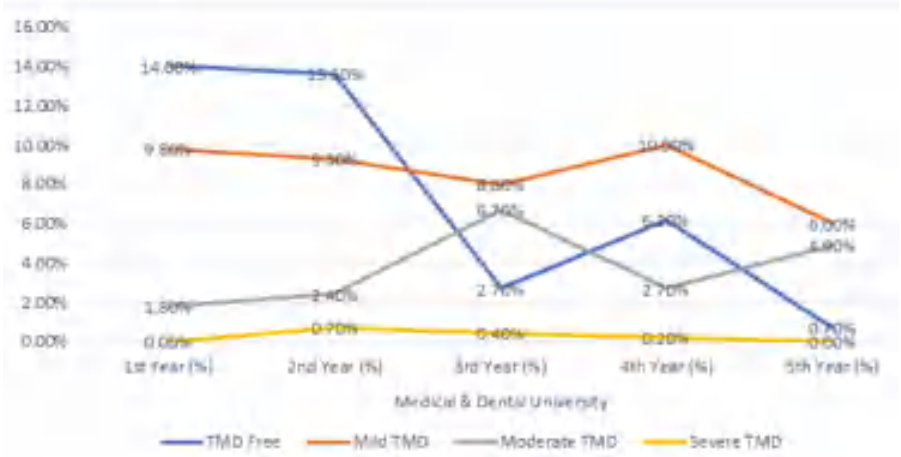

Figure No.1: Study Year Wise TMD Percentages Medical and Dental College

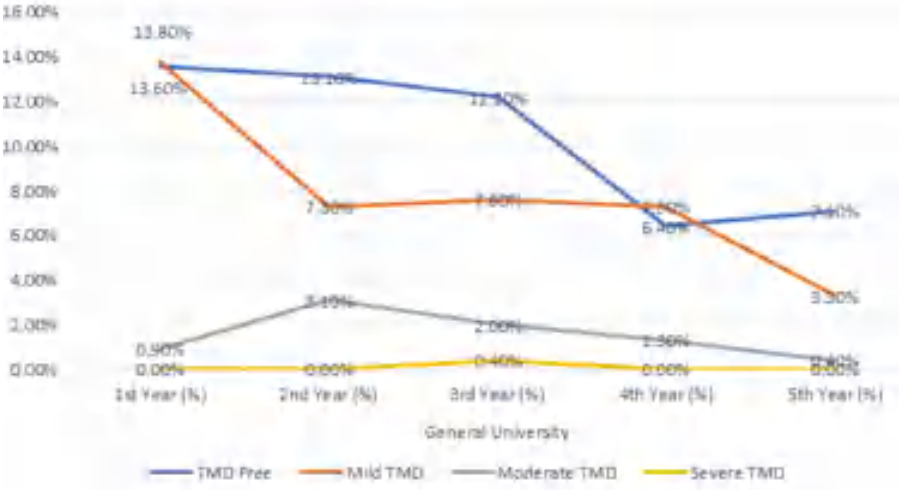

Figure No. 2: Study Year Wise TMD Percentages Non-Medical University

Mild TMD was more prevalent in students at medical college. The elder age group in medical school had the highest prevalence of mild disease. Moderate TMD was also more prevalent in students at medical college. (Table-1).

TMD was found to be more prevalent in the female participants. Severe TMD was observed most in male students at medical college 1%. (Table – 2)

Mild TMD was seen more in students at medical college 43.1% whereas 39.3% non-medical students had mild form of disease. Third year medical students showed highest prevalence of moderate TMD (6.7%) whereas second year non-medical students had more moderate disease (3.1%).Severe TMD was almost non-existent in non-medical students whereas 1.3% medical students had this form of disease. (Figure – 1, 2)

DISCUSSION

Temporomandibular disorders include changes of the temporomandibular joint, its associated structures, and facial and neck musculature. According to literature an estimated 60-70% of general population does have at least one sign of TMD but very few are aware of the symptoms and report them.[13]The etiology and pathogenesis of the disease is not well understood which often makes treating it a little tough. A thorough understanding of the potential pathological factors is of paramount importance for identifying and avoiding them.

In the present study a comparison of the prevalence and severity of temporomandibular disorders between undergraduate medical and non-medical university students was carried out and its association with different variables was observed. The purpose of the study was to increase awareness among the students about the disease and to identify TMD cases at an early stage.

The results of the present study showed that the symptoms of TMD were more prevalent among medical students (63%) in comparison to non-medical students (48%). This is in agreement with the studies conducted on university students at SRM university[2], Sharif educational complex[13], university students in Jordan[14], Brazilian university population[15] and students at university of Taiwan[16], results of all of which showed that symptoms of TMD were remarkably more prevalent among the students of health and science studies. This could be due to their curricula, an annual

examination system and heavier study loads faced by them whereas non-medical students mostly have a semester system. Annual examination system adds to mental/psychological stress of medical students which is a known causative factor for TMD.[10,14,17]The students must prepare the entire year course in few days before the exam which can affect their performance. In today's competitive challenging world everyone desires to get maximum marks to be on top of recruitment, and selection process. Psychological stress also plays a role in progression of TMD. These findings can further be supported by two studies which investigated effects of recent stressful life events, stating that almost 50% of TMD onsets were attributable to such events.[17,18]A study by Ahuja V et al reported stress as a significant etiological factor involved in initiation and maintenance of TMDs in dental students.[19] In two other studies strong co-relation was found between stress and TMD.[20,21] A recent study while showing a strong association between salivary cortisol levels, stress and TMD suggested that salivary cortisol can be used as a prognostic biomarker for stress while assessing TMJ problems in stressed indivuduals.[21]

TMD in its mild and moderate form was more prevalent among females in both groups. This observation is in accordance with the results of studies by Karthik R et al,[2] Zareef U et al,[9] Nomura K et al,[15] Bourzgui F et al,[20] Venkatesh SB et al,[21] Pinto RG et al,[22] Ashfaq M et al,[23]and Pedroni CR et al,[24] which all showed disease prevalence was more in females. This higher prevalence could be attributed to contrasting physiological characteristics of females, the fact that they get stressed easily and are often more emotional than males.[15,25] However, studies in western countries showed no difference in distribution of TMD among both genders.[26,27]

The elder age group (≥ 22 years) in medical students showed highest prevalence of mild as well as moderate disease. Another study in literature reported that the prevalence of TMD increased significantly in adults < 50 years.[31]A continuous decline in TMD free cases was seen with increasing study year in both medical and non-medical students. Both observations are consistent with the fact that with every passing year professional studies become tough and demanding, social and peer pressures also increase, making students vulnerable to the risk of developing TMD which if goes un-reported and untreated can become a source of constant irritation and nuisance for students affecting their performance as well as their physical and mental health. Aging has also been reported to increase susceptibility to stress which can lead to TMD. As the TMD free cases declined, mild TMD cases started to increase reaching their peak in fourth year medical students whereas in students at non-medical university mild cases had a uniform prevalence in students of second, third & fourth year. Significant decline was seen in mild TMD cases in fifth year for students at both medical school and non-medical university. A noticeable increase was observed in moderate TMD cases in third year medical students followed by a decline in fourth year and again an incline in fifth year. This observation could be because in third year clinical courses start for medical students adding a lot of physical/mental burden which they get used to by next year whereas in the final year they again are under pressure to clear their professional exams. Moderate TMD cases showed an incline in second year students at non-medical university followed by a continuous decline in the rest of their professional education years which can be because after the initial years they get a better hang of how to go about their semester exams while staying calm and stress free. Severe TMD cases luckily didn't show any significant incline in both categories of students. Early recognition and awareness among students can help prevent transition of mild cases to moderate ones.

CONCLUSION

The current study concluded that TMDs are more prevalent in medical students than non-medical students. Females were affected more with TMDs than males. Increased prevalence of disease was seen with increasing age. The elder age group in medical school had the highest prevalence of mild disease. A decline in TMD free cases was seen with the increasing study year among the participants.

Recommendations: Mild TMDs can be managed well by changes in behavior, regular relaxation exercises and controlling individually identified causative factors. Maintenance of good head, neck and back posture while studying will help preventing painful episodes. Parafunctional habits i.e., clenching and grinding of teeth can be avoided by creating awareness, physical self-regulation and prescribing night guards or habit breakers. Identification of mild to moderate cases will help to prevent their progression to severe forms of disease which could be debilitating.

Author's Contribution:

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Original Article

Comparative Effects of Stabilization Exercises and Muscle Energy Techniques on Pain and Disability in Patients with Sacroiliac Joint Pain

Sana Tahir[1], Samrood Akram[1], Muhammad Yawar Azeem Khan[1], Amna Taufiq[2], Ayesha Iqbal[1] and Naveed Anwar[2]

ABSTRACT

Objective: To compare the effects of stabilization exercises and muscle energy techniques on pain and disability in patients with sacroiliac joint pain.

Study Design: A randomized clinical trial study

Place and Duration of Study: This study was conducted at the Ibn e Siena Hospital and Bakhtawar Amin Hospital, Multan from March 2022 to August 2022.

Materials and Methods: Sample size of 34 patients with the age ranging from 30 to 50 years having sacroiliac joint pain, recruited through consecutive sampling. All were randomly allocated through simple random sealed opaque enveloped method into two groups; Group A was treated with Stabilization exercises and Group B was treated with Muscle energy techniques (METs). The intervention was applied for 4 weeks received (12 sessions of treatment with 3 sessions per week). Numeric Pain Rating Scale (NPRS) and the Modified Oswestry Disability Index (MODI) were used for assessing the impact of the treatment at the beginning and after 4 weeks of treatment. Analysis was done using SPSS version 25 and t-tests were applied.

Results: Participants n=34 were split into Group A (Stabilization Ex.) and Group B (METs) randomly with Group A's mean age was 40.23 and standard deviation was 6.33 and for Group B was 38.76 and standard deviation was 5.80. The mean values of the NPRS and MODI scores before and after treatment differed significantly with p value < 0.05 in both study groups.

Conclusion: This study concluded that both treatment groups i.e., stabilization exercises and muscle energy technique were effective in reducing pain and disability among sacroiliac pain patients. However, muscle energy technique was more effective in comparison to stabilization exercises.

Key Words: Pain, Disability, Exercise therapy, Sacroiliac joint

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INTRODUCTION

Sacroiliac joint (SIJ) is an axial joint transfer load from lumbar to lower extremities[1]. This joint is made main for stability not for mobility[2]. There is evidence of SIJ innervation, so it may also cause low back pain[3].The stabilizing muscle of SIJ includes; gluteus maximus, piriformis, paraspinal muscle and hamstring[4].

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The biomechanical mechanism is for SIJ stability is force closure and form closure[5]. SIJ becomes unstable due to laxity of posterior and interosseous ligaments. The etiology of SIJ is combination of axial loading and sudden rotation[6]. SIJ pain can be due to hypomobility or hypermobility[7].

Stabilization exercises are used for gaining neuromuscular control, enhancing endurance and strength of muscles, which raises muscular function and reduces pain[8]. Stability exercises also prevent musculoskeletal injury[9]. Stabilization exercises prescribed as low back pain is treated with stability training[10]. MODI is sensitive to sacroiliac caused pain[4]. NPRS administered in pain quality evaluation[11].

The physical therapy treatment for SIJ dysfunction is mainly focus on correcting muscular imbalance that cause its asymmetry. Mulligan mobilization with movement is considered effective manual techniques. METSs in which a precisely controlled forced is generated by patient, which is directed against the force applied by therapist.[12] This is used to stretch,

strengthen, and relax targeted muscles[13]. METs are used for addressing pain, muscular strain, for treating joint dysfunction and restoring range of motion[14]. The study aims to target SIJ pain patients and treat them with stabilization exercises and METs. Comparing both exercise therapies and to see if any of these is superior over the other for the management of SIJ pain that would provide better outcomes for pain and disability that helps the clinicians to provide evidence-based approach towards the application of intervention.

MATERIALS AND METHODS

This randomized clinical trial was carried out at Ibn e Siena Hospital and Bakhtawar Amin Hospital, Multan after getting ethical approval from research ethical committee of Riphah Lahore campus (Ref. No. REC/RCR &AHS/22/0107) from March 2022 to August 2022.This study registered at Clinical Trials with identifier no: NCT05356390.Participants were selected through consecutive sampling. Sample size calculated was 34 by EPITOOL software using MODI tool values[15] with confidence interval 0.95. Sample was 34 after 10% attrition rate was 38 to manage drop outs. Inclusion criteria includes both male and female, age range 30 to 50 years with positive Laslett's criteria, NPRS value < 7, Modified ODI score 21-40 %. Patients with history of pregnancy, lumbosacral disc herniation, and sacroiliac joint inflammation were excluded. All were randomly allocated through simple random sealed opaque enveloped method into two groups. Informed consent was taken from all the participants. Outcome measures used were the NPRS and the MODI. This was a single blinded study in which participants were blind.

Group A was treated with Stabilization exercises that includes floor bridging, heel prop and alternate arm and leg raise was administered to iliopsoas, gluteal and hamstrings. These exercises were performed 3 sets of 10 reps each, performed three times weekly for four weeks. Hip abduction strengthening with hold for 5 second and repeat 10 times[16].

Group B was treated with METs performed as post isometric relaxation technique targeting hamstrings, iliopsoas, and quadratus lumborum and erector spinae. The position was held for 10-30 seconds and was performed 3 times per session 4 times per week for 4 weeks[17].

Common Treatment for both groups was application of hot pack (10min) and TENS (10min), patients were requested to avoid performing other treatment protocol during study duration.

The data was analyzed by using SPSS version 25. Statistical significance was set at p= 0.05. Shapiro wilk test was used to know normality of data. Variable NPRS p value 0.17 and MODI Variable have p value 0.07. Both values were > 0.05 which showed that data is normally distributed and parametric t-tests were applied. For within group analysis Paired t-test was used and for between group analysis independent t-test was used.

RESULTS

Total number of participants were 34 (Group A stabilization Exercises =17 and Group B METs=17). Descriptive data for gender, in group A there were 52.9 % males and 47.1% females and in group B there were 58.8% males and 41.2% females shown in Table No.1.

Descriptive data for Age, weight, height, and BMI values for group A and group B shown in Table No.2. The mean and standard deviation for Age in group A was 40.23 ± 6.33 whereas for group B 38.76 ±5.804.

Within Group analysis done by paired sample t test for pre and post treatment comparison. Within Group A analysis for NPRS shows p value 0.62 and for MODI shows p value <0.001 shown in Table No.3. Within Group B analysis for NPRS shows p value 0.10 and for MODI shows p value <0.001 shown in Table No.4.

Between Group A and B analysis done by independent t-test. The results showed that there was significant difference in post treatment between groups with p value < 0.05 for NPRS and MODI as shown in Table No.5.

Figure 1 showed the Clustered Bar graph for NPRS for comparing means within group. This shows that both treatments were effective in reducing pain but METs were more effective.

Figure 2 showed the Clustered Bar graph for Modified ODI for comparing means within group. This shows that both treatments were effective in reducing disability.

Table No. 1: Gender of Group A and B Participants

Treatment Groups	Gender	Frequency	%age
Group A: Stabilization Ex.	Males	9	52.9
	Females	8	47.1
Group B: METs	Males	10	58.8
	Females	7	41.2

Table No. 2: Descriptive Statistics of Group A and B Participants

Treatment Groups	Variables	Mean ± SD
Group A Stabilization Ex.	Age	40.23 ± 6.339
	Body weight	64.47 ± 7.600
	Height	1.658 ± 0.066
	BMI	22.61 ± 3.900
Group B METs	Age	38.76 ± 5.804
	Body weight	67.47 ± 4.431
	Height	1.664 ± 0.053
	BMI	24.43 ± 2.368

CONSORT Diagram

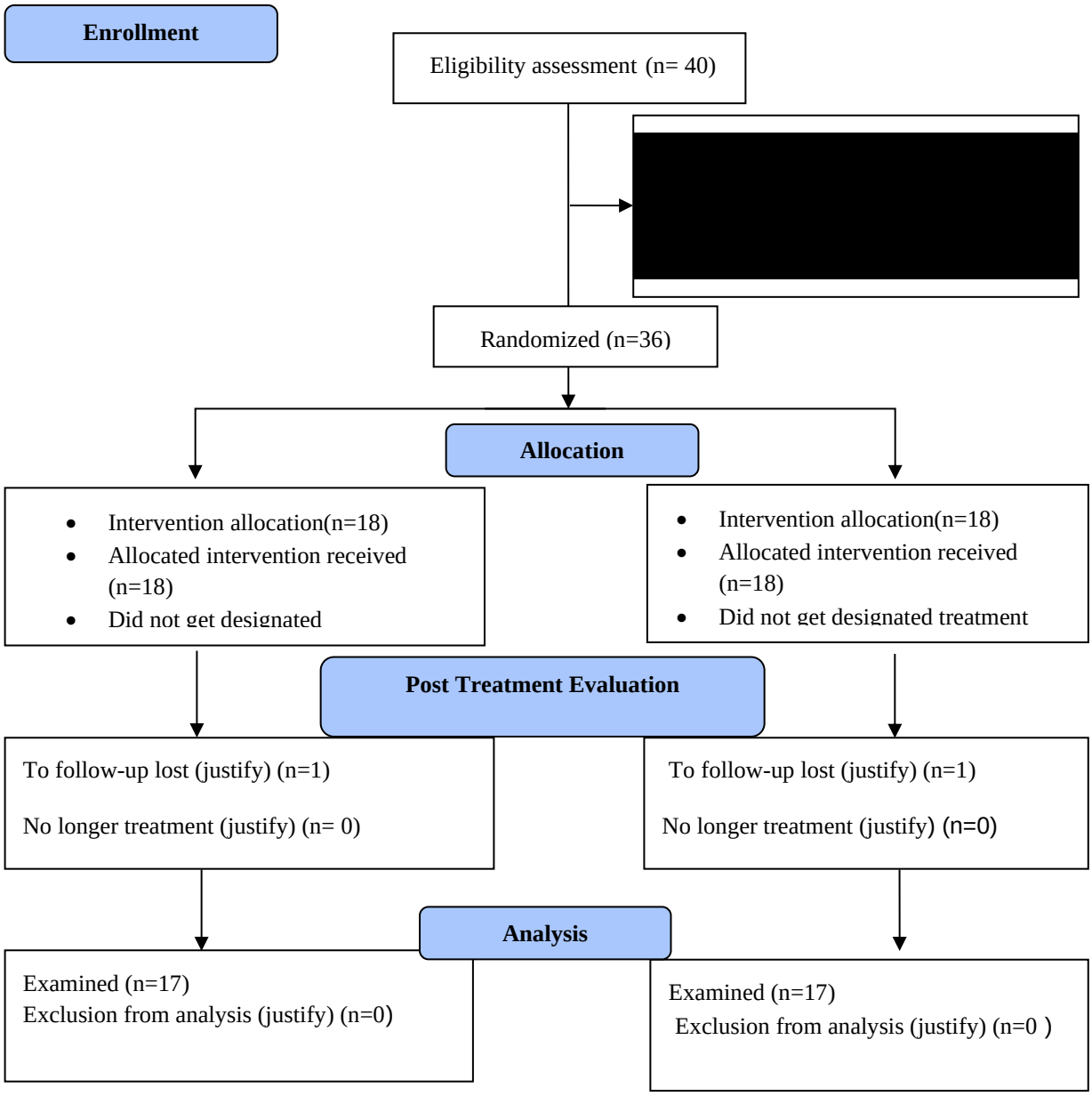

Table No. 3: Within Group-A (Stabilization Exercises) Analysis

Variables	Treatment	n	Mean ± SD	Mean Difference	p-value
NPRS	Pre-Treatment	17	3.582 ±1.87	0.235	0.62
	Post-Treatment		3.235 ±1.71		
MODI	Pre-Treatment	17	27.5 ±9.36	11.5	<0.001
	Post-Treatment		16.0 ±6.56		

Table No. 4: Within Group-B (METS) Analysis

Variables	Treatment	n	Mean ± SD	Mean Difference	p-value
NPRS	Pre-Treatment	17	3.647 ±1.656	2.118	0.10
	Post-Treatment		2.705 ±1.490		
MODI	Pre-Treatment	17	27.4+8.97	15.6	<0.001
	Post-Treatment		11.7+6.35		

Table No. 5: Between Group Analysis

Variables	n	Treat-ment	Groups	Mean ± SD	p-value
NPRS	17	Pre	Group A	3.529 ± 1.961	0.18
			Group B	4.235 ±1.437	
		Post	Group A	3.294 +1.624	<0.05
			Group B	2.117 ±0.927	
MODI	17	Pre	Group A	27.58 ± 9.361	0.95
			Group B	27.41± 8.97	
		Post	Group A	16.00 ± 6.56	<0.05
			Group B	11.76 ± 6.35	

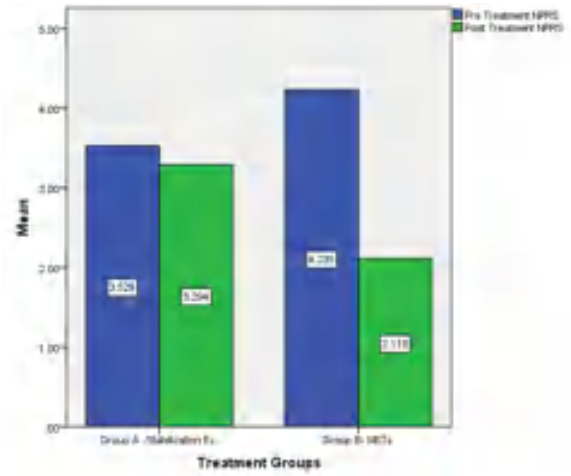

Figure No.1: Cluster bar graph for NPRS within group comparison

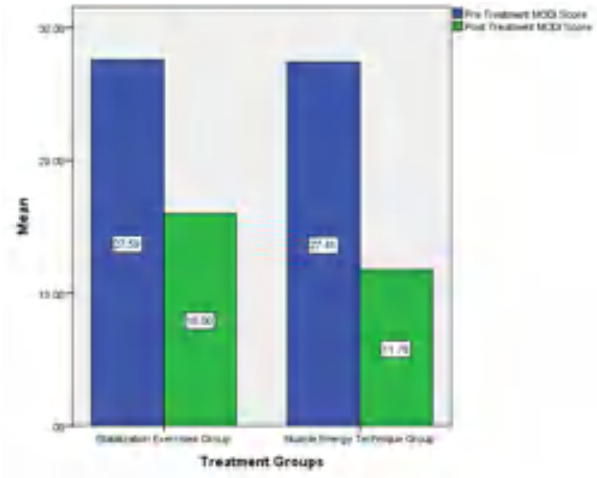

Figure No.2: Clustered Bar graph for Modified ODI within group comparison

DISCUSSION

In the current study, Stabilizing exercises and METs were compared for pain and disability in individuals with SIJ pain with sample size 34. There were significant differences in before treatment and after treatment status in both groups, Group A (Stabilization Group) and Group B groups (METs). In current study, NPRS and MODI score for pre and post treatment comparison within group shows that both treatments were effective in reducing pain and disability. When Independent sample t test was used for comparison of between groups. The results showed that there was significant difference in post treatment between groups. But more significant results were seen in Group B treated with METs.

In 2021, study was conducted to examine the effects of thrust manipulation and METs approaches on pain and impairment in individuals with SIJ dysfunction. There was no statistically significant difference between the NPRS and MODI scores before and after treatment. So, result concluded that both treatment were effective in management of back pain caused by SIJ[18]. In 2022, a study conducted to check effectiveness of METs over neuromuscular control exercises. Oswestry Disability Index and the Visual Analogue Scale were used to collect pre- and post-treatment data. This study demonstrated that the METs was more successful than neuromuscular control exercises for treating mechanical acute low back pain[19]. In 2021,a study conducted to examine the effects of dynamic stabilization exercise treatment supplemented with METs on a subset of patients with persistent non-specific low back pain. Group A which were given combined therapy of Dynamic stabilization exercises and METs showed significant improvement as compared to other two groups[20]. In 2017, study conducted to assess the effectiveness of Hot Moist Pack and METs and conventional therapy in SIJ dysfunction patients. There were 2 groups and given treatment using HMP, METs, and other methods, such as exercises to strengthen the core muscles and improve mobility, for 10 days. Therefore, it was determined that using HMP and METs together is more beneficial for treating SIJ discomfort[21].

In 2020, a study was conducted to assess the effectiveness of Kinesiotaping (KT) and the METs in combination with traditional physiotherapy among patients with mechanically caused SIJD. This study provided information on METs and KT effects in patients with mechanical SIJD that Group A received METs showed more benefits as compared to Group B received KT treatment[22]. In 2017, a research work conducted to know the Impact of lumbar stability exercise on sacral angle, disc herniation index, as well as functional improvement in lumbar disc herniation patients. It was determined that the lumbar stabilization

workouts, which regulate balance using pelvic movements, improve sacroiliac joint mobility and stability; consequently, it improves pelvic and back motions. These exercises exhibited positive impacts on recovering lumbar disc function as well as on proprioception sensation[23]. In 2017, a randomized clinical trial in to examine the effects of core stability exercises on spine kinematics during locomotion with and without load in people with non-specific persistent low back pain. Main conclusion of this presented study revealed how a 16-session core training program affected kinematics measurements, including as during-treatment variability and peak displacement of the trunk and lumbar spine in relation to the pelvis during locomotion in people with NCLBP and healthy people.[24]

The above-mentioned studies support current study for reducing pain and disability by stabilization exercise and Mets. This research provides useful insight for management of sacroiliac joint pain patients. To improve internal validity, accessor blinding should be included.

CONCLUSION

This study concluded that both treatment groups i.e., stabilization exercises and muscle energy technique were effective in reducing pain and disability among sacroiliac pain patients. However, muscle energy technique was more effective in comparison to stabilization exercises.

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Original Article

The Frequency of Factors Leading to Epilepsy in Children with Cerebral Palsy

Mohammad Hanif Memon[1], Saima Kashif[2], Shahina Hanif[3], Farhan Saeed[4], Erum Saboohi[5] and Abdul Hadi Hassan Mallick[6]

ABSTRACT

Objective: To determine the frequency of factors leading to epilepsy in cerebral palsy children presenting in tertiary care hospital Karachi.

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted at the Pediatrics Department, Unit III, Dow University of Health Sciences, Civil Hospital, Karachi, from June 2020 to July 2021.

Materials and Methods: A total of 274 cerebral palsy patients of either gender, between 2-12 years, with a history of epilepsy, were included in the study. Parents were asked about the history of seizures in their children when they were in the neonatal period and also about their family history of seizures. The patient was examined for height (cm), weight (kg), and involvement of all four limbs as quadriplegic type cerebral palsy. Data were entered and analyzed using the computer program SPSS-19. Effect modifiers were controlled by stratification. The Chi-square test was applied post-stratification and a p-value ≤0.05 was considered significant.

Results: There were 194 male and 80 female patients. The mean age was 7.49±2.95 (range 2–12) years. The mean weight was 21.95±6.89kg and the mean height was 96.03±35. 50cm. The factors leading to epilepsy were evaluated individually, neonatal seizure was positive in 79.9% of patients, family history of seizure was positive in 26.6% of patients, and quadriplegic type cerebral palsy was found in 62.0% of patients.

Conclusion: A history of neonatal seizures and the occurrence of seizures in the first year of life warrant a close evaluation and appropriate follow-up for early detection of epilepsy. History of neonatal seizure is the most common factor with 79.9%.

Key Words: Risk Factors, Epilepsy, Cerebral palsy

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INTRODUCTION

Cerebral palsy (CP) describes a medical condition due to no n-progressive disorder in development of fetal and infantile brain. It causes a group of permanent disorder of movement and posture causing activity limitation.[1]

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The overall prevalence of cerebral palsy is 2.5/1000 live births but incidence varies from 1 to 6 per 1000. The most frequent type of CP is spastic CP, second most commonly occurring type is called extra pyramidal presenting as athetosis, ataxia and tremors.[2] Epilepsy (EPI) is considered one of the most common neurologic disorders that accompany patients with cerebral palsy. EPI is found to occur in 14-94% CP patients, depending on different types of CP.[3]

G.GulMert study discussed the multiple risk factors for epilepsy in cerebral palsy children and results showed that the frequency of risk factors of EPI were: history of neonatal seizures (28.6%), family history of seizure (23.2%), mental retardation (25%).[4] Nathaniel study found that neonatal seizure was most common risk factor for epilepsy in cerebral palsy children(81.5%), followed by low APGAR score(62.5%), quadriplegic type cerebral palsy(58.2%), term infants(42.6%). [5] The same results found in Elodie Sellier study, aiming to find out the association between EPI, neonatal characteristics, associated impairments and CP subtypes. [6]

In Pakistan little has been studied regarding cerebral palsy although burden of cerebral palsy is increasing in

our community. The association of EPI with cerebral palsy in Children Hospital Lahore (2011) was found to be about 58.6% in their study and it was found that generalized tonic clonic epilepsy was more common in quadriplegic and diplegic type, while partial epilepsy in hemiplegic type. [7]

In order to manage EPI in children with CP general principles of treating EPI are followed. Special attention is paid to any possible side effects of antiepileptic drugs (AEDs) used for treating symptoms in these patients. [5]

No literature was found about study which is available in Pakistan for frequency of factors leading to epilepsy in cerebral palsy so local data for factors leading to epilepsy in cerebral palsy is scanty. I feel that this study will provide valuable information on factors leading to epilepsy in cerebral palsy children. It is reasonable to do this study because cerebral palsy children with epilepsy are more difficult to manage.

MATERIALS AND METHODS

We studied 274 cerebral palsy patients of either gender, age up to 12 years with history of epilepsy. This study was initiated after authorization of hospital ethical review board. All the patients who had cerebral palsy visiting the department of Pediatrics, Dow Hospital, Karachi and fulfilled the inclusion criteria were made a part of this study. The study population sample size was calculated by using the prevalence of seizures in cerebral palsy children using P=23.2%,[8] d=5% the calculated sample size was 274 patients with the help of WHO software for sample size calculation taken 95% confidence level. Non-probability consecutive sampling technique was used in our study. Patients having history of neurometabolic or neurodegenerative originated progressive encephalopathy, fits secondary to neurodegenerative disease or metabolic fits were omitted from this research.

Informed written consent was obtained from parents. Patient's complete clinical examinations were done by principal investigator. Parents were asked regarding history of neonatal seizures, family history of seizure and labeled as per operational definition. Child was examined and involvement of all four limbs was taken as quadriplegic type cerebral palsy. Child's weight was measured in kg by weighing scale, and height was measured by standiometer in cm, length of children was measured by infantometer in cm who were unable to stand.

SPSS version 19 was used for data analysis. Mean± SD were calculated age, weight and height. Frequency and percentage were computed for qualitative variables i.e. gender, family history of seizure, history of neonatal seizure and quadriplegic type of cerebral palsy. Data was stratified according to age, gender and height using chi square test. P value of ≤0.05 was considered as significant.

The symptoms are not episodic or progressive and are the result of brain malfunction. Early childhood is a time when tone and postural issues may become more obvious, but qualitative changes are rare.

RESULTS

A total 274 cerebral palsy patients of either gender, with history of epilepsy were included in the study. There were 194 (70.8%) male and 80 (29.2%) female patients. The mean age of study subjects was 7.49±2.95 years, with range of 10(2–12) years.

Table No.1: The descriptive statistic of age, weight and height groups

Groups	Mean ±SD	95%CI
Age		
≤ 8 years(n=155)	5.39±2.13	5.05 – 5.73
> 8 years (n=119)	10.22±0.94	10.05 –10.39
Weight		
≤ 20 Kg (n=103)	14.67±2.95	14.10 –15.25
> 20 Kg(n=171)	26.33±4.45	25.66 –27.00
Height		
≤ 95 cm(n=92)	49.76±16.42	46.36 –53.16
> 95 cm(n=182)	119.42±11.29	117.77 –21.07

Table No.2: Frequency and association of history of neonatal seizure according to gender, age, weight and height.

	History of Neonatal Seizure			
Gender	YES	NO	TOTAL	P-Value
Male	156	38	194	0.755**
Female	63	17	80	
Age				
≤ 8 years	128	27	155	0.211**
> 8 years	91	28	119	
Weight				
≤ 20 Kg	86	17	103	0.252**
> 20 Kg	133	38	171	
Height				
≤ 95 cm	77	15	92	0.268**
> 95 cm	142	40	182	

Table No.3: Frequency and association of family history of seizure according to gender, age, weight and height.

	Family History of Seizure			
Gender	YES	NO	TOTAL	P-Value
Male	57	137	194	0.110**
Female	16	64	80	
Age				
≤ 8 years	44	111	155	0.456**
> 8 years	29	90	119	
Weight				
≤ 20 Kg	27	76	103	0.901**
> 20 Kg	46	125	171	
Height				
≤ 95 cm	29	63	92	0.194**
> 95 cm	44	138	182	

Table No.4: Frequency and association of quadriplegic type cerebral palsy according to gender, age, weight and height.

	Quadriplegic Type Cerebral Palsy			
Gender	YES	NO	TOTAL	P-Value
Male	123	71	194	0.471**
Female	47	33	80	
Age				
≤ 8 years	97	58	155	0.834**
> 8 years	73	46	119	
Weight				
≤ 20 Kg	65	38	103	0.778**
> 20 Kg	105	66	171	
Height				
≤ 95 cm	58	34	92	0.808**
> 95 cm	112	70	182	

The mean weight was 21.95±6.89 kg, with range of 30.8(8.3–39.1) kg. The mean height was 96.03±35.50 cm, with range of 126.7(15.8–142.5) cm. The descriptive statistics of age, weight and height groups are presented in Table 1.

The factors leading to epilepsy were evaluated individually, the results showed that history of neonatal seizure was positive in 219 (79.9%) patients, family history of seizure was positive in 73 (26.6%) patients, and quadriplegic type cerebral palsy was found positive in 170 (62.0%) patients.

The stratification according to gender, age, weight, and height was done. Post stratification association of outcome was observed with these modifiers using chi square test considered $p \leq 0.05$ as significant.

The results showed that all three studied factors were not significantly associated with gender, age, weight, and height with p-value. The detailed results are presented in Table2-4.

DISCUSSION

The term "cerebral palsy" refers to intellectual and physical/motor dysfunction that may result from injury to the developing brain. It is characterized by ataxia, muscle weakness, involuntary movements, changes in muscle tone (usually spasticity or stiffness), or combination of these abnormalities. The symptoms are non-progressive and are the result of brain dysfunction. Early childhood is a time when tone and postural issues may become more obvious, but overall qualitative changes are rare.[9] Epilepsy, mental retardation, visual impairment, and hearing issues are typically associated with CP. [10]

Children with CP experience seizures five times more frequently than children without a major neurological disease. Nearly 50% of children with CP go on to have an epileptic disease. [11,12] Depending on the research group, the prevalence of epilepsy ranges from 34% to 94% in children with CP[10].The most common type of epilepsy is the spastic variety.[12]

Epilepsy affects between 3 and 6 people out of every 1,000 children in the general population, according to known statistics.[13] However, 41.4 to 89.9% of patients with cerebral palsy were reported to have epilepsy.[11,14,15]

In a Pakistani study, epilepsy was found to occur in 58.6% of children with cerebral palsy.[7] Similar findings have been found by other investigations. In research including 1,918 children, the average percentage of CP patients who developed epilepsy was 43% (with a range of 35 to 66%).[16] Another study performed in Atlanta,

from 1991 to 1993, reported that 32% of children with CP also suffered from epilepsy.[8] It was reported that 60.5% of 74 children with CP also suffered from epilepsy.[9] The percentages reported in the literature vary widely; the differences between the studies can be explained by the different duration of follow-up periods and the different average age of the patients.

Disabilities like physical dependence and lack of orientation in CP children with EPI is strongly associated with duration of seizures. The severity increased if seizures started early in life or were primary or secondary generalized seizures. [16,17] The children with EPI but without CP tend to do better in physical activities and have a mild handicap. When CP is added to EPI the handicap score slightly increases.[16,18]

Infantile seizures have proven to be a reliable indicator of development of epilepsy in children with cerebral palsy.[19] About,70% of the children with CP experienced seizures before their first birthday. [20] In contrast to previous research, 88% of the patients in a Pakistani study experienced their first seizure while they were infants.[7]

To identify risk variables that impacted the development of epilepsy, Zelnik et al. [5] followed up 132 children with only cerebral palsy and 65 patients with cerebral palsy plus epilepsy. According to their findings, epilepsy developed in 22 of 27 (81.5%) cerebral palsy patients with a history of newborn seizures. No study that revealed the contrary findings was discovered in a review of the literature on this subject. Thus, having a history of newborn seizures in cerebral palsy increases their likelihood of developing epilepsy and having a bad prognosis for developing it. Our study's subjects had a history of newborn seizures in 79.9% of cases.

One study found that 23.2% of patients who had a family history of epilepsy, had a 5.5-fold increased risk of developing epilepsy.[4] All studies in the literature consistent with our study that a family history of epilepsy increases the risk of developing epilepsy in individuals with cerebral palsy.[15,21,22] Our study had 26.6% patients with a positive family history of epilepsy.

The quadriplegic forms of CP were most associated with epilepsy. The rates of epilepsy associated with quadriplegic CP were 71.5% and 65% with hemiplegic CP, respectively. Data from another study of 1,918 people also showed that children with spastic tetraplegia (94%) or hemiplegia (30%) were more likely to develop epilepsy. Other studies have observed epilepsy in 54% of tetraplegic patients, 34-60% of hemiplegic patients, 27% of diplegic patients, and 23-26% of dystonic cerebral palsy patients. [23] In our study, 62.0% of patients had quadriplegic cerebral palsy.

CONCLUSION

It was concluded by our results that history of neonatal seizure is the most common factor with 79.9% followed by quadriplegic type cerebral palsy with 62.0%, and family history of seizure with 26.6%.A history of neonatal seizures, occurrence of seizures in the first year of life warrant a close evaluation and appropriate follow up for early detection of epilepsy in children with cerebral palsy.

Author's Contribution:

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Final Approval of version:	Mohammad Hanif Memon

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

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Original Article

Frequency of Irritable Bowel Syndrome in Patients Presenting with Abdominal Pain in Tertiary Care Hospital

Aneeqa Jehanzaib[1], Riaz Ahmed Bhutto[2], Muhammad Omer Sultan[4], Muhammad Inam Khan[5] and Muneer Sadiq[3]

ABSTRACT

Objective: To determine the frequency of Irritable bowel syndrome (IBS) in patients presenting with abdominal pain.

Study Design: Cross Sectional Study

Place and Duration of Study: This study was conducted at the tertiary care teaching hospital attached to Al-Tibri Medical College, Isra University Campus, Malir Karachi from October 2021 to March 2022.

Materials and Methods: Probability consecutive sampling technique was used. Data was collected from the patients diagnosed on basis of ROME –III criteria and were included in study. Data was analyzed by using SPSS version -25.

Results: 130 patients who come to attended the gastroenterology out patient department with abdominal pain. Out of 130 patients 71were females and 59 were males. The age range of the total sample was 25-55 years. Age was classified into three groups 25 – 35years, 36-50 years and greater than 50 years. Mean age was 36.4 ±8.05 years. Frequency of Irritable Bowel Syndrome was matched with age, gender, smoking status, presence of diabetes and socio-economic/income status. Abdominal pain was relieved by defecation in 66.2%, change of stool frequency was found in 46.2% and change of stool form was found in 57.7%. The association of IBS with different study variables was done to check the effect modifiers by applying chi square test. Age group 25-35 years (p value 0.011) and female sex (p value 0.001) positively correlated with IBS as p value was found to be statistically significant.

Conclusion: The prevalence of IBS in the female population is higher as compared in general population. This study also correlates IBS in patients who were smoker diabetics and also with variable socioeconomic status.

Key Words: Irritable bowel syndrome, Abdominal pain, Patient, Tertiary care hospital Gadap Town, Karachi

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INTRODUCTION

Irritable bowel syndrome (IBS) was first reported by Cumming in 1849. IBS has historically had a variable nomenclature, being labeled at different times as IBS colitis, mucous colitis, spastic colon, nervous colon, and spastic bowel[1]. IBS is the most common functional bowel disorder which predominantly affects women (70%).

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Irritable Bowel Syndrome (IBS) has been classified as functional GI disorder, which is a chronic illness of the GI tract that affects 11-12% in some studies and 15% in the adult population in the US[2]. It is not characterized by any anatomical or structural deformity, infection, or any kind of metabolic disturbances. The underlying mechanisms of IBS still remain unclear although recent research has led to an increased clinical recognition of this disorder. The telltale sign of IBS is abdominal pain or discomfort. The abdominal pain is mostly associated with mild to moderate bowel dysfunction and with abdominal bloating intermittently. The pain is often alleviated by defecation .No mass or any structural abnormality is found which can lead to explanation of this abdominal pain. As already mentioned, the etiology of IBS is likely multifactorial, primarily including, gut dysmotility, inflammatory conditions, and genetic factors, immune, psychological, and dietary factors. Lacking of recognition of these symptoms also exists and many patients even do not contact physician, and diagnosis remains under cover. There may be overlapping with other bowel disorders as well like GERD i.e. gastro esophageal reflux disease, functional

constipation and dyspepsia etc. Thus overall it contributes to a major health care expenditure worldwide[3].

Generally, IBS has been classified into four types according the pre dominant bowel habit:

- IBS with constipation (IBS-C): Constipation is the most frequent symptom
- IBS with diarrhea (IBS-D): Diarrhea is the most frequent symptom
- IBS mixed (IBS-M): Both constipation and diarrhea are experienced alternately
- IBS unspecified (IBS-U): Symptoms follow an irregular pattern

The prevalence rate of IBS varies from region to region. It has been more frequently diagnosed in females as compared to males. The variation in the prevalence rate worldwide among both genderswas just over 5 % that is 8 .9 % in males and 14 % in females. IBS-C is supposed to be prevalent in females and IBS-D more prevalent in males. The affected population is usually below the age of fifty[4]. Around the world approximately 9- 23 % of the population has been affected with this chronic debilitating condition. So far it has been the largest subgroup documented in the clinics of gastroenterology, approaching 12 % in the primary health care facilities resulting in utilization of health care to a greater extent as compared to the patient without the diagnosis of IBS[5]. Quality of life may also get impaired in long term. In the recent updated statistics by international federation of Functional GI disorders the world-wide prevalence rate was found to be of 10-15 % out of which40% was found to have mild IBS 35 % having moderate IBS and the remaining 25 % were categorized in severe IBS classification[6,7].

The diagnosis is based on clinical findings and the exclusion of other disorders[8]. Researchers do not know what causes IBS, and the intestines of people with IBS appear normal when examined. It may be caused by a disturbance in the muscle movement of the intestine, or a lower tolerance for stretching and movement of the intestine[9]. The Rome Criteria is a system developed to classify the functional gastrointestinal disorders (FGIDs), disorders of the digestive system, in which symptoms cannot be explained by the presence of structural or tissue abnormality, based on clinical symptoms. Irritable bowel syndrome (IBS) affects around 11% of the population globally[10]. In a 2007 study by Jafri et al determined the frequency of irritable bowel syndrome (IBS) and health seeking behavior in patients. They found the overall prevalence of irritable bowel syndrome to be 14% in patients.[11] Based on our literature search; firstly, Pakistan lacks recent data on the prevalence of IBS. Secondly, studies have been done using ROME II criteria. Our aim is to determine the frequencyof IBS by using the ROME-III criteria and to establish early diagnosis by using Rome-III criteria without getting over investigation and start prompt treatment in order to reduce time and cost burden of both patient and health services and psychological burden to patients and families. In our study we also observed prevalence rate in diabetics, smokers, and variable socioeconomic status.

MATERIALS AND METHODS

Study Design: Cross-sectional study.

Sample Size: 130 patients by using the WHO's sample size calculator for Health Sciences.

Site of study: Department of Gastroenterology, Al-Tibri Medical College & Hospital, Isra University, Karachi.

Study Duration: 6 months from October 2021 to March 2022.

Inclusion Criteria: Patients of both genders age between 25 to 55 years with abdominal pain duration of ≥ 3 months. Patient with established diagnosis of diabetes and on treatment for ≥6 months and smokers who smoke ≥ 5 cigarettes per day and who don't refrain from smoking for at least 3 months before including in study.

Exclusion Criteria: Patients having alarming signs such as weight loss ≥ 5kg in a month, anemia Hb<9g/dl, bleeding per rectum. Patient already diagnosed or being worked for some illness such as abdominal Koch's, malabsorption syndromes or malignancy. Current treatment including drugs leading to altered bowel habits.

Data Collection Procedure: The patients with abdominal pain visited to the department of Gastroenterology, and fulfilled the inclusion criteria included in the study. Informed and written consent was taken. Data was analyzed by using SPSS version 25.

RESULTS

The present study consisted of 130 subjects who presented to the Gastroenterology outpatient department with abdominal pain. Frequency of Irritable Bowel Syndrome was matched with age, gender, smoking status, presence of diabetes and socio-economic/income status. The age range of the total sample was 25-55 years. Mean age was 36.4 ±8.05 years.

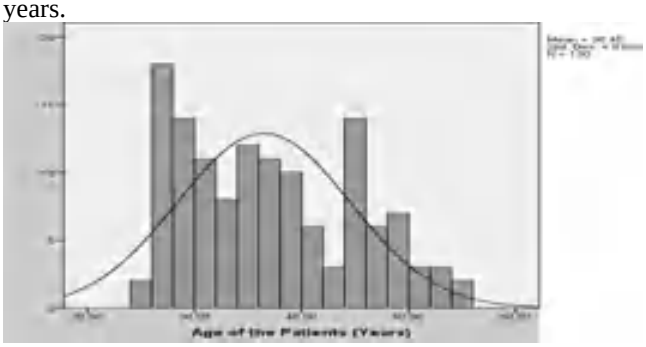

Figure No.1: Patients age

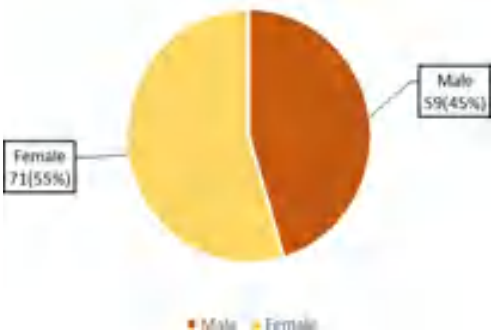

Figure No.2: Gender distribution.

Duration of symptoms overall in the total sample ranged from 3.6 months – 24 months. Median duration was 8.4 months. Mean duration was 10.21 ± 5.63. The frequency of Irritable bowel syndrome was found to be 21.5%. Age was classified into three groups 25 – 35years, 36-50 years and greater than 50 years. Out of 130 patients 71were females and 59 were males.

Abdominal pain was relieved by defecation in 66.2%, change of stool frequency was found in 46.2% and change of stool form was found in 57.7%. Visual analog scale scoring system was used to quantify intensity of pain and was 50.8 %, 45.4% and 3.8% in mild, moderate and severe respectively. Socioeconomic status was classified into lower-, middle- and high-income groups according to monthly income. Out of 42 patients in the low-income group, 9 patients (21.42%) were found to have IBS. Out of 67 patients in middle-income group, 15 (22.3%) had IBS and out of 21 patients in high-income group, 4 (19.04%) had IBS. In overall sample 9/130 (6.9%) were low-income, 15/130 (11.5%) were middle income and 4/130 (3.1%) were from high-income group. Out of 130 patients, 32.3 % were smokers while 67.7% were nonsmokers. 31 patients were found to be diabetic.

The association of IBS with different study variables was done to check the effect modifiers by applying chi square test. Age group 25-35 years (p value 0.011) and female sex (p value 0.001) positively correlated with IBS as p value was found to be statistically significant.

Table No.1: Comparison of irritable bowel syndrome with socio economic status

Socio Economic Status	***Irritable Bowel Syndrome***		***Total***
	Yes	**No**	
Lower	9(6.9%)	33(25.4%)	42(32.3%)
Middle	15(11.5%)	52(40%)	67(51.5%)
Upper	4(3.1%)	17(13.1%)	21(16.2%)
Total	*28(21.5%)*	*102(78.4%)*	*130 (100%)*

Chi-square=0.106, P-value=0.948

To check the association between IBS with different parameter of the study we observed that gender, severity of abdominal pain, duration of abdominal pain and smoker found statistically significantly associated in patients presented with IBS(P-value<0.05).

Table No.2: Comparison of irritable bowel syndrome with duration of abdominal pain

Duration of Abdominal Pain	Irritable Bowel Syndrome		Total
	Yes	No	
<=5 Months	13(10%)	10(7.7%)	23(17.7%)
6-15 Months	15(11.5%)	72(55.4%)	87(66.9%)
16-24 Months	0(0%)	20(15.4%)	20(15.4%)
Total	28(21.5%)	102(78.4%)	130 (100%)

Chi-square=23.097, P-value=0.001*

Table No.3: Comparison of irritable bowel syndrome with severity of abdominal pain

Severity of Abdominal Pain	Irritable Bowel Syndrome		Total
	Yes	No	
Mild	7(5.4%)	59(45.4%)	66(50.8%)
Moderate	20(15.4%)	39(30%)	59(45.4%)
Severe	1(0.8%)	4(3.1%)	5(3.8%)
Total	28(21.5%)	102(78.4%)	130 (100%)

Chi-square=10.008, P-value=0.007*

But marital status, diabetes and socio economic status found insignificantly associated with IBS P-value>0.05 respectively.

DISCUSSION

The current study was carried out for a period of 6 months at the gastrointestinal out patient department, Al-Tibri medical college hospital, Karachi. The study was designed to assess the prevalence rate of IBS among patients presenting with abdominal pain in GI clinics. In our study we concluded 21.5% of IBS prevalence .Several studies have been conducted in order to explore prevalence rate of IBS globally and in given population. The lowest prevalence of IBS was observed in South Asia of 7 % and highest in South America of 21.0[12]. The global prevalence of IBS is estimated 11.2 %. Although some research estimate prevalence rates as high as 25%, the prevalence of IBS in adults and adolescents in western studies is generally between 10% and 20%[13]. The prevalence of IBS was observed 20.1% according to ROME III criteria in an adult Lebanese population[14]. IBS is prevalent in between 9% and 23% of people worldwide. However, depending on the diagnostic method employed, it differs from one nation to the next. IBS affects 10%–

15% of people in North America and 10%–20% of people in western countries, respectively, according to Rome III criteria[15]. Using the Rome III criteria, Naeem and colleagues found that there was a 28.3% prevalence of IBS among medical students in Karachi, Pakistan[16]. Results of most of studies demonstrated higher prevalence rate of IBS in female gender as compare to male gender .In our study we found 18.5% vs. 3.1% female to male gender distribution in patients who were diagnosed with IBS. Similarly, a recent meta-analysis on the prevalence of IBS worldwide indicated that women had a higher pooled prevalence rate of 10.2% compared to men's 8.8%[17]. The cause of the sex-based disparity in IBS prevalence is yet unknown. This may be explained by differences in sociocultural traits, such as how men and women seek medical treatment, or it may be the result of actual biological differences. Previous studies have suggested that with increasing age, the prevalence rate of IBS declines. Our study also demonstrates the same pattern of prevalence result .Most of the prevalence of IBS found between the age of 25 -35 years in our study, which was 16.2 %[18]. The frequency of IBS was higher among respondents with low-income socioeconomic status. It was discovered that smoking and the prevalence of IBS did not correlate statistically[19]. IBS was more common in Type 1 diabetics (106/662, 16%) than in controls (48/602, 7.9%). (OR 2.2, 1.5–3.1)[20].

CONCLUSION

The prevalence of IBS in the female population is higher as compared in general population which was also observed in our study .Patients presenting with abdominal pain not relieving on symptomatic treatment usually go through extensive lab workup and frequently remains undiagnosed similarly the application of ROME III criteria may help in diagnosing these undiagnosed patients without using detail workup in OPD basis. As it is associated with significant financial burden on patient, society and healthcare system. Therefore, a correct diagnosis and effective treatment for IBS benefits society as a whole as well as the patients. Furthermore, our study also correlates IBS in patients who were smoker diabetics and also with variable socioeconomic status.

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