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Editorial

Cardiovascular Diseases in the Pakistan

Mohsin Masud Jan
Editor

Pakistan Demographic Survey finds heart problems claimed 21.19 per cent or 317,850 people died due to heart attacks, heart failures and strokes in 2020. Interestingly, however, the Pakistan Demographic Survey 2020 at the same time says it is uncertain about the cause of death of 21.40 percent of people.

According to the key findings of Pakistan Demographic Survey 2020, which was released by the Pakistan Bureau of Statistics a couple of days back, Pakistan's Crude Death Rate (CDR) has come down slightly to 6.7 per 1,000 persons. At this rate, around 1.5 million people died in 2020 according to the latest census. Pakistan's population is 224.1 million.

Officials at the National Health Services, Regulations and Control (NHS,R&C) and Health Services Academy (HSA), Islamabad, confirmed that at the 6.7 Crude Death Rate, around 1.5 million deaths occurred in the country in 2020, while Cardiovascular Disease (CVD), including heart diseases and strokes combined, caused most of the deaths in Pakistan.

According to the findings of the Pakistan Demographic Survey, cardiac diseases including heart attacks and heart failure alone were responsible for 14.74 or 221,100 deaths while strokes resulted in 6.45 per cent or 96,750 deaths.

Without elaborating on the causes, the demographic survey declares fever as the second leading cause of death in Pakistan, where around 9.28 per cent or 139,200 deaths were caused by fevers.

The demographic survey further reveals that diabetes was the third leading cause of the death in Pakistan where 5.63 per cent or 84,450 people died due to diabetic complications, while around 5.50 per cent of total deaths or 82,500 people died due to different types of cancers.

Respiratory illnesses including asthma were responsible for the deaths of 7.49 per cent of all the deaths in the country, which means that 112,350 million people died due to upper and lower respiratory tract infections and illnesses. These deaths, however, do not include Covid-19 related deaths.

Severe diarrhoea because of acute gastroenteritis was responsible for more than 3.15 per cent or 47,550 deaths, the demographic survey said, while Chronic Kidney Disease (CKD) caused deaths of 2.77 per cent or 41,550 deaths in the country in 2020.

Post Natal Complications or deaths from 29th day of birth to the remaining 11 months of the first year resulted in 2.17 or 32,550 deaths, the demographic survey states while viral hepatitis including Hepatitis B and C caused 1.96 per cent or 29,400 deaths in 2020.

Traffic accidents caused 1.13 per cent or 16,950 deaths while other injuries resulted in 1.06 per cent or 15,900 deaths. Covid-19 resulted in 1.01 per cent of the total deaths in Pakistan in 2020, which means that around 15,150 people died due to the pandemic in its first year.

According to the demographic survey, around 0.55 per cent of the total deaths or 8,250 people were killed in the country in 2020, while 0.25 per cent or 3,750 people committed suicide in 2020. The demographic survey also found that around 0.16 per cent or 2,400 people also died due to surgical complications and medical errors of the health professionals.

Interestingly, the causes of 21.40 per cent of deaths or of 321,000 people were not known, the demographic survey said. Previously, Covid was the leading cause of death in the country according to the figures released by the "World Health Organization (WHO).

The "WHO believes that around 29 per cent of the total deaths occurred due to cardiovascular disease in Pakistan which includes both heart diseases and strokes. It means that now non-communicable diseases which are preventable are now taking more lives than infectious diseases including hepatitis, dengue, Covid-19, pneumonia and other infections. There must be an excellent cardiac center in the big cities of whole country but at least one cardiac center should be provided at least divisional level of the country by the Government.

Original Article

Frequency of Fetomaternal Outcome of Placental Abruption

Wajeeha Khurshid[1], Sadaf Saifullah[2], Uzma Shoaib[2], Sajida Iqbal[3], Bilal Ahmed[1] and Attiya Bibi[1]

ABSTRACT

Objective: To determine the fetomaternal outcome of placental abruption.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynae Unit A, Ayub Teaching Hospital, Abbottabad from January, 2020 to June, 2020.

Materials and Methods: A total of 115 women were enrolled. Non-probability purposive sampling. Pregnant females with 24 to 40 weeks of gestation and age group from 20 to 45 years with any gravidity or parity were included in the study. Patient with RTA, renal disease and thrombophilia /ITP, were excluded from the study. Written informed consent was taken from all samples. The women were observed closely and their outcome was recorded. Descriptive data was obtained related to age and parity. Frequency and percentage was also deduced. Chi-square test was performed. All data was tabulated.

Results: Mean age was 29.0± 3.27 years. 20(17%) patients had shock, 35(30%) patients had PPH, 9(8%) patients developed DIC/Coagulopathy and 7 (6%) patients were transferred to ICU while 5 (4%) patients had maternal death. Whereas 51(44%) fetuses had low birth weight, 60(52%) fetuses were still born and 19(17%) had neonatal death.

Conclusion: Our study concludes that placental abruption has significant maternal and perinatal morbidity and mortality.

Key Words: Feto-maternal outcome, placental abruption

INTRODUCTION

Placental abruption is flowing of blood in uterus due to separation of placenta before its normal time of segregation. It occurs after 5 months of pregnancy. No pathology is seen with respect to attachment of placenta. The segregation may be whole of the placenta or some part of it[1]. This abnormality takes place at a low percentage in countries like USA or UK. In underdeveloped countries this percentage is more. Resultantly the fatal outcome percentage is more in these countries[1,2]. There are multiple risk factors which lead to this fatal abnormal condition.

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A few of them include age of mother above 40 years, multiple previous pregnancies, poor families, blowing of cigrette, nutritional deficiencies, elevation of blood pressure of mother, thrombus formation, addiction, sever injuries to abdomen, etc[3-5]. In a few cases no obvious reason is found[6].

How mother will be affected depends upon percentage of segregation of placenta. Segregation may be complete or partial. It may lead to hemorrhagic shock which further needs to giving blood to overcome loss. Internal bleeding may lead to clot formation. Renal failure may be one of its complications. Sometimes uterus is removed to save life of the mother[7].

Fetus is also affected very badly. Fetus may be small for date, early delivery, still born and dead born are also seen as its complication. Lack of oxygen inhalation is another result of such abnormality[8].

Pain in lower abdomen, blood flow through vagina, pain on palpation of lower abdomen is leading sign and symptoms. Confirmation of this abnormality can be made by doing abdominal ultrasound. Retroplacental clot confirms placental abruption[9].

The fatal outcomes of this pathology can be overcome by proper antenatal examination in routine. By giving folic acid supplement. If there is accompanying raised blood pressure or glues levels then they must be under control. Health education regarding limiting number of babies is another preventive measure[10].

In Pakistan the percentage of occurrence of this abnormality is about seven. Most of these cases show

no sign other than abrupt collapse of pregnant female. It is frequent in remote areas of Pakistan[11]. This study will get data about the incidence of this condition in the area of Abbottabad. That will further help to find out the most commonly occurring complication in both mother and fetus which will help to take proper preventive measures to reduce fatal outcome.

MATERIALS AND METHODS

Study Design: Cross-sectional study.

Study Place: This study was carried out at Department of Obstetrics & Gynae Unit A, Ayub Teaching Hospital, Abbottabad.

Study Duration: 6 months (1-1-2020 to 30-6-2020).

Sample Size: A total of 115 women were enrolled.

Sampling Technique: Non-probability purposive sampling.

Selection criteria: Inclusion criteria: Pregnant females with placental abruption, 24 to 40 weeks of gestation and age group from 20 to 45 years with any gravidity or parity were included in the study.

Exclusion criteria: Patient with RTA,renal disease and thrombophilia/ITP, were excluded from the study.

Data Collection: Written informed consent was taken from all samples. The women were observed closely and their outcome was recorded. The patients were managed according to unit protocol. Data regarding age, parity, outcome with respect to mother as well as fetus was collected.

Statistical analysis: Date was analyzed using SPSS version 20.Descriptive data of age, parity and outcome was obtained. Frequency, percentage and standard deviation of all the variables was obtained. Data was stratified by age and parity with respect to outcome. To know significant difference of outcome variable between different ages and parity, chi-square test at 5% significance level was performed.

RESULTS

A total of 115 patients were included in the study to determine the fetomaternal outcome of placental abruption.

Age distribution among 115 patients was analyzed as 49(43%) patients were in age group 20-30 years while 66(57%) patients were in age group 31-40 years. Mean age was 29 years with standard deviation ± 3.27.

Parity among 115 patients was analyzed as 30(26%) patients were primipara, 60(52%) patients were multipara, and 25(22%) patients were grand multipara.

Mode of delivery among 115 patients was analyzed as 59(51%) patients had vaginal delivery whereas 56(49%) patients had caesarean section.

Maternal outcome among 115 patients was analyzed as 20(17%) patients had shock, 35(30%) patients had PPH, 9(8%) patients had DIC/Coagulopathy, 7(6%) patients was transferred to ICU while 5(4%) patients had maternal death.

Fetal outcome among 115 patients was analyzed as 51(44%) had low birth weight, 60(52%) had still birth, 19(17%) had neonatal death.

Stratification of maternal and fetal outcome with age and parity is given in table no 1-4.

Table No.1: Stratification of maternal outcome with respect to age (n=115)

Maternal Outcome		20-30 years	31-40 years	Total	P value
Shock	Yes	9	11	20	0.8119
	No	40	55	95	
PPH	Yes	15	20	35	0.7621
	No	34	40	80	
DIC	Yes	4	5	9	0.9076
	No	45	61	106	
ICU	Yes	3	4	7	0.9890
	No	46	62	108	
Maternal Death	Yes	2	3	5	0.9039
	No	47	63	110	
Total		49	66	115	

Table No.2: Stratification of maternal outcome with respect to parity (115)

Maternal Outcome		Primi para	Multi para	Grand Multi para	Total	P value
Shock	Yes	5	10	5	20	0.9271
	No	25	50	20	95	
PPH	Yes	9	19	7	35	0.9437
	No	21	41	18	80	
DIC	Yes	2	5	2	9	0.9615
	No	28	55	23	106	
ICU	Yes	2	4	1	7	0.8854
	No	28	56	24	108	
Maternal Death	Yes	1	3	1	5	0.9310
	No	29	57	24	110	
Total		30	60	25	115	

Table 3: Stratification of fetal outcome with respect to age (n=115)

Fetal Outcome		20-30 years	31-40 years	Total	P value
Low birth weight	Yes	22	29	51	0.9185
	No	27	37	64	
Still birth	Yes	26	34	60	0.8696
	No	23	32	55	
Neonatal Death	Yes	8	11	19	0.9612
	No	41	55	96	
Total		49	66	115	

DISCUSSION

Our study shows that among 115 patients, 49(43%) patients were in age group 20-30 years while 66(57%)

patients were in age group 31-40 years. Mean age was 29 years with standard deviation $\pm$ 3.27. Thirty (26%) patients were primipara, 60(52%) patients were multipara, and 25(22%) patients were grand multipara. Fifty nine (51%) patients had vaginal delivery whereas 56(49%) patients had caesarean section. Twenty (17%) patients had shock, 35(30%) patients had PPH, 9(8%) patients had DIC/Coagulopathy, and 7 (6%) patients were transferred to ICU while 5 (4%) patients had maternal death. Whereas 51(44%) fetuses had low birth weight, 60(52%) had still birth, 19(17%) had neonatal death. In a study it was found that most of the newborn delivered to a mother with placental abruption needed life saving measures to save apnea, asphyxia, respiratory distress syndrome and prolong hospital stay[12].

Table No.4: Stratification of fetal outcome with respect to parity (n=115)

Fetal Outcome		Primi Para	Multi para	Grand Multi para	Total	P value
Low birth weight	Yes	13	27	11	51	0.9880
	No	17	33	14	64	
Still birth	Yes	16	31	13	60	0.9887
	No	14	29	12	55	
Neonatal Death	Yes	5	10	4	19	0.9968
	No	25	50	21	96	
Total		30	60	25	115	

Maternal complications depend upon severity of placental abruption and include shock (20%), need for blood transfusion (50%), coagulopathy (08%), postpartum hemorrhage (32%) which can lead to acute tubular necrosis, transfer to ICU (10%), maternal death (05%) and peripartum hysterectomy due to couvelaire uterus (25%). On the basis of complete or incomplete segregation of placenta, the mother experienced bleeding through vagina, multiple clot formation in the blood vessels and kidney failure in descending order[13]. Almost same mean age (28) of females with placenta abruption was found in a study carried out in China. More than fifty percent were multipara. Seventy three percent of total females underwent cesarean section. Almost thirty two percent showed couvelaire uterus and almost twenty percent showed asphyxia[14].

In a study brought out in Sweden, it was found that less than one percent females were primigravida. They showed rise in blood pressure and glucose levels[15]. A research performed in Holland showed that fatal complication was fits in newborn[16]. A study indicated that if detachment of placenta is large enough it leads to death of fetus. There will be bleeding abnormalities along with clot formation in blood vessels.

Similar findings were observed in another study conducted by Abbasi et al., in which a total number of women admitted in labor ward were 2563. Among these, 48 patients (1.87%) had abruption placenta. The patients belonged to the age group ranging from 21-40

years. Most of the women were in the age group 21-30 (31-08%). Most of the women (62.5%) who presented with abruption placenta were para[7,17]. The maximum percentage of the women who presented with abruption placenta had gestational age >36 weeks[18]. The reasons leading to placental abruption vary in different geographical areas of the world[19].

CONCLUSION

Our study concludes that frequency of shock was found in 20(17%) patients, 35(30%) patients had PPH, 9(8%) patients had DIC/ Coagulopathy and 7(6%) patients were transferred to ICU while 5(4%) females died. Whereas 51(44%) fetuses had low birth weight, 60(52%) had still birth, 19(17%) had neonatal death.

Author's Contribution:

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Final Approval of version:	Wajeeha Khurshid

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

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Original Article

Clinical Study of Association of Diabetic Retinopathy with Diabetic Nephropathy

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ABSTRACT

Objective: To determine whether or not patients with diabetic retinopathy (DR) have nephropathy or neuropathy, and to establish a link between the severity of DR and the presence or absence of either.

Study Design: Prospective, hospital-based, non-interventional study

Place and Duration of Study: This study was conducted at the Peoples University of Medical Sciences for Women Shaheed Benazir Abad Sindh, from January 2019 to November 2020.

Materials and Methods: Patients with diabetes mellitus (DM) for at least five years who gave their informed consent to participate in the research were eligible to participate were included in this study. According to Early Treatment Diabetic Retinopathy Study categorization, the patient was diagnosed with DR. Urine albumin creatinine ratio and estimated glomerular filtration rate were used to determine the severity of diabetic nephropathy. Diabetic neuropathy severity was determined by the speed of nerve conduction.

Results: A total of 70 patients were enrolled in this study. DR severity appears to be linked to DN severity. There was a statistically significant ($P<0.05$) link between the severity of DR and the stage of DN (U ACR staging). There was a statistically significant correlation ($P<0.05$) between the severity of diabetes and the severity of diabetic nephropathy. Diabetic neuropathy was found to be unrelated to the severity of DR.

Conclusion: An indicator of future renal disease development as well as an indicator of neurological outcomes in diabetic patients may be found in the relationship between DR severity and the severity of both diabetic nephropathy and diabetic neuropathy.

Key Words: Diabetic nephropathy, diabetic neuropathy, diabetic retinopathy

INTRODUCTION

Many metabolic illnesses have the phenotype of hyperglycemia, and they include diabetes mellitus (DM). Different forms of DM are produced by a complicated interplay of genetic and environmental variables.

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On the basis of the pathogenic mechanism that causes hyperglycemia,[1] DM is classified. Type 1 and Type 2 DM are the two most common types of DM. An autoimmune to insulin-producing beta cells causes complete or near-complete insulin insufficiency in Type 1 DM. Variable levels of insulin resistance, decreased insulin secretion, and increased hepatic glucose production characterize type 2 DM.[1] The disease's morbidity and death can be attributed to a single DM affecting numerous organ systems. Both type 1 and type 2 diabetes suffer from a variety of diabetes-related problems, which can be separated into vascular and nonvascular complications. Microvascular consequences such as retinopathy, nephropathy, and neuropathy, as well as macrovascular complications such as coronary artery disease, peripheral arterial disease, and cerebrovascular disease, are all examples of DM's vascular complications. Skin changes, infections, and hearing loss are all examples of nonvascular consequences. Type 2 diabetes may raise a person's risk of dementia and cognitive decline, according to some research.

Diabetic retinopathy: More than 7% of the global population is affected by diabetes, and around half of those people have some DR at any given moment.[2,3]

WHO estimates that DR is to blame for 3%–7% of all cases of blindness in Asia.[4] DR's onset and progression have been linked to a variety of risk factors. Factors that put people at risk at the overall level include the length of time a person has lived with diabetes, how well their blood sugars are being controlled, how old they are as well as the type of diabetes they are dealing with. The longer a person has diabetes and the better their glycemic control, the more likely they are to develop retinopathy.[5] Early treatment diabetic retinopathy study (ETDRS) classification is the most commonly used DR classification.[6]

Diabetic nephropathy: Chronic proteinuria, high blood pressure, and a poor glomerular filtration rate are all symptoms of DN (GFR).[7] Nephropathy affects 25–45% of Type 1 DM patients during the course of their lives.[8] Nephropathy is most likely to manifest itself 10–15 years after the commencement of the disease. Type 2 diabetes patients have a decreased incidence of nephropathy, according to research. Approximately 50% of diabetics with type 2 diabetes developed nephropathy.[9]

Diabetic neuropathy: Diabetes' most prevalent and difficult consequence is peripheral neuropathy.[10] Diabetics with diabetes for more than 25 years have a 50 percent higher risk of developing diabetic neuropathy than those who are diagnosed within the first year of their condition.[11] Patients with subclinical neuropathic disorders could account for as much as 90% of the total population. It is estimated that DPN and cardiac autonomic neuropathy are the two most frequent diabetic neuropathies. Consequently, DPN first affects the lower extremities' distal regions. The classic "stocking and glove" sensory loss occurs as the disease progresses, when the loss of sense in the lower limbs progresses to the hand. Study participants with DR were evaluated for the presence of kidney and nerve damage, with an eye toward finding out if their condition was worsened by diabetes-related kidney damage or diabetic neuropathy, respectively.

MATERIALS AND METHODS

The Peoples University of Medical Sciences for Women Shaheed Benazir Abad Sindh, undertook this prospective, hospital-based, non-interventional study from January 2019 to November 2020. All 70 people who came to the eye OPD with symptoms of diminished vision were included in this study. There was an ethics committee's clearance, which was granted in February 2019. Patients with diabetes mellitus for at-least five years who gave their informed consent to participate in the research were included. Diabetes was not considered a factor in the exclusion of patients with preexisting nephropathy and neuropathy at the time of presentation.

All patients were given written informed consent before to participating in the study. Examination of the eyes after a thorough clinical examination, standard diagnostic criteria were followed, and tests like as fundus photography, OCT, and ophthalmoscopy were carried out. ETDRS classification was used to classify the instances with DR-like characteristics in the fundus. The presence or absence of clinically significant macular edoema further divided patients with DR into two groups (CSME). For nephropathy, use the following treatment options: For example, the following is an estimate of U.A.C.R: 1. For chronic kidney disease (CKD), the U.A.C.R. value staging was done as normal or moderate (less than 30 mg/24 h), microalbuminuria (30-300 mg/24 h), and macroalbuminuria (more than 300 mg/24 h). In order to arrive at an accurate estimate of GFR, the serum creatinine value is used (using CKD epidemiology collaboration equation): 2. A patient with stage 1 CKD (eGFR value >90 mL/min) is classified as having advanced kidney disease, while those with stage 2 CKD (eGFR value 60–89 mL/min) or stage 3A CKD (eGFR value 45–59 mL/min) are classified as having stage 3B CKD (eGFR value 30–44mL/min), and those with stage 4 CKD (15–29 ml/min).

Nerve conduction study (NCS): Tibial nerve NCV values were used to classify diabetic neuropathy as either nonexistent (>5 mv), mild (2.5–5 mv), or severe (2.5–5 mv). Mann–Whitney and Chi-square tests were used to assess numerical data and categorical variables, respectively. A statistically significant difference was defined as one with a P value lower than 0.05.

RESULTS

A total of 70 patients were enrolled in this study. As may be shown in Table 1, participants were distributed according on the severity of their DR. Thirty-six (51.42%) of the 70 patients had mild nonproliferative diabetic retinopathy (NPDR), 20 (28.57%) had moderate NPDR, 12 (17.14%) had severe NPDR, and 2 (2.85%) had proliferative diabetic retinopathy (PDR), according to the study.

In this study, 43 patients had DM for less than 10 years, 19 patients had DM for 11-20 years, and 8 patients had DM for 21-30 years. The eye with the most severe DR was considered in patients with bilateral DR.

As shown in Table 2, the severity of DR is distributed according to the CSME. There were a total of 36 individuals with mild NPDR, 30 of whom had no CSME and 6 of whom had CSME. Only 3 of the total 20 patients with significant NPDR had CSME. The CSME was used in all cases of NPDR and PDR that were severe. There was a statistically significant difference in the severity of DR based on the CSME.

Table 3 indicates the correlation between DR and DN severity (eGFR staging). Seventeen of the 36 individuals with mild NPDR had already reached stage 2 of kidney disease. CKD stage 3A was found in 8 of the 20 patients with moderate NPDR. A stage 3A

kidney disease was found in five of the 12 patients with severe NPDR. One of the two PDR patients had CKD stage 3B. We found that there was a statistically significant correlation between the severity of DR and the severity/stage (eGFR staging) of the DN.

DR severity appears to be linked to DN severity in Table 4. (U ACR staging). There were 21 patients with mild micro albuminuria and 16 individuals with moderate micro albuminuria in the NPDR group. Macroalbuminuria was seen in 9 patients with severe NPDR and 1 patient with severe PDR. There was a statistically significant (P=0.05) link between the severity of DR and the stage of DN (U ACR staging).

Table No.1: Distribution of study population according to the severity of DR (n = 70)

Severity of DR	Frequency	Percentage
Mild NPDR	36	51.42%
Moderate NPDR	20	28.57%
Severe NPDR	12	17.14%
PDR	2	2.85%
TOTAL	**70**	**100%**

Table No.2: Distribution of severity of DR according to CSME (n = 70)

Severity of DR	Without CSME	With CSME	Total
Mild NPDR	30	6	36
Moderate NPDR	17	3	20
Sever NPDR	0	12	12
PDR	0	2	2
Total	**47**	**23**	**70**
X^2 value	33.412		
P-value	0.0001*		

Table 3: Association of severity of DR with severity/ staging of diabetic nephropathy (eGFR staging) (n = 70)

Nephropathy (EGFR staging)	Mild NPDR	Moderate NPDR	Severe NPDR	PDR
1	10	2	0	0
2	17	6	4	0
3A	4	8	5	0
3B	2	3	2	1
4	0	1	1	1
5	3	0	0	0
Total	**36**	**20**	**12**	**2**
X^2 value	25.512			
P value	0.009*			

Table 4: Association of severity of DR with severity/ staging of nephropathy (UACR staging) (n = 70)

Nephropathy (UACR staging)	Mild NPDR	Moderate NPDR	Severe NPDR	PDR
Normal (A1)	9	0	0	0
Microalbuminuria (A2)	21	16	3	1
Macroalbuminuria (A3)	6	4	9	1
Total	**36**	**20**	**12**	**2**
X^2 value	19.724			
P-value	0.003*			

DISCUSSION

The primary goal of this study was to investigate the relationship between DR and DN and diabetic neuropathy and the severity of retinopathy. Males made up 78.95 percent of the participants in this study, while females made up 21.05 percent.

In the Chennai urban rural epidemiology study Eye study, a similar male predominance was found.[12] The study population was comprised of people ranging in age from 31 to 81, with a mean age of 58.86 years and a standard deviation of 9.85 years. 94.74% of the 57 individuals had NPDR and 5.266% had PDR. A similar study in Sikkim was conducted by Bhutia et al.[13] who found similar results. There were 22 (38.60%) patients with mild NPDR, 14 (24.56%) with moderate NPDR, 18 (31.58%) with severe NPDR, and 3 (5.26%) with PDR in our study sample. There were 30 (52.63%) patients of DR who did not have CSME, and 27 (47.37%) patients who did. According to CSME, the distribution of DR severity was shown to be statistically significant (P value 0.0001). Only 2 of the 22 patients with mild NPDR had CSME, while 20 of the patients without CSME had mild NPDR. Only four of the 14 individuals with moderate NPDR who were evaluated had CSME. All patients with significant NPDR and PDR showed up with CSME. As a result of this strong correlation, it appears that a higher proportion of people with a severe form of diabetes mellitus (DR) have CSME, compared to the proportion who don't. After microalbuminuria and macroalbuminuria, there were five individuals in our study who had no albuminuria at all, accounting for 56.14% of the participants in our study.

Both EGFR staging and U ACR staging were found to be statistically highly significant in our study, which indicates that with growing severity of the disease, the severity of the DN will also increase in proportion to the severity of the disease. As DR and DN share many of the same pathogenic mechanisms, the development and progression of both are intertwined. As a result, the severity of DR and DN worsening were found to be inversely proportional in our research. Wajid et al.[14] found that 20% of patients and 25.6% had retinopathy, in a similar study. The micro albuminuria rate was 90%

and the retinopathy rate was 100% in patients with diabetes who had been on medication for more than 15 years.

Lunetta et al[15] and Manaviat et al[16] found a similar link. A number of studies have shown that DR may be a powerful predictor of the advancement of renal impairment in people with diabetes mellitus who have microalbuminuria. According to El-Asrar et al[17], the prevalence of DN increased as the severity of DR increased. Our research reveals that the severity of DR increases with the level of albuminuria, which is statistically significant. Patients with macroalbuminuria were more likely to have proliferative retinopathy than those with microproteinuria. Proliferative retinopathy is associated with an increase in urine albumin excretion, according to Singh et al.[18]

NCSs are the most objective and noninvasive markers of nerve function available to researchers.

When it comes to assessing structural changes, NCS are the most objective and dependable benchmark.[19] NCV is a method for determining the rate at which electrical impulses travel through a nerve by measuring the NCV. This process is used to detect if nerves are normal or if they have been damaged or destroyed.[20] We discovered that 13 (61.14%) of the 21 patients who had NCV scans to detect subclinical neuropathy had abnormalities, while 8 (38.10 percent) of the patients had normal NCV studies. We found no statistically significant link between the degree of neuropathy and the severity of DR in our research (P value 0.532). Two patients with mild NPDR were among four with mild neuropathy. Three of the nine individuals with severe neuropathy had mild NPDR, while the other three had PDR. The lack of NCV testing at our facility during the COVID 19 pandemic may have contributed to the lack of a meaningful correlation in the study's small sample size (n = 21). As a result, a large sample size is required to draw firm conclusions and prove a link between DR and neuropathy. Out of 13 diabetic neuropathy sufferers, 12 had diabetic nephropathy, suggesting a possible link and similar pathophysiologic pathways for the development of these conditions**.**

CONCLUSION

For diabetic nephropathy patients, even if there is no evidence of proteinuria, we can accurately anticipate the presence of subclinical disease and make appropriate referrals to the nephrologist. There was no correlation between the severity of DR and diabetic neuropathy in our study. It is necessary to conduct extensive research. Neuropathy and nephropathy are often found together in patients with retinopathy. Patients with diabetes should be evaluated by an ophthalmologist, endocrinologist, nephrologist, and neurologist as part of comprehensive treatment.

Author's Contribution:

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Original Article

Effect of Phacoemulsification on Intraocular Pressure in Patients with Co-Existing Senile Cataract and Primary Glaucomas

Muhammad Khalid[1], Arif Rabani[1], Attaullah Shah Bukhari[2], Darikta Dargahi Shaikh[3], Rajesh Rathi[4] and Mushtaque Ali Chandio[1]

ABSTRACT

Objective: To determine the average variation of intraocular pressure in glaucoma patients with cataract after effect of phacoemulsification surgery.

Study Design: A quasi-experimental study

Place and Duration of Study: This study was conducted at the Ophthalmology Department of Peoples University of Medical Sciences for Women Shaheed Benazir Abad Sindh Pakistan from June to December 2019.

Materials and Methods: Researchers examined the effects of phacoemulsification and intraocular lens implants on glaucomatous eyes of patients ages 30 to 80 years. The patient's visual acuity, intraocular pressure, slit lamp examination, fundoscopy, visual fields, information regarding topical medications, and pertinent medical history were all documented no more than five days before the cataract surgery was to take place. One day before surgery, one month after surgery, and three months after surgery, intraocular pressure was measured using a Goldman's applanation tonometer. SPSS 20 was used for data analysis.

Results: A total of 60 patients were included. We found that males to female's ratio was almost similar, males accounted for 29 (48.33%) of the 60 cases, while females accounted for 31 (51.66%). The mean age of the patients was 51.23iyears. As of one month after surgery, the IOP was 19.44±0.80 (Table-2) and at three months it was 18.01±1.07. There was statistically significant difference of mean change values of intraocular pressure (IOP) after 3 months (p=0.0001).

Conclusion: Patients with glaucoma who underwent uncomplicated phacoemulsification surgery with an IOL placed in the capsular bag saw a considerable decrease in their intraocular pressure (IOP).

Key Words: Glaucoma, Phacoemulsification, Intraocular pressure

INTRODUCTION

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Cataract is the clouding of a clear crystalline lens, which reduces visual acuity, whereas glaucoma damages the retinal nerve fiber layer and optic nerve head. (VA).[1]

Cataracts account for 35% of all cases of blindness, whereasiglaucomaiisiresponsibleifori8%iofiallicases.[2]

A cataractiis the most prevalent cause of blindness in Pakistan (51.50 percent), while glaucoma is the fourth most common cause (7.10%).[3]

Glaucoma is the leading cause of blindness in Pakistan due to the fact that it is the most prevalent glaucoma to be diagnosed late. A recent study found that one-third of those receiving cataract surgery had some degree of glaucoma.[4–6] Optic nerve head and retinal nerve fiber layer damage from glaucoma is a complicated process that can only be managed by reducing intraocular pressure (IOP). Prostaglandin analogue, beta blockers, carbonicianhydraseiinhibitors,isympathomimetics,ilaser iridotomy,itrabeculoplasty,iand trabeculectomy are all ways to lower IOP.[7] As well as decreasing IOP and aiding in glaucoma management, cataract extraction increases aqueous flow and decreases IOP to varying

degrees by altering anterior chamber structural features, such as raising anterior chamber depth and widening the angle.[8] Cataract extraction is less invasive, quicker, less expensive, and less likely to result in major problems than other glaucoma operations including trabeculectomy and laser glaucoma surgery. Compared to topical and laser therapies, early clear lens extraction in angle closure glaucoma patients is clearly superior as a first-line therapy.[9] There is reversible vision loss in cataracts, which has been substantially improved by phacoemulsification surgery and IOL implants, however in glaucoma, the vision loss is irreversible. Even if patients don't lose their vision totally, the quality of life suffers as a result of the gradual loss of peripheral vision, and decreasing IOP is the cornerstone of treatment to slow the disease's course.[1] Angle closure glaucoma, open angle glaucoma, or ocular hypertension alone have been the focus of most investigations in patients with cataract, and the majority of these individuals had an uncontrolled, high IOP prior to surgery.[10] Patients with diagnosed glaucoma had straightforward phacoemulsification cataract surgery and had and intraocular lens (IOL) implanted in the capsular bag as part of this research to see how their IOP changed on average.

MATERIALS AND METHODS

From June 20 to December 19, 2021, a quasi-experimental study was carried out in the Ophthalmology Department Peoples University of Medical Sciences for Women Shaheed Benazir Abad Sindh. Open Epi version 3.[11] was used to compute the sample size based on the population mean pre- and post- op IOP of 18.21.3mmHG and 16.31.5mmHg, respectively, with a significance level of 5% and a power of 95%.[8] In the outpatient department, a nonprobability consecutive sampling strategy was used to get the sample (OPD). In this study, we included patients between the ages of 30 and 80 who underwent simple phacoemulsification surgery with an intraocular lens (IOL) placed in the capsular bag and had Snellen VA of 6/12 or less. There were no IOP-lowering surgeries or laser procedures performed on patients with corneal pathology or refractive procedures, history of ocular trauma, UVEI, retinal diseases and axial lengths of less than 21mm or more than 26 mm removed from the study. Basic information was gathered via a form. The VA (Snell chart), IOP (tonometer by Inami), slit lamp (Topcon SL-3D) fundoscopy (Volk 90D), visual fields, and pertinent hi story were documented no more than 5 days before cataract extraction. For pre- and post-surgery measurements, a Goldman applanation tonometer was used to record IOP separately and then average the results. SPSS 20 was used to analyze the data. In terms of quantitative and qualitative data, the mean standard deviation (SD) and percentages were used. Skewness and Kurtosis tests were used to compare the data to

published values and ensure that it was normal. The pre- and post-op IOP readings were compared using a paired sample it. test P 0.05 was considered statistically significant.

RESULTS

A total of 60 patients were included for this study based on inclusion and exclusion criteria. We found that males to female's ratio was almost similar, males accounted for 29 (48.33%) of the 60 cases, while females accounted for 31 (51.66%). The mean age of the patients was 51.23iyears. The minimum age of the patient was 30 years, and the maximum age of the patient was 80 years. Out of 60 patients, 42 (70.0%) patients were seen in the age group 30-60 years in majority, and 18 (30.0%) patients were observed in the age group 61-80 years (Table-1). As of one month after surgery, the IOP was 19.44±0.80 (Table-2) and at three months it was 18.01±1.07. There was statistically significant difference of mean change values of intraocular pressure (IOP) after 3 months (p=0.0001) (Table-2 & 3).

Table No.1: Distribution of patients according to age (n=60)

Age in years	No. of patients	Percentage
30-60	42	70.0%
61-80	18	30.0%
Total	60	100.0%

Mean ± SD = 51.23 ± 9.44 years.

Table No.2: Mean change of intraocular pressure (IOP) after one month (n=60)

IOP	Mean ± SD	P-value
Pre-operative	22.24±1.53	0.0001
After 1 month	19.44±0.80	

SD: Standard deviation.

TableNo.3: Mean change of intraocular pressure (IOP) after three months (n=60).

IOP	Mean ± SD	P-value
Pre-operative	21.32±1.58	0.0001
After 3 months	18.01±1.07	

SD: Standard deviation.

DISCUSSION

Patients with glaucoma who had straightforward phacoemulsification of their cataracts saw a considerable decrease in their IOP. Cataract surgery reduces intraocular pressure, but how exactly it does so is a mystery. Free radicals produced by the phacoemulcification process may act as inflammatory mediators, leading to the breakdown of the blood-aqueous barrier. Another hypothesis is that phacoemulcification increases the secretion rate of endogenous prostaglandins, which could increase uveoscleral expulsion and, as a result, lower aqueous humour secretion. While the phacoemulsification procedure may flush and reduce outflow resistance,[12] it

may also broaden the anterior chamber angle to increase the amount of aqueous outflow that can be achieved. Cerebral intraocular pressure (IOP) was reduced more effectively with an intraocular lens (IOL) of four millimeters (mm) in diameter than with an intraocular lens (IOL) of six millimeters.[13] All patients in our series had a capsulorhexis of 5mm, although the influence of capsulorhexis size on IOP could not be proven convincingly. Phacoemulsification can permanently normalize IOP in eyes with narrow angles by increasing the anteri or chamber depth. Cataract surgeryireducesitheianterioriplacementiofitheiciliaryipr ocesses, resulting in a considerable widening of the angle in eyes with primary angle closure. It has been suggested that patients with stable visual fields and optic nerve morphology who are compliant glaucoma patients on one or two drugs preoperatively undergo corneal phacoemulsification surgery[12,13.] Phacoemulsification has been shown to reduce eye pressure in people with open angle glaucoma.[14,15] There was no distinction made between different kinds of glaucoma in this research, however the overall mean change in IOP following cataract removal was considerable. Patients were not classified based on the kind of glaucoma they had, as all types of glaucoma were included, excluding angel closure, in this study. Patients with cataracts other than intumescent and mature were not stratified based on the kind of cataract they had. As a result, only the total mean IOP change was calculated due to time and resources constraints. Only three months after surgery, IOP was noted.

CONCLUSION

Patients with glaucoma who underwent uncomplicated phacoemulsification surgery with an IOL placed in the capsular bag saw a considerable decrease in their intraocular pressure (IOP).

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

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Association of Dietary Behavior with Psychological Distress among House Officers in Karachi during Coronavirus Disease Pandemic

Muhammad Talha Khan, Asma Haque, Ayesha Zulfiqar, Saad Uz Zaman Siddiqui, Mahum Khan and Sana Mushtaq

ABSTRACT

Objective: To observe the association between the officers' dietary behavior and psychological distress during the pandemic.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted Department of Community Health Sciences Bahria University Medical and Dental College, Karachi at the June 2020 to July 2020.

Materials and Methods: The convenience sampling was used to collect data. A Chi-square test and bivariate Pearson correlation were conducted, and SPSS version 23 was used to analyze the data.

Results: A total of 161 house officers participated in the study, of which, most (73.9%) house officers were females, with a mean age of 24.7± 2.2 years. An association between the officers' junk food consumption and psychological distress was found to be statistically significant, $p < 0.05$. Similarly, a significant positive correlation was observed between dietary behavior and distress, $p < 0.05$.

Conclusion: COVID-19 pandemic has increased the burden on healthcare professionals globally and to cope with the situation the house officers are resorting to harmful behaviors such as consuming an unhealthy diet in Karachi. If not addressed, these behaviors will last and deteriorate their overall health and wellbeing in the long run.

Key Words: COVID-19, Dietary behavior, Psychological distress, pandemic

INTRODUCTION

With the advent of the coronavirus disease (COVID-19) pandemic in Pakistan, medical workers faced extraordinary psychological pressure. This is because of the high risk of infection, insufficient safety equipment, tiredness, seclusion, and less family contact. The intensity of the situation resulted in mental health issues in the workers that affect their decision-making ability and may also have a detrimental effect on their overall wellbeing [1]. Chronic stress may affect behaviors, such as dietary behavior, and results in obesogenic patterns of diet in people with chronic stress.

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A study demonstrated a link between chronic stress and cortisol hypo-responsiveness with the consumption of palatable food habits [2].

It is also observed that stress plays a significant role in food overconsumption, weight gain, and contributes to high obesity rates. Similarly, perceived stress and increased exposure to stress influence food choices and dietary behavior [3]. Stress-induced anorexia was present in rats exposed to chronic stress. However, their access to the standard diet is associated with decreased food utilization and weight reduction. In alike exposure to stress and the availability of calorie-rich palatable food, the rats frequently consumed an increased proportion of delicious food compared to the standard food and developed weight gain and obesity [3]. Likewise, the desire to eat palatably has also been observed in humans under stress. This phenomenon can be a result of the stress-buffering mechanism via activation of reward pathways in the brain [3].

In the wake of the COVID-19 pandemic, young doctors are vulnerable to a high risk of infection and immense mental health problems [1,4]. These stressors may drag them towards stress coping behaviors, such as consuming an unhealthy diet. Various studies observed the stress among medical doctors during the pandemic [5-9]. However, studies on the association of

dietary behavior with psychological distress among medical doctors during COVID-19 in Pakistan are scarce. Therefore, in this study, we prompt to observe dietary behavior and its association with psychological distress in house officers (medical interns) working in tertiary care hospitals in Karachi during the pandemic.

MATERIALS AND METHODS

A web-based cross-sectional survey was conducted from 1st June 2020 to 31st July 2020. House officers of either sex, working in government and private sector tertiary care hospitals in Karachi, and agreed to participate in the study were included. While house officers with diagnosed mental health-condition were excluded from the study. The sample size of 278 was obtained, considering the population size of 1000, expected frequency of 50% (we considered 50% expected frequency as there was no specific previous literature available on this subject), with a 95% confidence level, a margin of error of 5%, and design effect of 1. Google form was disseminated and filled by the participants after reading an informed consent. The Google form includes questions on socio-demographic characteristics, work conditions, self-reported dietary behavior, and self-reported distress.

We collected data through the convenience sampling technique and statistical software for social sciences (SPSS) version 23 was used to analyze the data. A Chi-square test was used to determine the association between junk food consumption and psychological distress during the pandemic. In addition, to assess the correlation between the behavior and the distress during COVID-19, a bivariate Pearson correlation was also conducted. The ethical approval was taken from the ethical review committee of the Bahria university medical and dental college, Karachi, with a reference number ERC 43/2020, dated 28th April 2020.

The form used in this study encompassed participants' socio-demographic information, work condition, self-reported distress, and self-reported dietary behaviors. Socio-demographic information includes gender, age, marital status, social status, and income. Whereas work condition items comprise the health sector of work and working hours per week. Self-reported dietary behavior, questions on weekly junk food consumption before and during the COVID-19 period were included. Furthermore, to assess dietary behavior, items of Starting The Conversation (STC) questionnaire were also incorporated [10]. In addition, questions from Kessler's psychological distress scale (K10) were also included [11].

The STC is a simplified validated questionnaire and is used to identify dietary patterns. It consists of eight items. Each item provides three options to select from i.e., most healthy dietary behavior, less healthy dietary behavior, and the least healthy dietary behavior, represented by the score 0, 1, and 2 respectively. The sum of all items for each participant ranges from 0 to 16, the lower score is representative of healthy dietary behavior while a higher score reflects unhealthy dietary behavior [10].

K10 is a validated questionnaire intended to measure self-reported distress over the most recent 4-weeks period. K10 is also utilized as a proxy for different levels of anxiety and depression severity. The instrument consists of 10 items and each item has 5 points Likert scale with scores from 1(none of the time) to 5(all of the time) respectively. The overall sum of all item scores for each participant can range from 10 to 50. A higher score is indicative of increased psychological distress [11].

RESULTS

161 participants completed the questionnaires out of 290 distributed online forms, and the response rate was 55.5%. Most house officers were females while a majority of them were about 25 years or less. The mean age of the study participant was 24.7± 2.2 years. Many of the house officers were single (75.1%). Whereas more than half of the participants earn greater than 30,000 to 50,000 Pakistani rupees (64.6%). Additionally, nearly half of them work in the government sector (46.6%), while most (71.4%) work greater than 40 hours a week (Table 1).

Table No.1: Characteristics of house officers (n =161)

Characteristics	n (%)
Gender	
Male	42 (26.1)
Female	119 (73.9)
Age	
≤ 25 years	141 (87.6)
>25 years	20 (12.4)
Marital status	
Single	121 (75.1)
Married	40 (24.9)
Income in Pakistani rupees	
Unpaid	8 (5)
10,000-30,000	49 (30.4)
>30,000-50,000	104 (64.6)
The health sector of work	
Government	75 (46.6)
Semi-private	50 (31.1)
Private	36 (22.4)
Working hours per week	
<40 hours	46 (28.6)
>40 hours	115 (71.4)

n: Number of house officers. %: Percentage of House officers

Figure 1 depicts self-reported psychological distress among house officers before and during the COVID-19 period. Before the start of the COVID-19 period, the percentage of participants who reported high psychological distress was only 12.42%. However,

during the COVID-19 period, the percentage of house officers who reported high distress increased to 53.42%.
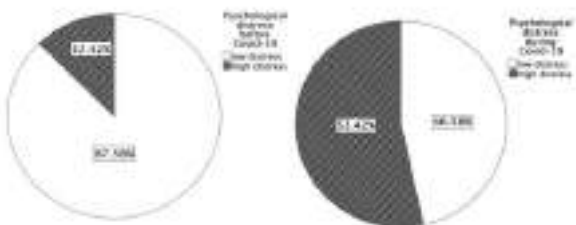
Figure No.1: Self-reported psychological distress among house officers before and during COVID-19 period

A noticeable increase in the percentage of participants were observed who consumed junk food four or more times a week i.e., with high distress (9.9%) compared to the low psychological distress (3.1%) (Table 2). Additionally, there is a significant association between house officers' weekly junk food consumption and psychological distress levels during the COVID-19 period, $X^2(2) = 6.099$, P-value = 0.047 (Table 2).

Table No.2: Chi-square analysis for house officers' junk food consumption with different psychological distress levels during the COVID-19 period (n=161)

	Psychological distress in house officers		P-value
	Low distress	High distress	
Weekly junk food consumption by house officers			
< 1 time	38 (23.6%)	44 (27.3%)	
1-3 times	32 (19.9%)	26 (16.1%)	
≥ 4 times	5 (3.1%)	16 (9.9%)	0.047
Total	75 (46.6%)	86 (53.4%)	

Moreover, we compiled scores from the STC and K10 for running correlation analysis. The results showed a significant positive correlation between dietary behavior and psychological behavior (r = 0.315, p = 0.044). That is unhealthy dietary behavior of house officers increases as psychological distress increases.

DISCUSSION

This study observed an increase in self-reported psychological distress among house officers during the COVID-19 period compared to the period before it. Several studies conducted in other countries showed an increase in psychological distress among health care professionals during the COVID-19 period [12-14]. One of the reasons for it could be a lack of organizational readiness[15]. During the catastrophe of COVID-19, working changed entirely in all organizations because of a severe shortage of resources. These difficult circumstances have pressurized doctors to work long shifts and distorted work-life balance [16]. Huang and Zhao (2020) also reported that young health care workers developed a higher risk of mental illness because of the increased work time during the pandemic [17].

The results of our study also showed that junk food consumption is associated with psychological distress in house officers during the pandemic. The participants with junk food consumption of more than or equal to four times a week were far more with high psychological distress than lower psychological distress. In addition, we observed an increase in unhealthy dietary behavior of house officers with an increase in psychological distress. Various other studies showed that unhealthy dietary behavior can be triggered due to stress [18-22]. The likely cause that may have arisen this unhealthful behavior in the context of Pakistan might be "Pandemic anxiety". The pandemic anxiety is inclusive of work-related behavioral changes in diet and sleep, mental distress, ambiguity, dread, apprehension, nervousness, and concentration difficulty. In addition, lockdowns, social distancing, and quarantine also adversely affected the officers' mental health [16].

To address mental health issues amid COVID-19, China succeeded to set positive examples and implement mental health interventions. The country assigned mental health professionals to provide psychological services to medical staff and patients within hospitals [23-24]. To reduce the adoption of pandemic-induced unhealthy behaviors, Health Belief Model (HBM) based interventions can be applied in Pakistan. In HBM, perceived self-efficacy reinforces positive steps and beliefs to overcome a given situation, hence, developing preventive behaviors. Therefore, stress appraisal and strategies to cope with stress can be achieved by amending behavior through motivation and encouraging lifestyle modification[25]. Likewise, unhealthy dietary behaviors as a result of psychological distress can be dealt by using HBM for the house officers. If remain unaddressed the behaviors may result in deterioration in their health and wellbeing in long run.

The design of this study was cross-sectional with its inherent limitation i.e., the temporal relationship cannot be ascertained between the exposure and outcome. Secondly, the results cannot be generalized to all house officers in Karachi as data was collected through convenience sampling. Therefore, longitudinal studies on this subject are warranted to explore the subject further and to establish the temporal relationship.

CONCLUSION

COVID-19 has immensely increased the burden on healthcare professionals globally. To cope with the situation the house officers are resorting to harmful behaviors such as consuming an unhealthy diet in Karachi. If not addressed appropriately these behaviors will last and deteriorate their overall health and wellbeing in the long run. Therefore, mental health

interventions are needed to mitigate these effects of the pandemic faced by the officers.

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Locoregional Recurrence of Oral Squamous Cell Carcinoma-A Retrospective Analysis

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ABSTRACT

Objective: This study was undertaken to evaluate the loco regional recurrence cases of OSCC in the twin cities of Pakistan during the period of 2015 to 2018.

Study Design: A retrospective, descriptive, cohort study

Place and Duration of Study: This study was conducted at the Islamic International Dental College, Islamabad from August 2019 to July 2020.

Materials and Methods: A sample size of 40 patients with OSCC was calculated. Data was collected from the clinical and histopathological reports of the OSCC patients. %). Demographic data regarding age, gender along with clinic-pathological variables such as tumor stage, primary tumor site, treatment type, recurrence site, histological grade, tumor resection margins, and lymph node involvement were investigated to deduce the significance of these variables in recurrence.

Results: The mean age of the patients was 55.25 and the sample predominantly had females (62.5%). Most common tumor site was found to be the lower alveolar ridge. Out of 40 patients, 8 showed recurrences (20%) with majority on the primary tumor site. Owing to the small sample size, the variables although having a potential of inference did not come out to be statistically significant.

Conclusion: Although a high recurrence rate of 20% was seen; however none of the studied variables showed any statistically significant co-relation.

Key Words: OSCC, clinicopathological variables, loco regional, recurrence rate

INTRODUCTION

Oral squamous cell carcinoma is the most common sub-type of head and neck cancer. Accounting for nearly 3% of all cancers worldwide with 263,000 newly diagnosed cases and 128,000 registered deaths per year**Error! Bookmark not defined.**.According to Collective Cancer Registry of the Shaukat Khanum Memorial Cancer Hospital & Research Center, Pakistan, Oral and lip cancers are reported to be the 3rd most common cancer registered among adults in both sexes from a data of 24 years i.e. Dec 1994 to Dec 2018. Whereas amongst adults (> 18 years), it landed being the 2nd commonest malignancy.

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Most oral squamous cell carcinomas are located on the tongue, the floor of mouth and the gingiva in almost equal proportions. Like most cancers of the upper aero digestive tract, it is strongly associated with tobacco use and alcohol consumption**Error! Bookmark not defined.**. In Pakistan, Betel nut chewing, and tobacco were the commonly identified risk factors.

Of the known prognostic factors TNM stage, histological grade and depth of tumor invasion are well recognized. Therapeutic choices include surgery, chemotherapy, radiotherapy and brachytherapy with similar intent for recurrences as well.

Despite advances in surgery and radiotherapy, which remain the standard treatment options, the mortality rate has remained largely unchanged for decades, with a 5-year survival rate of around 50%.

The main reason of poor prognosis is the recurrence of OSCC due to aggressive local invasion and metastasis decreasing the survival rate from 90 to 30%. Recurrence most often is classified as local, regional, loco regional and distant. The risk of loco regional recurrence varies with some features of the primary tumor such as tumor stage, histological differentiation; patient characteristics such as age, alcohol use and smoking status; treatment factors such as positive resection margins.[2,8] The different biological growth

patterns of malignancies mean that the identification of the clinic pathological risk factor is still of utmost importance for predicting recurrence.[1,2] For the past many decades, the single most important prognostic indicator of survival for this disease is the regional spread to the ipsilateral and contra lateral neck nodes.

In regard to this, the objective of this study was to evaluate the incidence of loco regional recurrence and to identify significant risk factors for it through clinico-pathological data and follow-up data of patients with OSSC in the twin cities of Pakistan.

MATERIALS AND METHODS

A retrospective Cohort study was carried out at the Islamic International Dental College and hospital. The study involved all the patients with the diagnosis of a primary OSCC and if any subsequent recurrence.

The clinical and histopathological variables were studied to analyze the pattern of loco-regional recurrence of oral squamous cell carcinoma ranging from 2015 to 2018. The ethical approval was taken from the Research Ethical Board (REB) of Islamic International Dental College, Reference No.IIDC/IRC/2020/008/004. The sample size was calculated by WHO calculator as 40 and the technique applied was non-probability convenience sampling. Recurrence was defined as a tumor of similar histology appearing in the same anatomical site as primary malignancy with a minimum interval of more than six months after successful initial treatment.

Inclusion criteria were patients with treatment naive OSCC and primarily curative intended surgery, based on radical tumor resection with neck dissection. Un-resectable disease, lesions arising in less than 6 months, secondary primary tumors and inadequate information on clinicopathological characteristics served as exclusion.

Clinicopathological data were collected from medical records that include post-treatment notes and histopathological reports. The statistical analysis was performed by SPSS 23.0 for Windows. All variables in the data with recurrence was run through Chi-square test to calculate p-value, while for all variables where there was at least 1 case less than 5, Fisher Exact was applied with an arbitrary value of 0.5.

RESULTS

Of the total population of 40 patients with OSCC 25 (62.5%) were female and 15 (37.5%) were male. Recurrences had similar pattern with 5 females and 3 males making a sum of 8 patients with collective recurrences i.e., 20% of the sample. The peak age of the patients was 51-60 years. The mean age calculated was 55.25 years. The primary tumor site included alveolar ridges, palate, buccal mucosa, lip and oropharynx with maximum number of cases associated with the lower alveolar ridge. 75% of recurrences were on the primary site and whereas only 25% were on sites other than the primary tumor site.

33 OSCC patients were treated with curative surgery alone out of which 6 showed recurrences with 3 (27.27%) out of 11 having positive resection margins. Tumor staging was done, and maximum numbers of recurrences were associated with primary tumors of stage 4. The most common histological grade among the patients was I, however most cases of recurrence were associated with grade II.

5 (35.71%) out of 14 patients with recurrent OSCC showed lymph node involvement while 17 patients with OSCC who had undergone supra-omohyoid neck dissection only 2 (11.76%) showed recurrence pattern. Of the 4 patients who were deceased only 1 had shown recurrence.

The statistical analysis was carried out, Fisher's exact test was applied and none of the association was statistically significant except the site of recurrence which was the same as that of primary tumor in 6 out of 8 cases of recurrent OSCC with a p value of less than 0.000.

Further details regarding the characteristics of the cohort study are shown in Table 1.

Table No.1: Association between Clinic-Pathological Variables of OSCC and Recurrence

Clinico-Pathological Variables		Reccurrence Status			P-Value
		Yes	No	Total	
Tumor stage	STAGE I	1	7	8	0.243
	STAGE II	0	8	8	
	STAGE III	1	5	6	
	STAGE IV	6	12	18	
Primary tumor site	UPPER ALVEOLAR RIDGE	0	12	18	0.728
	PALATE	1	1	2	
	BUCCAL MUCOSA	2	10	12	
	TONGUE	2	4	6	
	LIP	0	2	2	
Treatment type	SURGERY	6	27	33	0.147
	RADIOTHERAPY + SURGERY	0	2	2	

	CHEMOADJUVENT + SURGERY	2	0	2	
	CHEMO-NEOADJUVENT	1	1	2	
	CHEMOTHERAPY + RADIOTHERAPY + SURGERY	0	1	1	
Recurrence site	PRIMARY SITE	6	0	6	0.000
	OTHER THAN PRIMARY	2	0	2	
Histological grade	GRADE I	6	21	27	1.000
	GRADE II	2	10	12	
	GRADE III	0	1	1	
Positive resection margins	YES	3	8	11	0.660
	NO	5	24	29	
Lymph node involvement	YES	5	9	14	0.102
	NO	3	23	26	
Neck dissections	NO NECK DISSECTION	2	2	4	0.206
	SUPRAOMPHYOID	2	15	17	
	RADICAL NECK	4	15	19	

DISCUSSION

The recurrence of OSCC is a major contributing factor resulting in the increased mortality rate. Our study findings showed an increased frequency of OSCC in females (62.5%) as compared to males (37.5%). However, on the contrary a similar Pakistani study showed an increased prevalence in males' verses females. One retrospective study conducted over 20 years in Mexico on the trends in frequency and prevalence of OSCC showed a similar finding as that of present study with slight female predominance due to increase trend in smoking habits by women in the last decade. Likewise, increased trend of smoking, pan and gutka in our region might explain the increase in the incidence of OSCC in females. A study carried out in India to demonstrate the smoking trends verified an alarming growth in the prevalence of smoking among women in developing countries. However, patient habits have not been taken in account in our study.

With regard to age of the studied patient sample, mean age of 55 was observed, this is comparable to a similar study conducted in India. These findings were also consistent with 2-year study done in SKMCH&R (Lhr) and AFIP (Rwp), Pakistan, stating that most patients diagnosed with OSCC were above the age of 50 years.

Our study indicated that the Primary sites were the alveolar ridges, buccal mucosa, and lip, similar findings were reported by conducted at Patel Hospital lower alveolar ridge was the most common site of recurrence.[12] A significant proportion of reported literature on OSCC however shows that tongue was reported to be the most commonly affected primary site in the western countries as their tobacco exposure is more related to smoking rather than chewing[17] followed by buccal mucosa in the subcontinent due to betel quid/tobacco chewing habits.**Error! Bookmark not defined.** In our study majority of the recurrences

were on the primary site and so was the case with other studies conducted in Germany and Pakistan that had primary site recurrences specifically on the tongue.[18]

It is widely believed that the most significant factor influencing the rate of survival is tumor stage although this alone is not sufficient to predict prognosis.[19] Our study has the maximum number of cases reported with Stage 4 at diagnosis (45%).A plausible cause of this is the late diagnosis of OSCC which is consistent with the Cohort study carried out in Denver, Colorado where most patients had T3-T4 category tumor at diagnosis (42.3%)[14] .The relation of recurrence to tumor staging in our study was analyzed and most number of recurrences were also associated with Stage 4 (33.33%) which although explicable was still not statistically significant owing to the small sample size. A study at Agha Khan University Hospital, Karachi established that a significant higher recurrence was observed with higher tumor stages, the maximum being seen in stage 4.[12]

Histological grading when co-related with the frequency and patterns of recurrence showed a unique pattern with most number of cases showing recurrence to be of Grade 1 (well differentiated) followed by Grade 2 (16%) and no recurrences in Grade 3. This peculiar pattern owes to the fact that the sample included only one patient with Grade 3 while most patients were also lost to follow-up. Although grading is potentially subjective and the observer validation debatable, previous literature has suggested an eminent importance of grading of patients with OSCC.**Error! Bookmark not defined.Error! Bookmark not defined.**A retrospective study carried out in India to demonstrate the relation between histological differentiation and disease recurrence substantiated the higher recurrence and lower survival rate of poorly differentiated tumors in comparison to well and moderately differentiated tumors.[20]

In our study, out of all patients who received surgery only 18% showed reoccurrence of the disease indicating that surgery remains a good prognosis factor for OSCC supporting most literature present on OSCC suggesting that surgery alone is the most well established mode of initial definitive treatment for the majority of OSCC. [16,19] These findings could also be as a result of good prognosis of the disease itself. At the same time a more aggressive treatment regime is opted for patients with advanced disease stage. [15] Patients who received a combination of both radiotherapy and surgery, none showed recurrence. Two retrospective studies on OSCC, one conducted in University of Maryland, USA and the other conducted in Karachi, Pakistan both concluded that radiotherapy in addition to surgery was successful in achieving good disease control.[12,21] Poor outcomes despite multimodal treatment may suggest combination of a more advanced disease at initial presentation, limited salvage options or a resistant tumor biology.[22]

Our study results are compatible with positive margins more likely to cause recurrence as compared to negative resection margins. 2.5-fold increase in risk of distant metastasis in presence of positive margins is reported, supporting prognostic importance in distant disease control.[14] Pathologic positive margins has proven to be an adverse prognostic factor for OSCC patients Study in India concluded that high emphasis should be given on margin of tumor clearance as comparable with western population studies.[23] Surgical clear margins >5mm are recommended to prevent local recurrence and overall survival rate. [16,19]

A significant association of lympho-vascular invasion is seen with increasing tumor size, histological grading, nodal involvement and overall prognosis and survival.[15] Out of the 40 patients in our study, lymph node invasion was expressed in 14 patients. Out of those 14 patients, 55.5% of them had some form of recurrence after the primary tumor resection. Our data is in accordance with the previous data exhibiting increased prevalence of recurrence in patients with lymphatic involvement. According to a study lymph node involvement is found in more than 50% of the patients with OSCC.[23] Status of cervical metastasis is the single most important factor in survival of the patients with OSCC.[24]

The treatment of OSCC is aimed at treating the primary tumor and regional neck metastasis, and neck dissection is an essential treatment element.[14] A general trend among the surgeons was observed for preferring selective neck dissection rather than radical neck dissection as no significant contrast was seen in the prognosis of the disease, hence minimally invasive dissection was favored. SND has been accepted as the most successful staging and therapeutic procedure for OSCC clinically negative neck.[25]

CONCLUSION

The recurrence rate of OSCC cases studied was 20%, however none of the factors included in this study were found to be statistically significant.

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Original Article

The Effect of Total Power of Nd:YAG Laser on Intra-Ocular Pressure and Anterior Chamber Reaction after YAG Laser Capsulotomy

Syed Abdullah Mazhar[1], Nesr Farooq[2], Khurram Nafees[3], Sehar Zahid[4], Bushra Mazhar[5] and Nazish Mazhar Ali[5]

ABSTRACT

Objective: To assess the effect of total power of Nd:YAG laser on intra-ocular pressure and anterior chamber reaction after YAG Laser capsulotomy.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Ophthalmology, Shalimar Medical & Dental College Lahore from October 2020 to September 2021.

Materials and Methods: Pre and post laser, the intraocular pressure and anterior chamber reactivity were documented. The patients were treated with laser after undergoing a pre-laser evaluation.

Results: The mean preoperative IOP was 13.38±2.38 mmHg while postoperative was 18.40±5.97 mmHg. Fifty one (87.93%) patients, none of the anterior chamber reaction was observed while faint and moderate reaction was observed in 7 (12.07%) and one (1.72%) patient respectively.

Conclusion: Nd:YAG laser capsulotomy is an efficient treatment method because of its non-invasiveness and no need for hospitalization. The most common complication observed was postoperative increase in IOP following Nd:YAG laser capsulotomy.

Key Words: Nd:YAG laser; Intra-ocular pressure; Anterior chamber reaction; YAG Laser capsulotomy

INTRODUCTION

Reduced glare, vision and some other manifestations of posterior capsular opacification (PCO) are similar to those of an original cataract. Capsular bag opacification may be caused by cells from three different sources. [1] Cuboidal epithelial cells, in the anterior capsule, cuboidal epithelial cells do not migrate; instead, they

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exhibit fibrous metaplasia and multiply in situ. [2] Equatorial lens cells, mitotic activity is elevated in the cells of the equatorial lens bow. Because these cells migrate, they give birth to bladder cells as they expand along the posterior capsule. [3] Finally, the equatorial lens bow's remnant cortical fibers get loosened and float freely inside the bag. They may stay isolated inside the visual axis or move centrally within it. PCO may take several forms, including Elsching's pearls, posterior capsular wrinkling, and fibrosis. The center region of the posterior capsule is either surgically opened or treated with the YAG laser, which is the conventional therapy. Endopthalmitis may be a serious side effect of surgical capsulotomy.[1] The treatment of significant visual posterior capsular opacification (PCO) in pseudophakic eyes using Nd:YAG laser capsulotomyis a successful and gold standard procedure.[2]

For posterior capsulotomy in PCO patients, several Nd:YAG laser methods have been developed. The cruciate method and circular procedures are the two most often utilized posterior capsulotomy techniques nowadays.[3] An increase in intraocular pressure, a rupture of the anterior vitreous face and damage to the lens, hyphema, acute inflammation, and cystoid macular edema are all possible risks of the procedure

performed with the YAG laser.[4] The most common consequence of Nd:YAG laser posterior capsulotomy is elevated intraocular pressure (IOP), however this is generally a temporary problem.[5]

Increased incidence of elevated IOP has been linked to increased laser energy and pulses in the treatment. This increase in IOP might be severe, putting your eyesight at risk.[6] According to the literature no such study have been conducted in Pakistan therefore this study was conducted to determine the effect of total power of Nd:YAG laser on intra-ocular pressure and anterior chamber reaction after YAG Laser capsulotomy.

MATERIALS AND METHODS

This prospective study was carried out at the Ophthalmology Department, Shalimar Medical and Dental College from 1st October 2020 to 30th September 2021 and 58 patients were enrolled. A consent form was signed from all the included patients. The inclusion criteria for our study was older patients with PCO impairing visual acuity, cataract surgery history of three months, and had two or more lines of decreased best corrected vision, while the exclusion criteria was patients under the age of 15, patients with simple extracapsular cataract extraction, dislocated IOLs, IOL implants in traumatic cataracts, patients undergoing a combined procedure (Trabeculectomy with PC IOL), patients with diabetic retinopathy or any other retinal disease. Pre and post laser, the intraocular pressure and anterior chamber reactivity were recorded documented on a predesigned Performa. The patients were treated with laser after undergoing a pre-laser evaluation. With 1.5 to 5mJ per pulse, a Nd:YAG laser was utilized to produce a 2-3mm hole in the posterior capsule. The energy and pulses were progressively increased in accordance with the capsule thickness until an opening was obtained. Following the capsulotomy, patients were given 0.1 percent diclofenic sodium eye drops three times a day for one week, as well as antiglaucoma medication as required. After one month, patients were evaluated for intraocular pressure, anterior chamber reaction, and probable consequences. The data was entered and analyzed through SPSS-23.

RESULTS

There were 24 (41.38%) male and 34 (58.62%) female patients. Mean age of the patients was 61.67±10.31 years. Only one (1.72%) patient was in the age group 18-40, 26 (44.83%) in 41-60 and 31 (53.45%) in age group 61-80 years. All the patients received treatment in the unilateral eyes. Right eye was treated in 37 (63.79%) patients while left eye was treated in 21 (36.21%) patients. The mean preoperative IOP was 13.38±2.38 mmHg while postoperative mean IOP was 18.40±5.97 mmHg. We observed that with the increase of YAG power the IOP also increases. None of the anterior chamber reaction was observed in 50 (86.20%)

patients while faint and moderate anterior chamber reaction was observed in 7 (12.07%) and one (1.73%) patient respectively. The mean YAG power used in our study was 4.94±1.07 mJ while the total mean power used was 68.61±27.28 mJ. The mean of total number of shots was 13.97±4.47 (Table 1).

Table No.1: Demographic information of the patients (n=58)

Variable	No.	%
Gender		
Male	24	41.38
Female	34	58.62
Age (years)		
18-40	1	
41-60	26	
61-80	31	
Anterior chamber reaction		
None	50	86.20
Faint	7	12.07
Moderate	1	1.73
Marked	-	-
Intense	-	-
Laterality		
Right eye	37	63.79
Left eye	21	36.21
IOP (mmHg)		
Preoperative	13.38±2.38	
Postoperative	18.40±5.97	

DISCUSSION

After cataract surgery, the reported incidence of PCO is 20.7 percent after two years and 28.5 percent after five years.[7] After extracapsular cataract surgery, PCO is the most common cause of decreased visual acuity.[8] The conventional therapy for PCO is a Nd:YAG laser capsulotomy.[9] 94% of individuals treated with capsulotomy by Aron-Rosa et al[10] observed an immediate improvement in visual acuity. Overall visual acuity improved in 83–94% of cases and declined in 3.5–6% of cases, according to a previous study.[11] A previous study reported that there were 105 female and 95 male in their study.[12] Another study also reported female predominance. They reported 57% female and 43% male in their study.[13] In accordance with the previous studies, our study also reported female predominance. There were 24 (41.38%) male and 34 (58.62%) female patients in our study.

Though effective, Nd:YAGcapsulotomy may cause problems such as an increase in intraocular pressure (IOP), damage of lens, refractive changes, macular edema, retinal detachment and retinal rupture.[14] Increased IOP is the most prevalent side effect of Nd:YAG laser posterior capsulotomy. Following Nd:YAG laser capsulotomy, 59–67% of patients had an IOP increase of at least 10 mmHg in the absence of antiglaucoma or anti-inflammatory prophylaxis.[15] In

various investigations, higher IOP was recorded in 15–30% of individuals despite preventative therapy.[16,17] In accordance with the previous studies, our study also shows an increase in postoperative IOP. In our study, the mean preoperative IOP was 13.38±2.38 mmHg while postoperative mean IOP was 18.40±5.97 mmHg. None of the anterior chamber reaction was observed in 50 (86.20%) patients while faint and moderate anterior chamber reaction was observed in 7 (12.07%) and one (1.73%) patient respectively. In accordance to our study, another study did not observe any serious anterior chamber reaction.[18]

According to Kumar et al[13] the laser energy used for capsulotomy has a direct relationship with the density of posterior capsular opacification. The cumulative total energy needed to achieve an appropriate capsulotomy varied between 20 and 232 mJ. The mean YAG power used in our study was 4.94±1.07 mJ while the total mean power used was 68.61±27.28 mJ. A previous study concluded that the majority of patients needed less than 200 mJ for capsulotomy, and that those who needed over than 200 mJ had a higher risk of increased intraocular pressure.[19]

CONCLUSION

Nd:YAG laser capsulotomy is an efficient treatment method because of its non-invasiveness and no need for hospitalization. The most common complication observed was postoperative increase in IOP following Nd:YAG laser capsulotomy. In order to avoid a transitory increase in intraocular pressure, it is recommended to employ the smallest number of laser shots and the minimum amount of total power.

Author's Contribution:

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Original Article

Comparison of Mean Postoperative Pain Score in Patients Treated with Or Without Mixture Of 2% Chlorhexidiene Plus Calcium Hydroxide after Endodontic Treatment

Muhammad Shairaz Sadiq[1], Sadia Javed[2], Fareed Ahmad[1], Sana Akram[3], Farhan Riaz[3] and Ehsan Rathore[3]

ABSTRACT

Objective: To compare mean post-operative pain score in patients treated with or without mixture of 2% chlorhexidiene plus calcium hydroxide after endodontic treatment.
Study Design: Descriptive cross sectional study
Place and Duration of Study: This study was conducted at the Department of Operative Dentistry Faryal Dental College, Sheikhupura from November 2020 to April 2021.
Materials and Methods: Total 60 patients of both genders referred for endodontic treatment were enrolled in this study. Patients were split in 2 equal groups, group A and group B. By using 1.8 ml of 2% lignocaine containing 1:100,000 epinephrine, tooth was anesthetized and isolated using rubber dam.
Results: The mean postoperative pain score was Chlorhexidine + calcium hydroxide group and in without Chlorhexidine + calcium hydroxide group was (1.57 ± 1.07 vs. 7.17 ± 1.17; $p<0.05$), the statistical significance difference between two groups was observed.
Conclusion: Postoperative endodontic pain using mixture of 2% chlorhexidine and calcium hydroxide is significantly reduced ($p<0.001$). The decrease in microbial causes leading to post treatment pain, inflammation and discomfort for patients and the dentist, can be reduced by use of intra canal medicament.
Key Words: Chlorhexidiene, calcium hydroxide, endodontic treatment, postoperative pain

INTRODUCTION

To reduce or eliminate microorganisms from the root canal space is the goal of endodontic treatment, preventing reinfection and by sealing the root canal system, promotes the healing of the periapical tissue.[1,2] The most common reason to be considered for which a patient visits a dentist is pain.[3]

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Though, for their refusal to undergo treatment, it is one of the collective factor. Because of operator technique, form of irrigation and type of endodontic system used, post-endodontic pain could be a complication.[4] Instrumentation, irrigation and application of intracanal medicaments is a problematic job in the eradication of microorganism. Consequently, for eradication of infected tissues and microorganisms application of chemical irrigators and intra canal medicaments seem crucial in addition to mechanical debridement.[5]

Alkaline pH value of calcium hydroxide is round about 12.5. Liberation of hydroxyl ion from calcium hydroxide in an aqueous environment renders it antimicrobial property. Most of the microorganisms that are source of root canal infection are unable to sustain alkaline environment.[6] Chlorhexidine gluconate is both bacteriostatic and bactericidal in low and high concentrations respectively.[7] Ability of chlorhexidine to bond with dentinal hydroxyapatite gives it a unique characteristic of substantivity.[8]

Singh et al conducted a research,6 there was a notable difference($p<0.001$) in pain reduction amongst the four experimental groups, that were labelled chlorhexidine

and calcium hydroxide, chlorhexidine, calcium hydroxide and control group (placebo). Pain reduction in groups, in which either a mixture of chlorhexidine with calcium hydroxide or chlorhexidine was used individually was remarkably higher (p<0.05) than in groups in which calcium hydroxide and placebo was administered.[9]

To the best of our knowledge there is no local study available on this topic in our setup. Therefore, the goal of this research is comparison of mean post-operative pain score in patients treated with or without mixture of 2% chlorhexidiene plus calcium hydroxide after endodontic treatment.

MATERIALS AND METHODS

After taking permission from Institutional Review Board of the hospital this randomized controlled trial was conducted at Department of Operative Dentistry Faryal Dental College, Sheikhupura from 1st November 2020 to 30th April 2021. A total of 60 patients of both genders referred for endodontic treatment were enrolled in this study. Informed written consent was obtained from the patients.

Patients who complained of spontaneous moderate to severe pain matched the study's inclusion criteria. Sixty male and female patients with age limit of 20-60 years and. Any type of permanent tooth with diagnosis of symptomatic irreversible pulpitis with normal periapex, were incorporated in the study. The teeth that had previously been retreated were included in the exclusion criteria. Also the patients with necrotic pulps, apical periodontitis and acute abscess were excluded from the study.

Patients were split in 2 equal groups, group A and group B. By using 1.8 ml of 2% lignocaine containing 1:100,000 epinephrine, tooth was anesthetized and isolated using rubber dam. Access cavity was made. Pulpectomy was done following which endodontic work length was taken with an apex locator and rechecked by a periapical radiograph. Step back technique was used. Irrigation was carried out using sodium hypochlorite. After drying canals, Inter appointment medicament was then packed in the canals in both groups. Mixture of 2% Chlorhexidine and calcium hydroxide was put down in canals of patients included in group A while No drug was placed in canals of patients in group B. Cavit (3M ESPE, St Paul, MN, USA) was set as a temporary restoration of endodontic access cavity and a questionnaire containing the VAS was provided to each individual for them to note the magnitude of pain felt after 24 hours. Root canal treatment was accomplished in the next appointment.

Data analysis was done using SPSS-20. Mean pain score in two groups were compared by applying independent samples t-test.

RESULTS

Thirty three (55%) were male and 27 (45%) were females, in group A 43.3% patients have age 20-40 years and 56.66% patients have age of 41-60 years, while in group B 36.66% patients have age of 20-40 years and 63.33% patients belonged to 61 to 60 years (Table 1). The mean postoperative pain score was Chlorhexidine + calcium hydroxide group and in without Chlorhexidine + calcium hydroxide group was (1.57±1.07 vs. 7.17±1.17; p<0.05), the statistical significance difference between two groups was observed (Tables 2-3).

Table No.1: Demographics of the included patients

Variable	Group A	Group B
Gender		
Male	18 (60.0%)	15 (50.0%)
Female	12 (40.0%)	15 (50.0%)
Age		
20-40	13 (43.3%)	11(36.66%)
41-60	17 (56.66%)	19 (63.33%)
Mean±SD	27.45±7.52	26.77±7.32

Table No.2: Comparison of postoperative endodontic pain score

Variable	Group A	Group B	P value
VAS Score	1.57±1.07	7.17±1.17	P< 0.001

Table No.3: Data stratification with age of the patients

Age	Group	Mean±SD	P value
20-40	A	1.23±1.16	P<0.001
	B	7.29±1.49	
41-60	A	1.82±0.95	P<0.001
	B	7.06±0.85	

DISCUSSION

The current research is carried out to compare of mean postoperative pain score in patients treated with or without mixture of 2% chlorhexidiene plus calcium hydroxide after endodontic treatment. After irreversible pulpitis, the root canals port bacteria as well as tissue debris is the cause of contamination and infection to apical periodontium.[10]

Findings of the current study demonstrated that administration of chlorhexidine in combination with calcium hydroxide resulted in statistically significant reduction in pain score. Chlorhexidine has swift and constant action to control postoperative pain. Its remarkable result was evident within 4 hours of being placed. This remarkable effect confirms the results of previous studies[11,12] according to that chlorhexidine demonstrated its high diffusibility and provided 100% hampering of microorganisms.

According to a study by Al-Negrish and Habahbeh[13], there was a 24.1% incidence after two days and a 5.3% incidence at seven days after surgery. Despite the fact

that the intracanal medicament employed was a proprietary calcium hydroxide paste, the authors' results at 7-day post-operative assessment are identical to this study. Using Visual Analogue Scale, Ghoddusi et al[14] found a 15% incidence of post-operative pain at 6-hourly intervals for up to 72 hours. For this research, this varies from the figures probably due to differences in the timing of post-operative assessment and calcium hydroxide (aqua) mixing. Udoye and Aguwa[15] used comparable pain rating criteria to this study and found a 10% incidence of post-operative pain. This number is also significantly greater than the regular saline therapy group's incidence rate however; in findings of our study it is similar to that of treatment group of chlorhexidine. However, the study did not specify the time period during which post-operative pain was measured, nor the vehicle utilized to mix calcium hydroxide.

However, according to Gomes et al[16] 2% chlorhexidine was not successful in washing out microorganisms. Also, the present study does not agree with the outcomes of research carried out by Gama et al.[17] who found 0.2 percent calcium hydroxide or chlorhexidine gluconate in mixture with CPMC (camphorated paramonochlorophenol paste) intracanal dressing to be equally fruitful in bringing down the discomfort after root canal therapy.

It can be concluded that, the mixture of calcium hydroxide and chlorhexidine is most useful in decreasing the postoperative pain when com- pared with placebo (1.57 ± 1.07 vs 7.17 ± 1.17) with P<0.001. Study initiated by Yoldas et al[18] announced marvelous efficacy of mixture of calcium hydroxide and chlorhexidine to lessen post endodontic pain in endodontic retreatment cases. Contact angle of calcium hydroxide is reduced by the addition of chlorhexidine which has an increased wetting effect in the root canal. As long as study by Delgado et al[19] is considered, no difference is found in antimicrobial action of chlorhexidine either used individually or in combination with calcium hydroxide.

CONCLUSION

In conclusion, postoperative endodontic pain using mixture of 2% chlorhexidine and calcium hydroxide is significantly reduced (p<0.001). The decrease in microbial causes leading to post treatment pain, inflammation and discomfort for patients and the dentist, can be reduced by use of intra canal medicament.

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Outcome of COVID–19 among Hepatocellular Carcinoma Patients at Tertiary Care Hospital

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ABSTRACT

Objective: To determine the outcome of COVID–19 among hepatocellular carcinoma patients at tertiary care hospital.

Study Design: descriptive case series study

Place and Duration of Study: This study was conducted at the Department of Medicine, Nishtar Hospital Multan from December, 2020 to December, 2021.

Materials and Methods: All patients of hepatocellular carcinoma diagnosed with COVID–19 of either sex aged more than 20 years were included in this study. Collected Data was entered into SPSS version 22 and was analyzed through its statistical package.

Results: A total of 62 patients with hepatocellular carcinoma presenting with COVID–19 were included, of which 69.4% (n = 43) were male while 30.6 % (n = 19) were female patients. Mean age of these patients was 59.60 ± 8.94 years (range; 42–78 years). Mean duration of hospitalization in these patients was 11.37 ± 6.18 days and 58.1 % (n = 36) were hospitalized for more than 1 week. Admission to intensive care unit (ICU) was noted in 25.8% (n = 16) of these patients. In–hospital mortality in HCC patients having COVID–19 was noted in 27.4 % (n = 17).

Conclusion: High frequency of in–hospital mortality was noted in hepatocellular carcinoma patients infected with COVID–19 in our study.

Key Words: Hepatocellular Carcinoma, mortality, COVID–19

INTRODUCTION

The world is facing the challenges of pandemic COVID-19 which not only affect the healthcare system but almost every field by disturbing planning and creating psycho-socio-economic crises globally. Pakistan is also affected by this infectious viral disease and facing the multiple crises especially morbidity and mortality by Coronavirus Disease 2019. Current outbreak of SARS-CoV-2 noval Coronavirus (2019-nCoV) was first reported from a local seafood market in Wuhan, a city of China, on 31st December 2019. Later, it was named as Corona Virus Disease – 2019 (COVID-19) by World Health Organization on 11th February 2020. This epidemic of COVD-19 become a global issue and declared as pandemic by WHO.

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The morbidity and mortality rates varying from 1 % to as high as 11 % from Italy[1-3].

The initial group of researchers in Wuhan, China, reported following clinical features of COVID–19, Symptoms at onset: fever, fatigue & myalgia, dry cough, sputum production, headache, haemoptysis, diarrhea. Subsequent symptoms: dyspnoea[4]. A study published in The Lancet, revealed person to person transmission in a familial cluster of pneumonia associated with the 2019 novel coronavirus[5]. COVID–19 with average incubation period of 5.2 days has very transmissibility rate of 4.02, indicating that each patient will infect approximately 4 persons. Human to human transmission of the virus has been reported through respiratory droplets, body secretions and aerosols transmission has also been documented[6-8].

Mortality rates are being reported from different countries which indicate higher proportions of deaths in patients with underlying illnesses such as diabetes, hypertension, coronary heart disease, chronic obstructive pulmonary disease (COPD), asthma, chronic lung injury, advanced age, gender and cancers[9–11]. COVID–19 has been proven to be highly contagious and soon after its initial outbreak, number of patients and rate of mortality surpassed the numbers of SARS outbreak in 2003. Different reports have shown that patients having various comorbidities such as hypertension, followed by diabetes and coronary heart

disease and regression analysis revealed increasing odds of in-hospital mortalities being related with increasing age, Sequential Organ Failure Assessment (SOFA), increased blood d-Dimer levels >1 µg/mL are risk factors for poor prognosis and in-hospital mortality in patients with COVID-19 [12]. Cancer patients have been declared as high risk group under the circumstances of ongoing COVID–19 pandemic as these patients are usually highly susceptible to various types of infections as a results of their immunodeficient condition as a result of underlying malignant condition and also due to use of anti–cancer treatment modalities that may include systemic therapy and radiotherapy.

Results of this study will help researchers and healthcare policy makers to formulate guidelines regarding specific clinical course and medication to control this pandemic by reducing mortality rate to cope with this deadly disease. It will also contribute in scientific and research fields for the awareness, outcome prediction and impact assessment of interventions, plan of action for preventive measures and effective treatment. The results of this proposed study will also highlight importance of clinical course, medication, its effectiveness and control which will ultimately lead to lower burden of morbidities, decreased mortalities and less healthcare expenditures. This will not only relieve extra pressure from healthcare authorities but will also improve quality of life targeted population, relive psychosocial stress, enhance their physical activity and productivity   .

MATERIALS AND METHODS

This descriptive case series study was done T Department of Medicine, Nishtar Hospital, Multan, from 06–December–2020 to 05–December–2021 using non–probability purposive sampling technique. All patients of hepatocellular carcinoma (n=62) diagnosed with COVID–19 of either sex aged more than 20 years were included in this study. Sample size was 62 HCC patients with, sample size has been calculated using P 1 = 20 %[12] at 95 % CI, d = 10 % and 80 % power of test (5% margin of error) using Epi–info software of CDC.

Patients having chronic Kidney disease, liver transplantation, malignancies, COPD and those who were not willing to be included were excluded from our study.

After approval from the ethical review committee, 62 HCC patients with COVID-19 patients fulfilling the inclusion criteria was selected from COVID– wards of Nishtar Hospital Multan. After taking informed written consent after describing them objectives of this study, ensuring them confidentiality of the information given to us in this study and fact that there will not be any risk involved to the patient while taking part in this study. These COVID patients was taken and followed till discharge to ascertain outcome (mortality which was confirmed by a straight line on ECG, absence of pulse

and blood pressure) of COVID–19 and all information was recorded in the proforma.

Collected data was entered into SPSS version 22 and was analyzed through its statistical package. Descriptive statistics was used to analyze the data. Mean ±S.D was calculated for age of the patients, duration of stay and BMI. Frequencies and percentages were calculated for qualitative variables like gender, diabetes, hypertension, IHD, age groups, obesity, mortality and residential status. Effect modifiers like age, diabetes, hypertension, IHD, gender, obesity, duration of stay and level of education were controlled by stratification and their effect on outcome was seen applying Chi square test taken p≤0.05 as significant.

RESULTS

A total of 62 patients with hepatocellular carcinoma presenting with COVID–19 were included, of which 69.4% (n=43) were male while 30.6% (n=19) were female patients.

Table No.1: Stratification of outcome with regards to study variables

Study Variables	Mortality		P value
	Yes	**No**	
Gender			
Male (n=43)	08	35	**0.030**
Female (n=19)	09	10	
Age groups			
Up to 50 Years (n=35)	10	25	**0.998**
> 50 Years (n=27)	07	20	
Residential status			
Rural (n=21)	08	13	**0.232**
Urban (n=41)	09	32	
Hospital stay			
Up to 7 days (n=26)	03	23	**0.022**
> 7 days (n=36)	14	22	
Diabetes			
Yes (n=25)	15	10	**0.001**
No (n=37)	02	35	
Hypertension			
Yes (n=38)	14	24	**0.044**
No (n=24)	03	21	
Obesity			
Yes (n=19)	06	13	**0.759**
No (n=43)	11	32	
ICU admission			
Yes (n=38)	12	04	**0.001**
No (n=24)	05	41	
Socioeconomic status			
Poor (n=20)	06	14	**0.768**
Middle Income (n=42)	11	31	

Mean age of these patients was 59.60±8.94 years (range; 42–78 years). Mean age of male patients was 57.88±9.14 years while 63.47±7.26 years for females and 56.5% (n=35) were aged up to 60 years. Sixty six percent (n=41) were from rural areas and 67.7% (n=42) had middle income family background. History of diabetes was noted in 40.3% (n=25), hypertension in 61.3 % (n=38) and 30.6% (n=19) were obese (Mean BMI=26.31±1.86 kg/m^2). Mean duration of hospitalization in these patients was 11.37±6.18 days and 58.1% (n=36) were hospitalized for more than 1 week. Admission to intensive care unit (ICU) was noted in 25.8% (n=16) of these patients. In–hospital mortality in HCC patients having COVID–19 was noted in 27.4% (n=17), while impact of confounders on mortality has been shown in Table 1.

DISCUSSION

COVID–19 related healthcare limitation confronted with treatment modalities for the patients having various chronic illnesses and cancers; particularly among patients having hepatocellular carcinoma. Hepatocellular remains one of the commonest causes of the cancer related mortalities in Pakistan and other parts of the world [13, 14]. Cancer patients have been declared as high risk group under the circumstances of ongoing COVID–19 pandemic as these patients are usually highly susceptible to various types of infections as a results of their immunodeficient condition as a result of underlying malignant condition and also due to use of anti–cancer treatment modalities that may include systemic therapy and radiotherapy [15, 16].

A total of 62 patients with hepatocellular carcinoma presenting with COVID–19 were included, of which 69.4% (n=43) were male while 30.6% (n=19) were female patients. Amaddeo et al[12] from France has also reported 83.6% male patients with hepatocellular carcinoma having COVID–19, similar to our results. Pomej et al[17] from Austria has also reported 83 % male patients with hepatocellular having COVID–19, similar to our findings. Guler-Margaritis et al[18] from Romania has also reported 63% male gender preponderance in HCC patients infected with COVID–19, same as our findings. Ribaldone et al[19] from Italy has also reported 80.6% male gender predominance in HCC patients infected with COVID–19, similar to our results. Zhang et al[20] from China has also reported 60.7% male patients with malignancy predominating HCC infected with COVID–19, similar to that of our study results.

Mean age of these patients was 59.60±8.94 years (range; 42 – 78 years). Mean age of male patients was 57.88±9.14 years while 63.47±7.26 years for females and 56.5% (n = 35) were aged up to 60 years. Amaddeo et al[12] from France has also reported 67 years mean age among patients with hepatocellular carcinoma having COVID–19, similar to our results. Pomej et al[17] from Austria has also reported 66±11 years mean age of the patients with hepatocellular having COVID–19, similar to our findings. Guler-Margaritis et al[18] from Romania has also reported 53.83±17.45 years mean age in HCC patients infected with COVID–19, same as our findings. Ribaldone et al[19] from Italy has also reported 64.0 years mean age in HCC patients infected with COVID–19, similar to our results. Zhang et al[20] from China has also reported 65 years mean age among patients with malignancy predominating HCC infected with COVID–19, similar to that of our study results

Sixty six percent (n=41) were from rural areas and 67.7% (n=42) had middle income family background. History of diabetes was noted in 40.3% (n=25), hypertension in 61.3% (n=38) and 30.6% (n=19) were obese (Mean BMI=26.31±1.86 kg/m^2). Pomej et al[17] from Austria has also reported 37% diabetes and 57% hypertension among patients with hepatocellular having COVID–19, similar to our findings. Ribaldone et al[19] from Italy has also reported mean BMI was 26.1 kg/m^2 in HCC patients infected with COVID–19, similar to our results. Zhang et al[20] from China has reported 15% diabetes with malignancy predominating HCC infected with COVID–19 which is lower than our study results.

Mean duration of hospitalization in these patients was 11.37±6.18 days and 58.1% (n=36) were hospitalized for more than 1 week. Admission to intensive care unit (ICU) was noted in 25.8% (n=16) of these patients. Amaddeo et al[12] from France has also reported similar results. Zhang et al[20] from China has also reported 21.4% ICU admission rate in patients with malignancy predominating HCC infected with COVID–19, similar to that of our study results.

In–hospital mortality in HCC patients having COVID–19 was noted in 27.4% (n=17). Amaddeo et al[12] from France has also reported 19.1% mortality rate in hepatocellular carcinoma having COVID–19, similar to our results.

CONCLUSION

High frequency of in–hospital mortality was noted in hepatocellular carcinoma patients infected with COVID–19 in our study. In–hospital mortality was associated with female gender, prolonged duration of hospitalization, ICU admission, diabetes and hypertension. Hepatocellular carcinoma patients should be aggressively managed followed by diagnosis to improve their prognosis as these patients are more prone to adverse events of COVID-19.

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Awareness of Preventive Measures, Knowledge and Attitude of Affected People Visiting COVID-19 Suspected Unit in Nishtar Hospital Multan the Tertiary Care Hospital, Punjab, Pakistan

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ABSTRACT

Objective: To determine the awareness of preventive measures, knowledge and attitude of the suspected, documented cases of covid-19 or their close family members also, admitted through corona filter counter in corona suspected units in a tertiary care hospital of Multan (Pakistan).

Study Design: Descriptive cross sectional study

Place and Duration of Study: This study was conducted at the suspected wards of Pandemic Corona Virus, Nishtar hospital-Multan from December, 2020 to December, 2021.

Materials and Methods: Patients or their attendants admitting through corona filter counter for the suspicion of corona virus infection on the basis of history like cough, shortness of breath, fever from last two weeks, infiltrates on X-ray chest or HRCT sent through corona filter to corona suspected wards were included in the study. Main variables of study were use of preventive measures, knowledge about disease and attitude. SPSS version 23 was used for data analysis.

Results: Most of the patients 52.2%, arrived from Multan. 33.3% patients had travel history. Only thirteen patients traveled to abroad and 49.1% had family contact. It was seen that preventive measures, knowledge and attitude were associated with Covid-19 effected patients.

Conclusion: Knowledge, attitude and practice of preventive measures was not good in Pakistani population, factors which are influencing good practice were area of living and family contact. Most of infective patients in our study were those who travel recently in high infective areas.

Key Words: Awareness, COVID-19, Knowledge, Attitude, Prevention

INTRODUCTION

Novel coronavirus disease is a Ribonucleic Acid (RNA) virus was outburst in 2019 in the world a named as COVID-19 by world health organization[1]. It was found spreading respiratory illness with severe respiratory symptoms[2].

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Initially it was classified as a zoonotic disease transmitted from animal to human and later on directly from human to human via airway droplets and contact[2]. Infected patients presents with the clinical symptoms of cough, fever, sore throat and shortness of breath within two weeks of incubation period[3].

Peoples with older age and previous chronic illness like cardiac disease, hypertension, cancer, lung disease and diabetes mellitus have been observed at greater risk of severity of disease and mortality[4,5]. Due to lack of cure world health organization recommended prevention as a only single strategy to prevent the spread of COVID-19 disease which include hand washing, respiratory hygiene, personal protective equipment, social distancing and disinfection of air born infection[6].

Like other countries hit by second wave of corona virus, Pakistan is also affected by the pandemic. Multan city (biggest city of southern Punjab in Pakistan) was declared to be affected badly by corona virus along with other big cities of country like Karachi, Lahore and Rawalpindi. Prevention is the best policy to

overcome the pandemic as there is no definite treatment of this disease and vaccine is still in trials and may be effective in near future[7]. The world health organization and other institutions have issued preventive measures for the control of current pandemic like repeated hand wash with soap and water or hand sanitizer, use of face mask, and social distancing etc[8].

Different online sessions, guidelines and training courses have been designed to enhance the awareness of community to prevent the pandemic situation but learning is still deficit[9]. Siddiqui et al[10] in their study in Saudi Arabia 443 people for awareness of corona prevention and level of knowledge was ranging from 75% to 95% in general population**.**

Different studies done in the world or locally were involving people from general population while this study is unique in a sense that we assessed the awareness of the knowledge of preventive measures, behaviors and attitude of the patients either suspected or confirmed corona cases as well as their attendants close to the patients in hospital settings.

MATERIALS AND METHODS

This descriptive cross sectional study was conducted at suspected wards of Pandemic Corona Virus, Nishtar hospital-Multan. This study was conducted by the approval of ethical committee of the university. Patients or their attendants admitting through corona filter counter for the suspicion of corona virus infection on the basis of history like cough, shortness of breath, fever from last two weeks, infiltrates on Xray chest or HRCT sent through corona filter to corona suspected wards were included in the study. Patients and their attendants were explained about purpose of study and written informed consent was obtained. A questionnaire proforma was filled by the post graduate registrar who was asked the questions from the patients or either attendants to whom willing in participation in the study. The questionnaire was have biography data including name, age, sex and information about preventive measures they adopted like hand washing, use of sanitizer, facemask, time spent in home or outside etc and their knowledge and behaviors towards disease and its spread. Unconscious patients or mentally handicaped peoples who are unable to communicate were excluded. Sample size was determined using World Health Organization (WHO) sample size calculator. The calculations of sample size were based on the given proportion of respondents (54.87%) kept good knowledge about the transmission of COVID-19 pandemic. Confidence interval was taken as 95% and 90% power of the test. Total 381 patients were required to conduct the study. Patient's response and collected data was entered on SPSS version 23 was used for data analysis. Mean and SD was calculated for numerical variables and frequency percentages were calculated for categorical variables. Test of significance (t-test and chi-square test) was applied to see association among variables. P value ≤0.05 was taken as significance.

RESULTS

Over the study period, 318 patients were admitted through corona filter counter for the suspicion of corona virus infection on the basis of history. Out of these 206 (64.8%) were males and 112 (35.2) were females. The mean age of the patients was 44.85±17.13 years, minimum age 16 years and maximum age 88 years, with the majority (32.7%) of patients between 45-60 years. Most of the patients n=166 (52.2%), arrived from Multan. n=106 (33.3%) patients had travel history. Only thirteen patients traveled to abroad. n=156 (49.1%) had family contact. (Table. I).

It was seen that preventive measures, knowledge and attitude were associated with Covid-19 effected patients. (Table. II & Table. III).

Table No.1: Demographic characteristics of the patients

Variable	Frequency	Percentage
Gender		
Male	206	64.8
Female	112	35.2
Age distribution		
<18 years	6	1.9
18-29 years	88	27.7
30-45 years	66	20.8
45-60 years	104	32.7
>60 years	54	17.0
Area of living		
Multan	166	52.2
Khanewal	46	14.5
Muzaffergarh	30	9.4
D.G.khan	6	1.9
Layyah	3	0.9
Vehari	20	6.3
Other	47	14.8
Travel History		
Yes	106	33.3
No	212	66.7
Place of travel		
Punjab	56	52.8
Other Province	37	34.9
Abroad	13	12.3
Family contact		
Yes	156	49.1
No	162	50.9

Table No.2: Association between Covid-19 effected patients with preventive measures, knowledge and attitude

Preventive measures, knowledge and attitude	Covid-19 effected patients			P-value
	Suspected on symptoms	Confirmed on PCR	Attendant	
Following SOPs	108 (67.9)	23 (67.6)	109 (87.2)	0.001
Hand washing	142 (90.4)	29 (85.3)	120 (96.0)	0.069
Hand sanitizer	71 (44.9)	19 (55.9)	88 (70.4)	0000
Face mask	97 (61.0)	25 (73.5)	108 (86.4)	0.000
Time spent in home				
< 12 hours	29 (18.2)	12 (35.3)	51 (40.8)	0.000
≥12 hours	130 (81.8)	22 (64.7)	74 (59.2)	
Going to mosque	42 (26.6)	13 (38.2)	51 (40.8)	0.035
Time spent at work				
< 6 hours	99 (62.3)	17 (50.0)	47 (37.6)	0.000
≥6 hours	60 (37.7)	17 (50.0)	78 (52.6)	
Do you think corona as disease	118 (74.2)	28 (82.4)	111 (88.8)	0.008
Do you do exercise not less than 20 minutes	32 (20.1)	8 (23.5)	44 (35.2)	0.015
Any mortality with Covid-19 in family	8 (5.0)	0 (0.0)	7 (5.6)	0.380
Do you think lockdown as affective way to prevent corona	81 (50.9)	26 (76.5)	81 (64.8)	0.006

Table No.3: Association between Covid-19 effected patients with preventive measures, knowledge and attitude

Preventive measures, knowledge and attitude	Covid-19 effected patients			P-value
	Suspected on symptoms	Confirmed on PCR	Attendant	
Any Co-morbidity	112 (70.4)	20 (58.8)	11 (8.8)	0.000
Previous status				
Infected	5 (3.1)	7 (20.6)	6 (4.8)	0.003
Not infected	135 (84.9)	23 (67.4)	104 (83.2)	
Don't know	19 (11.9)	4 (11.8)	15 (12.0)	
Symptoms	148 (93.1)	33 (97.1)	17 (13.6)	0.000
Hand washing how many times				
<5 times	16 (10.1)	6 (17.6)	5 (4.0)	0.024
≥ 5 times	143 (89.9)	28 (82.4)	120 (96.0)	
Hand sanitizing how many times				
<5 times	100 (62.9)	18 (52.9)	47 (37.6)	0.000
≥ 5 times	59 (37.1)	16 (47.1)	78 (62.4)	
Cough	106 (66.7)	22 (64.7)	9 (7.2)	0.000
Fever	95 (59.7)	31 (91.2)	9 (7.2)	0.000
Shortness of breath	124 (78.0)	19 (55.9)	4 (3.2)	0.000
Loss of taste and smell	6 (3.8)	6 (17.6)	2 (1.6)	0.000
Diabetes mellitus	76 (47.8)	12 (35.3)	3 (2.4)	0.000
Hypertension	74 (46.5)	18 (52.9)	6 (4.8)	0.000
Chronic liver disease	3 (1.9)	0 (0.0)	2 (1.6)	0.722
Chronic renal failure	22 (13.8)	2 (5.9)	0 (0.0)	0.000

DISCUSSION

Many researchers carried out studies on different practices of about knowledge and attitude of people towards preventive measures of Covid-19 and reported limited evidences. Our study was a institution based cross sectional study designed to examine the status of such types of preventive measures. A Pakistani study conducted by Hussain et al[11] in 2020 and reported that 82.16% of participants have good knowledge about Covid-19, its mode of transmission, risk factors and preventive protocols.

Jemal et al[12] conducted a study on this topic on Ethopian population and reported that 88.2% of people have good knowledge about Covid-19 but practice relatively low. Ways of telecommunication are

positively associated with knowledge sharing and learning about covid-19. Another study was conducted by Christopher et al[13] on Nigerian population specifically on Urban community and reported 99.7% participants have good knowledge and attitude. More education and effort is suggested to improve role of preventive measures.

A contrary study was conducted by Abdelhafiz et al[14] on Egyptian population and reported that positive and good result in use of preventive measures along with good knowledge and attitude, this variation in results may be due to variation in socio economic status. Better findings in results are due to major steps from government side to limit the spread of pandemic. Egyptian government also took some necessary steps in vaccination and treatment in infective persons.

Variations in findings reported in different studies are usually due to change in study period, coverage of awareness and socio-demographic changes in study population. Another Ethopian study by Kebede et al[15] reported 72.5% good outcomes regarding knowledge, attitude and use of preventive measures. Results of our study were in line of study conducted by DP et al[16] on Indian population and reported that 70% of population have good knowledge on Covid-19.

A study by Belete et al[17] conducted on this topic to evaluate the practices of knowledge, attitude and use of preventive measures and observed that 69.3% of participants have good knowledge, positive attitude in 62.6% of persons and 49.3% of participants using good preventive measures which is a result of effective health care education. Similar findings were concluded by Farah et al[18] that knowledge of covid-19 is much better but level of attitude is quite lower which promotes the need of strategy implementation.

Two relevant studies were conducted in Vietnam and China and reported much better results in comparison to the studies conducted in Pakistan and Ethopia. Huynh et al[19] carried out a study in Veitnam health care providers and reported that majority of health care workers have good knowledge along with positive attitude and practice of Covid-19. Similarly Zhang et al[20] reported positive results regarding attitude and knowledge of health care providers in China.

While other study done in India by Singh et al[21] involved 522 general people for awareness of knowledge and behavior of common people about Covid 19 virus and almost 90% of people were aware of preventive measures and spread of the disease.

CONCLUSION

Knowledge, attitude and practice of preventive measures was not good in Pakistani population, factors which are influencing good practice were area of living and family contact. Most of infective patients in our study were those who travel recently in high infective areas.

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Original Article

Awareness of Interceptive Orthodontics among the Dentists Serving at Pakistan Institute of Medical Sciences Islamabad

Interceptive Orthodontics Among the Dentists

Pirya Chandnani, Syed Nasran Bibi, Mahmoona Hayat Khan, Mor Khan Shar, Ahsan Ullah and Zahoor Ahmed Rana

ABSTRACT

Objective: This research was carried out to determine the awareness among dental surgeons regarding interceptive orthodontic treatment.
Study Design: cross-sectional study
Place and Duration of Study: This study was conducted at the conducted in Dental Department of PIMS Islamabad from February to July 2021.
Materials and Methods: Including all faculty members, residents, and house officers a convenience sampling technique was used. Data were analyzed by using IBM-SPSS 23.0.
Results: The mean age of participants was 25.66 ± 5.66 years of which 41% were male and 59% were female. Total 47% of the participants were familiar with interceptive orthodontics. All the participants reported that oral habits can affect occlusion.
Conclusion: In our study majority of dentists were not aware of interceptive orthodontics and intervention used during the mixed dentition.
Key Words: Esthetic, Malocclusion, Mixed dentition

INTRODUCTION

The deciduous dentition begins to erupt around the age of six month and is completed around two years of age. Deciduous dentition is gradually replaced by permanent successors from the age of six years.[1,2] Along with dental caries, gingivitis, and dental fluorosis, malocclusion is the second most established dental problem in teenagers of school going age.[3] Interceptive orthodontic techniques are basic methods used for the prevention and removal of possible abnormalities in the development of occlusion and dento-facial complex.[4] These procedures reduce the severity of malocclusion which in turn helps to improve self-esteem and image of patients, tooth eruption patterns, growth patterns and control of oral habits.[5]

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According to the College of Diplomats of American Board of Orthodontists, early intervention during mixed dentition will develop adequate skeletal and dental growth before completion of permanent dentition.[6] Corrective and preventive measures are used in the treatment of malocclusion. Before the first signs of malocclusion develop in the primary or early mixed dentition, preventive measures can be taken. According to orthodontic literature, the benefits of early treatment are limited, with only 15–20 percent of those in need of treatment benefiting.[1,7]

This plot primarily depicts recommendations for interventions to remove harmful, nonnutritive sucking behavior and remove the negative consequences of early loss of deciduous teeth.[6] The main benefit of interceptive orthodontics is that the malocclusion can be corrected or intercepted, thereby lowering the complexity of any dental intervention in permanent dentition, since this is technically simpler and has reasonably lower cost compared to complete orthodontic treatment.[8] The practicing general dentist has an important role in the identification of orthodontic abnormalities presenting in their daily routine practice.[9] The current literature suggests that the general dentists are under-confident to implement interceptive orthodontic intervention in mixed dentition to reduce severity of malocclusion in the secondary dentition.[10] With the help of interceptive orthodontics, we can

reduce the effect of malocclusion on young adults and the financial burden from the economy along with psycho-social impact from society.[11] Economically under privileged population cannot bear cost of orthodontic treatment. Such population has already limited awareness and access to health care facilities.[12] Simon et al reported that expenses for comprehensive orthodontic treatment vary from 1000 to 5000 US dollars, which is quite comparable to the cost of orthodontic treatment in Pakistan (150- 350 thousands Pak. rupees).[13] In the remote areas of Pakistan either no qualified dental surgeon is available or they are not aware of the advances in various fields of dentistry such as Orthodontics. Whereas it is also a fact that even in big cities, general dental surgeons are not aware of interceptive orthodontics.[1]

Therefore, this research was carried out to determine the awareness among dental surgeons regarding interceptive orthodontic treatment. By this, we may create awareness among the general dental practitioner which ultimately might promote the need for a better treatment outcome in regards to the general population of Pakistan.

MATERIALS AND METHODS

After taking permission from Ethical Review Board of Shaheed Zulfqar Ali Butto Medical University Islamabad vide reference NO: F.1-1/2015/ERB/SZA BMU/731, a Cross Sectional Study was conducted in the Department of Dentistry, Pakistan Institute of Medical Sciences, Islamabad. In this study, faculty members, post graduate residents and house officers were included and faculty of orthodontic department was excluded. A self-designed closed-ended questionnaire used which was discussed with consultant of orthodontist. The questionnaire was assessed for the validity by using reliability test Cronbach Alpha. In this study convenience sampling technique was used. After explaining the purpose of the study to the participants we got response from 76 out of 115 participants. Data were analyzed by using IBM-SPSS 23.0. For categorical variables, frequencies and parentages were recorded. For continuous variables, the mean and standard deviation have been calculated.

RESULTS

A self-design closed ended questionnaire was used in which the validity was asses by using reliability test Cronbach Alpha which was 0.709. The questionnaire was distributed among the 115 participants. Total 76 out of 115 participants responded to our questionnaire in which 59% were female and 41% were males. The mean age was 25.66 ± 5.66 years. In the study 45% participants were house officers and 37% were PGs as shown in Fig: NO. 01. The data showed that only 42% of participants were familiar with interceptive orthodontics as given in Fig: NO.02. Skill and

knowledge related questionnaire was elaborated as follow. Table No.01 shows skills related statistics such as 42% suggested that the serial extraction is beneficial in interceptive orthodontics while 58% suggested that it is not helpful. About 64% suggested that intervention of interceptive orthodontics during mixed dentition reduces the malocclusion in the permanent dentition. On evaluation of knowledge related questionnaire 69% of participants reported that the intervention of interceptive orthodontics gives better results in the school age. All the participants reported that oral habits can affect occlusion while 42% reported that outcome of interceptive orthodontics treatment depends upon the awareness among the parents as given in Table No.2.
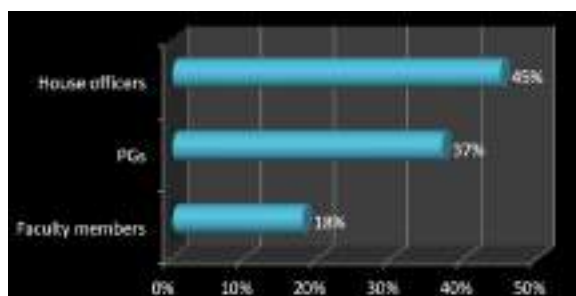
Figure No.1: Distribution of participants

Figure No.2: Awareness of interceptive orthodontics

Table No.1: Descriptive Statistics of Skills Related Questions

Questions	Response	Frequency	age (%)
Maintenance of deciduous teeth can improve facial appearance	YES	20	55.56
	No	16	44.44
Can a Space maintainer device be used to maintain space for deciduous teeth loss	YES	12	33.33
	No	24	66.67
Can Serial extraction be beneficial in Interceptive Orthodontics treatment	YES	15	41.67
	No	21	58.33
Does interceptive orthodontic reduces malocclusion in mixed dentition	YES	23	63.89
	No	13	36.11

Table No. 2: Descriptive Statistics of Knowledge Related Question

Question	Response	Frequency	Age (%)
Thumb sucking, Tongue thrusting and Mouth breathing habits can affect Occlusion	YES	36	100
	No	0	0
Factors affecting the outcome of Interceptive orthodontics treatment	Awareness among the school children	9	25.0
	Awareness among the parents	15	41.67
	Awareness among the primary care personnel	12	33.33
Interceptive orthodontics give better results in	Preschool-age	2	5.56
	School-age	25	69.44
	Adult age	9	25.0
	Old age	0	0
Interceptive orthodontic should be taught at	Under-Graduate level	13	36.11
	Post-Graduate Level	23	63.89

DISCUSSION

Orthodontics focuses on the degree of natural variability in the function and morphology of hard and soft dental tissues, in particular the way occlusal changes are developed. Worldwide there is an increase in the awareness of orthodontics especially interceptive orthodontics but in developing countries like Pakistan the level of dental health is not satisfactory.[14] The level of awareness of interceptive orthodontics is unsatisfactory in our participants which is also reported by Partap et al in his work.[4] This is interlinked with the level of education, income, and facilities provided by the government.. In our study we have noticed that parent's awareness (42%) is leading contributing factor and primary health care personal awareness is the second important factor which was 33% that affect the outcome of interceptive orthodontics. Mandeep KB et al reported that children who frequently visited the dentist and whose mother usually participated were more likely to have better dental health and are referred to orthodontic intervention.[15] Children from rural areas

has limited awareness and access to health care facilities for orthodontic care.[9]

In our study 57% of participants suggested that maintenance of deciduous teeth can prevent malocclusion as reported by utomi et-al.[16]The frequency of different malocclusions in each age group is dependent on the age of the patient and the developmental processes, as reported by Myrberg and Thilander. At the end of the primary erupting teeth the proportion of children with occlusal deformities is greatest. It then tends to decrease during the functional stage before peaking at the beginning of the mixed dentition.[17] These conclusions have been reinforced by the comparison with previous longitudinal and cross-sectional work in Rostock by Dahl Hiecke and Heckmann of the comparative malocclusion rates recorded in their research.[18] Although the prevalence of malocclusions varies, the large increase in malocclusions from 42% in the primary dentition to 60% in the early mixed dentition indicates that the number of discrepancies does not decrease in preschool and school kids.[16]

The dental age and development process, which are at their peak during the mixed dentition, impact the prevalence and variations of malocclusion. Up to 60% of these abnormalities do not decline in school-age children.[19] The goal of interception during mixed dentition is to decrease the extent of malocclusion, eliminate treatment difficulties, and minimize the cost and overall treatment duration, which strengthen the self-esteem of children as they grow older.[20]

Oral habits like digit or lip sucking and tongue thrust have the highest role in malocclusion development. Sugar is an intrinsic urge in babies, according to the current trend of 'learned behavior' theory, and peace/digit sucking is a spring for all excess sucking pressure created by today's effective body feeding. The use of pacifiers was linked to early adoption of formula feeding and short breast feeding. Recent ultrasound studies indicate that the orofacial muscle activity in breast-feeding and formula – feeding children is significantly different. Increased posterior cross bite by disrupting the normal palate and alveolar ridge growth has also been suggested due to early weaning of breast feeding.[21] Modeer et al reported 48% as causes of anterior open bite in school-going age groups.[22] In our study we have found that 100% of participants reported the relationship of habits with malocclusion.

Green J. reported that after premature loss of deciduous teeth, space maintainers (fixed or removable) appliances is used to maintain arch length.[23] In our study 67% of participants reported that the use of these appliances has no role in the maintenance of space that shows the lack of awareness in our study participants. The awareness among the parents of children is important to get satisfactory treatment outcome.[24]In previous studies new graduates have been found to be

confident in most clinical areas but have little understanding of interceptive orthodontics hence the clinical orientation of interceptive orthodontics is necessary but our participants suggested that it should be taught at post-graduate level.[25] It is recommended that interceptive orthodontic awareness programs/ seminars should be carried out by health professionals and heads of the institutes in dental colleges to improve the knowledge and awareness for interceptive orthodontics so that the general population may have normal occlusion and a better dento-facial aesthetic.

CONCLUSION

It was concluded that the majority of dentists were not aware of interceptive orthodontics and intervention used during the mixed dentition.

Author's Contribution:

Concept & Design of Study:	Pirya Chandnani
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Data Analysis:	Mor Khan Shar, Ahsan Ullah, Zahoor Ahmed Rana
Revisiting Critically:	Pirya Chandnani, Syed Nasran Bibi
Final Approval of version:	Pirya Chandnani

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

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Original Article

Etiology and Clinical Spectrum of Hypertension in Children – An Experience at Ayub Teaching Hospital, Abbottabad

Syed Sajid Hussain Shah[1], Shahzad Najeeb[1], Farrukh Addil[1], Ahmad Saeed Khan[2], Rabia Zeb[3] and Azizullah[4]

ABSTRACT

Objective: To find out the causes and presenting features of hypertension in children presenting to paediatric department, Ayub teaching hospital.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Ayub teaching hospital, Abbottabad from July, 2019 to June, 2020.

Materials and Methods: Children of either sex diagnosed case of hypertension taking BP of more than 95th percentile for age, sex and height, 1 to 16 years were included. Patients with syndrome features, transient hypertension, taking drugs were excluded. Data was documented on specific proforma including age, sex, weight, systolic blood pressure (BP), diastolic BP, presenting features and diagnosis. Data was analyzed using SPSS 20.

Results: There were 103 patients, 62 (60.2%) male and 41 (39.8%) females. Mean age was 9.19 ± 3.23 years. Most (92.2%) of the patients were above 5 years. Mean systolic BP was 145.24 ± 17.02 mm Hg and mean diastolic BP was 98.54 ± 14.17 mm Hg. The most common diagnosis was acute glomerulonephritis (AGN) in 54.4% and chronic kidney disease (CKD) 35.9% cases. The most common clinical feature on presentation was seizures in 36.9% and headache 27.2% patients.

Conclusion: The most common pathology of hypertension in children is renal involvement and most of patients presented with seizures and headache.

Key Words: Clinical spectrum, etiology, hypertension, childhood.

INTRODUCTION

Hypertension in children is taken whenever there is increase in blood pressure (BP) with at least 3 abnormal readings. If BP is more than 95th percentile for age, height and sex in children up to 13 years, it is hypertension. Where as in children more than 13 years, BP values consistent with adults BP guideline are taken as hypertension.[1,2] Though exact prevalence of hypertension in children in not known yet it has estimated prevalence of 2% to 5%.[3,4] In children, hypertension is under diagnosed and not proper follow up being done.[5-7]

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When no pathology is found, it is primary hypertension and it is affecting millions of people around the world including children. Secondary hypertension is due to underlying pathology as in children more than 75–80 % of underlying pathology is renal diseases.[8] Occasionally increase BP is detected during routine clinical examination. Patients having secondary hypertension present with symptoms including failure to thrive, pallor, decrease growth, headache, nausea, dizziness, visual disturbances, epistaxis and seizures.[8]

This study was done to find out the causes and presenting features of hypertension in children presenting to Ayub teaching hospital. Most of the data regarding the childhood hypertension is from western countries. This study gives insight about the different causes and presenting features of hypertension in children in our part of world.

MATERIALS AND METHODS

This cross sectional study was done in paediatric B ward of Ayub teaching hospital, Abbottabad. The study period was from July, 2019 to June 2020 over period of one year, after approval from institutional review board. The calculated sample size was 97 patients by open epi sample size calculator taking the prevalence of

hypertension 5% in children[3] and confidence interval of 97%. Patients were included after taking consent. Children who were diagnosed as case of hypertension taking BP of more than 95th percentile for age, sex and height were included. Children of either sex, aged from 1 to 16 years were included. Patients with syndrome features, transient hypertension, using drugs were excluded. Patient data was documented on specific proforma which included age, sex, weight, systolic BP, diastolic BP, presenting features (which included headache, decrease sensorium, seizures, pallor, congestive cardiac failure, vomiting), Hb, urea, creatinine, and diagnosis. Data was analyzed using SPSS 20 and chi square test applied for comparison and p value < 0.05 taken as significant.

RESULTS

There were total of 103 patients in this study. Out of 103 patients, 62 (60.2%) patients were male and 41 (39.8%) were females. Age ranged from 1 to 16 years with mean age of 9.19 ± 3.23. Most (92.2%) of patients were above 5 years of age. Systolic BP ranged from 120 to 220 mm Hg with BP of 145.24 ± 17.02. Diastolic BP ranged from 80 to 150 mm Hg with mean BP of 98.54 ± 14.17 (table 1). The most common disease presenting with hypertension was acute glomerulonephritis (AGN) which accounted for 54.4% (56) cases followed by chronic kidney disease (CKD) 35.9% (37) cases (table 2). The most common clinical feature on presentation was with seizures as 38 (36.9%) patient presented with history of seizures followed by head ache which was present in 28 (27.2%) patients (table 3). Family history of hypertension was present in 15 (14.6%) patient. There were 23 (22.3%) patients who had history of culture proven urinary tract infection. Table 4 is showing relationship of clinical presentation and diagnosis.

Table No.1: Age, Blood pressure, Hemoglobin, Urea, Creatinine

	Minimum	Maximum	Mean	Std. Deviation
Age (years)	1.00	16.00	9.19	3.23
Systolic BP (mm Hg)	120	220	145.24	17.02
Diastolic BP (mm Hg)	80	150	98.54	14.17
Hb (gm/dl)	4.6	14.0	9.95	1.93
Urea (mg/dl)	16	608	106.82	108.65
Creatinine (mg/dl)	.20	14.90	2.24	3.10

Table No.2: Different diseases details in patients

Disease	Frequency	Percent
Chronic kidney disease	37	35.9
Acute glomerulonephritis	56	54.4
Pyelonephritis	3	2.9
Nephrotic syndrome	6	5.8
Wilms tumor	1	1.0
Total	103	100.0

Table No.3: Clinical features on presentation

	Frequency	Percent
Headache	28	27.2
Vomiting	12	11.7
Seizures	38	36.9
Decrease sensorium	6	5.8
Pallor	7	6.8
Congestive cardiac failure	12	11.7
Total	103	100.0

Table No.4: Cross table clinical presentation and diagnosis

Clinical features	Diagnosis					Total
	CKD	AGN	Pyelonephritis	Nephrotic syndrome	Wilms tumor	
Head ache	5	17	1	5	0	28
Vomiting	4	7	0	1	0	12
Seizures	15	22	1	0	0	38
Decrease sensorium	6	0	0	0	0	6
Pallor	6	0	1	0	0	7
Congestive cardiac failure	1	10	0	0	1	12
	37	56	3	6	1	103

DISCUSSION

In children, diagnosis of hypertension in on rising.[9] In Canada, hypertension in children is estimated to be 1-2% and recently American Academy of Pediatrics (AAP) has published updated guidelines and gave four step approach including diagnosis, evaluation, work up and management.[10]Not only there is significant risk of cardiovascular mortality and morbidity associated with hypertension[11] but also there is negative impact on child health in long term. In children the most common reason is secondary; mostly due to renal causes.[12]In developed world primary hypertension is the most common cause and main issue is obesity as reported by

Kaplinski M et al[13] in one of their study, while in our study the most common cause associated with childhood hypertension was AGN and CKD.A study by Litwin M et al[14] showed that hypertension is associated with increase vascular aging and there is also increase in biological maturation.

Hari P et al[15] in their study at All India Institute of Medical Sciences studied the etiology and presenting feature of children with hypertension. In their study the mean age was 8.2±3.9 years and age ranged from 2 months to 16 years. In our study age ranged from1 to 16 years and mean age was 9.19 ± 3.23 years. Chronic glomerulonephritis was the major cause as it accounted for 49.2% cases while in our study CKD was present in 35.9% patients. There was also cases due to coarctation of aorta and renovascular disease but in our study no cardiac or renovascular case was there. Rather one patient with Wilms tumor and majority (54.4%) were with AGN. In their study presenting feature was with encephalopathy and CCF while in our study also main presentation with seizures and CCF. Mohammed A et al[16] studied the etiology of hypertension in children. In their study 61.2% were male and 38.8% were females. Apart from white coat hypertension and hypertension associated with obesity, the other leading cause was renal pathology. In our study 60.2% were male and 39.8% were females, which is almost same but our children main underlying pathology was renal diseases including AGN, CKD, chronic pyelonephritis and nephrotic syndrome.

Malhotra MG et al[17]in USA, studied essential hypertension versus secondary hypertension in children. In their study, males were 62% and females were 38% which is comparable to our study. In their study secondary hypertension was more (57%) than essential hypertension and there was history of familial hypertension in 68% of patients. While in our study all patients were with secondary hypertension and family history of hypertension was positive in only 14.6% cases. Komur M et al[18] in Turkey did study on acute hypertension and posterior reversible encephalopathy syndrome (PRES). Their study included 49 events of PRES as 81.6% patients present with history of seizures, 79.6% presented with decrease sensorium, 73.5% had headache. Males were 44.7% and females were 55.3%. The most common underlying pathology was CKD in 76.3% patients, nephrotic syndrome, 10.5% and AGN in 5.3% cases. In our study CKD accounted for 35.9% patients, nephrotic syndrome 5.8% cases and AGN accounted for 54.4% cases, which is quite high as compare to Komur M et al study.

In one of study by Bhatti N et al[19], etiology of hypertension in children was studied. In their study, there were 45 patients and 98% patients were having secondary hypertension. In 92% of cases, secondary hypertension was due to renal diseases which in comparable to our study findings as apart from one patient with Wilms tumor, all other patients were having hypertension due to renal diseases. Batouche D D et al[20] did one study in pediatric intensive care about the clinical and etiological profile of malignant hypertension. In their study there were 66 patients and age ranged from 1 year to 16 years. The common under lying pathology was due to renal diseases. In 7% of patients, the presenting feature was headache. Seizures were observed in 33.3% patients. In comparison to their study, in our study 27.2% patients presented with head and 36.9% presented with seizures and all patients were having renal pathology as underlying cause.

There were limitations in our study as we did not consider the weight and obesity. Also did not consider the chronic changes of eye. We did not emphasize on treatment outcome and use of different drugs for control of hypertension. We also did not document treatment resistant hypertension.

CONCLUSION

In our part of world secondary hypertension is prevalent and the most common pathology is renal involvement. Majority of patients present with seizures and headache as manifestation of increase blood pressure. In Children clinical examination should include BP checking in routine. This is single center experience, so multicenter studies are required to contribute to existing knowledge.

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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Assessment of Nutritional Status of Senior Citizens (60 years and above) in Sialkot

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ABSTRACT

Objective: To assess the nutritional status of the senior citizens of 60 years age and above and to determine the factors affecting the nutritional status of the senior citizens of 60 years age and above.

Study Design: Descriptive Cross Sectional Study

Place and Duration of Study: This study was conducted at the Department of Community Medicine, Sialkot Medical College, Sialkot from March 2020 to September, 2020.

Materials and Methods: Two hundred senior citizens aged sixty years and above living in Sialkot were interviewed through a questionnaire, using anthropometric measurements, 24-hours recall and clinical examination.

Results: The nutritional status of the elderly living in the joint family system and having some source of income was better than those who were jobless and living in the nuclear family system. Average calories intake per day by males was 2325 and 2175 in females. The average protein intake per day was 49 gm by males and 44 gm in females. These values are less than the recently calculated national values of 60 gm by Pakistan Economic Survey 2019-20. The average intake of caloric consumption calculated for the respondents were well below the National Recommended Daily Allowance[1].

Conclusion: The study revealed that the respondents with joint family system get better nutritional care and social support. Since work participation in Pakistan is predominantly by male, financial contribution is much higher by elderly males rather than elderly females.

Key Words: Nutritional Status, Senior Citizens, Elderly, Meal

INTRODUCTION

In recent years, there has been a sharp increase in the number of old people worldwide, mostly as a consequence of declining fertility, improved health care facilities and reduced mortality rates. Globally the proportion of elderly, has risen from 8% in 1950 to 11% in 2007, and is expected to reach 22% in 2050. By 2025, the number of elderly worldwide is expected to reach more than 1.2 billion, with about 840 million of these in low-income countries. Rapid demographic aging is a growing public health issue in many low- and middle-income countries.

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The factors underlying this transition are increased longevity, declining fertility, and aging of "baby boom" generations[1].

Pakistan is ranked as sixth most populous country in the world. It is estimated that 7% of the population (about 14 million) is over 60 years of age. Alarmingly, it is expected to reach 8.5% and 12.9% in 2030 and 2050 respectively[2].

Food is one of the major sources of enjoyment and social satisfaction for older persons. Economic and social problems such as loneliness, low income, inadequate facilities, and lack of transportation also interfere with adequate food and good nutrition for the elderly and ill[3].The dietary requirements during old age are less than those of adults as the basal metabolic requirement of the former are reduced.[4]

The principle aim in nutritional assessment of a community is to mop out the magnitude of malnutrition as a public health problem and to discover and analyze the ecological factors. In longitudinal studies, the selected members or families in a community are kept under continually systematic surveillance for at least one year. Such studies provide valuable information not only about the annual incidence of malnutrition but also show seasonal variation caused by climate, the availability of food, community activities and other factors. In cross sectional studies, a satisfactory sample

of the population is examined for prevalence of malnutrition, which provide information about most of the acute conditions and also do not reflect sectional variations.

In Pakistan the total number of elderly is expected to increase from 7.3 Millions in 1990 to 26.84 Millions in 2025. Elderly population is growing at a faster than the total population as longevity has increased in the recent years.

Pakistan's demographic trends show that the projected life expectancy will increase to 72 years by 2023. WHO report (1998) projected that 5.6 % of Pakistan's population was over 60 years of age, with a probability of doubling to 11 % by the year 2025[5].

A community based cross sectional study was carried out among the rural population of nine major states of India. The inadequacy (< 70 % of RDI) of intake was high with respect to leafy vegetables, milk and milk products, fats, oils, sugar and gajjery. The inadequacy of intake of micronutrients was high among both genders. The poor intake of diet was reflected in high prevalence of chronic energy deficiency (CED) among the rural elderly[6].

MATERIALS AND METHODS

The senior citizens, aged sixty years and above and living at home in Sialkot city participated in this study. The subject selection was conducted by dividing the city into fifteen sectors. The five sectors were selected by balloting. Each sector has about 200-400 households. A cluster of 30 household was selected, using the "cluster of 30 household methods". A minimum of 30 senior citizens were identified and interviewed in each of these five clusters of households. The inclusion criteria were: age 60 years and above and the residents of Sialkot.

The exclusion criteria were: age less than 60 years, not willing to participate and not residents of Sialkot. The delimitations were limited time and resources. Biochemical assessment was not possible due to limited financial resources.

Data Collection and Data Analysis: The principal investigators and two trained interviewers visited all the subjects, usually during day light. An ethnographic field guide was developed and applied before this survey questionnaire. The data was entered in the computer after manual data cleaning, using SPSS version 27 and was analyzed on SPSS version 27. The sorting of data was done and main domains identified. The main results are presented as means with standard deviations. The cross-tab of different important values was done. A *p*-value of < 0.05 was considered significant.

RESULTS

The 65.5% of the respondents were males. The main age group interviewed was of 60-69 years, which included 83.4% of the males. The less participation from females would be the social reasons.

The majority of the respondents were illiterate, i.e. 56%. Most of the male respondents (46.5%) were enjoying their retired life and were drawing the pension benefits, the only source of income. There was a statistically significance (P<0.05) difference in the uptake of both proteins and calories between jobless and other groups of occupations. They were living mostly in the joint family system, which still prevails especially for the senior citizens. Statistical tests were applied to find out the difference between different family groups. A statistical significance difference was observed between nuclear and joint families (P=0.001) in relation to caloric intake. No statistical significance difference (P=0.231) was observed between two groups in relation to protein intake.

The BMI of the 76% of them was in between 20-24.9 kg/m2, which is the desirable weight. Only 12% were in the malnourished category and 4% were in the group of severe obesity. The common diseases prevalent among them were hypertension, diabetes mellitus, and gynecological problems in females. It was also revealed that no particular attention is given to give supplements like vitamins, minerals and protein concentrates to them. The most (71%) of them were taking three meals/day and 51% of them at regular times. The 80% were dependent on their family for food availability. It means that families do take care of them. The 15% of them had noticed current weight loss but were not aware of its impacts. On the other hand, 26% of them noticed some physical change in body like bleeding, change in bowel habits and urinary pattern, fainting and headache. Only 6% were having regular cigarette smoking.

Usually three meal/ day were eaten i.e. a morning meal (breakfast), a mid-day meal (lunch) and an evening meal (dinner). The individual food intakes were converted into nutrients using Food Composition Tables for Pakistan (revised 2001). The food items reported and their ingredients consumed by each of the respondents were added up for the whole day. The daily sum of these food items was then converted into nutrients to estimate daily intake. The average per capita consumption levels of food intake calculated from the most common staple diet. Almost all took cereal as part of their meal. The 84% of them were eating roti every day at meals, while the rest used rice, the second commonly consumed cereal. Roti was the staple item taken with a curry (made of vegetable, meat or dal), chattni or lassi. The socioeconomic conditions of a household and its locations determine the meal composition. The intake of cereals in 85.5% of respondents was 300-319 gm/person/day. This is less than the average intake of cereals calculated at national level i.e. 342 gm/person/day {National Nutritional Survey (NNS), 2018}.

The dal (pulses) was again a common component of the usual diet of the study population. The consumption of pulse and legumes in the majority of the respondents, 56%, were 20-29 gm/person/day, almost consistent with the average calculated by the National Nutritional Survey 2018.

The consumption of ghee and edible oils was less than 20 gm/person/day in 37% and 20-29 gm/person/day in 58% of respondents. The average consumption of ghee/edible oil has been estimated as 28 gm/person/day in the above said survey. The 41% of the senior citizens were using vegetable oils, near to the estimation done by NNS, i.e. 45%.

The average daily intake of meat, beef and chicken was 60-69 gm/person/day in 62.5%. It is estimated as 72 gm/person/day in NNS. About 30-35% of the respondents consumed chicken meat at least once a week while 20-25% of them were eating meat twice. The consumption of eggs was 11-14 gm/person/day by 81% while of milk and milk products was 70-89 gm/person/day by 64% of them.

The sugar was a common food item and an important source of calories in the respondents. The 68.5% were consuming 40-59 gm/person/day on average, same as of NNS, i.e. 50-55 gm.

The cereals contribute about 58% (1200) of the total calorie intake. The caloric share by fats and sugars are 13% (260) and 10% (200) each. The animal source contributes about 12% (240), pulses 3% (60), vegetables 2% (40) and 2% by others,

Anemia was obvious clinically from nails of 51% and from eyes of 25.5%. The thyroid enlargement was present in 4.5% and skin was pallor and/swollen in 11% of them.

DISCUSSION

Free-living human beings almost never eat exactly the same meal twice. Therefore to measure the reliability of a measurement method may confound measurement error with variety in diet[7,8]. This problem is acute in measuring of single meal or 24-hrs intakes in which large amounts of within-subject variability may be seen. As for validity, it is often assumed that high correlations with other instruments designed to measure the same variable indicate a valid instrument[9,10]. Burke (1947) pioneered the development of methodology for assessing dietary intakes including 24-hour recall method[11].

Data regarding the elderly and their risk of malnutrition using the Mini Nutritional Assessment Tool was obtained from six countries including Pakistan. Iran had the least percentage of elderly at risk of malnutrition (38.7%) and Bangladesh had the highest at 62%[12,13]. The data from Pakistan revealed 43.3 % at risk of malnutrition. The sample sizes varied from n=102 to n=850 and elderly were assessed from a range of locations e.g. the community and in hospitals [14,15].

Average calories and protein intake of both male and females were compared. No statistical significant difference was seen between both genders. Average calories intake/day by males was 2325(95% Cl 2295-2355) while in females the caloric intake per day was 2175 (95% Cl 2151-2199). The average protein intake per day by males was 49 gm (95% Cl 35.60-62.40) while in females it was 44 gm (65% Cl 29.60-58.40). These values are less than the recently calculated national values of 2534 and 65.8 gm respectively by Pakistan Economic Survey 2019-20. The National Recommended Daily Allowance (RDA) of calories for men and women are 2550 and 2160 respectively[14,15]. The average intake caloric consumption calculated for the respondents were well below the RDA.

CONCLUSION

The statistical analysis showed that the nutritional status of jobless and of those living as nuclear family was less than those having some source of income or living in joint families. This study revealed that the respondents with joint family system get better nutritional care and social. In fact the family or the close relative provides the main source of physical, emotional and monetary support to the elderly in all regards. Thus the traditional solidarity between generation, which work through the institution of family and gets emphasis from religious and cultural values, has contributed to keep the average joint family household on the higher side. Our social and cultural norms also favour the joint family system but this traditional system of living in our society has weakened due to urbanization of our society.

Author's Contribution:

Concept & Design of Study:	Akmal Khurshid Bhatti
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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

The Relationship between the Intensity of Fever and Stroke Outcome at SKBZH/CMH Muzaffarabad

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ABSTRACT

Objective: The researchers wanted to discover how frequently and why acute stroke patients have fever, as well as any risk factors connected with it.

Study Design: Prospective study.

Place and Duration of Study: This study was conducted at the Department of Medicine, SKBZH/CMH Muzaffarabad AJK from January and December 2019.

Materials and Methods: This hospital-based study enrolled people who had an acute ischemic stroke to learn more about the pathogenesis. In this process, patients are examined. After an initial evaluation by an internist familiar with stroke treatment, patients are examined the next day by another neurologist. The patients admitted to the ER using the GCS and SSS (Scandinavian stroke scale). Patients are hospitalized for seven to 10 days after a first-day CT, second-day CT, and third-day MRI. A second CT scan determines the exact volume of the brain lesion. Holter monitoring, DSA, and transthoracic or transesophageal echocardiograms are all accessible. This is done using Rankin Scales and the Barthel Index.

Results: 37% of patients had a fever, 22.7 percent had a confirmed infection, and 14.8 percent had a fever but no other signs of sickness. Age was related with an increased risk of fever in univariate analysis (P <0.05). Excessive intracerebral haemorrhage was closely linked with fever, mass effect (transtentorial herniation), intraventricular blood, and severe infarct ischemia (P <0.05). Patients admitted with fever received lower Glasgow Coma Scale and Scandinavian Stroke Scale scores (P <0.05). Urethral catheterization was associated with pre-existing infection risk variables but not with fevers prior to the invasive procedure (P <0.05). The Barthel Index (P <0.05) and Modified Rankin Scales (P <0.05) both indicated lower scores in patients with fever (P <0.05). Multivariate research revealed a strong association between fever and age, the Scandinavian Stroke Scale score, and the mass effect. These individuals (P<0.05) were found to be more likely to develop a fever early in the course of their illness than those who were ill. In a logistic regression research, only fever without a proven disease (P <0.05) predicted fever.

Conclusion: Alternatively, individuals who have an acute stroke and afterwards develop a fever have suffered a severe stroke and/or undergone intrusive surgery. When your fever begins, the only method to determine if you're unwell is to check for an infection

Key Words: Intensity, Fever, Stroke, Muzaffarabad

INTRODUCTION

Acute stroke patients are more likely to have a fever, which is usually caused by infection. Some patients with an acute stroke and a fever cannot be diagnosed. This increases unfavorable effects and overall medical costs for these patients, who are routinely prescribed

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broad-spectrum antibiotics. Fever bouts that do not respond to empirical antibiotics are thought to be caused by CNS lesions. Patients with a fever after an acute stroke had a worse prognosis[1,2,3]. However, nothing is known about acute stroke patients who develop fever.

Most stroke victims develop a temperature. High body temperature is linked to acute stroke severity, lesion size, mortality, and neurologic prognosis. Any infection should be extensively investigated utilizing body temperature markers. Two meta-analyses confirmed this, showing that raised body temperature after a stroke, regardless of origin, is associated with increased morbidity and mortality.

Infection is the most common cause of post-stroke fever. An ischemic stroke hospitalized 119 people, 25% of whom had fever (temperature > 38°C) within 24 hours and 32% developed fever (temperature > 37.5°C)

within 48 hours. Fever within 48 hours of an ischemic stroke was likely caused by pneumococci, streptococci, E. coli, enterococci, and influenza virus type A. Surprisingly, most fevers are caused by an infectious or chemical pneumonia (83 percent).

The body's temperature may rise after a big stroke due to necrosis. Cerebral blood clots can cause non-infectious fever. Stroke patients commonly have a fever for the first two days after hospitalization.[2] However, the reasoning isn't always clear. Some writers claim that the onset of a fever reveals its underlying etiology. Fever induced by stroke-related pathologic processes often develops within 24 hours, but infection-related fever manifests later. Acute fever in stroke sufferers may indicate a neurological cause if no prior illness is present.[4,5,6]

This study's goal was to characterize infections in acute stroke patients and the relationship between stroke type and severity and fever with or without infection.

MATERIALS AND METHODS

This cohort study comprised acute stroke patients admitted to ICUs or medical units between January and December 2019. Except for patients with subarachnoid hemorrhage, who are frequently sent to a neurosurgical hospital and thus excluded from the study. Patient transfers, those with a fever or infection prior to the stroke, and those with primary or metastatic brain tumors were exempt from this rule.

This prospective hospital-based study enlisted stroke victims to better understand the pathophysiology. [3] Patients are examined. Immediately after a stroke diagnosis, patients are seen by another neurologist the next day. Between 4 and 6 persons. It assesses ER patients using the GCS and SSS (Scandinavian stroke scale). First, second, and third day CTs are followed by MRIs. A second CT scan determines the lesion's exact volume. Holter monitoring, DSA, and TTE are all available. strokes[7] NINCDS Rankin Scales and the Barthel Index[8,9] are used.

Fever-related issues were investigated in the participants' medical records. A rise in body temperature over two days is required to be febrile. Everyone's axillae are temperature every three hours. Temperatures were rounded to half a degree Celsius for data processing. Doctors' notes, test findings, and x-rays revealed the patient's exact cause of high temperature. Unverified infections have an unknown cause. Nosocomial infections lasted more than 48 hours.[10,11]

Statistical Analysis: We used Kruskal–Wallis and Fisher's exact tests to compare categorical and continuous variables. The potential of independent parameters to discriminate between fevers with no reported infection and fevers with a recorded infection was examined using stepwise logistic regression. As

illustrated in this graphic, variables were excluded from our model utilizing a stepwise procedure (P > 0.05).

RESULTS

A review of the medical records of 330 individuals was done. 376.6% of the population had a fever. Patients were infected 22.7% of the time, and 40% of those infections occurred during hospitalization. Although the infection rate was 14.8%, none of the patients became ill. According to Table 1, patients with acute stroke who are admitted to the hospital are more likely to get an infection than the general population. Infections of the respiratory and urinary tract systems were the most prevalent.

The term "fever" refers to a temperature of more than 100 degrees Fahrenheit (38 degrees Celsius) (univariate analysis). Men were significantly more likely to remain afebrile than women, with a P value < 0.05. There was a clear correlation between rising age and increased fever frequency (P <0.05). A logistic regression analysis revealed no statistically significant difference in gender between the two groups, transtentorial herniation, and intraventricular blood on CT scan in patients with intracerebral haemorrhage were all associated with fever rather than ischemic infarction in mass effect instances (P <0.05. Fever was related with an increased risk of ischemic infarction (P <0.05) and bleeding (P <0.05). Despite the absence of a known disease, patients with fever were admitted to the hospital with lower Glasgow Coma and Scandinavian Stroke Scale scores (P<0.05). When these individuals did not have fevers, their CPK levels were lowered (P <0.05). Indicators of infection risk had little effect on a fever (Table 2). Using an invasive technique, such as a urinary catheter or central line, was identified as a significant risk factor (P <0.05). The Modified Rankin Scale (P <0.05) and Barthel Index (P <0.05) revealed significantly worse outcomes in persons who suffered fever. Multivariate logistic regression was used to investigate fever, intracerebral haemorrhage, ischemic infarct, as well as age, gender, illness severity, and prognosis. Age (P< 0.05), SSS score (P <0.05), and mass effect (P <0.05) were all found to be significantly linked with fever.

Table No.1: Frequency of infections (%)

Causes of fever	Number of patients (%)	No. of patients with secondary infection (%)
Infections	75 (22.69)	2 (2.71)
Urinary tract	38 (11.52)	2 (5.29)
Respiratory tract	33 (10.00)	0 (0.00)
Primary bacteraemia	3 (0.99)	
Cholecystitis/cholangitis	1 (0.33)	0 (0.00)
Fever (without focused infection)	49 (14.80)	

Table No.2: Number of Patients (%)

Characteristics	No fever or infection (N=206)	Fever with or without infection (N=124)	P Value
Gender			
Males	126(61.1%)	58(47.04%)	0.013
Females	80(39.2%)	66(53.02%)	
Age in years (mean ±SD)	71.2 ±0.79	75.4 ±0.89	0.000
Type of stroke (CT scan findings)			
Ischaemic infarct	193(94.04%)	89(72.02%)	0.000
Intracerebral haemorrhage	13(6.02%)	35(28.01%)	
Other CT scan findings			
Mass effect	30(15.1%)	74(61.03%)	0.000
Transtentorial herniation	13(6.02%)	46(38.2%)	0.000
Intraventricular blood	0(0%)	18(15.02%)	0.000
Haemorrhagic transformation	14(7.1%)	15(12.03%)	0.112
Infarct size in cm^3 (mean ±SD)	13.91 ±2.12	48.91 ±5.55	0.000
Haemorrhage size in cm^3 (mean ±SD)	7.32 ±2.30	37.52 ±4.79	0.000
Clinical assessment on admission			
Glasgow Coma Scale (3–15) (mean ±SD)	14.01 ±0.22	9.89 ±0.41	0.000
Severe stroke (GCS<9)	10(5.02%)	49(40.1%)	0.000
Scandinavian Stroke Scale (0–58) (mean ±SD)	40.59 ±1.22	15.43 ±1.52	0.000
Severe stroke (SSS<29)	52(25.01%)	96(77.03%)	0.000
Serum Enzymes			
LDH (mean ±SD)	263.22 ±8.38	277.72 ±16.64	0.171
CPK (mean ±SD)	124.42 ±11.79	208.12 ±26.72	0.000
Risk factor for infection	77(38.01%)	48(39.42%)	0.833
COPD	7(3.2%)	6(5.1%)	0.555
CRF	10(5.02%)	7(6.03%)	0.812
Diabetes mellitus	59(29.14%)	31(25.03%)	0.515
Immunosuppression	3(1.1%)	0(0%)	0.229
Invasive procedure preceding fever	25(12.2%)	80(66.03%)	0.000
Urinary catheter	25(12.2%)	80(66.03%)	0.000
Endotracheal tube	0(0%)	1(1.1%)	0.369
Central line	0(0%)	3(2.12%)	0.050
Illness (outcome measures)			
Modified Rankin Scale (0–6) (mean ±SD)	2.41 ±0.12	4.89 ±0.14	0.000
Severe handicap or death (MRS>3)	61(35.05%)	109(92.3%)	0.000
Barthel Index (0–100) (mean ±SD)	69.42 ±2.45	26.01 ±3.68	0.000
Severe disability (BI<40)	47(24.07%)	60(76.03%)	0.000

DISCUSSION

According to this study, 22.7 percent of acute stroke patients had an infection. Most of those screened had a UTI. Patients with UTIs required increased in-hospital catheterization. It was formerly associated with infection. The inability to completely empty the bladder causes urine stasis and complicates catheter placement in stroke patients with severe symptoms [13,14]. Statistically, removing a urinary catheter increases the chance of urinary tract infections. Most respiratory infections were caused by the public. Aspiration pneumonia is a major cause of respiratory tract infections after a stroke [12,15]. No link was found between known infection risk factors and sickness onset. Infections can lessen the severity of a stoke. It's impossible to search every possible site. Infections were less prevalent in stroke survivors. Patients with severe stroke are more likely to aspirate due to toxicity in the dependent bronchi.

Regardless of infection, those with fever had a worse outcome. Previous research [1–2] connected high temperature to worse stroke outcomes. Frequent high fevers cause ischemic brain injury [1, 2].

14.8 percent of our sample had a fever for no apparent reason (39.5 percent of febrile patients). The medications had little effect on the sickness' intensity or duration. This study's main goal is to learn more about stroke patients who develop a fever but have no identified infection source. Two previous investigations looked at stroke severity, outcome, and fever. Various disorders release interleukin-1, TNF-, and IL-6 into the bloodstream. In those with CNS issues, pyrogens can produce fever [16-21].

Infection markers may be used to distinguish between infection-induced and causative agent-induced fever in the future. CRP levels in severe stroke patients are unknown (CRP). Elevated CRP in acute stroke victims may help diagnose fever. C-reactive protein levels are higher in infection than in inflammation. Procalcitonin rises during illness. Procalcitonin secretion increases with bacterial endotoxin[22-24].

This study found that the first fever was the only predictor of central origin fever using logistic regression (fever of central origin). No incubation period makes sense if "central fever" is the genesis of all non-specific fevers. Even after removing observer bias, we need patient medical data to estimate the cause of fever. Each patient was treated independently, thus finding the source of the fever took time. Major stroke victims are more prone to infections and fevers, hence the two categories may overlap. Subclinical problems are more common after a stroke. The discoveries' significance is currently being studied.

CONCLUSION

According to statistics from the recent study, patients with fever have a worse prognosis and develop fever early in cases where a source of infection has not been identified.

Author's Contribution:

Concept & Design of Study:	Munazza Nazir
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Abnormal Placentation in Patients with Previous Caesarean Section

Safia Ewaz Ali, Zubia Bugti and Rizwana Naz

ABSTRACT

Objective: To determine the frequency of abnormal placentation in patients with previous caesarean section.
Study Design: Descriptive study.
Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynecology, Civil Hospital Quetta for a period of one year, from 1st June 2020, to 30th June 2021.
Materials and Methods: A total of 156 patients were evaluated and studied. All cases of placenta previa with previous caesarean scar after 32 weeks of gestation whether booked or unbooked with no demarcation of age, irrespective to number of caesarean scars with or without bleeding per vagina were included in the study. All cases of previous myomectomy, uterine repair, placental abruption and bleeding per vagina due to local cause were excluded. A questionnaire was developed that included detailed information regarding maternal age, parity, gestational age, number of previous caesarean deliveries, history of bleeding per vagina, ultrasound findings and Doppler flow studies. Patients fulfilling the inclusion criteria were selected. Patients were divided into four groups according to number of previous caesarean sections and labeled as; Group A previous one caesarean section, Group B previous two caesarean sections, Group C previous three caesarean sections and Group D previous four caesarean sections. All the data were collected on pre-designed pro-forma. The data was entered and analyzed in SPSS version 18. Descriptive statistics were used to analysis the mentioned continuous variables. Chi-square independent test were used to determine the proportions difference between number of previous C-section and abnormal adherence placenta. A p- value of ≤ 0.05 were considered as significant.
Results: The average age of the women was 27.02±5.13 year's patients ranged between 18-35 years of age. Median age was 27 years. Mean gestational age was 35.79±2.07 ranging between 33-39 weeks. Similarly, number of previous cesarean section was 2.53±1.12 and the parity was found 4.66±2.28 respectively. 74(47%) women had already booked the status for cesarean section. Presentation of pregnant cases with previous C-section, 81(52%) women had symptomatic and 71(45.5%) had asymptomatic presentation. Age distribution of the patients was done; where in 85 patients accounted for 57.1% were age found more than 26 years. Gestational age of the patients revealed 99(63.5%) between 33-36 weeks, 57(36.5%) between 33-36 weeks, and 80 between 37-39 weeks. Degree of placenta Previa revealed 115 (74%) with major degree Previa and 41(26%) with minor degree Previa. The frequency of abnormal placenta Previa was found in Placenta accrete was 8(5.1%), placenta Percreta was 17(10.9%) while it was 28(17.9%) in placenta increta respectively. The percentage of placenta previa showed a rising value with increased number of caesarean scars as it was 23.7% in previous one caesarean section, 26.3% in previous two and 23.7% and 26.3% in previous three and four caesarean sections.
Conclusion: During the one-year study, 156 patients presented with placenta Previa. The study showed that the incidence of the condition increased with increased number of caesarean sections.
Key Words: Abnormal Placentation, Patients, Caesarean Section

INTRODUCTION

Placenta previa is a type of deformed placenta in which the placenta is located at the base of the cervix which

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closes completely or partially the internal ostium of the cervix. It is one of the leading causes of vaginal bleeding in the third trimester[1]. Along with blood loss, a woman with placenta previa may experience complications such as premature birth[2]. Placenta previa is found to be associated with a higher rate of morbidity and mortality in both mother and newborn, with an average increase of 10%[3,4]. This is not a common pregnancy problem as about 1 in 533 pregnant women can have a placenta previa[5]. The tendency for placenta previa growth has been detected over the past decade, largely due to an increase in grade C and maternal growth during pregnancy[6]. The risk of placenta adherence, a life-threatening condition increases with each preterm birth by 37.5% which may be due to the

fact that endometrial cells found near the scar cannot properly differentiate leading to implantation of the implant[7]. One study reported that 208 of the 232 (89.7%) cases of placenta previa underwent selective or emergency cesarean hysterectomy[8].

The history and number of preterm births are important for placenta previa and abnormal placenta in subsequent pregnancies. Repetitive surgery is performed at our facility and today we are dealing with many patients with placenta previa requiring hysterectomy, so we will conduct this study to assess the frequency of abnormal placentation in patients with previous C-section based on previous surgery rates. delivery.

MATERIALS AND METHODS

This study was conducted at the Department of Obstetrics and Gynecology, Civil Hospital Quetta for a period of one year, from 1st June 2020, to 30th June 2021. A total of 156 patients were evaluated and studied. All cases of placenta previa with previous caesarean scar after 32 weeks of gestation whether booked or unbooked with no demarcation of age, irrespective to number of caesarean scars with or without bleeding per vagina were included in the study. All cases of previous myomectomy, uterine repair, placental abruption and bleeding per vagina due to local cause were excluded. A questionnaire was developed that included detailed information regarding maternal age, parity, gestational age, number of previous caesarean deliveries, history of bleeding per vagina, ultrasound findings and Doppler flow studies. Patients fulfilling the inclusion criteria were selected. Patients were divided into four groups according to number of previous caesarean sections and labeled as; Group A previous one caesarean section, Group B previous two caesarean sections, Group C previous three caesarean sections and Group D previous four caesarean sections. All the data were collected on pre-designed pro-forma. The data was entered and analyzed in SPSS version 18. Descriptive statistics were used to analysis the mentioned continuous variables. Chi-square independent test were used to determine the proportions difference between number of previous C-section and abnormal adherence placenta. A p-value of ≤ 0.05 were considered as significant.

RESULTS

The average age of the women was 27.02 ± 5.13 year's patients ranged between 18-35 years of age. Median age was 27 years. Mean gestational age was 35.79 ± 2.07 ranging between 33-39 weeks. Similarly, number of previous cesarean section was 2.53 ± 1.12 and the parity was found 4.66 ± 2.28 respectively. 74(47%) women had already booked the status for cesarean section. Presentation of pregnant cases with previous C-section, 81(52%) women had symptomatic and 71(45.5%) had

asymptomatic presentation. Age distribution of the patients was done; where in 85 patients accounted for 57.1% were age found more than 26 years. Gestational age of the patients revealed 99(63.5%) between 33-36 weeks, 57(36.5%) between 33-36 weeks, and 80 between 37-39 weeks.

Table No.1: Descriptive statistics of the study subjects.

Descriptive Statistics	Mean	Range (Max-Min)	Median
Parity	4.66±2.28	(8-1)	5
Gestational Age	35.79±2.07	(39-33)	36
Number Previous CS	2.53±1.12	(4-1)	2.5
Age	27.02±5.13	(35-18)	27

Table No.2: Stratified of Placenta Percreta among different confounding variable of the study subjects

Study Characteristics	Placenta Percreta			P-value
Age Groups				
<=26 Years	11(7.1%)	56(35.9%)	67(42.9%)	0.048*
>26 Years	6(3.8%)	83(53.2%)	89(57.1%)	
Total	17(10.9%)	139(89.1%)	156(100%)	
Gestational Age				
33-36 Weeks	11(7.1%)	88(56.4%)	99(63.5%)	0.91
37-396 Weeks	6(3.8%)	51(32.7%)	57(36.5%)	
Total	17(10.9%)	139(89.1%)	156(100%)	
Grades				
Major (3 or 4)	8(5.1%)	107(68.6%)	115(73.7%)	0.008*
Minor (1 or 2)	9(5.8%)	32(20.5%)	41(26.3%)	
Total	17(10.9%)	139(89.1%)	156(100%)	
Number Previous CS				
1	5(3.2%)	32(20.5%)	37(23.7%)	0.832
2	5(3.2%)	36(23.1%)	41(26.3%)	
3	4(2.6%)	33(21.2%)	37(23.7%)	
4	3(1.9%)	38(24.4%)	41(26.3%)	
Total	17(10.9%)	139(89.1%)	156(100%)	

Degree of placenta Previa revealed 115 (74%) with major degree Previa and 41(26%) with minor degree Previa. The frequency of abnormal placenta Previa was found in Placenta accrete was 8(5.1%), placenta Percreta was 17(10.9%) while it was 28(17.9%) in placenta increta respectively. The percentage of

placenta previa showed a rising value with increased number of caesarean scars as it was 23.7% in previous one caesarean section, 26.3% in previous two and 23.7% and 26.3% in previous three and four caesarean sections. See tables 1 to 4.

Table No.3: Stratified of Placenta accreta among different confounding variable of the study subjects

Study Charac-teristics	Placenta Accreta			P-value
Gestational Age				
33-36 Weeks	7(4.5%)	92(59%)	99(63.5%)	0.147
37-396 Weeks	1(0.6%)	56(35.9%)	57(36.5%)	
Total	8(5.1%)	148(94.9%)	156(100%)	
Grades				
Major (3 or 4)	3(1.9%)	112(71.8%)	115(73.7%)	0.017*
Minor (1 or 2)	5(3.2%)	36(23.1%)	41(26.3%)	
Total	8(5.1%)	148(94.9%)	156(100%)	
Number Previous CS				
1	2(1.3%)	35(22.4%)	37(23.7%)	0.412
2	1(0.6%)	40(25.6%)	41(26.3%)	
3	1(0.6%)	36(23.1%)	37(23.7%)	
4	4(2.6%)	37(23.7%)	41(26.3%)	
Total	8(5.1%)	148(94.9%)	156(100%)	

Table No.4: Stratified of Placenta increta among different confounding variable of the study subjects

Study Charac-teristics	Placenta Increta			P-value
	Yes	No	Total	
Gestational Age (Weeks)				
33-36 Weeks	8(5.1%)	91(58.3%)	99(63.5%)	<0.001*
37-396 Weeks	20(12.8%)	37(23.7%)	57(36.5%)	
Total	28(17.9%)	128(82.1%)	156(100%)	
Grades				
Major (3 or 4)	23(14.7%)	92(59%)	115(73.7%)	0.264
Minor (1 or 2)	5(3.2%)	36(23.1%)	41(26.3%)	
Total	28(17.9%)	128(82.1%)	156(100%)	
No. of Previous CS				
1	4(2.6%)	33(21.2%)	37(23.7%)	0.192
2	11(7.1%)	30(19.2%)	41(26.3%)	
3	8(5.1%)	29(18.6%)	37(23.7%)	
4	5(3.2%)	36(23.1%)	41(26.3%)	
Total	28	128	156	

DISCUSSION

The frequency of surgeries is increasing, worldwide with the same rise in maternal mortality and mortality. The high incidence of surgical births today is strongly associated with the high frequency of Placenta previa according to their placenta increta[9]. The incidence of placental abruption has increased dramatically in the last 50 years with the increase in surgical birth rates[10]. The birth rate by surgery has been steadily rising over the past two decades and is a common birth procedure worldwide. Other studies have seen an increase in placental abnormalities among women with a history of preterm labor. The total incidence of placenta previa in large overseas studies was found to be 0.2–0.5%[11]. In our study 3.87% of patients (24 cases in the study group and 7 in the control group) had placenta previa. Demographic data for our sample, as expected, showed an increase in the age of childbirth, and an increase in the number of surgical births. The average age of the mother of our research team was very high compared to other subjects. A study by Hyun Jung Lee in Korea found an average maternal age of 32.8 ± 3.9[12] and a retrospective study conducted at King Khalid University, Abha, SA found an average maternal age of 31.8 ± 4.7 years[13]. A study by Insherah Mansour and Drs. Hala Mousa in Madinah was approximately 34.3 ± 6.0 years old about our own[14].

In our study Patient gestational age was 99 (63.5%) between 33-36 weeks, 57 (36.5%) between 33-36 weeks, and 80 between 37-39 weeks.

Degree of placenta Previa reveals 115 (74%) with large Previa degrees and 41 (26%) with small Previa degrees. The frequency of abnormal placenta previa found in Placenta accreta was 8 (5.1%), placenta Percreta was 17 (10.9%) and 28 (17.9%) in placenta increta respectively. Percentage of placenta Previa showed an increase in the number of increased surgical scars as it was 23.7% in previous surgery, 26.3% in previous two and 23.7% and 26.3% in three and four surgical stages. Our study showed that the frequency of placenta previa did not increase with one previous stage of surgery. Henna et al[4] reported that the previous stage of surgery did not significantly increase the chances of developing placenta previa in subsequent pregnancies. They found a correlation of placenta previa with increased mating and maternal age. Their results support what we find. Almost all of the studies mentioned in this article have been linked to placental previa interactions with maternal age. Research by Ioannis G et al also agrees with our findings and suggests that abnormal placement is associated with fertility, smoking and high blood pressure during pregnancy[15]. Another study by Castro et al showed an association between abnormal placenta and uterine scars along with what they say is a pre-placenta previa pregnancy is also dangerous[16]. Similarly, late pregnancy age is considered a risk factor for placenta previa[17].

CONCLUSION

This study shows that there is a strong association of placenta previa with various surgical stages. In addition, this study showed that the frequency of rare placenta previa was 33.9% among patients with a history of chronic obstetrics. 17 (10.9%) of patients

with placenta percreta, 8 (5.1%) were placenta accreta and 28 (17.9%) of the placenta were found to be an increta. The most common type of abnormal placentation was increa.

An increase in the number of surgical units leads to an increased risk of placenta previa. Increased maturation and maternal growth are associated with the development of the placenta lying down. Care should be taken to avoid initial surgery to avoid complications in subsequent pregnancies. Family size should be well planned and pregnancy in adulthood can be encouraged.

Author's Contribution:

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Original Article

Effectiveness of Chlorhexidine Gel Alone and with Metronidazole as Prophylactic Use in Alveolar Osteitis

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ABSTRACT

Objective: To find the effectiveness of chlorhexidine gel alone and with combination with metronidazole use as intra socket substance to prevent alveolar osteitis.

Study Design: Prospective observational study

Place and Duration of Study: This study was conducted at the oral and maxillofacial surgery department of the Islam Dental College Sialkot from Jan, 2021 to Dec, 2021.

Materials and Methods: 100 patients that were undergone surgical extractions, included in this study. Even and odd pattern used to segregate 100 patients into group A with odd number and group B with even number. Immunocompetent patients with age less than 50 years, no co-morbidities and without involvement of odontogenic space infection cases were included in this study. Group A patients were advised to use chlorhexidine gel post-surgical extraction as intra socket medicament and Group B patients were advised to use chlorhexidine gel with combination of metronidazole (Revomet plus gel). On 3rd post extraction day, visual analog scale was used to document. Pain and clinically observed empty socket feature were used to label as alveolar osteitis cases.

Results: Female to male ratio was 1.6:1. Total incidence of alveolar osteitis was 20% (n=20). 24% (n=12) cases were observed in group A and 16% (n=8) cases were observed in group B. Among group A, 29 cases had mild pain, 9 had moderate and 6 had severe pain. While in group B, 23 cases had mild pain, 8 cases had severe pain and 4 cases had severe pain. Overall moderate and severe pain with empty socket cases were high in group A those had used chlorhexidine gel as intra socket medicament.

Conclusion: The prophylactic usage of combination of chlorhexidine with metronidazole gel (REVOMET PLUS GEL) in reducing the incidence of dry socket is better than chlorhexidine gel alone.

Key Words: alveolar osteitis, chlorhexidine gel, metronidazole gel, intrasocket medicaments.

INTRODUCTION

Alveolar osteitis is one of the most common complications after tooth extraction. Blum define this term as post-operative pain in or around the extraction socket, pain intensity increases after 3rd post extraction day along with empty socket with or without halitosis excluding any other cause of pain[1]. The name dry socket is used since the socket has dry appearance as the blood clot fades away.

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There are many contributing factors like difficult or traumatic extraction, female gender, smoking, contraceptives use and preexisting infection. Poor oral hygiene and alveolar contamination is also an important factor for the onset of dry socket[2]. The increased local fibrinolytic activity is the main etiological factor of dry socket that intra-alveolar blood clot retracts after tooth extraction[3]. The socket becomes empty with denuded bone covered by yellow, grey necrotic tissue layer. There are multiple treatment options mentioned in literature like intra alveolar use of chlorhexidine gel, mouthwash, tranexamic acid, doxycycline, metronidazole, honey, warm saline gargles etc[4,5,6]. Role of different antibiotics like amoxicillin and metronidazole is also mentioned. As microorganisms such as streptococcus alpha and beta haemolyticus and trepenoma denticola are involved in etiology of dry socket, the effective treatment option is application of topical antibiotics and antiseptics[7,8,9]. The aim of our study was to opt for an effective treatment for preventing dry socket. Metronidazole and chlorhexidine were selected because they are very

effective against pathogens, because of their good safety profile and low risk allergy[10].

MATERIALS AND METHODS

Randomly selected 100 patients were included in this study that had undergone surgical extractions in oral and maxillofacial surgery department of Islam dental college Sialkot from a period of 1st Jan 2021 to 31st Dec 2021. After taking dental ethical committee approval, complete history, thorough medical, clinical and radiographically findings were documented in proforma. Immunocompetent patients with age less than 50 years, no co-morbidities and without involvement of odontogenic space infection cases were included in this study. 100 patients were even and odd pattern sequence segregated equally in two groups (group A and B). Group A (odd serial number) were advised to apply simple chlorhexidine gel (CLINICA GEL) in the extraction socket 6 hourly for 7 days. Group B (even serial number) were advised to apply 6 hourly combinations of chlorhexidine with metronidazole gel (REVOMET PLUS GEL) in the extraction socket for 7 days. General and informed surgical consent were signed, and each patient was informed about the study. Same operating oral surgeon had performed all the surgical extraction cases including impacted teeth. 2% lignocaine with 100,000 IU adrenaline of same brand is used to anesthetize the area. After surgical extraction, wound was irrigated with minimum 10cc normal saline. Patients were informed with post extraction instruction verbally and in written form. Tab Paracetamol 500mg every 8 hours for 3 days then tab Paracetamol 500mg SOS afterward. Post-operative variables were pain and empty socket. Visual pain analog scale was used to document the finding. 0 with no pain and 10 with unbearable severe pain. Mild pain (1-4), Moderate pain (5-7), Severe pain (8-10). Dry socket was labelled empty socket with exposed alveolar bone clinically. Each patient was followed on 3rd post-operative day to document findings of pain and empty socket. Dry socket was labeled to the patient with moderate and severe pain score and with clinically exposed socket bone.

RESULTS

Out of 100 patients, 62 patients were female while 38 were male with female and male 1.6:1 ratio. 52 patients had mild pain, 6 patients had moderate pain and 4 patients had severe pain on 3rd postoperative day. Mild pain cases reported in group A were 29 while 23 patients were from Group B. Moderate pain cases reported in Group A were 9 while 8 cases were from Group B. Severe pain was reported in 6 cases from group A and 4 cases from Group B. Comparing both groups, pain intensity was less reported in Group B receiving prophylactic combination of chlorhexidine and metronidazole gel patients than Group A receiving chlorhexidine gel only. Rest of the patient's pain was controlled with analgesics. On the 3rd post-operative day, from Group A 12% (n=6) cases had empty socket while 8% (n=4) cases were from Group B. Total number of dry socket was 20% (n=20). Out of 20 cases of dry socket, 13 cases were female, and 7 cases were male with female predominance.

Table No.1: Pain intensity and empty socket among Group A and B

Pain score on 3rd post-op day	N=50 (group A)	N=50 (group B)	Total N=100
Mild	29	23	52
Moderate	9	8	17
Severe	6	4	10
Empty socket	24%(n=12)	16%(n= 8)	20%(n=20)

Table No.2: Gender ratio among Group A and B

Gender	Total	Group A (n=50)	Group B (n=50)	Dry socket n=20
Male	N=38	20	18	7
Female	N =62	35	27	13

DISCUSSION

Alveolar osteitis is one of common mandibular 3rd molar post extraction complication with incidence of up to 30%[2,3,5]. Alveolar osteitis is the healing disturbance due to loss of blood clot in extraction socket. Extraction socket has the denuded appearance. The interior of bony socket is exposed in the oral cavity with or without halitosis. Most crucially it is hypersensitive to contact. Surgical trauma, age, gender are other known risk factors for the development of alveolar osteitis and other postoperative complications. There are multiple methods mentioned in literature to prevent alveolar osteitis. But still, none of them is solely effective[11]. Role of topical application of chlorhexidine gel alone and in combination with metronidazole gel is effective against the development of this complication[3,12,18,19] Metronidazole is a nitroimidazole anti-infective agent which has specific activity against a number of anaerobic organisms. It is bactericidal in nature. The exact mechanism of action has not been well defined. The reduction product appears to be cytotoxic and has antimicrobial effects by disruption of DNA and inhibition of nucleic acid synthesis[13]. On the contrary chlorhexidine is a biguanide antiseptic used as a mouthwash or bio adhesive gel. It is active against a wide variety of aerobic/ anaerobic oral pathogens. Chlorhexidine gel has antibacterial, antiviral, and antifungal properties and metronidazole is evert best medicine to control anaerobic microbes[14]. It is believed that anaerobes have anti fibrinolytic activity that has role in lysis of the blood clot that leads to alveolar osteitis[1,2,5,6]. Incidence of alveolar osteitis among group

A patients was 24% and in group B patients was 16%. It is well established fact that alveolar osteitis is the most common in adult female. In our study, 62 patients were female and 38 were male with ratio of 1.6:1. The varying results may be due to estrogen level fluctuations which enhances the fibrinolytic activity. Therefore, additional estrogen in the form of oral contraceptives may increase the chances of dry socket in women[15,16,17]. The study published online on 1st Feb,2017 in JCED, had stated the superior efficacy of chlorhexidine gel with combination of metronidazole[13]. Mitchell investigated the efficacy of a gel made up of 10% metronidazole for the treatment of dry socket. He observed faster healing when the gel was used[18]. Since the evident input of anaerobic bacteria in the etiology of dry socket, he recommended the use of nitroimidazoles for the treatment and prevention of dry socket[19]. Inamdar MN et al. in their study on prevention of dry socket using Chlorhexidine Gel and Ornidazole Gel, concluded that both chlorhexidine gel and ornidazole gel are effective in preventing dry socket after impacted 3rd molar removal[20]. In present study application of combination of chlorhexidine with metronidazole gel (REVOMET PLUS GEL) in the extraction socket for 7 days resulted in significant reduction in the frequency of alveolar osteitis after surgical extractions.

CONCLUSION

The prophylactic usage of combination of chlorhexidine with metronidazole gel (REVOMET PLUS GEL) in reducing the incidence of dry socket is better than chlorhexidine gel.

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To Find Out the Association of Diabetic Retinopathy and Vitamin D Deficiency in Type 2 Diabetic Patients

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ABSTRACT

Objective: To find out the association of Diabetic Retinopathy and vitamin D deficiency.

Study Design: Descriptive/Cross sectional study

Place and Duration of Study: This study was conducted at the Dept. of Physiology at Khyber Medical College Peshawar from January, 2021 to April, 2021.

Materials and Methods: After the recruitment of subjects according to the inclusion criteria. Subjects were divided into two cohorts; Patients with Diabetic Retinopathy (Group I N=40) and a Non-Diabetic Retinopathy group (Control group N=40). Blood for Vitamin D Levels was taken and analysed at the Hospital Lab via Cobas 6000 E 501 analyzer. Data was analysed using SPSS version 26.0 for MacBook Pro.

Results: Vitamin D low levels were found in patients of the DR group. They were vitamin D deficient in comparison to the non-DR group.

Conclusion: Our study found an inverse relation between vitamin D levels and diabetic retinopathy.

Key Words: Ophthalmology; Fat Soluble Vitamins; Retinopathy

INTRODUCTION

Diabetes Mellitus (DM) is a public health concern of serious and growing nature. It also carries a substantial economic burden all over the world. Figures from the year 2019 show that an estimated 463 million people are living with DM. If efforts are not taken, this number could go beyond 700 million by the year 2045 [1]. The situation has taken the form of a pandemic. This rise in the DM cases can be linked to lifestyle changes, aging and rise in the obese population [2-3]. This is noteworthy that DM can cause severe complications of micro/macro vascular nature. This may include; diabetic retinopathy (DR)

Globally, DR is the primary reason behind blindness that could be prevented. Having a prevalence of roughly 35%[5]. The Serum vitamin D levels of the relatively inactive 25 hydroxy form are a better indicator of vitamin D level than its more active 1,25 dihydroxy form of the vitamin [6].

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During recent years, an increasing attention has been drawn towards establishing a link or possible association of vitamin D deficiency (VDD) and non skeletal system related medical conditions. This includes diabetes and its related complications (7-9). An inverse relation exists between vitamin D levels and the risk of developing DR was demonstrated among diverse ranges of population [10]

A study carried out by shimo et al. found an association between VDD and risk for developing diabetic retinopathy. However, this study was carried out on a small sample size and the population consisted of young type 1 diabetic adult patients [11].

In the current cross-sectional study, our aim was to explore and establish a link between VDD and the risk of developing the vascular diabetic complications (i.e., DR) in type 2 DM patients of Peshawar.

MATERIALS AND METHODS

Our cross sectional (descriptive) study was carried out in the Dept. of Physiology at Khyber Medical College in Peshawar from January 2021 to April 2021. Inclusion criteria included patients of both sexes with diagnosed diabetes mellitus (diagnosis made by consultant keeping both clinical and haematological values of the variables in account). Exclusion criteria included patients with kidney disease, secondary hypertension, thyroid, liver or parathyroid related medical conditions.

After the recruitment of subjects according to the inclusion criteria. Subjects were divided into two

cohorts; Patients with Diabetic Retinopathy (Group I N=40) and a Non-Diabetic Retinopathy group (Control group N=40). Blood for Vitamin D Levels was taken and analysed at the Hospital Lab via Cobas 6000 E 501 analyzer. The cut off value for VDD was kept at 8.2 ng/ml.

RESULTS

Of the 40 patients in the No DR Group-30 were male and 10 were females. In the DR Group, out of the 40 patients, 24 were males and the rest 16 were females.

Table No.1: Shows results of serum Vitamin D Level and subjects with vitamin D deficiency.

Vitamin D	Non Diabetic Retinopathy Group (N=40)	Diabetic Retinopathy Group (N=40)	p Value
Vit D Level (ng/mL)	20.9 +/- 3.7	15.2 +/- 7.3	0.05
VDD Status (N)	8 (20%)	32 (80%)	0.03

Data shows mean ± standard deviation (SD) or (%)

DISCUSSION

Our study confirms that a relation exists between VDD and increased risk of developing DR in type 2 diabetic patients. However, due to the cross-sectional nature of our study, the results of our study do have limitation. Another limitation of our study was the inability determine the sun exposure time of the subjects.

It is noteworthy that only 8 (20%) out of the 40 in the No DR Group showed low levels of Vitamin D in contrast to 32 (80%) out of the 40 in the DR Group. Hence, making 80% of the patients in the DR group showing VDD. Patients with kidney disease were excluded from the study as diabetic patients with kidney disease could be a contributing confounder of vitamin D status [12].

DR could prove to be detrimental due to the advancing nature of the disease. Low vitamin D levels could help us in finding DR patients early on in the disease process before progression to more serious and severe stages [13]. Therefore, screening for vitamin D levels is an easy alternative of screening DR among diabetic patients in primary health care setup. This is also important from public health view point since there is a dearth of specialist ophthalmologist and specialized equipment.

VDD has taken the form of an epidemic across the globe. The results of our study were consistent with the previously published literature from different populations across the world [14-16]. It is also worth noting that VDD is associated with risk for developing diabetes [17-18].

Our study has various clinical implications. It was established for the first time in our population that diabetic patients show an explicit relationship between VDD and DR. We identified in our study that Vitamin D levels can be a modifiable risk factor in preventing of DR. This study does have some epidemiological strengths; including the fairly large sample size of the study, a well-established inclusion and exclusion criteria. Also, the strong quality controls add strength to the study.

CONCLUSION

Our study establishes that a relation exists between VDD and increased risk of developing DR in type 2 diabetic patients. However further studies including: systemic reviews, meta-analysis and level I evidence studies are required for not only understanding the medical condition but also to establish a possible link and to further help us understand the explicit effect governing this risk of developing DR with the variation in the vitamin D levels. Considering the role of preventive medicine, supplementation with vitamin D by any sort of intervention whether dietary or other intervention strategies for the correction of VDD in the diabetic population of Peshawar city.

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Original Article

Association of Life Events in Patients with Conversion Disorder

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ABSTRACT

Objective: To determine the association of life events with patients of conversion disorder
Study Design: Descriptive cross sectional study
Place and Duration of Study: This study was conducted at the Psychiatry department, Chandka Medical College, SMBB Medical University Larkana from October to December, 2021.
Materials and Methods: Diagnosed cases of conversion disorder were enrolled either in-patients or out-patients. For life events in the last 01 months Holmes and Rahe scale was applied on all cases of conversion disorder. Data analyses was done by using SPSS version 22 statistical software package.
Results: A total of 96 female participants, majority 74 (77.1%) were married, and Sindhi by ethnicity 94 (97.9%). Among all participants 57 (59.4%) were not formally educated and were brought in hospital by family. Among all 88 (91.7%) were house-hold by occupation. Among all conversion disorders patients majority were presenting to hospital for first time 64 (66.7%). Among all conversion disorders patients, majority 46 (47.9%) were having less than 150 total life events score on Holmes and Rahe score. The number of presentation or admissions in psychiatric unit were stratified with score of Holmes and Rahe life events scale and were found statistically significant having P values of 0.000.
Conclusion: Life events stresses are found in all conversion disorder patients. They are also significantly associated with hospital presentation or admission.
Key Words: Association, Conversion disorder, Holmes and Rahe scale, life events

INTRODUCTION

Conversion disorder, also known as practical neurological manifestation disorder[1], is a mental illness in which signs and symptoms affecting voluntary engine or tactile capacity are not explained by a neurological or general clinical condition.[2] Conflicts and stress are among the psychological factors that have been linked to impairments. The phrase "conversion disorder" was coined by Sigmund Freud, who hypothesized that certain symptoms not explained by natural illnesses represent oblivious conflict.[3]

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The term "conversion" refers to the substitution of a substantial side effect for a curtbed idea.[4] Loss of motion, visual impairment, dystonia, PNES, drowsiness, gulping difficulties, engine spasms, problems walking, pipedreams, sedation, and dementia are all common conversion signs.[5] These symptoms are not directly generated by a physiological impact on people with conversion issues; rather, they are the result of a mental conflict. Patients who are certain they have a change problem are not feigning the symptoms. Despite the lack of a convincing natural analysis, the patient's suffering is real, and the symptoms the patient is experiencing can't be managed willingly (i.e., the patient isn't malingering an ailment). For example, according to the Medline Medical Dictionary[6], "...A woman who believes she isn't worthy of having nasty feelings may feel death in her arms after being enraged to the point that she needs to punch someone. Rather than allowing herself to have vicious considerations about hurting someone, she is confronted with the physical evidence of death in her arms." Patients who turn their impassioned concerns into physical manifestations spend three times as much on medical services as those who don't, and 82 percent of adults with mental illnesses do so. The annual conversion bill in the USA is 20 billion dollars, excluding time off work and handicap compensation[7]. In spite of its clinical significance, presently there is minimal advancement in our comprehension of conversion

disorder comparative with numerous additional neurological as well as mental problems[8]. Because research in this area is limited in our setting, the findings of this study will aid in the development of suitable plans and interventions to alleviate the problem, as well as serve as a baseline for others who desire to perform research in this area.

MATERIALS AND METHODS

Cross-sectional study was conducted at Department of Psychiatry, Chandka Medical College, SMBB Medical University Larkana for the period of three months from October 2021 to December 2021 after getting approval from the institutional review board of the institute. A sample size of 96 was calculated by using standard formula. Co-operation rate was 100% as data was filled by primary researcher. Consecutive sampling (Non-probability) was sampling technique.

Inclusion Criteria: All Conversion disorder patients were enrolled. Diagnosis of cases was made by consultant Psychiatrist.

Exclusion Criteria: All those patients of conversion disorder who had other co-morbid psychiatric disorder were excluded such as severe depressive disorder and secondary disease like as Diabetes Mellitus. For life events in the last 01 months Holmes and Rahe scale was applied on all cases of conversion disorder. Data analyses were done by using SPSS version 22 statistical software package.

RESULTS

A total of 96 participants all were females. A large proportion of them 74 (77.1%) were married, while very few 22 (22.9%) were single. Majority of participants were Sindhi by ethnicity 94 (97.9%) while only 2 (2.1%) were Urdu speaking. Among them 57 (59.4%) were not formally educated, primary passed were 10 (10.4%) and 21 (21.9%) were middle passed while 6 (6.3%) were matriculated and only 2 (2.1%) were intermediate. Among all majority of conversion disorders patients were referred to hospital by family 86 (89.6%) while 7 (7.3%) came by self and 3 (3.1%) referred to hospital through other sources. Among all 88 (91.7%) were house-hold by occupation while 2 (2.1%) were students and 6 (6.2%) were doing some other jobs. Among all conversion disorders patients

Holmes and Rahe score was 46 (47.9%) were having less than 150 total life events score which is of mild risk while 35 (36.5%) were having score of above 150 but below 300 which is of moderate risk while 15 (15.6%) were having score of above 300 which is high risk. Among all conversion disorders patients majority were presenting to hospital for first time 64 (66.7%) while 17 (17.7%) were admitting twice and 5 (5.2%) had third time and 10 (10.4%) were presenting multiple times as shown in Table I. The number of presentation or admissions in psychiatric unit were stratified with score of Holmes and Rahe life events scale and were found statistically significant having P values of 0.000 as shown in Table 2.

Table No.1: Demographic Characteristics

Characteristics	Frequency	Percent %
Mode of referral		
Self	07	07.3
Family	86	89.6
Other	03	03.1
Marital Status		
Single	22	22.9
Married	74	77.1
Language		
Sindhi	94	97.9
Urdu	02	02.1
Education		
No formal education	57	59.4
Primary	10	10.4
Middle	21	21.9
Matric	06	06.3
Intermediate	02	02.1
Occupation		
Student	02	2.1
House-hold	88	91.7
Other	06	6.2
Holmes and Rahe Score		
Less than 150	46	47.9
151 to 300	35	36.5
More than 300	15	15.6
Number of Admissions due to Conversion disorder		
One	64	66.7
Two	17	17.7
Three	05	05.2
Multiple	10	10.4

Table No.2: Holmes and Rahe score and number of admission due to conversion disorder

Holmes and Rahe Score	Number of admissions					P- Value
	One	Two	Three	Multiple	Total	
Less than 150	39(84.8%)	3(6.5%)	00(00%)	4(8.7%)	46(100%)	
150 to 300	21(60.0%)	9(25.7%)	01(2.9%)	4(11.4%)	35(100%)	
More than 300	04(26.7%)	5(33.3%)	04(26.7%)	2(13.3%)	15(100%)	**0.000**
Total	64(66.7%)	17(17.7%)	05(5.2%)	10(10.4%)	96(100%)	

DISCUSSION

The subjects in this study were all females between the ages of 18 and 45 who had conversion disorder. This finding was comparable to that of a previous Pakistani research, which indicated that 67.1 percent of patients were under the age of 21 and 89 percent were female,[9] whereas all participants in our study were females. Another research from Bangladesh indicated that the

majority of the patients were between the ages of infancy and early adulthood (85.7 percent), with a female predominance.[10] The majority of the patients in this research was married and had no formal education. The majority of them hailed from combined families and referred to hospital by family. Globally, conversion disorder was also shown to be more common among rural populations, those with little education, people with poor IQ, and people from low socioeconomic groups.[11] Current study highlighted that, majority of females were housewives 91.7% and 2.1% were students. In another conducted at Peshawar, Pakistan showed that house-wives were 77.1% while our study showed 91.1% and the reason for difference is that previous study included males and females while current study dealt with only females[12]. In contrast, 71.1 percent of female patients among our sample were married, which was consistent with prior studies showing a high incidence of mental illness in married women.[13] Stressful life events are significantly associated with conversion disorder as evidenced in this study and also same reported in previous studies[14].This study coincides with many previous studies carried out at different times and in different regions[15] showing psychosocial stressors presence among patients of conversion disorders usually stressful life events for example, issue with parents in law, disappointment in examination or study issue, upset connection with life partner, spouse remaining abroad, love issues, work pressure or more responsibility, relationship issue with relatives or guardians, spoiled kid, marriage against will, demise of a nearby relative, actual disease, request of traveling to another country, financial issues and so forth. A substantial number of psychosocial stressors were discovered in individuals with conversion disorder in this investigation. In study, stressor pattern was unique among patients in our community, and the majority of these stressors were fairly treated.

CONCLUSION

Life event stresses are present in all conversion disorder patients. They are also significantly associated with hospital presentation or admission. As a result of the significant undetected psychopathology in this community, mental health therapy for conversion disorder patients is important.

Author's Contribution:

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

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Original Article

Frequency of Urinary Incontinence in Reproductive Age Women and Its Relationship with BMI

Namia Nazir, Gulfishan Haq, Farah Kareem, Daniya Khan, Erum Nawaz and Anum Farhan

ABSTRACT

Objective: To frequency of urinary incontinence in reproductive age women and to compare frequency urinary incontinence with BMI.

Study Design: cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynecology, Dr Ruth K. M. Pfau Civil Hospital, Karachi from May, 2021 to November, 2021.

Materials and Methods: A total of 344 women of reproductive age (18-49 years) who consented to be part of study having symptoms of painless frequency of urine were included. Patients with UTI, pregnant and menopausal women were excluded. Detailed history was interviewed, using pro forma by prime researcher. BMI was calculated using weight machine in kilogram and height measured by wall mounted scale in m2, weighing machine is calibrated on daily basis used by experienced prime researcher to control bias. Urine sample was calculated in sterilized containers and was sent to Diagnostic and Research Laboratory of Civil Hospital Karachi.

Results: In my study, frequency of urinary incontinence in reproductive age women was found to be 42.15% with mixed urinary incontinence in 53.79%, stress urinary incontinence in 33.10% and urge urinary incontinence in 11.03% women. My study showed incidence of urinary incontinence is 35.08% with BMI of 23-27.4, 50.98% with BMI of greater than or equal to 27.5, this result has significantly showed the association of overweight and obesity with urinary incontinence.

Conclusion: This study concluded that initial screening and treatment of urinary incontinence and its causes must be managed in all patients to avoid this disabling condition and to enhance the day to day life of these women.

Key Words: urinary incontinence, obesity, stress urinary incontinence

INTRODUCTION

Deficiency of estrogen is the reason of these symptoms of sexual dysfunction and atrophic changes in vagina. Similarly urinary symptoms are also due to decreased estrogen and prescription of estrogen in these patients can bring a change in these symptoms.

Urinary incontinence has been recognized as a leading cause of gynecological referrals worldwide, affecting not only the quality of woman's life but also has a great psychological impact on their lives[1,2], affecting 12-42% of women aged <60 years[1,3].

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Urinary incontinence characterized by any involuntary leakage of urine, comprises different types such as; stress urinary incontinence (any leakage of urine on physical exertion or any activities involving increases intra-abdominal pressure), urge urinary incontinence(any involuntary discharge of urine preceded by a sudden desire to void); mixed urinary incontinence(having characteristics of both the above mentioned types)[4,5].

Though many risk factors are associated with urinary incontinence like age, parity, any chronic illness (coughing, constipation), vaginal birth, obesity, body mass index, smoking, diet, family history, among which incidence of obesity is increasing worldwide in both developed and developing countries[1,4]. Epidemiological studies have also shown the association between both overweight and obesity with different pelvic floor disorders to which urinary incontinence stands at the top[6,7]. A study showed incidence of urinary incontinence is 46.7% with BMI of 18.5-22.9, 63.6% with BMI of greater than or equal to 27.5, this result has significantly showed the association of overweight and obesity with urinary incontinence[5].

A great deal of work has been done worldwide to show the possible association of increasing incidence of

urinary incontinence with increasing BMI in women of all age group but a few studies have found to establish that link to which empirical evidences are scanty[3,6.]

Many studies are available internationally on the above-mentioned association[3,5,8]; but few data available for Asia. The purpose of this research is to conduct a study that can determine increasing BMI as a risk factor for urinary incontinence in women of reproductive age groups in this region.

The rationale of this study was to determine the frequency of urinary incontinence and its relation with increasing BMI in reproductive age women in local population, as this condition is associated with many social and psychological problems influencing the quality of life, so by addressing how common this problem in obese population so that their social life can be improved by optimization of weight.

MATERIALS AND METHODS

It is a descriptive, cross-sectional study done in the Department of Obstetrics & Gynecology, Dr. Ruth K. M. Pfau Civil Hospital, Karachi from 26th May 2021 to 25th November 2021.The sample size of this study is 344[5] with 95% confidence level, with 5.2% margin of error taking expected percentage of urinary incontinence with increasing BMI as 58.85%, calculated by using Openepi. The detail collection of sample size is given at the end of synopsis. It is a non-probability, Consecutive sampling. All the married/unmarried women of reproductive age (18-49 years), having BMI of ≥23 kg/m2 who consented to be part of study having symptoms of painless frequency of urine were included. All pregnant, menopausal women and those who are having urinary tract infection at the time of participation were excluded. This study was started after approval of CPSP and Ethical review committee, after brief discussion of written informed consent was taken total 344 patient presenting in the Department of Obstetrics and Gynaecology, Dr. Ruth K. M. Pfau Civil Hospital Karachi, fulfilling the inclusion criteria were selected. Detailed history was interviewed, using pro forma by prime researcher. BMI was calculated using weight machine in kilogram and height measured by wall mounted scale in m2, weighing machine is calibrated on daily basis used by experienced prime researcher to control bias. Urine sample was calculated in sterilized containers and was sent to Diagnostic and Research Laboratory of Civil Hospital Karachi to exclude any Urinary Tract Infection as per exclusion criteria, similarly all menopausal women, pregnant women were also excluded. All women were interviewed for demographic information like age, parity and their weight, height, urine sample was taken. The data was entered in predesigned proforma by the researchers.

This study was using SPSS version 20.0 or above for data entry and analysis. Quantitative variables like age,

BMI, parity, height, weight, socio-economic status were computed as mean and standard deviation or median(IQR) on the basis of normality. Normality of data was assessed by using Shapiro wilk.

Qualitative variables such as ethnicity, place of residence, type of urinary incontinence, co morbids were reported as frequency and percentage. Frequency of urinary incontinence was compared with BMI by using chi-square or Fishir exact.

Effect modified such as age, parity, BMI, ethnicity, socio-economic status, place of residence and co morbids were computed through stratification. Post stratification chi-square or Fishir exact was used taken p-value 0.05 as significant.

RESULTS

Age range in this study was from 18 to 49 years with mean age of 26.57 ± 5.19 years. Majority of the patients 278 (80.81%) were between 18 to 30 years of age a. Mean BMI was 27.92 ± 3.58 kg/m^{2}. Mean height was 162.53 ± 11.03. Mean weight was 62.05 ± 7.80 kg. Distribution of patients with other confounding variables is shown in Table I.

Table No.1: Distribution of patients with confounding variables (n=95)

Confounding variables		Fre-quency	%age
BMI (kg/m^{2})	23-27.4	191	55.52
	≥27.5	153	44.48
Parity	Nulliparous	50	14.53
	Multiparous	294	85.47
Ethnicity	Sindh	176	51.16
	Punjab	80	23.26
	KPK	46	13.37
	Balochistan	42	12.21
HTN	Yes	37	10.76
	No	307	89.24
DM	Yes	84	24.42
	No	260	75.58
Smoking	Yes	85	24.71
	No	259	75.29
Weight lifting	Yes	21	6.10
	No	323	93.90
Socioeconomic status	Poor	68	19.77
	Middle	177	51.45
	Upper	99	28.78
Place of living	Rural	160	46.51
	Urban	184	53.49

In my study, frequency of urinary incontinence in reproductive age women was found to be 42.15% (Figure I) with mixed urinary incontinence in 53.79%, stress urinary incontinence in 33.10% and urge urinary incontinence in 11.03% women. My study showed incidence of urinary incontinence is 35.08% with BMI of 23-27.4, 50.98% with BMI of greater than or equal

to 27.5, this result has significantly showed the association of overweight and obesity with urinary incontinence.

Table 2 shows distribution of patients according to type of urinary incontinence, showing mixed urinary incontinence as highest type of incontinence. Table 3 shows comparison of frequency of urinary incontinence with BMI, .showing significant relationship to BMI.

Figure No.1: Frequency of urinary incontinence in reproductive age women (n=344)

Table No.2: Distribution of patients according to type of urinary incontinence (n=145)

Types	No. of Patients	%age
Stress	48	33.10
Urge	16	11.03
Mixed	78	53.79

Table No.3: Comparison of the frequency of urinary incontinence with BMI

BMI (kg/m²)	urinary incontinence		p-value
	Yes	No	
23-27.4	67 (35.08%)	124 (64.92%)	0.003
≥27.5	78 (50.98%)	75 (49.02%)	

DISCUSSION

Leakage of urine is a day to day issue and mostly a symptom of women after menopause. Patients are increasing yearly and lack of exercise may be a contributing factor.[9] Epidemiological studies conducted on UI show that the condition is 2-3 times more common in women[9], Urinary incontinence is observed in women of all ages .[9-11] Studies have shown that the range of its prevalence is high.[12] Similar conclusion has been given by studies conducted in Turkey.[9] Patients with this complaint usually present late as this condition is considered as a social stigma [13-14]

I have conducted this study to determine the frequency of urinary incontinence in reproductive age women and to compare frequency urinary incontinence with BMI. Age range in this study was from 18 to 49 years with mean age of 26.57 ± 5.19 years. Majority of the patients 278 (80.81%) were between 18 to 30 years of age. In my study, frequency of urinary incontinence in reproductive age women was found to be 42.15% with mixed urinary incontinence in 53.79%, stress urinary incontinence in 33.10% and urge urinary incontinence in 11.03% women. My study showed incidence of

urinary incontinence is 35.08% with BMI of 23-27.4, 50.98% with BMI of greater than or equal to 27.5, this result has significantly showed the association of overweight and obesity with urinary incontinence. A study showed incidence of urinary incontinence is 46.7% with BMI of 18.5-22.9, 63.6% with BMI of greater than or equal to 27.5, this result has significantly showed the association of overweight and obesity with urinary incontinence[5].

Several studies have reported the association of age with prevalence of UI.[14-19] In another study risk of Stress urinary incontinence was far higher than Urge urinary incontinence. [13] According to this study urinary incontinence gets higher with increasing age. According to different studies risk factors for incontinence is related to increased Body mass index, increasing parity, miscarriages, younger age at first pregnancy, removal of uterus, menopause, previous infections of urine, precipitating factors such as cough, straining at stool and certain medical condition such as DM .[14-18] Other studies reported mixed impact of these risk factors on urinary incontinence.[19-23]

Considering the height weight ratio irrespective of age and deliveries, according to one study showed that the stress urinary incontinence is two times more as compared to women with lesser BMI. The Study also concluded that stress incontinence has led to other psychological issue as well such as lack of interest, loss of sleep and other similar problems.[24]

Cummings JM[25] had similar conclusion regarding Body mass index as a contributing factor for stress incontinence.

CONCLUSION

This study concluded obesity has strong association with urinary incontinence. Sowe recommend optimization of BMI for prevention of incontinence in at risk patients as well as first strategy for management.

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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

Comparative Analysis of Anaemia & Hematological Biomarkers among Pregnant and Non-Pregnant Women in Karachi

Zubaida Masood[1], Fauzia Ali[2], Saiqa Rashid[2], Jarry Masood[3], Mataa-e-Masood[4] and Shagufta Perveen[5]

ABSTRACT

Objective: To compare iron deficiency and various haematological parameters in pregnant and Non-pregnant women.

Study Design: A quasi experimental study

Place and Duration of Study: This study was conducted at the Al-Tibri Medical College and Hospital and Karachi Medical and Dental College, between the duration of October 2020 to November 2021.

Materials and Methods: A total of 450 participants were screened for the study which comprises of One hundred and twenty-five pregnant women and one hundred and twenty-five Non-Pregnant women.

Pregnant women were enrolled who were reported the outpatient department OPD for their maternal care at ATMCH&H. Non-Pregnant Women were recruited from healthy population of ATMCH&H.

Results: Among 450 participants, it has been observed that 46% pregnant women were suffering from moderate anaemia following 41% severe anaemia and only 12 % mild anaemia. In contrast, the percentage of moderate to severe anaemic condition were found to be quite low (i.e. 1-8%) in non-pregnant women. Mild anaemic condition was observed in 25% of non-pregnant participants and 64% were found to be non-anaemic. The difference between these two groups were found to be statistically significant with P-value less than 0.05 (p<0.05).

Conclusion: Iron is influencing the medical condition of the pregnant and non-pregnant women therefore it should be supplemented in their daily diet to prevent the unwanted damages to the conceiving mother and its fetus.

Key Words: Anaemia, Pregnant women, Iron Deficiency, Iron supplements, Hematological parameters.

INTRODUCTION

Anaemia is a globally effected the population in developed and underdeveloped countries.

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It effects the adults, infants, old age and most importantly pregnant women and children of age less than 5 years old, hence leading cause of morbidity and mortality worldwide[1].

There are several types of anaemia out of which Iron Deficiency Anaemia (IDA) is most prevalent cause of anaemia. Research evidence that IDA is associated with high maternal morbidity and mortality among pregnant women with increased risk of adverse reaction to offspring. IDA is diagnosed by serum iron and serum ferritin concentration. WHO defines IDA as the Presence of ferritin <30 μg/L in serum. Hepcidin, a new marker which is also use for the diagnosis of anaemia during pregnancy [2,3]. The World Health Organization WHO describes mild, moderate and severe anaemia based on haemoglobin concentration which is <11.0 g/dL, <9.9 g/dL, and <7.0 g/dL respectively. Moreover, Hemoglobin (Hb) value <11.0 g/dL or Hct <33%, in pregnant women and Hb <12.0g/dL or Hct <36.0% in non-pregnant women are referred as anaemic [4].

Anaemia is diagnosed by the low number of Red Blood Cells (RBCs) and low concentration of haemoglobin or hematocrit (HCT) which consequently leads to the

impairing of oxygen transport capacity of RBCs. Thus adverse effect the peoples of all age group.

The factors associated with anaemia in women includes deficiencies of micronutrients especially iron, unhealthy diet, vitamin B12, folic acid and due to some chronic disease like HIV, Malaria, and parasitic infection of hookworm. Additional elements include differences in way of life, socio-demographic factors, sanitation conditions, and genetic susceptibility[5].

The complications of anaemia based upon the type and severity of anaemia which can cause multi adverse effects among pregnant and non-pregnant women. In pregnancy severe anaemia may cause shortness of breath due to low level of oxygen supply to RBCs, which can lead to impaired oxygen delivery to fetus, thereby resulting in premature and low birthweight of neonate and sometime cause abortion and intra uterine fetal death. According to a research, in low income countries anaemia attributes about 44%, 25% and 21% of premature birth, low birth weight and perinatal mortality respectively[6]. According to World Health Organization (WHO), Hemoglobin (Hb) value <11.0 g/dL or Hct <33%, in pregnant women and Hb <12.0g/dL or Hct <36.0% in non-pregnant women are referred as anaemic [6].

The aim of our study was to focus on the anaemic pregnant and non-pregnant women in the premises of Al-Tibri Medical College & Hospital (ATMC&H) and to determine the severity of the anaemic condition.

MATERIALS AND METHODS

Ethical Approval: The cross sectional study was conducted after ethical approval from concerned authority of Al-Tibri Medical College and Hospital, Isra University Karachi.

Study Design: This cross-sectional study was carried out over a period of 12 months from October 2020 to November 2021. This study was conducted at Al-Tibri Medical College and Hospital (ATMCH&H) & Karachi Medical and Dental College, Karachi. Pregnant women (less than 13 weeks of gestation) were recruited who were reported the outpatient department OPD for their maternal care at ATMCH&H. Non-Pregnant Women were recruited from healthy population of ATMCH&H. A total of 450 participants were screened for the study which comprises of One hundred and twenty-five pregnant women and one hundred and twenty-five Non-Pregnant women (Control). The sample size was calculated by using the formula with the margin error (E) of 5% and confidence level of 95%. The mean age of the participants was 25.18 ± 4 years.

Exclusion criteria: This include women who were not anaemic, taking any type of oral contraception medicine and breast-feeding mothers.

Collection of Sample: Blood samples from all participants were collected in EDTA tube. Approximately 2-3 mL of blood was drawn from both pregnant and non-pregnant women and were analysed for haematological parameters on fully automated blood cell counter SYSMEX XE-200 & SYSMEX XE-100.

Data Analysis: All data were analysed by using statistical software SPSS version 20.00. Mean, standard deviation and significant differences between the groups were determined by paired t-test and one-way ANOVA. The p $\leqslant$ 0.05 was considered as statistically significant.

RESULTS

In our study, 44% participants belong to age group of 25 to 29 years, 34% belong to age group 19 to 24 years and only 20% belong to 30 to 34 years of age group as showed in Table 1.

Following WHO guideline, we categorized the anaemic women into three groups (Mild, Moderate, and severe) according to severity of anaemia. The classification was made in order to find out the severity of anaemic condition in our population. We analysed that 46% pregnant women were suffering from moderate anaemia following 41% severe anamia and only 12 % mild anaemia as showed in Table 2.

In contrast, the percentage of moderate to severe anaemic condition were found to be very low (i.e. 1-8%) in non-pregnant women. Mild anaemic condition was observed in 25% of non-pregnant participants and 64% were found to be non-anaemic in our study as showed in Table 3.

The mean hemoglobin concentration of pregnant participants were found to be low (9.12 ± 0.23 g/dL) in comparison to non-pregnant women (13.22 ± 0.24 g/dL) with low hematocrit concentration $31.33 \pm 0.23\%$ and $37.23 \pm 0.21\%$ in pregnant and non-pregnant women. Moreover, decreased RBCs 3.01 ± 0.11 $X10^{12}/L$ and increased Total white blood cells (TWBC) 11.5 ± 0.35 $X10^{9}/L$ were also observed in pregnant women. The difference between these two groups were found to be statistically significant with p-value less than 0.05 (p<0.05).

Table No.1: Distributions of participants on the basis of age

Age Group	Number of Subjects	age (%)
19-24	155	34.44%
25-29	201	44.66%
30-34	94	20.8%
Total	450	

Table No.2: Status of Anaemia among pregnant women

Anaemic Condition	Number of subjects	Percentage (%)
Mild	28	12.44%
Moderate	104	46.22%
Severe	93	41.33%
Total	**225**	

Table No.3: Status of Anaemia among Non-pregnant women

Anaemic Condition	Number of Subjects	Percentage (%)
Non-Anaemic	145	64.44%
Mild	57	25.33%
Moderate	19	8.44%
Severe	4	1.77%
Total	225	

Table No.4: Hematological parameters of pregnant and Non-pregnant participants

Parameters	Unit	Pregnant Women Mean ± SD	Non-Pregnant Women Mean ± SD	p-value
Hb	g/dL	9.12 ± 0.23	13.22 ± 0.24	<0.045
RBC	$X10^{12}$/L	3.01± 0.11	4.11± 0.05	<0.05
HCT	%	31.33± 0.23	37.23± 0.21	<0.045
MCV	fL	75.23± 0.45	82.20± 0.03	<0.05
MCHC	g/L	22.10± 0.16	30.12± 0.11	<0.04
WBC	$X10^{9}$/L	11.5± 0.35	10.31± 0.17	<0.05
Platelet Count	$X10^{9}$/L	175.25± 0.12	325.21± 0.019	<0.05
Neutrophil	%	51.45±0.21	61.12±4.08	<0.05
Lymphocyte	%	25.12±0.32	29.091.03	0.056
Eosinophil	%	04.12±0.02	05.34±0.09	0.062
Monocyte	%	03.04±0.001	01.01±0.001	0.067
Basophil	%	00	01	0.092

Table No.5: Haematological parameters of pregnant women according to their 1st, 2nd and 3rd trimester

Parameters	Unit	1st trimester Mean ± SD	2nd trimester Mean ± SD	3rd trimester Mean ± SD
Hb	g/dL	8.22 ± 0.16	9.22 ± 0.26	10.06 ± 0.22
RBC	$X10^{12}$/L	4.51± 0.11	4.11± 0.07	5.01± 0.02
HCT	%	27.21± 0.23	28.02± 0.11	29.45± 0.23
MCV	fL	65.10± 0.15	66.20± 0.21	69.57± 0.24
MCHC	g/dL	27.34± 0.16	27.95± 0.01	28.37± 0.18
WBC	$X10^{9}$/L	10.5± 0.35	11.3± 0.11	12.5± 0.35
Platelet Count	$X10^{9}$/L	215.66± 1.38	185.11 ± 1.23	223.26± 1.33
Neutrophil	%	51.11±0.27	59.66±4.08	62.54±0.21
Lymphocyte	%	21.23±0.32	29.25±1.03	30.26±1.07
Eosinophil	%	03.20±0.02	04.19±0.05	04.56±0.04
Monocyte	%	03.10±0.001	02.01±0.001	02.02±0.002
Basophil	%	01.01±0.001	01.02±0.001	01.00±0.001

DISCUSSION

In our study we have used multiple hematological markers to compare the anemia between pregnant and non-pregnant participants. Our results shows slight recovery of iron deficiency anemia among pregnant women after taking constantly prescribed supplements and healthy diet. It was also observed in our participants that majority of them belong to low income family.

The non-pregnant women were found to be healthier with normal hemoglobin concentration in our study and sever anaemic condition were observed only in 1% whereas majority of participants were non-anaemic.

Daily supplement of iron in pregnancy is highly recommended to compensate the insufficient intake of iron from regular diet. For this purpose, iron rich food is the first choice then iron supplements such as iron-sulfate, gluconate and fumarate is given orally[7]. As this supplements are administrated at high doses, triggers some undesirable effects mainly associated with gastrointestinal distress (abdominal pain, vomiting, nausea, diarrhea, constipation, loss of appetite) which ultimately promote oxidative stress and undesirable changes in gut microbiome profile[8]. It may also increase the risk of severe systematic measures like low birth weight neonates, premature delivery and cognitive defects in newborns[9].

According to a study carried out in Abbottabad, the iron deficiency anemia affects about 68% people out of which female is more common [10].

A report is published by World Bank on anemia in which they stated that "Anemia prevalence decreases in women with the income in every region or country". They also explained the prevalence of anemia, which is twice high in poorest as compared to richest [11]. Iron supplements are necessary for all pregnant women and it should be prescribed according to need. Access to good health care facilities in developing countries helps out in early diagnosis of anemia and its prophylaxis. Moreover, it is also necessary to check hemoglobin concentration 2-4 weeks after initial dose of iron supplements and should keep continued for at least 6 months after recovery of iron concentration to normal[12].

According to Pakistan National Nutrition Survey (NNS 2018), the prevalence of anaemia has been continuously increasing since 2001 to 2011 and then declined in 2018 with the rose of 50.9% to 61.9% and 53.7% respectively. According to this survey anaemia was also common in productive age of non-pregnant women [13].

Globally anaemia affects about two-third pregnant women in developed countries. Moreover, in South East Asia about 41.9% of reproductive age women suffer from anaemia, followed by Eastern Mediterranean and African regions [14]. More than half of Pakistani population of women (i.e.51%) were found to be anaemic. The ratio of anaemia were found to be low in non-pregnant women of reproductive age [15, 16].

CONCLUSION

Anaemia is one of the most important public health concern among pregnant women. There are multiple factors such as low socioeconomic status, and diet that influence the iron deficiency in women of reproductive age group. For this purpose early diagnosis and iron supplements play an important role to prevent deleterious effect of anaemia.

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Original Article

Frequency of Overactive Bladder and its Associated Risk Factors among Women of Reproductive Age

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ABSTRACT

Objective: We aimed to assess the prevalence of overactive bladder among women of reproductive age in our set-up. We also sought to establish its association with the commonly recognized risk factors of age, high BMI and multiparty.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the out-patient department of Obstetrics and Gynaecology Unit 1 of Dr. R K Pfau Civil Hospital Karachi from August 2019 to February 2020.

Materials and Methods: Women were included if they experienced any signs/ symptoms of urinary frequency, urgency, or incontinence. To make a diagnosis of overactive bladder, detailed clinical history and examination were followed by blood and urine investigations and a pelvic ultrasound to rule out alternative diagnoses. Chi square test was run to assess the relation between overactive bladder and risk factors such as BMI , parity, and age. A P value of <0.05 was considered significant.

Results: The mean age of 171 women was 30.7±7.8 years and 55.5% of them were multiparous. Overactive bladder was diagnosed in 38.6% presenting with urinary frequency (48.5%), urgency (50.3%), and nocturia (10.5%). We found no significant association between the occurrence of overactive bladder and advancing age, multiparty or high BMI.

Conclusion: Overactive bladder is frequently encountered among women of reproductive age who are experiencing any urinary signs or symptoms. Further risk factors should be explored in our population. It is pertinent to specifically enquire about such symptoms in every parous woman attending a gynaecology clinic so that lifestyles modifications and management could be advised accordingly.

Key Words: Overactive bladder, urinary frequency, urgency, urge incontinence, urogynaecology

INTRODUCTION

Symptom-free urination and complete control over urinary continence are crucial to one's genitourinary, psychological, social, and sexual health. The International Continence Society (ICS) defines overactive bladder as urinary urgency with or without urge incontinence, which is usually accompanied by symptoms of urinary frequency and nocturia.

These symptoms, however, should occur in the absence of a urinary tract infection or other obvious

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pathology.[1] The hallmark of this condition is urgency characterized by a sudden, difficult to deter desire to void.[2]

The prevalence of overactive bladder ranges widely across epidemiological studies from as little as 3% to as high as 43%.[3] Among women of reproductive age, the prevalence has been estimated at 12.7%.[4] Despite the high prevalence, the symptoms are often under-reported, and many women continue to suffer silently while adapting their lives according to their inconvenient urination schedules.[5] Although advancing age has historically been listed as a risk factor for overactive bladder,[6] younger women of reproductive age are not entirely free from such bothersome symptoms. The process of childbirth puts them at risk of both overactive bladder and stress incontinence particularly after vaginal delivery.[7]

Overactive bladder adversely affects women's quality of life. The urgent desire to void at socially inconvenient times makes both employment and routine activities difficult. This puts them at undue stress and thus, impacts their mental health. Such women also report worsening of their sexual health and relations.[8]

Recurrent episodes of waking up at night to urinate can also lead to sleep disturbance and chronic fatigue.[9]

In our study, we aim to identify the frequency of overactive bladder among women of reproductive age who present with urinary symptoms in our out-patient department. We also wish to highlight any associations between the symptoms and other risk factors such as parity, age, and BMI. All these factors are hypothesized to weaken the pelvic floor. Increasing age and high parity may even adversely affect the nerves responsible for innervating the bladder and pelvic floor, thus, contributing to the problem.[6,10] We believe estimation of the condition's prevalence and identifying any important risk factors will help us gauge the magnitude of the problem. It will also help in addressing any modifiable risk factors and devising lifestyle modifications and treatment approaches accordingly.

MATERIALS AND METHODS

This cross-sectional study was conducted in the out-patient clinic of the department of Gynaecology and Obstetrics Unit I of Dr. R. K. Pfau Civil Hospital Karachi. Permission to conduct the study was granted by the College of Physicians and Surgeons, Pakistan (Ref no: CPSP/REU/OBG-2017-183-8405; REU no: 40235). Women were included if they were in the reproductive age group and had an age ranging from 16-45 years. Inclusion criteria included sexually active/ married women irrespective of their parity and the presence of one or more symptoms attributed to overactive bladder. Women suffering from any cardiovascular or neurological disorder and those who reported a prior use of diuretic based on history and medical records were excluded from the study. Women who were currently pregnant were also excluded.

The study lasted for six months from August 2019 to February 2020. The sample size was estimated at 171 by using the WHO sample size calculator. This was calculated by taking the prevalence of overactive bladder at 12.7% with a margin of error of 5%, confidence interval of 95%.[4] Participants were selected via non-probability consecutive sampling and upon acquisition of informed verbal consent, information was recorded in pre-designed proformas by the investigators themselves.

Data was collected regarding the women's age, BMI, parity, and a detailed medical history was also recorded which included their past medical and surgical, family, and personal details. Their menstrual and obstetric histories were also noted. Questions were asked about their urinary complains such as urgency, frequency, and nocturia. Baseline investigations such as complete blood profile, urine detailed report and urine culture and sensitivity were sent. Ultrasound pelvis was also performed, and the results of all investigations were noted. A diagnosis of overactive bladder was made if the women suffered from any of the urinary symptoms either alone or in combination, and a urinary tract infection and other obvious pathologies were excluded via blood and urine investigations and pelvic ultrasound.

Data was entered in SPSS version 22 and analyzed. Mean and standard deviation was calculated for numerical data such as age weight, BMI, and parity. Frequency and percentages were reported for categorical variables such as urinary symptoms. Comparisons between symptoms and risk factors were drawn via the Chi square test. P-value of ≤ 0.05 were considered statistically significant.

RESULTS

Our study analysed 171 women who presented with symptoms of frequency, urgency and nocturia either alone or in any combination. The avareage age of the participants was 30.7 ± 7.8 years. The mean BMI was 24.18 ± 3.86 kg/m^2. Out of 171, 55.7% (n=95) were multiparous while the remaining 44.4% (n=76) were primiparous.

The complaint of urinary frequency was found in 48.5% of the participants (n=83) while 50.3% (n=86) reported urgency and 10.5% (n=18) reported the presence of nocturia. In our sample of reproductive aged women, the frequency of overactive bladder, thus, came out to be 38.6.% (n=66). Table 1 shows the association of risk factors with overactive bladder. We could not reveal any significant associations between the frequency of overactive bladder and high BMI, multiparity, or increasing age.

Table No.1: Association of risk factors with overactive bladder

Risk Factors	Overactive Bladder		p-value
	Yes n(%)	No n(%)	
Age (in years) 35-45 <35	26 (40.6) 40 (37.3)	38 (59.4) 67 (62.6)	0.673
BMI (kg/m2) ≥ 25 <25	33 (46.5) 33 (33)	38 (53.5) 67 (67)	0.074
Parity Multiparous Primiparous	40 (42.1) 26 (34.2)	55 (57.9) 50 (65.8)	0.292

DISCUSSION

Our study revealed a relatively high frequency of overactive bladder (48.53%) in women presenting with urinary symptoms. A net prevalence of 12.8% was reported among women in Europe and Canada [11]. Variable frequencies have been reported at 16.9%, 26.8%, and 2.69% in the United States, Korea, and Spain, respectively. [12-14] However, in our set-up, these numbers are expected to be under-represented because

many women find urinary symptoms embarrassing to discuss with their physicians [15].

We attempted to find any association between overactive bladder and three major risk factors including age, parity, and BMI. However, we failed to demonstrate any significant association of overactive bladder with either of the three variables. This presents a striking contrast to several published works. The mean age of our sample was 30.7±7.8 years and age above 35 years was not associated with increased prevalence of overactive bladder. The average age of women with overactive bladder was comparable to another study by Kim et al. who reported a mean age of 26.4±4.8 years. [4] A meta-analysis also demonstrated an association between increasing age and overactive bladder.[10] Our study, however, failed to demonstrate the same results. Although age-related changes in bladder and pelvic floor tissues along with changes in the nervous control of urination contribute to the high prevalence of overactive bladder in elderly women [5], these mechanisms might not be responsible for causing overactive bladder in reproductive age women. Advancing age brings with it an additional risk of osteoporosis and thus, fractures which may occur on falling while immediately rushing to void. [16] However, the protective effects of oestrogen in the reproductive age group might mitigate the risk.

Several factors lead to the development of urinary symptoms after childbirth. They may take the form of stress incontinence, urgency or urge incontinence. Weakening of the pelvic floor, damage to bladder nerves, displacement of urinary organs from their pre-pregnant location and traumatic/ operative vaginal delivery all may be implicated either alone or in combination. [17] The number of deliveries and its role in development of overactive bladder, however, is not well defined. A meta-analysis failed to demonstrate any significant association between parity and development of overactive bladder. [10] Our results also attest to the same observation. Slightly more than half of the women in our study were multiparous while the rest were primiparous in our study.

With the improvement in living standards and an increasing trend of adoption of an unhealthy lifestyle, there is an increase in the prevalence of obesity in our population. Female gender and marriage, both are independently associated with a high BMI in our population.[18] While elevated BMI increases the risk of several medical conditions such as metabolic syndrome, cardiovascular diseases, diabetes mellitus, polycystic ovarian syndrome etc, it is also known to increase the frequency and symptom severity of urogynaecological issues. These include pelvic organ prolapse, urgency, and interference with continence. [19] High BMI leads to increased intra-abdominal and intra-vesical pressures which may chronically stretch the pudendal nerves and lead to nerve injury. This contributes to pelvic floor

dysfunction. [19] Additionally, diabetes, a frequent comorbidity seen with obesity, can also contribute to autonomic neuropathy and ultimately, the onset of overactive bladder. [20] However, we failed to identify any significant association between BMI and overactive bladder frequency.

In the light of our findings, we believe that overactive bladder can also be seen in a substantial number of women who are of young age, primiparous, and have a low/ normal BMI. This necessitates further research to investigate the risk factors for overactive bladder in our population so the women at risk could be identified in time. We also believe that given the high prevalence of the condition and the tendency to go unnoticed, questions about urinary issues should be asked during history taking of patients irrespective of the primary complaint. This will surely give us a chance to identify and help all women who are suffering in silence and improve their quality of life.

CONCLUSION

Overactive bladder is frequently encountered among women of reproductive age who are experiencing any urinary signs or symptoms. Further risk factors should be explored in our population. It is pertinent to specifically enquire about such symptoms in every parous woman attending a gynaecology clinic so that lifestyles modifications and management could be advised accordingly.

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The Significance of ADA Level among the Suspected Tuberculosis Cases, Experience at a Tertiary Care Teaching Hospital, Lahore

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ABSTRACT

Objective: To determine the significance of ADA activity in combination with differential cell count (WBC) and other biochemical variables (Lactate dehydrogenase (LDH), Erythrocyte sedimentation rate (ESR), Proteins).

Study Design: descriptive cross-sectional study

Place and Duration of Study: This study was conducted at the Pathology department of Shalamar Teaching Hospital, Lahore from March, 2017 till February, 2020.

Materials and Methods: A total of 352 samples from patients of all ages and both genders were included in which either pleural, ascetic or other sterile body fluids (3cc each) were examined. ADA level of $\geq$ 40 units/mL was deemed suggestive of TB and measured by the spectrophotometric method.

Results: Among 352 patients, the mean age was 51.9±18, with equal male female ratio. ADA level $\geq$ 40 units/mL was noticed in 35.51% samples. Positive correlation of ADA with LDH (.472), ESR (.195) and WBC (.240). Positive correlation of LDH with lymphocytes (.194) and Negative correlation with polymorph leucocytes (-.190). Lymphocytic Neutrophil ratio was 0.19 with SD of 24.5.

Conclusion: Tuberculosis is the widespread infectious disease especially in low-income and under-developed countries. In tuberculous pleuritis ADA level of $\geq$ 40 U/mL in lymphocyte-predominant effusions makes the identification of tubercle bacilli more credible. This method shows positive correlation of ADA with other biochemical factors as well. This efficient test is easy to perform with rapid turnaround time for diagnosis of tuberculosis.

Key Words: Adenosine deaminase enzyme (ADA), Lactate dehydrogenase enzyme (LDH), Tuberculosis.

INTRODUCTION

Tuberculosis (TB) known as a global health challenge (threat), accounting for the 10 leading causes of mortality in lower and lower-middle income countries[1]. One out of four healthy individuals carry Mycobacterium tuberculosis (MTB) in their body; and about 5-10% of carriers have a life time risk of

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converting into active disease. In 2019, World Health Organization estimated 10 million people including children acquired the active disease and 1.4 million died of it[2, 3]. Pakistan is among the 8 countries with the highest burden of TB and among the top 5 who have the largest gap between the actual disease and the reported cases. Improved access to diagnosis and treatment and intensified efforts to reduce under-reporting are required to bring the disease under control and meet 2025 and 2030 targets of "End TB Strategy" and "Sustainable Development Goals"[4, 5].

Timely diagnosis and treatment play a pivotal role in monitoring of TB. Although, culturing the MTB or a positive PCR from sputum or other specimens is considered the gold standard for diagnosis but these facilities are not available to majority of patients in Pakistan. Alternative methods include chest radiology, AFB smear examination and raised ESR in a suspected case but the sensitivity and specificity of these investigations for a definitive diagnosis are limited[6].

Adenosine Deaminase (ADA) enzyme, converts Adenosine to Inosine. Its levels is also increased in TB in which cellular immune response is stimulated[7]. The

activity is high not only in the serum but also in the other body fluids which may accumulate in patients suffering from Tuberculous Effusions. Although, qualitative Polymerase Chain Reaction (PCR) and biopsy are used for definitive diagnosis of TB in these situations but they are neither widely available nor pocket friendly in Pakistan nor other developing countries. One of the hindrances in controlling TB in low socioeconomic countries is the absence of well-timed and suitable diagnosis. Knowledge of ADA activity is helpful for the early detection of tuberculosis since the results are accessible within 24 hours and they allow for the timely initiation of anti-tuberculous medication to improve patient outcome[5,6]. We conducted this study to establish a correlation between raised ADA levels in body fluids along with raised Erythrocytes Sedimentation Rate (ESR) and a relative or absolute peripheral and/or fluid lymphocytosis, and subsequently revise our institutional guidelines for the initiation of anti-TB therapy in such patients.

MATERIALS AND METHODS

It was a single center health care descriptive cross-sectional study done in Shalamar Teaching Hospital, Lahore. Approval for the study was taken from the Institutional Review Board of hospital (SMDC/IRB/02-11/067).

Inclusion Criteria: All age groups and both genders Patients presenting with pleural, pericardial or ascitic effusion in whom TB was suspected and ADA levels were included.

Exclusion Criteria: Repeated hospital visits during study period to avoid duplication Patients already on Anti-TB therapy and fluid positive for malignant cells.

The data was collected retrospectively from the electronic medical records of patients. Three hundred and fifty-two patients' records between 1st March 2017 and 28th February 2020 were reviewed in which either pleural, ascitic or other sterile body fluids were sent for examination. All ages and both genders were included. ADA level of ≥ 40 units/mL was deemed suggestive of TB. Pleural fluid ADA was assessed by the spectrophotometric technique described by Giusti and Galanti[8].

Statistical Analysis of data was done by using SPSS version 22. Quantitative variables i.e., percentages and frequencies were used for categorical variables. Mean and SD (standard deviation) were used for describing continuous variables. Pearson correlation (2-tailed) was used for describing correlation between ADA and other variables. Statistically, P-value of <0.05 was regarded to be significant.

RESULTS

Three hundred and fifty two (352) patients with male female ratio of 1:1(176 male and 176 females) was included, with Mean age of 51.9±18. (Minimum age 13-year and maximum age 94 years). The positive correlation of ADA with other variables is given in Table 1. Lymphocytic Neutrophil ratio was 0.19 with SD of 24.5.

Table No.1: Pearson correlation of ADA (N=352)

Correlation N=352	ADA	LDH	LYMPHOS	POLYMORPHS	ESR	WBC
ADA	1	.472**	.047	-.041	.195**	.240**
LDH	.472**	1	.194**	-.190**	.287**	.284**
LYMPHOS	.047	.194**	1	-.983**	.077	.335**
POLYMORPHS	-.041	-.190**	-.983**	1	-.064	-.326**
ESR	.195**	.287**	.077	-.064	1	.062
WBC	.240**	.284**	.335**	-.326**	.062	1

**correlation is significant at the 0.01 level (2-tailed)

Table No.2: Showing Biochemical parameters, ADA levels and cell count

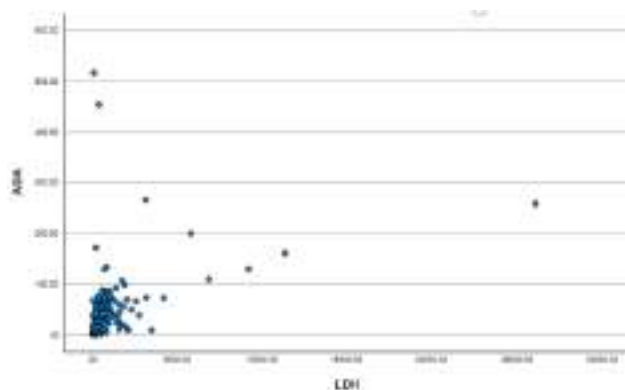| Pleural fluid parameter	Tuberculous	Non-tuberculous	p-value
ADA IU/L	82.3±74.76	12.04±9.79	.003
LDH U/L	1616.77 ± 4029	268±402.22	.14
Protein g/dL	5.86±7.08	3.51±11.83	0.00
Cell count cells/mL	2024 ± 3035.77	739.3 ± 1793.48	0.91

Figure No.1: Coefficient of correlation between ADA and LDH in tuberculous effusions (N=352)

ADA shows positive correlation with LDH, ESR and WBC; while LDH shows negative correlation only with polymorphs but positive correlation with rest of the variables. Lymphocytic Neutrophil ratio is 0.19 with SD of 24.5.

Biochemical parameters (LDH U/L and protein g/dL), ADA levels and cell count in pleural effusion of tuberculous and non-tuberculous studied cases is presented in Table 2.

Graphical correlation of ADA and LDH is given in Figure 1.

DISCUSSION

Pleural fluid ADA level has to be interpreted with other chemical and cytological parameters for early diagnosis and management. The ADA assay is suitably quick, cheap and non-invasive method for estimation of tuberculous effusions. Currently, the disease burden is still challenging due to delayed culture results and non-affordability of molecular testing in most of the settings[3, 7].

Two national studies by Rasheed et al, has indicated 40% and 68.74% frequency of tuberculous effusion with high level of ADA[10, 11]; while studies from other regions have given different frequencies[12, 13]. Our data (35.51%) uniquely represents an urban population residing in thickly populated low-income areas. Beukes has documented ADA and LDH ratio to be of diagnostic value for management of tuberculous effusions[14].

L/N ratio >.75 is a diagnostic criterion for tuberculous effusion along with high ADA level. Jha et al; and Joseph and Hemamalini have positive correlation of ADA with LN ratio[9, 12]. In our study, 35% cases had L/N ratio >0.75 evaluation of patient with tuberculous effusion. It was concluded that ADA when combined with differential cell count remains a useful test in diagnosis of TB similar to our study[13]

Similarly, studies have shown fairly positive correlation between ADA, LDH, absolute lymphocyte count, ESR and WBCs; as seen in our study (p-value <.05). Negative correlation was found between ADA and polymorphs, which is also in concordance with other studies[14, 15].

CONCLUSION

Tuberculosis is the widespread infectious disease especially in low-income and under-developed countries. ADA level of ≥ 40 U/mL in lymphocyte-predominant effusions makes the identification of mycobacterium tuberculosis more credible. This test is adopted as a quick low-cost tool with rapid turnaround time for diagnosis of tuberculosis. ADA estimation is recommended in all patients suspected of tuberculous effusions with exudative lymphocyte predominance. ADA estimation done in conjunction with TLC/DLC is a reliable tool for the diagnosis and start of therapy in suspected TB cases.

Limitations of the Study: ADA level estimation was done along with LN ratio, LDH, and cell count. Positives cases in our study were not confirmed by gold standard, nucleic acid amplification testing (PCR) due to financial constraints. In the absence molecular testing, this proves to be cost effective rapid technique for diagnosis and early treatment of Tuberculosis.

Author's Contribution:

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Original Article

Perspectives Towards Life among the Survivors of Oral Cancer Patients

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ABSTRACT

Objective: To identify the psychosocial problems faced by oral cancer survivors and to assess their health-related quality of life.

Study Design: descriptive Cross-Sectional study

Place and Duration of Study: This study was conducted at the Nuclear Institute of Medicine and Radiotherapy Jamshoro, from Nov 2017 to Feb 2018.

Materials and Methods: Patients above 18 years of age successfully treated for Oral Cancer were included by Non probability convenience sampling. Level of anxiety and depression was accessed by using the Diagnostic and Statistical Manual of Mental Disorders (IV codes). Data was analyzed by using SPSS version 24.

Results: According to the data anxiety outcome was divided in 05 grades. Moderate anxiety was very common in participants (47.2%), mildly anxious were (31.2%), severe anxiety in (14.4%) and (0.8%) were extremely anxious, remaining (6.4%) shown no anxiety. Regarding HRQOL (40.8%) survivors reported to have good HRQOL as they had full family/friends support, (48.8%) survivors responded an average HRQOL as they had partial family/friends support, and (10.4%) survivors were having very poor quality of life as they had meager support.

Conclusion: It was concluded in our study that almost all patients experience psychological issues after treatment of Oral Cancer. Special care and attention is required to them, continues counseling and support can help in improving quality of life.

Key Words: Oral cancer, anxiety, depression, quality of life, HRQOL

INTRODUCTION

Oral cancer is a development of malignant cells in any portion of the oral cavity, including the lips, tongue, tough and soft palates, salivary glands, cheeks lining, mouth or tongue ground, gums and teeth.[1] Smokeless tobacco such as ghutka, betel nuts, paan and numerous brands of tobacco and alcohol consumption are anticipated to account for about 90% of buccal cancers. Numerous patients of pharyngeal and oral cancer experience disfiguring surgery, injury to dental

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function, and increased acute and early toxicity arising from extra antagonistic multimodal therapy regimens.[2] According to World Health Organization (WHO) oral squamous cell carcinoma (OSCC) is the eighth most commonly occurring cancer around the globe and presents a challenging situation for developing countries.[3,4] As compared to developed countries, oral cancer is very prevalent in developing countries, the main reason are poverty, unemployment, lack of knowledge and poor health services. Male ratio is higher than female in Pakistan.[5]

Quality of life is highly affected by these complications, survivors face treatment procedures that may produce late effects that harmfully upset quality of life.[6,7] Limited cancer treatments are free of risks and furthermost survivors face long-term antagonistic consequences of treatment.[8] Nevertheless, there are still serious gaps in our understanding of late effects, solely in understood cancers of elderly people, advances in our latest cancer survival studies.[9] As per DSM-IV-TR (2000), the signs of anxiety are bad mood, disruption of desire, difficulty in reasoning, sense of worthlessness and guilt, recurrent ideas of death or suicide, psychomotor retardation or awareness, sleep disruption and lack of enjoyment or participation in normal operations.[10]

MATERIALS AND METHODS

Study Setting: This Descriptive Cross-sectional study was conducted in Nuclear Institute of Medicine and Radiotherapy (NIMRA) Jamshoro, Pakistan in six months duration from November 2017 to February 2018. Sample Size was calculated according to the prevalence of Oral cancer in Pakistan, which was 8.9% using 95% confidence interval, 5% margin of error. The calculated sample size was 125 using the non-probability convenience sampling.

Inclusion criteria
1. Those patients who are successfully treated for oral cancer.
2. Those who were willing to participate in study.
3. Those who are above 18 years of age.

Exclusion criteria
1. Those patients who are currently under treatment.
2. Those who are not willing to participate in study.
3. Those who are below 18 years of age.

Data Collection Procedure: The oral cancer survivors visited for follow up at NIMRA, fulfilling the criteria were included in this study. After taking written consent the information were gathered on the pre-designed questionnaire. Level of Anxiety and Depression was determined by ranking graph, using the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV codes) and score was recorded and severity of anxiety was calculated for each individual.

Data Analysis Procedure: The data was analyzed in version 24 of the Statistical Package for Social Sciences (SPSS). For categorical variables, frequency and percentage were calculated. The data was formulated through Graphs and Charts.

RESULTS

Total 125 participants were studied, majority of subjects were between the age of 35 to 50 years (46.4%) and > 50 years were (27.2%). All male were participants of the study and (88.8%) of them were married. (59.2%) participants were from urban setting and remaining (40.8%) were from rural areas. Majority of participants were (50.4%) were graduates, followed by (24.0%) had secondary level education. Middle and lower socio-economic class was common (56.8%) and (41.6%) respectively. Out of all cases (48.0%) patients were labor by occupation, (44.0%) were skilled / professional and (8.0%) were employed.

According to our data family support after treatment was important variable (60.8%) were living with joint family and (39.2%) were living separate. And it was noted that (40%) were well supported by their family, (36.8%) were good supported and remaining (23.2%) responded poor or no support from family.

The above table shows the addiction of participants and almost all participants were addicted to smoking or Gutkha or pan. (80.8%) were smokers and (19.2%) were nonsmokers. In addition to smoking (69.6%) were Gutkha chewer, (29.6%) were pan chewer and (0.8%) were eating Naswar.

The above table shows the level of anxiety in the subjects after recovery and Health Related Quality of Life. Moderate anxiety was very common in participants (47.2%), mildly anxious wore (31.2%), Severe anxiety was seen in (14.4%) participants and (0.8%) were extremely anxious. Only 08 (6.4%) participants responded that there was no anxiety at all. Out of 125 respondents, 61 (48.8%) oral cancer survivors quality of life was average as they had partial support by family members, relatives and friends in terms of care, social and financial support, whereas, 51 (40.8%) survivors were reported to have good quality of life as they had full cooperation by above said caregivers. Moreover, only 13 (10.4%) survivors were having poor quality of life as they had meager support.

Table No.1: Socio-demographic data of the 125 subjects participated in the study (n=125).

Variable		No. of Cases	Frequency %
1. Age of the Subjects (In years)			
	20 to 35	33	26.4%
	36 to 50	58	46.4%
	>50	34	27.2%
2. Gender of the Subjects			
	Male	125	100.0%
	Female	00	00
3. Marital Status of the Subjects			
	Married	111	88.8%
	Unmarried	14	11.2%
4. Residence of the Subjects			
	Urban	74	(59.2%)
	Rural	51	(40.8%)
5. Educational status			
	Primary	23	18.4%
	Secondary	30	24.0%
	Graduate	63	50.4%
	Post graduate	9	7.2%
6. Socioeconomic status of the subjects			
	Lower Class	52	41.6%
	Middle Class	71	56.8%
	Upper Class	2	1.6%
7. Occupation of Subjects			
	Labor Class	60	(48.0%)
	Skilled persons	55	(44.0%)
	Professional Employed	10	(8.0%)
	Unemployed	0	0

Table No. 2: Family structure and Support factor of the subjects (n=125)

Family structure		Frequency	Percentage
	Joint	76	60.8%
	Nuclear	49	39.2%
No. of persons in family			
	2-4	6	4.8%
	5-7	54	43.2%
	8-10	56	44.8%
	>10	9	7.2%
Family support			
	Very supportive	50	40.0%
	Supportive	46	36.8%
	Not Supported	29	23.2%

Table No. 3: Smoking Habits / Addiction of participants (n=125)

Smoking / Addiction		Frequency	Percentage
Smoking habit			
	Yes	101	80.8%
	No	24	19.2%
Chewing habits			
	Gutkha	87	69.6%
	Pan	37	29.6%
	Naswar	1	0.8%

Table No. 4: Patient distribution according to anxiety score and Quality of Life (n=125)

	Anxiety score of respondent	Frequency	Percent
1	No Anxious	8	6.4%
2	Mild Anxious	39	31.2%
3	Moderate Anxious	59	47.2%
4	Severely anxious	18	14.4%
5	Extremely anxious	1	0.8%
	Total	**125**	**100.0%**
	Quality of Life Status	**Frequency**	**Percentage**
1	Good	51	40.8%
2	Average	61	48.8%
3	Poor	13	10.4%
	Total	**125**	**100.0%**

DISCUSSION

In this study, most of individuals i.e. 46.4% patients with oral cancers were reported in age group of 36-50 years. Most of the cases had middle and poor socioeconomic status 56.8% and 41.6% respectively. 80.8% had smoking habits and 19.2% were without smoking history. As compared to this study, Khan MH et. al.[20] indicated that oral cancer is believed to be a disease of about 50 to 70 years of old age group, but as a result it can happen in quite younger era without any possible risk factors being missing.

In our study it was also clear that all participants were male because in Pakistan, as males are exposed to more risk factors of the oral cancers because they smoke more as compared to females Sherin N et al, reported in their results that males are more affected by oral cancers as compared to females.[21]

Distress has become increasingly recognized as a factor that can reduce the quality of life of cancer patients. In this study, according to the perceptions regarding anxiety 53.6% patients had sudden feeling of penics, 32.0% felt lonely, 92.2% had worrying thoughts, 44.8% had a crying spell, 41.6% felt restless, 15.2% had not good relation their relatives. Wu YS et al got similar observation as regards to anxiety and depression in head-and-neck cancer patients. He stated that cancer patients suffered from anxiety and depression[22].

Results of this study had showed that according to assessment of depression 74.4% had little interest or pleasure in doing things, 66.4% had feeling of tired, 78.4% can't feel cheerful most of my time, 3.2% have lost interest in my appearance. In comparison to present results, a study conducted by Larsen J et al reported that Symptom occurrence, their intensity and symptom distress has been studied from time of admission to discharge in their patients. Their results suggested that symptom occurrence followed a curve where highest frequency of symptoms was noted from the day of transplant to the end of protective care period. These included tiredness, loss of appetite, dryness of mouth, nausea and sleep disturbances. Most importantly patients reported to have anxiety at the beginning were found to have higher anxiety at the end.[23]

CONCLUSION

Patients suffering from oral cancer passes through different long term treatment procedures and this give rise to rapid change in lifestyle pattern which also affect quality of life. The results of this study indicate that oral cancer survivors face and pass through different phases of psychosocial challenges such as lack of family support and cooperation for day to day needs, financial support, which by the passage of time increases and leads to anxiety and depression ultimately compromising the quality of life of oral cancer survivors.

The study concludes that non availability of counselling, social and financial support services for oral cancer survivors lead to more psychosocial adverse factors leading to the negative thoughts and tendency to suicides which increases with the passage of time in such patients and survivors. Therefore, focused & timely addressing such challenges during and after treatment of oral cancer survivors can help them in improving and prolonging their life.

Recommendations: Larger sample size studies should be conducted. Strategies should be developed for complete management and to support the poor patients.

Psychologists should be involved in the management to counsel them to reduce the depression and anxiety, which can help patients to improve quality of life.

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Original Article

Evaluation of Treatment Methodologies of Hypertrophic Scars: Pulse-Dyed Laser, Erbium Laser and Corticosteroid Injection

Usman Jahangir, Seemab Khan and Tooba Malik

ABSTRACT

Objective: To compare three treatment strategies for hypertrophic scars: corticosteroid injection, pulse-dyed laser, and Erbium laser.

Study Design: A cross-sectional comparative study

Place and Duration of Study: This study was conducted at the dermatology department of Bakhtawar Amin Trust Teaching Hospital Multan from Jan 2020 to Jan 2021.

Materials and Methods: After passing through the selection criteria, the patients were divided into three groups: corticosteroid, pulse-dyed laser, and erbium such that 20 patients were placed in each group. Patients in all three groups were photographed before and after four weeks of their respective treatments such that the specification of photographs was kept constant. Vancouver Burn Scar scale was used for the evaluation of the treatment outcomes. Moreover, vascularity and height scores were also assessed.

Results: A total of 60 patients were included in the study, 20 in each group. The mean VBS score of patients in the PDL group decreased significantly from 8.7 ± 1.5 to 3.9 ± 1.7, p = 0.001. Similarly, the VBS score of patients in the Erbium group decreased significantly from 9.3 ± 1.3 to 5.2 ± 1.4, p=0.032. However, no significant difference was found in the VBS score of patients in the corticosteroid group (p>0.05). The vascularity score was significantly improved in patients from PDL and erbium groups (p=0.01 and p=0.02, respectively). Similarly, height score was significantly improved in PDL (2.24 vs 1.45, p=0.1) and erbium group (2.26 vs 1.39, p= 0.02) after the treatment.

Conclusion: Both pulse-dyed and erbium laser is significantly more effective than corticosteroid treatment in improving the Vancouver Burn Scar scale, vascularity, and height scores of hypertrophic scars.

Key Words: pulse-dyed laser, erbium laser, corticosteroids, hypertrophic scars, laser therapy

INTRODUCTION

Any disturbance in the normal healing process usually ends up in chronic wounds and the formation of keloids and hypertrophic scars[1]. Extensive scaring causes psychological stress, discomfort, and cosmetic deformities. Thus, scar management and prevention continue to be major issues in the field of plastic surgery.

Hypertrophic scars not only cause physical deformities but also functional disability. In this regard, various treatment strategies have been tested on patients.

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In this regard, corticosteroid injections are mainly considered in the management of keloids and hypertrophic scars, either alone or in combination with pressure or surgical therapy for larger lesions. Steroid treatment can begin after 1 month of surgical intervention and can be repeated every month depending upon serial assessments [2]. Similarly, laser therapy utilizes the principle of the importance of vascular proliferation in the initial stages of scar formation [3]. Since the enhanced production of extracellular material and collagen requires more nutrient supply to tissues, new vessel formation is incumbent. This is particularly an important mechanism underlying hypertrophic scars that have higher blood flows [4]. Thus, the vascular lasers alter the mechanisms of hypertrophic scars by reducing the number of blood vessels.

A prior study evaluated pulse dye laser and found that effective in the treatment of hypertrophic scars but treatment was only carried out on light-skinned patients[5]. Generally, the efficacy of lasers is dependent on race, the extent of skin pigmentation, and the type of laser used. The wavelength of pulse-dyed laser (PDL) is selectively taken by oxyhemoglobin[6]. It halts the

growth of new blood vessels within the targeted lesions, thus consequently reducing erythema, height, and size without compromising surrounding tissues [7]. Kuo et al. demonstrated keloid regression and enhanced apoptosis of keloid fibroblast following pulsed-dye laser treatment [8].

Although extensive research has been conducted on the treatment of hypertrophic scars, no universally accepted management protocol has yet not been introduced. Earlier studies have reported the success of laser therapy in light-skinned patients while some have regarded them ineffective when compared with traditional treatment[9]. However, the population in Pakistan has a mixed-skin type. Therefore, the present study aims to compare three treatment strategies for hypertrophic scars: corticosteroid injection, PDL, and Erbium laser.

MATERIALS AND METHODS

A randomized cross-sectional study was conducted from 13th Jan 2020 to 13th Jan 2021 at Dermatology department of Bakhtawar Amin Trust Teaching Hospital Multan for 1 year. Patients with the following characteristics were randomly included in the study: Fitzpatrick class III, presence of linear erythematous hypertrophic scar of greater than 4 cm on the neck and head region that is< 1 year old, and scars caused due to surgical excision or trauma. Whereas the patients who had undergone steroid, laser, or treatment with silicone sheets were excluded from the study to avoid the confounding effect of the treatment on our study. The participants were informed of the study's objectives and their consent was sought. Similarly, ethical consent was taken from the ethical committee of the hospital. The patients were divided into three groups: corticosteroid, PDL, and erbium such that 20 patients were placed in each group. The treatment plan was designed for a maximum period of 1 year and was subjected at a 4-weeks interval but was immediately stopped on the resolution of the scar.

The hypertrophic scars of patients in the PDL group were subjected to a 585nm flashlamp-pumped pulsed-dyed laser for a duration of 1.5µsec and with a maximum fluence of 9 J/cm^2. The fluence was reduced in case patients complained of blisters after the 1st treatment session. The patients in the Erbium group received 2940nm laser light for about 0-1 msec. Whereas the patients in the corticosteroid group were injected with 5-10 mg/ml of triamcinolone acetonide, monthly. A personal error was minimized by allowing two trained physicians to carry out independent measurements of the results in each group. Both physical inspection and photography were done to evaluate the changes after the treatment. Patients in all three groups were photographed before and after four weeks of their respective treatments such that the specification of photographs was kept constant.

Vancouver Burn Scar scale was used for the evaluation of the treatment outcomes. In this regard, 4 factors were considered: height, pliability, vascularity, and pigmentation. The severity of scar was scored from 0 to 13 where 0 being minimum while 13 was the most severe form [10]. The scar was blenched with a transparent tool to assess vascularity and pigmentation. Similarly, scar height was defined as the maximum elevation of the scar from skin level and a caliper was used for such evaluation.

Statistical Evaluation: SPSS (version 21) was used for statistical evaluation. The outcomes of treatment were represented as mean along with standard deviation. The student's t-test was used for assessing the significance of treatment by considering the mean values before and after the treatment. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 60 patients were included in the study, 20 in each group. Out of the 41 were male while 19 were female. The mean age of the patients was 29.4 ± 6.5 years. Whereas, the mean scar duration was 7.5 ± 3.2 months. There was no significant difference found between the three groups in terms of age and scar duration. All treatment plans were well-tolerated and no major side-effect such as infection, ulceration, and pigmentary change was observed. The mean VBS score of patients in the PDL group decreased significantly from 8.7 ± 1.5 to 3.9 ± 1.7, p = 0.001. Similarly, the VBS score of patients in the Erbium group decreased significantly from 9.3 ± 1.3 to 5.2 ± 1.4, p=0.032. However, no significant difference was found in the VBS score of patients in the corticosteroid group (p>0.05). Similarly, before the treatment, no significant difference was found in the VBS score of the three groups but following the treatment significant difference in VBS scores of the PDL and Erbium group with that of the Corticosteroid group was found (0.021 and 0.042, respectively).

Table I shows the vascularity score of the three study groups before and after the treatment. The vascularity score was significantly improved in patients from PDL and erbium groups (p=0.01 and p=0.02, respectively) Table I.

Similarly, the height score was significantly improved in PDL (2.24 vs 1.45, p=0.1) and the erbium group (2.26 vs 1.39, p= 0.02) after the treatment (Table II).

Table No.1: Vascularity score of three study groups before and after the treatment (N=60)

Vascularity score	Before treatment	After treatment	p-value
PDL group	2.5	1.2	0.01
Erbium group	2.4	1.1	0.02
Corticosteroid group	2.5	2.0	0.06

Table No.2: Height of three study groups before and after the treatment (N=60)

Height score	Before treatment	After treatment	p-value
PDL group	2.24	1.45	0.1
Erbium group	2.26	1.39	0.02
Corticosteroid group	2.21	2.01	0.07

DISCUSSION

Hypertrophic scar considerably affects the appearance of the individuals and is the cause of social stress. PDL has been in use for the last several years as an intervention for hypertrophic scars with an underlying principle that vascular proliferation significantly participates in the early steps of scar formation. In 1990, PDL was considered as a treatment of choice only after the other intervention failed to deliver the results. However, since the advent of the 21st century, it is recognized as a first-line treatment plan for treating hypertrophic scars. Many studies have reported the efficacy of PDL but the effectiveness of the treatment found in one race doesn't guarantee the same results in another race. Thus, the role of PDL in the treatment of hypertrophic scars and keloid remains equivocal [11]. Some studies have also contrasted results as they found the limited role of PDL in severe cases as those with intense pruritis and found it ineffective in improving scar texture, height, and redness [12]. Therefore, our study has evaluated the efficacy of PDL and erbium laser and compared the two modalities with the conventional method of corticosteroid injections in patients with hypertrophic scars.

The study reported a significant role of PDL in improving VAS score, vascularity score, height score of hypertrophic scars. A similar clinical trial was conducted by Chan et al., who evaluated 56 patients with hypertrophic scars and found out that a treatment plan lasting for 3-6 weeks is effective in reducing scar thickness and yields patients' satisfaction. However, the maturity level of the scars affects the outcomes as the erythema was significantly reduced in patients with mature scars than those with immature scars [13]. Similarly, Manuskiatti et al. carried out a randomized clinical trial on 10 patients with previously untreated hypertrophic scars or keloids with skin types I-VI. The authors found out that 585nm PDL was successful in treating the study participants and that change in fluencies doesn't affect the results [14].

However, this observation hasn't remained uniform throughout the studies as a randomized, prospective, and single-blinded study reported no significant improvement in the characters of hypertrophic scars treated with PDL or silicone gel when compared with controls [15].

Our study also reported an equally significant role of erbium laser in the treatment of hypertrophic scar when compared with the conventional method of corticosteroid injection. These results are also in line with earlier studies. For instance, Omnarifard and Rasti compared the efficacy of both PDL and Erbium lasers with steroids and found that both laser modalities were equally effective and superior in their role than that of intralesional steroids [16]. In another study, fractional mode of erbium laser was compared with ablative mode and it was reported that ablative mode was significantly better in improving height, pigmentation, pliability, and vascularity of hypertrophic scars than the other evaluated technique [17].

The study is limited in terms of a shorter study period due to which long-term follow-up couldn't be achieved. Therefore, it is recommended to carry retrospective study to access the long-term effect of such treatment methodologies and to analyze how a change in steroid doses and laser fluencies can affect the outcomes.

CONCLUSION

Both pulse-dyed and erbium laser is significantly more effective than corticosteroid treatment in improving the Vancouver Burn Scar scale, vascularity, and height scores of hypertrophic scars.

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Data Analysis:	Tooba Malik, Seemab Khan
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Original Article

Study of Repair of Lower Extremity Arteries with Late Presentation after Blunt and Penetrating Trauma

Ilyas Sadiq, Muhammad Nasir, Farhan Iftikhar and Rimal Ilyas

ABSTRACT

Objective: To evaluate the surgical outcomes of delayed presented lower extremities injuries following blunt and penetrating trauma.
Study Design: A prospective study
Place and Duration of Study: This study was conducted at the vascular surgical unit of Doctor Hospital and Medical center Lahore for 1 year from Oct 2020 to Oct 2021.
Materials and Methods: The study included confirmed cases of arterial injuries of lower limbs following blunt and penetrating trauma presented to us after 24hours. Whereas, patients with non-salvageable limbs were excluded from the study. Surgical revascularization was carried out in all the cases in an attempt to repair lower limb arteries. The patients were assessed for amputation rate, mortality rate. Patients were followed for at least 3 months, postoperatively to evaluate complications (if any).
Results: A total of 22 patients were included in the study. External iliac artery injury (EIA) and common femoral artery injury (CFA) were presented in 9% patients, superficial femoral artery injury (SFA) was affected in 31.8%, and popliteal artery injury (PA) in 59%. The average hospital presentation time was 28.3 hrs. There was no mortality. Amputation was done in 9% patients with popliteal artery injury because of muscle necrosis, increasing infection. The secondary amputation rate was significantly higher in the PA group than in the other two groups. Soft tissue infection and tissue necrosis are the most reported complications in all three groups.
Conclusion: Though amputation or limb complications may develop over time because of limited revascularization time of vessels, the rate of such complications is limited. Moreover, popliteal artery injury leads to most complications among other lower vascular injuries.
Key Words: Blunt trauma, penetrating trauma, lower limb arterial injury, revascularization, surgical repair, vascular injuries.

INTRODUCTION

Pakistan, the fourth-most populous state across the world, suffers massively from non-communicable diseases such as injury. These injuries and associated trauma particularly related to limbs are also becoming a significant cause of morbidity and mortality. Around 40 to 75% of injuries are inflicted on peripheral vessels [1] and deemed as most challenging since the amputation risk increases if the injury is not addressed on time.

The optimum golden period of revascularization of a limb with arterial injury is less than 6 hours, due to completely disrupted blood supply [7]. However, since limbs with injured arterial vasculature have intact

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collateral circulation, the golden period, in this case, is slightly extended. However, even in these cases, ischemia of more than 6 hrs. in the injured leg increases the amputation risk by 4 times [8]. Therefore, the efficiency of revascularization after 6 hours of arterial injury in the lower limb is still a debated subject. Some of the studies have found that revascularization even after 24 hrs or in some cases after 1 week, can save the leg (9), but the underlying mechanisms that allowed successful salvage even after prolonged ischemia couldn't be understood.

The rate of salvage of lower limbs after an injury to arteries is dependent upon the various factors including the amount of soft tissue damage, associated damage to the venous system, involvement of nervous system and bony injury, the occurrence of compartment syndrome, and extent of ischemic damage before revascularization [1,2]. Trauma or damage to the arterial system is believed to be a major risk for limb survival [3]. However, proper management strategies such as the immediate provision of treatment, appropriate fasciotomy, and restoration of arterial injury can significantly help in the survival of limbs [4]. Some reports have also suggested that reduction in ischemic time can also decrease the extent

of morbidity [5,6]. Generally, blunt trauma, associated venous, musculoskeletal injuries, and prolonged ischemia are the factors that are related to the high rate of lower limb amputations [2].

Due to lack of awareness and poor health care facilities, many patients with lower limb arterial injury in Pakistan present late or are treated after the golden time (within 6hrs after the injury). This study aims to evaluate the outcomes of surgical repair of late-presented lower limb arterial injuries with blunt and penetrating trauma.

MATERIALS AND METHODS

A prospective study was conducted at the vascular surgical unit of Doctors hospital, Lahore from 5th October 2020 to 5th October 2021. The study included patients who were presented at least after 24 hrs of blunt and penetrating trauma but had viable limbs on examination and those whose CT angiography revealed the vascular injury. Whereas, the patients with dead limbs, characterized as complete paralysis with mottling, were excluded from the study. The participants were informed of the study objective and their consent was sought. Similarly, an ethical review of the study was conducted by the ethical review committee of the hospital. Soon after the hospital admission, all participants were evaluated by the surgeon. The confirmed cases of arterial injury were referred for immediate surgical repair. X-ray was taken for detecting lower-extremity fractures. At baseline, extents of sensory and motor deficits were also assessed. CT angiography was done to evaluate the arterial system. All patients underwent surgical intervention for repair. During surgical intervention, electrical stimulations were given to gastrocnemius muscles and their response was monitored to define the viability of muscles Femoropopliteal bypass was conducted in patients through the use of contralateral saphenous veins. Following revascularization, all patients underwent Doppler ultrasound analysis again to evaluate the effect of distal perfusion. Fasciotomy was performed in all patients. Amputation was carried out primarily if the limb was found to be non-salvageable intraoperatively or following the surgery. It was also performed secondarily in the following conditions: the local or systematic spread of infection; toxin absorption, or irreversible damage to bone or soft tissue following debridement.

A self-designed questionnaire was completed by the surgeons to identify baseline and surgical characteristics of all patients. The surgical complications were assessed soon after the surgery and were followed for at least 3 months in all patients.

Statistical Analysis: SPSS (version 21) was used for statistical analysis. The data were presented as numbers and frequency. Fisher's exact test was used to assess the outcomes of surgery in self-categorized participants of the study. A p-value less than 0.05 was considered statistically significant.

RESULTS

A total of 22 patients were enrolled in the study. Out of the 19 were male and 3 were female. The average age of enrolled patients was 32.5± 5.6 years. All cases were confirmed of lower-extremity arterial injury and took at least 24 hrs. Before getting treated while the average hospital presentation time was 28.3 hrs. Among the participants, 2 (9.09%) had common femoral artery injury (CFA) and external iliac artery injury (EIA), 7 (31.03%) had superficial femoral artery injury (SFA), and 13 (59%) had popliteal artery injury (PA). Out of a total of 22 patients, 18 (81.8%) had concomitant venous or nerve injuries and fractures. In 72.7% (16) cases pulselessness was reported at the time of admission. 22.7% (5) patients and 18.1% (4) patients had complete sensory and motor loss, respectively (Table I).

No mortality was reported intra or post-operatively in any of the arterial injuries. Similarly, no patient in the three groups was found to have non-viable feet intraoperatively or soon after the surgery. Therefore, no primary amputation was reported in any group. On the other hand, secondary amputation was carried out in 2 patients in the PA group due to progressive infection and muscle necrosis. The secondary amputation rate was significantly higher in the PA group than in the other two groups. Soft tissue infection and tissue necrosis are the most reported complications in all three groups (Table II).

Table No.1: Clinical presentation of the study population (N=22)

Sign	N (%)
Cyanosis	1 (4.54%)
Weak pulse	3 (13.6%)
Pulselessness	16 (72.7%)
Partial sensory loss	12 (54.5%)
Complete sensory loss	5 (22.7%)
Partial motor loss	14 (63.6%)
Complete motor loss	4 (18.1%)
Shock	1 (4.54%)
Prolonged capillary filling time (CFT)	9 (40.9%)

Table No.2: Outcomes of surgical repair among study groups (N=22)

Outcomes	EIA or CFA (n=2)	SFA (n=7)	PA (n=13)	P-value
Amputation				
Primary amputation	0	0	0	-
Secondary amputation	0	0	2 (15.3%)	0.04
Mortality	0	0	0	
Complication				

	EIA	CFA	PA	
Soft tissue infection	0	2 (28.5%)	1 (7.6%)	
Muscle necrosis	1 (50%)	2 (28.5%)	4 (30.7%)	0.006
Osteomyelitis	0	0	2 (15.3%)	
Non-union	0	1 (14.2%)	1 (7.6%)	

EIA= External iliac artery injury; CFA= Common femoral artery injury; PA= Popliteal artery injury

DISCUSSION

Our study has categorized the patients according to the anatomic site of vascular injury that presented after at least 24 hrs and investigated the surgical outcomes in them. Accordingly, patients were categorized into EIA/CFA, SFA, and PA groups, and a low amputation rate was found, as by earlier studies [11,12].

Perkins et al. conducted a meta-analysis to identify the factors that determine the success of surgical repair of the lower limb after vascular injury and he found the anatomic site of the injury as a strong determinant [10]. Taupe et al. explored the function of collateral arteries and found an excess of such arteries in the superficial femoral artery which plays a protective role during limb ischemia. Therefore, in our study, too, all the patients (100%) with SFA had effective revascularization. Contrastingly, due to the absence of corresponding collateral blood supply to the external iliac artery and proximal femoral artery, the amputation rate increases in the cases with these arterial injuries. Therefore, in such vascular injury ischemic period should be kept as limited as possible. Among all lower extremity injuries, damage to the popliteal artery is considered most significant in the loss of limbs [13]. We have classified popliteal artery injury into proximal and distal based on anatomic positions between the gastrocnemius and popliteal artery. The popliteal artery in the proximal region, just before entering into gastrocnemius, has fewer branches. Therefore, injury in this region presents more severe ischemic effects in a relatively shorter duration. Apart from frequent incidence of tissue swellings and knee dislocation in these patients, the higher performance rate of fasciotomy in these injuries increases the prospects of embolization of vessels. The higher secondary amputation rate in patients (1 case) with the proximal portion of the popliteal artery in our study is associated with the above-described complications. In contrast, all patients with an injured distal portion of the popliteal artery had successful revascularization as this segment is abundantly supplied with collateral circulation.

Moini et al. investigated the outcomes of late vascular repair in terms of sensory and motor defects and muscle viability. The authors found that successful limb salvage is directly dependent on the viability of gastrocnemius muscle [9]. Similarly, Jagdish et al. also found the success of delayed revascularization following popliteal injury and improvement in sensory and motor functions was related to gastrocnemius vitality [14]. These results are also confirmed by several other studies based on the exploration of factors responsible for successful revascularization after vascular injury [15].

The study is limited in terms of smaller study sizes and shorter follow-up periods. Therefore, patients should be followed for a long to evaluate outcomes of delayed surgical repair with progressing time.

CONCLUSION

Though amputation or limb complications may develop over time because of limited revascularization time of vessels, the rate of such complications is limited. Moreover, popliteal artery injury leads to most complications among other lower vascular injuries.

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Comparison of Diagnostic Accuracies of CT Angiography VS Echocardiography in Patients with Aortic Arch Pathologies

Farah Kalsoom, Mustafa Ali Siddiqi, Taha Khalil and Sehrish Khalid

ABSTRACT

Objective: To compare the findings of computed tomographic (CT) angiography with transthoracic echocardiography in patients with aortic arch pathologies.

Study Design: A retrospective, comparative study

Place and Duration of Study: This study was conducted at the Cardiology and Radiology, Ch. Pervaiz Elahi Institute of Cardiology Multan from May, 2020 to May, 2021.

Materials and Methods: The study enrolled patients who were indicated of having congenital heart disease through echocardiogram and clinical evaluation. These patients were then assessed of aortic arch anomalies through computed tomographic (CT) angiography and transthoracic echocardiography and their findings were compared.

Results: A total of 170 patients were included in the study, out of which 112 were male and 58 were female. The most prevalent anomaly among the participants was mirror image branching in the right aortic arch (22% detected by CT angiography vs 4.5% by TEC) followed by coarctation (20% vs 16%). The other aortic arch-associated cardiac anomalies were patent ductus arteriosus, pulmonary atresia, and ventricular septal duct. The two diagnostic techniques (kappa) had an agreement of 0.69 in detecting aortic arch pathologies. However, transthoracic echocardiography had a sensitivity and specificity of 52% and 100%, respectively when compared with computed tomographic angiography.

Conclusion: Transthoracic echocardiography is limited in detecting thoracic vessels and coronary artery abnormalities when compared with computed tomography angiography.

Key Words: Computed tomography angiography, transthoracic echocardiography, aortic arch pathologies, congenital heart defects, comparative study

INTRODUCTION

Congenital heart diseases (CHDs) significantly contribute to cardiac issues in both children and adults. They affect about 1% of all births, including both cyanotic and acyanotic birth defects [1,2]. Transthoracic echocardiography is used as a primary, non-invasive diagnostic tool for the diagnosis and evaluation, both functional and anatomic, of CHDs[3]. This imaging technique is preferred for its non-invasive and portable nature and its ability to provide high-resolution physiological and anatomic data[4].

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However, it is also limited in terms of defining coronary arteries, pulmonary, and intra-cardiac abnormalities, accurately[5]. Previously, angiography was mainly considered for aortic anomalies and CHD but with time became less preferred due to certain limitations such as invasive nature, higher probability of exposure of radiations and contrast materials to neonates, and compulsion of general anesthesia before the process[6]. Thus, with advancements in the medical field, MRI and computed tomographic (CT) replaced simple angiography. In this regard, CT, particularly its latest generations Multi-detector CT (MDCT) and spiral CT angiography, is widely considered for diagnosing thoracic aortic disorders[7]. Usually, a simple CT is performed but in special cases where detailed information is required, CT with a contrast agent is more helpful. Moreover, dynamic CT is efficient in evaluating blood flow in CVS[8].

MDCT has currently used imaging modality for the detection of various thoracic aorta anomalies, such as atherosclerotic plaques, aortic dissection, aortic aneurysm, congenital deformities [9]. This non-invasive imaging technique is not only capable of detecting

vascular abnormalities but also diagnosing tracheal and esophageal compression[10]. It has been considered highly beneficial due to multiple characteristics such as high speed, excellent spatial resolution, great anatomical coverage, provision of the 3D image which bridges the resolution pitfall of CT [11]. However, it has some unavoidable disadvantages like the inability of providing hemodynamic data, the requirement of contrast material, and extreme exposure to ionizing radiations [10].

When compared with echocardiography, cardiac CT angiography has relatively lesser resolution but is believed to share advantages of multiple imaging techniques such as 3D imaging, high speed, great anatomical coverage, quick acquisition time, the ability of EDG synchronization which all lead to better diagnostic ability and limited risks for the patients [12]. Thus, the present study aims to compare the diagnostic capacity of transthoracic echocardiography and CT angiography in patients with aortic arch anomalies.

MATERIALS AND METHODS

A retrospective study was conducted at the cardiology and radiology department of Ch. Pervaiz Elahi Institute of Cardiology Multan for 1 year from 11th May 2020 to 11th May 2021. The study included patients whose clinical signs and transthoracic echocardiography confirmed the presence of CHD. Whereas patients who were sensitive to contrast agents or had inefficient renal systems were excluded from the study. All patients were informed of the study objective and written consent was sought. Similarly, ethical permission was taken from the ethical review committee of the hospital. All patients were investigated for demographics and baseline characteristics through a self-investigated questionnaire. It was then followed by the conduction of CT angiography by an experienced radiologist. The patients in our study ranged from 1 month to 10 years old children. Following the protocol, children less than 7 years of age were given anesthesia whereas in older subjects CT scan was carried out without anesthesia. Visipaque was used as a contrast agent in a dose of 2-2.5 cc/kg. The speed of injecting contrast was kept proportional to the length of the scan. Body sections in between the mid-neck line and iliac crest were scanned. **Statistical Analysis:** SPSS (version 20) was used for statistical analysis. The data were presented as relative frequency and percentage.

RESULTS

The study included a total of 170 patients with CHD. Out of which, 112 (65.8%) were male and 58 (34.1%) were female. The median age of the patients was 2 years. Table I represents the congenital aortic arch anomalies detected by transthoracic echocardiography (TEC) and CT angiography. The most prevalent anomaly among the participants was mirror image

branching in the right aortic arch (22% detected by CT angiography vs 4.5% by TEC) followed by coarctation (20% vs 16%). In some cases, two or more simultaneous anomalies were simultaneously diagnosed: ventricular arrhythmias (VA) with coarctation (9 patients, 5.2%), tubular hypoplasia with coarctation (6 patients, 3.5%), right subclavian artery anomaly with coarctation (5 patients, 2.9%), cervical arch with coarctation (3 patients, 3.5%), VA with cervical arch (2 patients, 1.17%), VA with right subclavian artery anomaly (3 patients, 3.5%), tubular hypoplasia with subclavian artery anomaly (2 patients, 1.1%), cervical arch with tubular hypoplasia (1 patient, 0.5%) interruption with hypoplastic arch (2 patients, 1.1%). Ventricular arrhythmia was not detected in any patient through TEC against 6 patients found by CT. Among those 6 patients, 2 (33.3%) demonstrated left VA left-sided arch while 4 (66.6%) showed right VA. Based on CT findings, 2 cases (3.2%) had an interruption of Type A and B, each while the single diagnosed case of interruption TEC was of Type B.

Table No.1: Aortic arch anomalies diagnosed by CT angiography and Transthoracic echocardiography (n=70)

Aortic arch anomaly	CT angiography (n=70)		Transthoracic echocardiography (n=70)	
	Yes (n, %)	No (n, %)	Yes (n, %)	No (n, %)
Coarctation	14 (20%)	56 (80%)	11 (16%)	61 (89%)
Ventricular arrhythmia	6 (8.6%)	64 (91.4%)	0 (0%)	70 (100%)
Tubular hypoplasia	4 (5.2%)	66 (94.8%)	0 (0%)	70 (100%)
Mirror imaging branching in right-sided arch	15 (22%)	55 (78%)	5 (4.5%)	65 (95.5%)
Interruption	2 (3.2%)	68 (96.8%)	1 (1.4%)	69 (98.3%)
Cervical arch	2 (3%)	68 (97%)	1 (1.4%)	69 (98.3%)
Bovine arch	1 (2%)	69 (98%)	0 (0%)	70 (100%)
Double aortic arch	1 (2%)	69 (98%)	0 (0%)	70 (100%)

Table 2 presents the cardiac-related anomalies in patients with aortic arch anomalies. Among the detected anomalies, patent ductus arteriosus (46, 65.4%), pulmonary atresia (43, 62.1%), and ventricular septal defect (26, 38.3%) were the most prevalent among the enrolled patients. The two diagnostic techniques (kappa) had an agreement of 0.69 in detecting aortic arch pathologies. However, transthoracic echocardio-

graphy had a sensitivity and specificity of 52% and 100%, respectively when compared with computed tomographic angiography.

Table No.2: Cardiac associated anomalies in patients with aortic arch pathologies (n=70)

Related cardiac anomaly	Yes (n, %)	No (n, %)
Pulmonary atresia	43 (62.1%)	27 (37.9%)
Ventricular septal defect	26 (38.3%)	44 (61.7%)
Patent ductus arteriosus	46 (65.4%)	24 (34.6%)
Atrial septal defect	10 (14.3%)	60 (85.7%)
Transposition of the great arteries	9 (13.2%)	61 (86.8%)
Double inlet left ventricle	1(1.4%)	69 (99%)
Double outlet right ventricle	3 (4.7%)	67 (95.3)
Dextrocardia	2 (3.3%)	68 (96.7%)

DISCUSSION

The present study evaluated the comparative roles of CT angiography and transthoracic echocardiography in detecting aortic arch anomalies. The most prevalent anomaly among the participants was mirror image branching in the right aortic arch followed by coarctation. Moreover, the most common associated cardiac anomalies were patent ductus arteriosus, pulmonary atresia, and ventricular septal defect. The collected data were used to calculate the sensitivity and specificity of TEC. Coarctation is a congenital heart defect that results from narrowing of the aorta which can resent as an isolated abnormality or in association with multiple other lesions. Thus, the early accurate detection of the anomalies is very important to opt for an accurate therapeutic strategy.

In this regard, multiple non-invasive methods, including MRI, CT, and transthoracic echocardiography are used. TEC is a safe and accessible method that is mainly used as a screening technique. It can also be used for intraoperative assessments or in hemodynamic studies, but CT is mostly preferred before finalizing any therapeutic approach or any surgical method. Darabian et al. reported excellent diagnostic capacity of cardiac CT in their study revealing its high spatial resolution and great power to detect associated anomalies [13].

Our study has found mirror-image branching of the right aortic arch as was the most common anomaly found among the patients. Literature also supports and found mirror-image branching of the right aortic arch in 95% of cases. In previous studies, 25%-50% of patients with truncus arteriosus and 25% of patients with truncus arteriosus presented with mirror-image branching of the right aortic arch [14]. The second most prevalent anomaly is coarctation, affecting 20% of patients. Abbruzzese and Aidala, however, reported 6.5% of patients affected by aortic coarctation among participants of CHD [15]. It is the most frequently noted CHD, accounting for about 7% of all inherited cardiac lesions. This anomaly is characterized by focal stenosis found at the aortic isthmus; however, it can also present in tubular fashion [15].

In the above-mentioned study, patent ductus arteriosus (46, 65.4%), pulmonary atresia (43, 62.1%), and ventricular septal defect (26, 38.3%) were the most prevalent among the enrolled patients. A study evaluated the role of 16-slice CT angiography in characterizing the anatomic features of pathological subclavian arteries [10]. The study reported that 11 patients presented with atypical right subclavian artery generating from the left aortic arch, 6 had atypical left subclavian artery generating from the right aortic arch, 3 had kommerell's diverticulum, and 2 patients had an aneurysm [10].

In our study, 5 patients had atypical right subclavian artery with coarctation. The pathological state in the left subclavian artery arises from interruption between the left subclavian artery and left carotid artery in forming a double aortic arch. Generally, left-sided aortic arch along with the right subclavian artery is the most reported aortic arch pathology, affecting about 0.5-2% of individuals. CT angiography.

CT angiography is appraised as an authentic and non-invasive imaging modality owing to its advantages such as easy availability, quick acquisition time, and excellent spatial resolution. Therefore, it is the preferred imaging technique for the evaluation of thoracic and vascular anomalies. The ability allows the effective evaluation of congenital abnormalities. TEC is the initial screening technique in patients but it is sometimes limited in the detection of pathologies of thoracic vessels and aortic arch. Moreover, despite having great anatomical coverage and its capacity for great functional evaluation, it might have limited applicability in non-responsive patients [16, 17].

The two diagnostic techniques (kappa) had an agreement of 0.69 in detecting aortic arch pathologies. However, transthoracic echocardiography had a sensitivity and specificity of 52% and 100%, respectively when compared with computed tomographic angiography which demonstrates the limited capacity of TEC in comparison to CT.

The study is limited in terms of limited sample size and inability to assess these evaluated techniques monitoring the intraoperative surgical situation in patients with cardiac anomalies. Therefore, it is suggested to conduct further studies to assess not only the diagnostic capacity of imaging techniques but also their role in monitoring the disorders.

CONCLUSION

Transthoracic echocardiography is limited in detecting thoracic vessels and coronary artery abnormalities when compared with computed tomography angiography.

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Prediction of Head-Up Tilt Test outcomes through Heart Rate Variability Using Receiver Operating Characteristic Curve (ROC)

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ABSTRACT

Objective: To determine the cut-off values of heart rate variability (HRV) as a predictor of head-up tilt test (HUTT) outcomes using receiver operating characteristic (ROC) curve.
Study Design: Diagnostic accuracy study
Place and Duration of Study: This study was conducted at the Department of Cardiac Electrophysiology, Armed Forces Institute of Cardiology, Rawalpindi from January 2016 to October 2016.
Materials and Methods: Ninety- three adult patients both male and female with complaint of repeated unexplained syncope were registered. Head-up tilt test was performed, during the test patients were Holtered for getting ambulant ECG records using DMS 300-4L Holters. Cardio Scan premier 12 lux software was used to analyze frequency domain parameters of HRV. Heart Rate Variability cut-off values were determined by using Receiver operating characteristic (ROC) curve.
Results: Out of a total of 93 patients, 77 (82.8%) responded positively and 16 (17.2%) responded negatively to HUTT. The receiver operating characteristic (ROC) curve was utilized to find out the cut-off values of heart rate variability frequency domain parameters. ROC analysis of total power (TP) parameter measured during initial and terminal 5 minutes of stage -I of head-up tilt test was statistically significant.
Conclusion: Determination of cut-off values of total power (TP) parameters of heart rate variability by using the receiver operating characteristic (ROC) curve could predict the outcome of head-up tilt test results. This initial estimation can change the administration of nitroglycerine and shorten the duration of head-up tilt test.
Key Words: Heart rate variability (HRV), Head-up tilt test (HUTT), Receiver operating characteristic (ROC) curve

INTRODUCTION

Head-up tilt table test is an accepted modality for investigating an individual's predisposition to syncope related to orthostatic stress[1]. It is a provocation test that is recommended in the diagnosis of syncope[2]. The test examines the tendency of an individual to experience syncope when subjected to orthostatic stress, improving the understanding and management of patients[3]. Syncope is temporary loss of consciousness due to transient diminution of blood flow to the brain[4]. The most common form of syncope in all age groups is neurally mediated syncope[5]. Syncope is characterized by brief loss of consciousness occurring because of profound systemic hypotension due to reflex vasodilatation, or vagally driven bradycardia, or both[6]. After prolonged standings, inability of the underlying autonomic nervous system to maintain hemodynamics of the body in upright posture causes cerebral hypoperfusion resulting in syncope[7].

Head up tilt table test is a major progress in the evaluation of patients presenting with syncope[8]. Two main responses are observed when a patient is subjected to Head up tilt table test[9]. The first response is the positive response, characterized by reappearance of symptoms of syncope and the second response is the negative response which shows slight variations in the blood pressure but no other abnormality[10].

Heart rate variability is a physiological phenomenon defined as temporal fluctuations of beat to beat intervals

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during normal sinus rhythm[11]. Heart rate variability analysis gives an assessment of state of autonomic nervous system responsible for regulating heart rate and rhythm[12]. Anomalies of autonomic nervous system (ANS) play a main role in the beginning of syncope[13]. Analyzing Heart rate variability is a good tool for the evaluation of syncope due to malfunction of autonomic system analysis[14].

The sympathetic and parasympathetic divisions are affected by the variations occurring during the course of test in subjects of syncope[15]. This study was planned to predict the outcomes of Head up tilt test by determining cut-off readings of frequency domain parameters of Heart rate variability using Receiver operating characteristic curve[16].

MATERIALS AND METHODS

Our study was a cross-sectional comparative study and carried out at Cardiac Electrophysiology Department, Armed Forces Institute of Cardiology in collaboration with Army Medical College (AMC), Rawalpindi. AMC, Ethical review committee and AFIC Institutional Review Board granted permission to conduct the study. Sample size of 93 was estimated utilizing WHO sample size calculator, where confidence interval was kept at 95%, predicted population proportion at 0.4 and absolute precision (d) at 0.1.

A total number of Ninety-three individuals having a history of un explained syncope were included in the study using convenience sampling. For exclusion of patients with a history of any cardiac illness, arrhythmias and ischemic heart disease, Electrocardiography and echocardiography were done. The selected patients reported with a four hour fast on the day of the test. All subjects gave a detailed history and written consent.

DMS 300-4L Holters from DM Systems Company was applied to each subject while lying in supine position on the tilt table and Heart rate variability was measured in frequency domain for first 5 minutes, while at the same time baseline blood pressure, heart rate and ECG were also recorded. Using Italian protocol, during the first 20 minutes of Stage-I the subjects were kept at a tilt of 70 degrees for 20 minutes whilst recording heart rate variability frequency domain parameters for initial 5 and terminal 5 minutes. Stage-II comprised of keeping the patients in the same tilted position and giving 400 µgm of nitroglycerine. Once the subject develops syncope test was concluded by bringing them back to the initial lying down position. Positive responders were the subjects developing syncope or near-syncope and the rest were labelled as negative responders. Ambulatory ECG data was screened for ectopic and artefact beats using DMS Cardioscan software premier 12 lux version. Heart rate variability frequency domain parameters (low frequency, high frequency (HF) and LF/HF ratio and total power (TP) was assessed.

IBM SPSS version 23 was used for Data analysis. Numerical variables for example age and frequency domain parameters were represented as Mean and standard deviation and categorical variables like gender and positive and negative responders of head up tilt test was represented as frequency and percentage. Independent samples t test was applied for comparing mean values of frequency domain parameters of heart rate variability. Frequency of positive and negative responders to active phase of head-up tilt test was compared using Chi Square test. Alpha value of 0.05 was considered statistically significant.

RESULTS

Among 93 patients, there were 77 (82.8%) positive responders and 16 (17.2%) negative responders to head-up tilt test. Cut-off values of heart rate variability frequency domain parameters were calculated using the receiver operating characteristic (ROC) Curve. Values of frequency domain parameters of HRV (HF, TP) measured for 5 minutes in supine position and then for beginning 5 minutes and end 5 minutes of passive phase of three phases of head-up tilt test were plotted against the reference line in the receiver operating characteristic (ROC) curve. Figure I show the ROC curve analysis of high frequency parameters, and total power parameters in three phases.
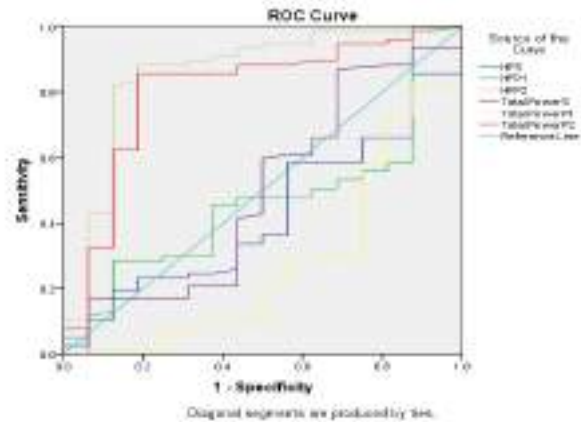

Figure No.1: Receiver Operating Characteristic (ROC) Curve for Diagnostic Accuracy of Heart Rate Variability

Table No.1: Area under curve for different HRV parameters

Heart Rate Variability Parameters	Area Under Curve	P-Value
HF (Supine)	0.43	0.34
HF (Passive Phase 1)	0.46	0.64
HF (Passive Phase 2)	0.421	0.610
TP (Supine)	0.49	0.94
TP (Passive Phase 1)	0.278	0.005*
TP (Passive Phase 2)	0.804	<0.001*

* p-value significant (<0.05)

Analysis of total power (TP) using ROC curve measured during first 5 minutes and last 5 minutes of passive phase has an area under curve of 0.278 and 0.804 and are significant (p=0.005) and (p<0.001). The cut-off value of TP measured during first 5 minutes is 1485.5500 (sensitivity of 58.4% and specificity of 25%) and the cut-off value measured during last 5 minutes is 1131.0500 (sensitivity of 85.7% and specificity of 81.2%). These are shown in table 1 and 2.

Table No2: Cut-Off Values of Total Power (TP)

Heart Rate Variability Parameters	Cut-Off Value	Sensitivity (Percentage)	Specificity (Percentage)
TP (Passive Phase 1)	1485.5500	58.4	25
TP (Passive Phase 2)	1131.0500	85	81.2

ROC analysis of TP during first and last 5 minutes of passive phase are statistically significant being helpful in discriminating amongst positive and negative responders to head-up tilt test. However, TP measured during terminal 5 minutes of stage – I can differentiate better amongst the two.

DISCUSSION

The results of current study helped us to detect the patients that would develop syncope at the end of head-up tilt test, before the administration of nitroglycerine. The results of our study showed that Receiver operating characteristic (ROC) curve analysis of heart rate variability frequency domain parameters (HF, LF, LF/HF, TP) parameters done in the first 5 minutes and last 5 minutes of passive phase of head-up tilt test was helpful in determining the cut- off values of these parameters for predicting the results of head-up tilt test. The parameter that turned out to be the most significant for determining the cut- off values were total power (TP) measured in the first and last 5 minutes of passive phase of head-up tilt test. Receiver operating characteristic (ROC) curve analysis of total power (TP) parameter done in the first 5 minutes of passive phase of head-up tilt test revealed an area under the curve (AUC) of 0.278 being statistically significant (P =0.005). At an optimal sensitivity of 58.4% and specificity of 25% the established cut-off value of total power (TP) was 1485.5500. Receiver operating characteristic (ROC) curve analysis of total power (TP) parameter done in last 5 minutes of passive phase of head-up tilt test revealed an area under the curve (AUC) of 0.804 being statistically significant (P <0.001) and hence a cut-off of 1131.05 was established at an optimal sensitivity of 85.7% and specificity of 81.2%.
The results of our study are comparable to the study conducted by M.A.P Ciliberti and his colleagues who carried out a study in 2018 to assess the capacity of the frequency domain parameters of heart rate variability at rest to foresee syncope among patients with syncope using receiver operating characteristic curve[17]. Virag et al. conducted a study presenting an algorithm using dynamics of heart rate variability to predict the occurrence of syncope at a substantial time before the event[18]. They enrolled 1,155 subjects with history of fainting who underwent tilt test, 759 patients had syncope during the tilt test after the drug was administered, while the other 396 patients did not develop syncope. Receiver operating characteristic analysis was done that defined the diagnostic accuracy by determining the cut-off values of parameters supporting the results of our study[19]. In a recent study carried out by QY kong and his colleagues, it was documented that LF at rest foretold the occurrence of syncope during test[20]. A value of LF > 2048 ms^2 was the optimal cut-off to predict syncope during head-up tilt test using receiver operating characteristic (ROC) curve[21].

CONCLUSION

Receiver operating characteristic (ROC) curve analysis can determine the cut-off values of heart rate variability frequency domain parameter for the prediction of head-up tilt test outcomes. Total power (TP) component of heart rate variability measured in the last 5 minutes of passive phase of head-up tilt test has maximum power to predict the result of test without giving the drug.

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