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CONTENTS

Heart Failure: Manageable, not Curable

Mohsin Masud Jan

Editor

Heart Failure (HF) is a condition in which the pumping ability of the heart becomes limited, leading to a reduced supply of blood to the rest of the body for normal functions.[1]It is a serious diagnosis; however, it does not mean that the heart has stopped working. It can be described as a weak heart that needs support for survival. It can occur at any age but most commonly occurs in older people who have a history of angina, heart attack, hypertension and diabetes. Heart failure needs active treatment and lifestyle changes to prolong survival and improve quality of life.

The prevalence and burden of Heart Failure: The patients of heart failure should know that they are not alone in this disease! Approximately 26 million of the adult population worldwide has heart failure[2].

Heart Failure can be a deeply burdensome condition. It is one of the most common causes of hospitalizations for persons over the age of 65[3]. After being discharged from the hospital, HF patients are still at risk. Nearly a quarter of discharged patients will be readmitted within a month and mortality during this month can be up to 10%[4]. Nearly 44% of the discharged patients are readmitted within the first year after discharge[5]. And each hospitalization increases the chances for future hospitalizations. This can put severe mental and social strain on the patients and their families; and once you add the costs of the hospitalizations, it places an enormous economic burden as well.

HF carries a high risk of mortality as well; approximately 50% of the patients die within 5 years of diagnosis[6-8]. So as you can see, a diagnosis of heart failure should not be taken lightly. It is vital that the condition be managed properly.

Causes of Heart Failure: There are a number of causes for heart failure.

Coronary artery disease (CAD) is the most common cause of heart failure. CAD occurs due to the accumulation of fatty deposits and narrowing of the arteries that supply blood to the heart. When blood supply to heart is blocked, the heart gets damaged. The damaged heart can result in heart failure.[1]

Other risk factors that can progress to heart failure are[1]:

- Any previous episode of heart attack that has caused damage to heart muscles
- Defects in the heart present at birth
- High blood pressure
- Heart valve disease
- Cardiomyopathy/disease of the heart muscle
- Infection of the heart and/or heart valves
- Abnormal heart rhythm (arrhythmias)
- Being overweight
- Diabetes

- Thyroid problems
- Alcohol or drug abuse
- Certain types of chemotherapy
- Failure to take preventive medications
- Diet (excessive salt or fluid intake)

The Symptoms of Heart Failure: Symptoms are due to the inadequate pumping function of the heart. They can be:

- Breathlessness while doing activities or at rest.
- Swelling
- Chronic lack of energy
- Difficulty sleeping at night due to breathing problems
- Swollen or lender abdomen with loss of appetite
- Cough with frothy sputum
- Increased urination at night
- Confusion and / or impaired memory

Because of these symptoms, the patients can also experience depression, social isolation, limited ability to travel, to socialize, and to go shopping; they can be unable to take part in recreational activities. It can further lead to negative effect on personal relationships[10].

Managing Heart Failure: The first step in managing heart failure for healthcare professionals is its proper diagnosis and then to evaluate etiology or the cause behind it. They need to go through an initial clinical assessment including a careful history for symptoms, and a thorough physical examination to assess signs, and then ordering appropriate investigations like echocardiography, chest x-ray and ECG and other tests to finally confirm the clinical assessment[2,11].

After confirmation of diagnosis, the clinician focuses on specific management strategies to improve functional capacity and the patient's life quality. Preventing hospital admissions and reducing mortality are also management objectives[2,12]. There are multiple drugs available with different modes of action to take care of heart failure patients in achieving above mentioned objective which heart failure specialists use according to the patient's clinical condition; this is the key behind successful management to choose right drug at right time.

The doctor may change therapies according to patient situations, reassess symptoms, and consider additional therapies as needed[12]. If the patient shows no improvement despite optimum medical therapy, device or surgical intervention may be offered to some patients[2].

The patient's role in managing Heart Failure: The patient's and their family's role is just as important as

the doctor's in the management of heart failure. The patient must take the medicines as prescribed and not make changes to the regimen without consultation. If patients experience side effects, they should inform their doctors promptly so they can make the required adjustments. The patient must acquire healthy lifestyle by correcting diet, exercising every day, quitting smoking and stopping other unhealthy activities.

Some heart failure patients reduce their level of activity to avoid experiencing symptoms anymore. However, this can fool the patient and the doctor into thinking that the patient is getting better; the patient must be honest about their condition and remain positive about their outlook. The patient's family should be there at every step of the way, encouraging the patient to eat healthily, to exercise, and to maintain medication regimens. The family's presence will help keep the patient motivated to take better care of themselves.

Heart failure is a progressive condition, meaning it gets worse with time. This happens even if the patient starts to feel better after start of their appropriate management. Therefore, if patient wishes for a healthier future, they should stick to the treatment advised and remain motivated for a healthy life style.

Living with Heart Failure: does it get better?

Heart failure is unfortunately not curable, however, it is manageable. The importance of managing heart failure cannot be underestimated. If not managed properly, the patient continues to get worse with repeated emergency visits and hospital admissions that puts an enormous social, mental and financial strain on the patients, and this extends to their families as well. With the right therapies at right time by means of optimum medical management, the risk of all this happening can be significantly reduced[12] and help patients in overcoming their social and physical limitations as well[14].

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Toxic Effects of
Doxorubicin on
Cardiac
Dysfuction and
its Reversal by
Cassia Absus

Original Article

Toxic Effects of Doxorubicin on Cardiac Dysfuction and Reversal of it by Cassia Absus

Syeda Memoona Gillani[1], Jawad Mumtaz Sodhar[1], Alina Saqib[2], Fareeha Mushtaq[2], Qaiser Jabeen[3] and Fayaz Anjum[1]

ABSTRACT

Objective: Cassia absus is a seed for prophylaxis and treatment of cardiac dysfunction induced by Doxorubicin.

Study Design: Experimental Study

Place and Duration of Study: This study was conducted at CMH Institute of Medical Sciences Bahawalpur and Islamia University Bahawalpur from September 2017 to March 2018.

Materials and Methods: 70% methanolic (V/V) extract of Cassia absus (Ca.Cr) was prepared under reduced pressure. After development of crude extract for various phytoconstituents, In-vivo pharmacological tests were performed in Wistar albino rats. Animals were divided into six groups. Normal control group, Intoxicated groups, Treatment groups; administered different doses (30, 100 and 300 mg/kg of Ca. Cralong with intoxication) and Standard group. By cardiac puncture blood of each rat was collected after 72 h of Doxorubacin-intoxication, and sera were separated for analysis of (lactate dehydrogenase (LDH), creatinine kinase (CK-MB), aspartate transaminase (AST) and alanine transaminase (ALT)).For histopathology heart/body weight ratio was calculated and hearts were analyzed.

Results: By using Anti cancer drug that is Doxorubicin significantly increased the values of serum cardiac biomarkers,become less heart/bodyweight ratios and reveal marked changes in histological findings.Treatment with cassia absus Ca.Cr resulted in significant drop in serum cardiac biomarkersp<0.05),increased heart/bodyweight ratios and histological changesalso showed significant changes.

Conclusion: Cassia absus has cadioprotective effects against Doxorubicin on analysis of Cardiac biomarkers and histopathological.

Key Words: Cardiac Dysfunction, Cardiotoxicity, Cassia absus, Doxorubicin

INTRODUCTION

Chemotherapeutic agent; doxorubicin produce toxicity by producing free radicals in association with decrease in endogenous antioxidants (superoxide dismutase, catalases and reduced glutathione) that lead to endocardium damage on repeated or large doses exposure leading to cardiac dysfuntion such as myocardial infarction[1] and Acute myocardial infarction (AMI) is a clinical condition that results from an injury to myocardial tissue due to an imbalance between oxygen supply and demand.

[1.] Department of Pharmacology / Anatomy[2], CMH Institute of Medical Sciences, Bahawalpur.

[3.] Department of Pharmacology, Islamia University Bahawalpur.

Correspondence: Syeda Memoona Gillani, Lecturer, Department of Pharmacology, CMH Institute of Medical Sciences, Bahawalpur, Pakistan.
Contact No: 0315-4087308
Email: duaagillani@gmail.com

The death of myocytes is generally confluent; this pattern of injury distinguishes infarction pathologically from other forms of myocardial injury, which tend to destroy myocytes more diffusely[2]. Dose associated cardiotoxicity with doxorubicin (25mg/kg i.p.) is however kept as model to evaluate protective effects of natural products because for botanists, medicinal plants are a way to produce research theories and various medicinal plants have been used for their pronounced cardioprotective effects[3] and this study links the use of tradiotionally used plant e.g. Cassia absusdue to its reported antioxidant activity[4], by using beta blocker (atenolol) as standardas it reduces myocardial workload, by decreasing heart rate and blood pressure[5].

MATERIALS AND METHODS

Phytochemical Section

Plant Collection: On the basis of their data of local use Cassia absus seeds were selected. Seeds were washed and cleaned from extraneous substances.

Preparation of the Ca.Cr: By crushing and grinding seeds were obtained. For three days 70% methanolic extract of Cassia absus (Ca.Cr)was prepared by maceration of coarsely ground seeds.

By using Heidolph rotary evaporator the filtrate was evaporated under reduced pressure. The extract Ca.Crwas obtained in semi-solid form and the percentage yield was calculated.

Ca.Cr by Phytochemical Screening: For the presence of phytoconstituents such as alkaloids , carbohydrates, fats and oils, flavonoids, glycosides, phobatannins, phenols, proteins, quinones, sapponins, tannins and terpenes,bring Phytochemical analysis of Ca.Cr.[6]

Ca.Cr's Antioxidant Activity

Scavenging Assay DPPH Radical: spectrophotometric method was studied by DPPH scavenging activity of Ca.Cr described by Marsha and Lewis[7].

Acute Toxicity Assay: OECD guidelines reveals the acute toxicity of Ca.Cr[8]

Pharmacological Section

Animals: Animals are selected on the basis of their normal LDH level. Experiments were performed in Wistar albino rats of either sex (150-250g).

Induction of Cardiotoxicity: Doxorubicin were injected for induction of Cardiotoxicity(25mg/kg, i.p.) on 12th day of study.[9]

Experimental Protocol: Six groups, each comprising of six animals categorized as;

Normal Control Group: Administered physiological saline, 5ml/ kg orally for 14 days.

Intoxicated Group: Administered physiological saline for 14 days along with intoxication.

Treatment Groups: 3 groups were pretreated with Ca.Cr, orally for 14 days along with intoxication.

Standard Group: Administered atenolol (100mg/kg, orally) for 14 days.

By the end of the experimental period post doxorubicin-injection was given and[10] animals were anesthetized with ketamine xylazine (10:1) and by the cardiac puncture blood was collected and sera were separated for estimation of cardiac biomarker enzymes. The hearts were excised, stored in 10% formalin and evaluated for various histopathological parameters[11]. Percent heart/bodyweight ratio was calculated[12].

3.3.7. Statistical Analyses: By using One-way ANOVA data was analyzed by Graph Pad Prism version 5.

RESULTS

Cardioprotective effects of Cassia absus in Dox-induced cardiac dysfunction, was evaluated in two sections; phytochemical; for the presence of antioxidants and various phytoconstituents whereas, pharmacological section was carried out in rats.

Phytochemical section

Phytochemical Analysis ofCa.Cr: Phytochemical analysis of Ca.Cr is labeled in table1.indicates the presence of cardiac glycosides in the crude extract which serves as basis for this investigation.

Antioxidant assayof Ca.Cr: Fig 1 shows the antioxidant activity and shows that the increase in concentration of Ca.Cr and ascorbic acid.

Action of the Ca.Cr on Cardiac Marker Enzymes: Decreased the cardiac marker enzymes; CK-MB, LDH, AST and ALT in a dose dependent manner comparable with the effect of atenolol taken as standard. (table 2)

Actions of the Ca.Cr on Histological Parameters: In intoxicated group heart tissues showed remarkable structural disorganization of heart muscles which was identified by the introduction of vascular edema, as shown in table 3, while the treatment groups show deviation from this disorganization.

Table No.1. Phytochemical analysis of the crude extracts of Cassia absus (Ca.Cr)

Phytochemical Constituents	Ca.Cr
Alkaloids	+
Carbohydrates	+
Fats and oils	-
Flavonoids	+
Glycosides	+
Phlobatanins	+

(-) sign shows absence and (+) sign the presence of the constituent)
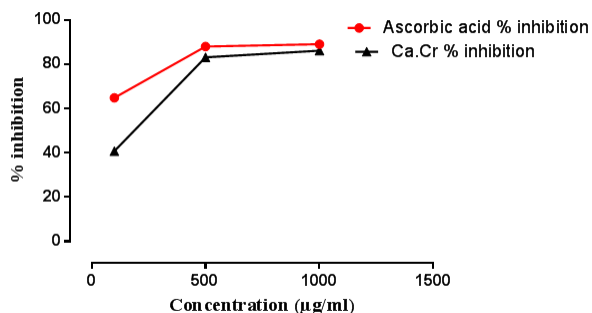
Figure No.1. Outcome of the Ascorbic acid alongwith the crude extract
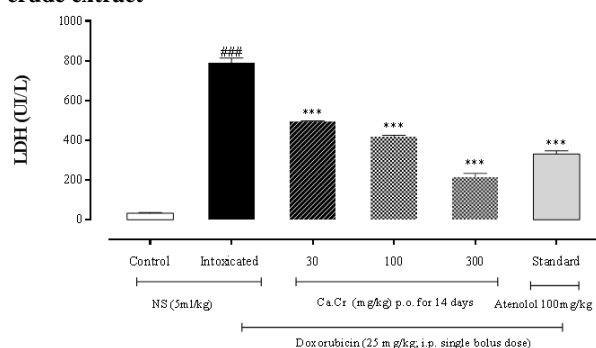
Figure No.2: The graphical representation of crude extract Cassia absus (Ca.Cr) on LDH (Lactate dehydrogenase) levels in Dox-induced cardiotoxic rats.. The intoxicated group is compared with control group ($^{###}$<0.001: highly significant) and the treatment groups (Ca.Cr+DOX) and atenolol standard group is compared with intoxicated group (ns: non-significant, * p<0.05: significant, **p<0.01: more significant and *** p<0.001: highly significant)

Table No.2: The effect of the crude extract of Cassia absus (Ca.Cr) on serum cardiac biomarker levels; CK-MB, LDH,AST, ALT and AST/ALT ratio.

		CK-MB (IU/l)	LDH (IU/l)	SGOT(AST) (IU/l)	SGPT(ALT) (IU/l)	AST/ALT
Control (N/S 5ml/kg)		65.39 ± 16.20	33.09 ± 3.45	24.23 ± 5.422	54.56 ± 4.434	0.444
Intoxicated (DOX 25mg/kg)		$719.9\pm27.71^{\#\#\#}$	$790.9\pm23.28^{\#\#}$	$240.6\pm5.127^{\#\#\#}$	$128.1\pm24.94^{\#}$	1.87
Treatment+ DOX	Ca.Cr (30mg/kg)	$383.8\pm4.344^{***}$	$493.7\pm4.09^{****}$	$140.4\pm3.420^{***}$	147.0 ± 11.12^{ns}	0.955
	Ca.Cr (100mg/kg)	$300.4\pm31.90^{**}$	$417.3\pm8.16^{***}$	$113.1\pm4.751^{***}$	105.8 ± 3.198^{ns}	1.06
	Ca.Cr (300mg/kg)	$244.8\pm29.68^{***}$	$215.7\pm18.24^{***}$	$102.4\pm2.226^{***}$	$40.39\pm6.817^{*}$	2.53
Standard + DOX	Atenolol (100mg/kg)	$412.7\pm17.86^{***}$	$330.4\pm16.35^{***}$	$110.5\pm2.350^{***}$	44.17 ± 5.029	2.50

The values are expressed as mean $\pm$ SEM of six animals in each group. The results of each group is compared, using one way ANOVA, with control group ($^{\#\#\#}$ $p<0.001$) and with intoxicated group ($^{*}p<0.05$, ** $p<0.01$ and *** $p<0.001$)

Table No.3: The effect of the crude extract of Cassia absus (Ca.Cr) on % change in heart weight/body weight ratio in doxorubicin-induced cardiotoxicity

		Body Weight	Heart Weight	Heart/Body Weight Ratio
Control (N/S 5ml/kg)		200 ± 23.45	0.678 ± 0.074	0.339
Intoxicated (DOX 25mg/kg)		158 ± 5.750	0.578 ± 0.031	0.376
Treatment+ DOX	Ca.Cr (30mg/kg)	137.7 ± 3.84	0.518 ± 0.019	0.376
	Ca.Cr (100mg/kg)	150.5 ± 4.34	0.582 ± 0.028	0.386
	Ca.Cr (300mg/kg)	120.8 ± 2.07	0.473 ± 0.022	0.391^{*}
Standard+DOX	Atenolol (100mg/kg)	171.7 ± 6.87	0.639 ± 0.016	0.372

The results are expressed as mean and SEM of six animals in each group.
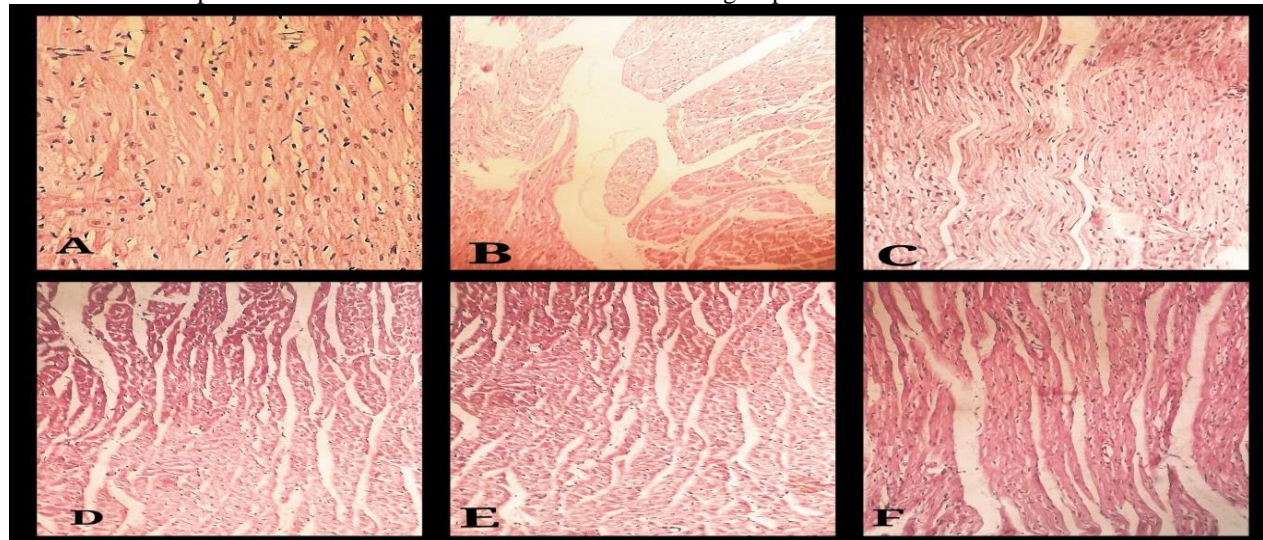
Figure No. 3: Histopathological changes in cardiac tissue; (A) control, (B) intoxicated (DOX 25mg/kg once at 12th day of pretreatment) (C) Atenolol (100mg/kg)+ intoxication (D) Ca.Cr (30 mg/kg)+intoxication, (E) Ca.Cr (100 mg/kg)+intoxication and (F) Ca.Cr (300 mg/kg)+intoxication in DOX-induced myocardial infarction in rats.

DISCUSSION

We conducted this study at CMH Institute of Medical Sciences Bahawalpur and Islamia University Bahawalpur to determine the Cardioprotective effects of Cassia absus against Doxorubicin that is anti cancer drug. Heart is a muscular organthatpumps blood via blood vessels of the circulatory system.Function of heart is supply the blood to the body with oxygen and nutrients and dismassal of metabolic wastes.

Cassia absus has the cardioprotective effects. The alkaloids, steroids, saponins, and flavonoids are present in different fractions of the seeds by chromatography of Cassia absus[13]. Cassia absus have antioxidant effect that combat oxidative lesions in cardiac diseases by the presence of phytoconstituents[14]. Prophylactic

administration of Cassia absus is because of compensatory counteraction of free radicals, which lowers the incidence of leaking and production of marker enzymes during cardiac injury, leading to decrease in cardiac workload.

Doxorubicin is anticancer drug that induces biochemical changes, as well as structural damage to myocytes[15]. However, histopathology of cardiac tissues according to other studies show that the cardiac tissues in normal animals are uniform in size and shape with no cellular infiltration of nectrotic cells is reported[15] while present study shows, dose dependent reduction in the cardiac lesions upon administration of Ca.Cr.Present study confirms dose dependent increase in enzymatic levels; i.e. CK-MB and LDH in intoxicated group while treatment groups show decreased levels of enzymes which can be assumed due to anti-scavenging effect of plants that detoxifies the free radicals produced in heart, leading to altered lipid peroxidation and myocardial necrosis. Present study also shows that superoxide radicals and hydroxyl radicals in the cardiomyocytes by administration of DOXinitiate cellular necrosis making cell membrane more permeable and cause leakage of enzymesthus a potent antioxidant[16].

It is evident from various studies that the levels of AST and ALT increase significantly as compared to normal animalsdue to DOX-intoxication. The ratio AST/ALT greater than 1 is considered as parameter to indicate cardiac injury upon exposure to larger doses of DOX[16]. Present study revels that ALT levels also have same pattern of increase in the intoxicated group and same effectiveness as that of Ca.Cr due to cardiotoxicity.

CONCLUSION

Cassia absus has cadioprotective effects against Doxorubicin on analysis ofCardiac biomarkers and histopathological parameters, when administered prophylactically via mechanism of antioxidant scavenging action. It has been proved that using natural products to prevent DOX-induced myocardial dysfunction.

Author's Contribution:

Concept & Design of Study: Syeda Memoona Gillani
Drafting: Jawad Mumtaz Sodhar, Alina Saqib
Data Analysis: Fareeha Mushtaq, Qaiser Jabeen, Fayaz Anjum
Revisiting Critically: Syeda Memoona Gillani, Jawad Mumtaz Sodhar
Final Approval of version: Syeda Memoona Gillani

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

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A Two Year Experience of Upper Gastrointestinal Endoscopy at Bahawal Victoria Hospital, Bahawalpur

Upper Gastrointestinal Endoscopy

Shahbaz Ahmed Qureshi[1], Javeria Shahbaz[2], Sana Abbasi[1], Romale Nazir[3] and Anas Ahmed[4]

ABSTRACT

Objective: The objective of this study is to look for the indications and findings of upper gastrointestinal endoscopy being performed at Bahawal Victoria Hospital Bahawalpur.

Study Design: Cross sectional, descriptive study.

Place and Duration of Study: This study was conducted at the Bahawal Victoria Hospital, Bahawalpur from a period of January 2014 to December 2016.

Materials and Methods: A total of 1582 patients underwent upper gastrointestinal endoscopy. All the referred patients for UGI endoscopy were briefed about the procedure and a written informed consent was obtained. Gargles of 4% Xylocaine oral spray were used as a local anesthesia.

Results: The results showed that UGI bleeding is the most common presenting complaint 35.6%. The most common finding was esophageal varices in 39.4% patients. Gastritis was present in 21.9% and peptic ulcer disease in 6.1% of the patients. 18.5% of the patients had normal study.

Conclusion: Upper gastrointestinal bleeding was the most common presenting complaint. The endoscopy revealed that esophageal varices are the most common finding followed by gastritis and normal study.

Key Words: Upper gastrointestinal endoscopy, upper gastrointestinal bleeding (UGIB), esophageal varices

INTRODUCTION

The upper gastrointestinal bleeding is still a serious risk and challenge to the health care system despite of all the advancements in medical sciences.[1] Loss of blood from gastrointestinal tract above the ligament of treitz is labeled as Upper Gastrointestinal Bleeding (UGIB).[12] It manifests itself as Hematemesis (blood in vomitus) or Melena (black, tarry stools).[6] It can be broadly divided into two categories Variceal and non variceal bleeding. It has an incidence of 150 per 1, 00,000 population and a mortality rate of 10%.[1,12] Variceal bleeding (esophageal and fundal) secondary to liver cirrhosis predominate in the developing countries like Pakistan

1. Department of Gastroenterology & Heptology Unit, Bahawal Victoria Hospital, Bahawalpur.
2. Department of Biochemistry, QAMC, Bahawalpur.
3. Department of Medical Unit 2, BVH Bahawalpur.
4. Medical Officer RHC Khangasharif.

Correspondence: Dr. Shahbaz Ahmed Qureshi, Associate Professor and Head of Gastroenterology & Heptology Unit, Bahawal Victoria Hospital, Bahawalpur.
Contact No: 0321-6818394
Email: shahbazq08@hotmail.com

secondary to high incidence of chronic hepatitis, while the peptic ulcer disease is the leading cause of UGIB in west or developed countries. [2-4]

Mortality due to UGIB has been decreased significantly over the last three decades secondary to the drugs to reduce portal vein pressure and endoscopic interventions and also the use of proton pump inhibitors and prophylactic antibiotics.[1]

Although upper gastrointestinal endoscopy is an invasive procedure with risks and complications but still a preferred choice in UGIB due to its diagnostic and therapeutic uses.[5,6] UGI Endoscopy has significantly decreased the mortality due to UGI bleeding. Bahawal Victoria Hospital is a tertiary care hospital in Bahawalpur, Punjab with a Gastroenterology and Hepatology Department equipped with endoscopy. Patients having indications of UGI endoscopy undergo endoscopy to diagnose and treat the underlying causes. It has to entertain a huge number of referrals from the Southern Punjab region.

MATERIALS AND METHODS

It was a cross sectional descriptive study. A data of 1582 patients was analyzed. These patients had UGI Endoscopy at Bahawal Victoria Hospital Bahawalpur from 01st January 2014 to 31st December 2016. All the referred patients for UGI endoscopy from Inpatient Departments, Outpatient Departments of various

specialties and Accidents and Emergency Department of the hospital were the subject of study.

Every patient was briefed about the procedure and a written informed consent was obtained. Gargles of 4% Xylocaine oral spray were used as a local anesthesia. Diagnostic and therapeutic procedure was performed under aseptic conditions. Olympus GIP type 150 series gastro scope was used. Upper gastrointestinal tract was visualized up to the ligament of treitz. Saeed Six Shooter band ligator was used for banding the esophageal varices and Inj. Histoacryl with Lipiodol was used for obliteration of the fundal varices. Bleeding duodenal ulcers were injected with 1:10,000 adrenaline. Adrenaline injection promotes a local vasoconstriction and tamponade effect, which allows stopping the bleeding. In case of a suspicious area biopsies were taken and sent for histopathology.

Demographic data of the patient like age, gender, and area of residence was recorded along with indications, findings observed and therapeutic intervention performed during the upper gastrointestinal endoscopy were noted.

RESULTS

The data was carefully analyzed. Out of 1582, most of patients were between 35 to 52 years of age. Percentage of male patients was 57.1% and female was 42.9%.

UGI Bleeding and follow up for Endoscopic Variceal Band Ligation (EVBL) contributes 35.6% (n=563) and 25.4% (n=402) respectively to all the upper gastrointestinal endoscopies performed at Bahawal Victoria Hospital, Bahawalpur. Liver cirrhosis due to chronic hepatitis is very common in Pakistan. Patients from remote areas of Bahawalpur often report to tertiary care center with complications of liver cirrhosis and UGI bleeding being one of the most common acute presentations. 25.3% (n=400) of the patients had dyspepsia and 6.3% (n=100) had dysphagia as an indication to undergo UGI Endoscopy. 5.5% (n=87) patients had persistent vomiting and 0.8% (n=13) patients had unexplained anemia. Malignancies are not uncommon in this part of the country. Screening for malignancy makes up 1.9% (n=17) of the total number of UGI endoscopies during the study period as shown in Table 1.

Table No. 1: Indications for Endoscopy

Sr. No.	Indications	No. of Patients	%age
1.	UGI Bleeding	563	35.6%
2.	Follow up EVBL	402	25.4%
3.	Dyspepsia	400	25.3%
4.	Dysphagia	100	6.3%
5.	Intractable Vomiting	87	5.5%
6.	Malignancy Screening	17	1.9%
7.	Anemia	13	0.8%

The findings in all of the above patients were very consistent with any other studies conducted in this part of the world. Esophageal varices were the most common finding in 39.4% (n=624) of the patients, followed by gastritis, which was present in 21.9% (n=346%). Peptic ulcer disease was present in 6.1% (n=97), fundal varices in 3.2% (n=50), gastro esophageal reflux disease in 3% (n=47), malignant growth in esophagus in 1.8% (n=29), duodenal ulcers in 1.7% (n=27), esophageal strictures in 1.3% (n=20),gastric outlet obstruction in 0.9% (n=14), malignant growth in stomach in 0.9% (n=14), esophageal candidiasis in 0.7% (n=11), talengectasias in 0.4% (n=6) and achalasia in 0.3% (n=5) as shown in Table 2. 18.5% (n=292) of the patients had normal study despite having an indication to undergo UGI endoscopy.

Table No. 2: Findings of UGI Endoscopy

Sr. No.	Findings	No. of Patients	%age
1.	Esophageal varices	624	39.4%
2.	Gastritis	346	21.9%
3.	Normal Study	292	18.5%
4.	Peptic Ulcer Disease	97	6.1%
5.	Fundal Varices	50	3.2%
6.	Gastro Esophageal Reflux Disease (GERD)	47	3.0%
7.	Malignant Growth in Esophagus	29	1.8%
8.	Duodenal Ulcers	27	1.7%
9.	Esophageal Strictures	20	1.3%
10.	Gastric Outlet Obstruction	14	0.9%
11.	Malignant Growth in Stomach	14	0.9%
11.	Esophageal candidiasis	11	0.7%
12.	Talengectesias	6	0.4%
13.	Achalasia	5	0.3%

DISCUSSION

Presence of esophageal varices in this study 39.4% is comparable to studies conducted elsewhere in Pakistan like 44% in Rahim Yar Khan.[7] Such high levels are due to the high prevalence of chronic hepatitis in Pakistan. Pakistan has been labeled as cirrhotic nation.[8] Finding in our study was fully supportive of the above statement. Follow up esophageal varices and fundal varices secondary to liver cirrhosis make up 39.4% and 3.2% respectively and aggregate reaches up to 42.6% of the total. This means nearly half of the patients undergoing UGI endoscopy was secondary to a single complication (UGI Bleeding) of a single cause (liver cirrhosis). Our results are quite consistent with the studies previously conducted in Pakistan. Cirrhosis

imposes a fair amount of burden on the healthcare system in Pakistan.

Peptic ulcer disease is not the most common cause of UGI in Pakistan as compared to the west.[9, 10] In this study only 6.1% (n=97) patients had peptic ulcer disease, compare able to study conducted in Gujrat which shows 10% of the patients had UGI bleed secondary to peptic ulcer disease.[6] One of the possible causes of decreased number of peptic ulcer disease is very frequent prescription of proton pump inhibitors. Alcohol is an identified risk factor for Peptic ulcer disease.[11] Pakistan has a Muslim population of over 95% and Islam strictly prohibits drinking alcohol. This may be a major factor for lesser number of peptic ulcer disease; however, if considering non variceal causes of UGI bleeding, peptic ulcer contributes 34% and gastric erosions 32% according to a study conducted in Rawalpindi.[3]

Normal study was observed in 18.5% of the patients in our study. This number is surprisingly high. Appropriateness of the referrals for UGI endoscopy has been a serious debate around the world. Study conducted in Nepal showed 65.8% of the indications were considered appropriate as per American Society for Gastrointestinal Endoscopy (ASGE) guidelines.[5]

CONCLUSION

UGI Endoscopy is a reliable diagnostic and therapeutic tool and has helped to diagnose and manage many life threatening conditions like UGI bleeding. UGI Endoscopy has significantly influenced the outcome of UGI bleeding patient. Chronic viral hepatitis puts a huge burden directly on the Gastroenterology and Hepatology Department and indirectly on the whole Health care system. Pakistan is a nation with large number of cirrhotic patients. Serious efforts are needed for hepatitis prevention, screening and treatment; otherwise lots of resources will be kept on getting engulfed by a preventable cause (viral hepatitis). Over the counter supply of NSAIDS/ Drugs should be prohibited to a certain extent since the NSAID induced gastritis is a major complication and such patients may require UGI endoscopy.

Pakistan is a developing nation and special attention should be paid towards prevention of diseases. Primary prevention can reduce the burden on tertiary care centers and significantly lighten the financial pressure on the health care system of our country. Efforts like Hepatitis Clinics, free and uninterrupted supply of antiviral therapy are highly appreciated. Awareness campaigns are a need of time. People must be aware of the communicable diseases like hepatitis and the preventive measures. Gastroenterology and hepatology units specialized to do UGI endoscopy and outreach programs for early diagnosis of the disease can play a vital role in early diagnosis and treatment. Guidelines

need to be developed for Pakistan keeping in view the population and a high prevalence of viral hepatitis.

Author's Contribution:

Concept & Design of Study:	Shahbaz Ahmed Qureshi
Drafting:	Javeria Shahbaz, Sana Abbasi
Data Analysis:	Romale Nazir, Anas Ahmed
Revisiting Critically:	Shahbaz Ahmed Qureshi, Javeria Shahbaz
Final Approval of version:	Shahbaz Ahmed Qureshi

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Levels of Serum Adiponectin, Glucose and Insulin in Asymptomatic Offspring of Patients with T2DM

Levels of Serum
Adiponectin,
Glucose and
Insulin in
Asymptomatic
Offspring

Muhammad Jawad Anwar, Muhammad Ejaz Butt, Muhammad Shamim, Rabiya Jameel, Ali Afzal and Muhammad Waseem

ABSTRACT

Objective: To measure and compare the Adiponectin, glucose and Insulin results of healthy offspring of patients with type 2 diabetes mellitus with healthy offspring of non-diabetics.

Study Design: Case control study

Place and Duration of Study: This study was conducted at the Department of Pathology PGMI, Lahore and Diagnostic Laboratory of UVAS, Lahore for nine months.

Materials and Methods: Healthy non-diabetic subjects which were offspring of previously diagnosed type 2 diabetics, visiting LGH Lahore for treatment, under 30 years female and male, having normal fasting blood glucose values with no diabetic symptoms were included.

Results: In 100 subjects, Insulin and adiponectin were estimated for this ELISA method used, and GOD-PAP method for glucos. Control group had Mean ± SD of Adiponectin 5.20±2.23 and study group had 4.38 ±1.38 with insignificant difference of P value 0.14. Insulin in control group had Mean ± SD 16.80 ± 4.09 and study group had 18.40 ± 13.32 having insignificant difference with P value 0.081. In control group, glucose Mean ± SD had 80.75±14.21 mg/dl value and 80.92±13.38 mg/dl in study group with insignificant contrast with 0.098 P value.

Conclusion: Adiponectin, glucose and Insulin measured values were normal, having no notable corelation direct or inverse.

Key Words: Type 2 diabetes mellitus (T2DM), Adiponectin ,Insulin, Enzyme linked immunosorbent assay (ELISA), Glucose oxidase para amino phenazone (GOD PAP).

INTRODUCTION

About eighty to ninety percent dibetics have Type 2 diabetes. It is important to identify people with disease due to risk of complications.[1] Before the onset of type 2 diabetes and hyperglycemia more acceptable marker found in plasma is adiponectin. Released from adipocytes in blood, in about 5-10 µg/ml concentration. Main operation of adiponectin are to lessen formation of glucose.[2,3] Decreased adiponectin in blood is a risk for type 2 diabetes development. Additionally, reduced risk for type 2 diabetes is associated with increased adiponectin values,[9] so it is a better therapeutic choice for control of T2DM.[4]

Department of Pathology, Amina Inayat Medical College, Sheikhupura.

Correspondence: Muhammad Jawad Anwar, Associate Professor Chemical Pathology, Amina Inayat Medical College, Sheikhupura.
Contact No: 0321-4195597
Email: drmjawad@hotmail.com

Adiponectin levels are decreased in type 2 diabetes and insulin resistants [5] and is in inverse proportion to insulin values.[6] Adiponectin boost insulin sensitivity.[7] Increased concentrations of adiponectin firmly correspond with decreased risk of hyperglycemia and type 2 diabetes and give superior glucose account.[8]

Glucose metabolism is regulated by insulin, it suppresses directly endogenous glucose production (glycogenolysis; gluconeogenesis). Glucose is used for energy in body cells, here it comes from blood by the action of insulin. Cells receptors of type 2 diabetic subjects, offer resistance to insulin influence.[9] Insulin acts on "insulin receptors".[10]

Depletion of serum adiponectin level happens before insulin resistance, recommending, decreased adiponectin level is important in the pathophysiology of diabetes.[11] In healthy insulin-resistant first degree relatives blood adiponectin concentrations were also reduced. Adiponectin is self standing risk prognostic for insulin resistance, hyperglycemia and type 2 diabetes.[12]

Offspring of type 2 diabetic subjects can be helped out in the prediction of diabetes by calculating plasma insulin and adiponectin values.

MATERIALS AND METHODS

50 sex and age mathched normal controls were put in group A, reported by normal fasting blood glucose value and having no indication of type 2 diabetes, being siblings of persons having normal fasting blood glucose value and no history of diabetes. In Group B, 50 normal persons under 30 years age, reported by normal fasting blood sugar value and normal history, being siblings of patients with Type 2 diabetes mellitus.

Blood was taken and analysed. Using version 15 of SPSS, the collected ststistics was inspected. To detect differences "t" test was used for separate samples. To calculate correlation between inconstants applied test was Pearson test. Level of 0.05 or less of "p" was regarded analytically remarkable.

RESULTS

Sex distribution in Group A and B: Out of 50 controls in group A, females were 19(38%) and males were 31(62%). In group B females were 17(34%) and males were 33(66%) as shown below in figure 1.
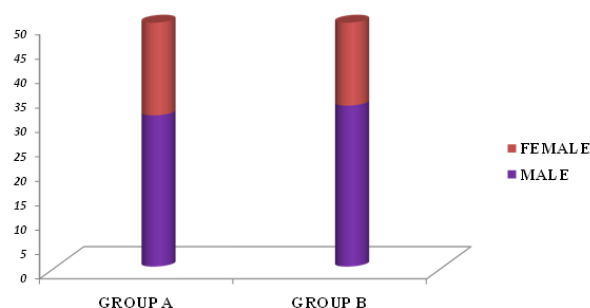
Figure No.1: Sex distribution in Group A & B.

Age Distribution In Group A And B: Mean+SD of age values are 22.2±3.4 years and 23.1+3.5 years in groups A & B ranging between 18 to 29 years (Table 1).

Table No.1: Comparison of Age in Group A and B (in years)

AGE (years)	Group A	Group B
Mean±1SD	22.16±3.42	23.14±3.50
Range	18-29	18-30

A Vs B P=0.0878(Non-significant)

Weight Distribution in Group A and B: Weight related Mean+SD estimations were 58.32±9.16 kg and 63.36±14.54 kg in groups A&B with extents of 47-85 kg and 42-90 kg separately (Table 2).

Table No.2: Comparison of weight in group A and B

Weight (kg)	Group A	Group B
Mean±SD	58.32±9.16	63.36±14.54
Range	47-85	42-90

A Vs B P= 0.25(Non-significant)

Insulin Levels in Group A and B: Insulin fasting blood value of male and females in group B was 18.4±13.32 (95%CI=17.24 – 19.55) µIU/ml and in the controls was 16.8± 4.09 (95% CI = 15.64 – 17.96) µIU/ml (Table 3) having ranges between 10.57-30 µIU/ml and 4.99-28.91 µIU/ml separately (Table 3).

Table No.3: Comparison of insulin levels in group A and B

INSULIN (µIU/ml)	Group A	Group B
Mean±SD	16.80± 4.09	18.40±13.32
95%CI	15.64–17.96	17.24–19.55
Ranges	10.57-30.00	4.99-28.91

AVs B   P= 0.081(nonconsequential)

Adiponectin Levels in Group A and B: The fasting adiponectin values of male and female subjects in study group was 4.38±1.38 µg/ml and in control group A was 5.20±2.23 µg/ml (Table 4) with range of 1.69- 6.77 µg/ml and 2.27-12.52 µg/ml, separately. The comparison among groups A&B showed non–significant difference having p value=0.14 (Table 4).

Table No.4: Comparison of adiponectin levels in group A and B

Adiponectin (µg/ml)	Group A	Group B
Mean±SD	5.20±2.23	4.38±1.38
95% CI	4.56-5.83	3.99-4.77
Ranges	2.27-12.52	1.69- 6.77

A Vs B P=0.14(non-significant)

Glucose Levels in Group A and B: The fasting blood glucose value was 80.92±13.38 mg/dl of males and females in study subjects and was 80.75±14.21 mg/dl (Table 5) in control subjects having ranges between 65-112 mg/dl and 60-110 mg/dl, separately. The differenciation between groups A&B had uncon-sequential difference with p value=0.098 (Table 5).

Table No.5: Comparison of Glucose Levels in Group A and B

Glucose (mg/dl)	Group A	Group B
Mean±SD	80.75±14.21	80.92±13.38
95% CI	77.19-85.20	77.79-85.38
Ranges	60-110	65-112

A Vs B P=0.098(nonconsequential)

DISCUSSION

This research was not in hormony with the research of Yamamoto et al and Anthony et al, they revealed in their research that the blood values of adiponectin in women (13.5±7.9 µg/ml) was significantly higher than in men (7.2±4.6 µg/ml).[13, 14] Our research was in hormony with the research of Yokoyama et al, their research also revealed that blood adiponectin values between two research subjects have no difference mathematically.[15] Our research was in hormony with the research of Tschritter et al, their research revealed that adjustment of sex and waist to hip ratio made the

difference between two classes nonconsequential. In comparison, serum adiponectin values were not very much different between the persons with (10.8+0.3 µg/ml) and without family history of T2DM (11.4+0.3 µg/ml; P=0.27). Serum adiponectin values were remarkably more in female (12.5+0.3 µg/ml) than in male (8.7$\pm$ 0.3 µg/ml; P=0.0001).[16]

Regarding insulin Tsou et al gave identical to our values in research which was in non-diabetic siblings, males having age 15–18 years and females having age 11–14 years. Our research was of the same conformation as was the research of Anthony et al who researched in persons aged between 26 to 56 years.[14] Our research was opposite to the research of Yokoyama et al; whom research was in subjects with ages in first group between 6-10 years, in second group 11-14 years and in third group 15-18 years.[16] Our research was contradicting to the research of Ura N et al who revealed consequential contrast in serum insulin values in two groups.[17]

Our research was similar to the research of Yamamoto et al (2002)[25], whom research on glucose was in the persons aged between 30-65 years. Anthony et al have revealed in their research that male group has more plasma glucose values than females, they conducted research in Hispanics aged between 26 to 54 years and African-American 28 to 56 years.[14] Our research was similar to the research of Ura N et al.[17] Our research was not in compliance with the research of Tschritter et al, who examined obese persons having more disturbed glucose values than persons with normal plasma glucose values.[16]

The biostatic data showing association between plasma adiponectin values and insulin values in our research was unimportant arithmatically with p value > 0.05. The correlation coefficient r value was -0.048. It is considered poor negative correlation and is not having any important statistical importance. Our research did not match with the research done by Yamamoto et al (2002) who concluded that serum adiponectin correlated negatively with serum insulin values.[13] In their research the negative correlation was statistically significant. Tsou et al have also revealed[18] that serum adiponectin values inversely correlated with fasting plasma insulin levels. They studied in boys having age between 15–18 years and girls having age 11–14 years. Our research was in hormony with the research of Ferris et al, who showed in their research that plasma insulin value was not subject to plasma values of adiponectin.[19] Martin et al have also proved in a research that plasma insulin is not related to notably lower values of adiponectin; they conducted research in women of South Asian.[20] Abbasi et al also revealed in a research that low concentrations of plasma adiponectin have no link to plasma insulin concentrations.[21]

CONCLUSION

The comparison of plasma glucose concentrations among groups A&B revealed insignificant contrast. The adiponectin values were somewhat beneath in symptomless siblings of type 2 diabetics in contrast to the control group; small distinction was not having analytical importance. In control subjects plasma insulin values were significantly lesser in comparison with asymptomatic siblings of type 2 diabetics. Between plasma adiponectin and insulin concentrations a minor negative statistically not significant correlation was found.

Author's Contribution:

Concept & Design of Study:	Muhammad Jawad Anwar
Drafting:	Muhammad Ejaz Butt, Muhammad Shamim
Data Analysis:	Rabiya Jameel, Ali Afzal, Muhammad Waseem
Revisiting Critically:	Muhammad Jawad Anwar, Muhammad Ejaz Butt
Final Approval of version:	Muhammad Jawad Anwar

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

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Original Article

Role of Para Vertebral Blocks after Unilateral Modified Radical Mastectomy for Breast Cancer

Role of Para Vertebral Blocks in Breast Cancer

Muhammad Saddique Zishan[1], Taimur Ali[2], Shahid Rafiq[3], Muhammad Sartaaj Khan[3], Amman Sartaaj Khan[3] and Hafiz Muhammad Amjad[4]

ABSTRACT

Objective: To study the Role of Paravertebral Blocks after Unilateral Modified Radical Mastectomy for Breast Cancer.

Study Design: Descriptive case series

Place and Duration of Study: This study was conducted at the Department of Surgical Unit 2, Jinnah hospital Lahore from 1st February 2017 to 31th January 2018.

Materials and Methods: The study was conducted among 100 female breast cancer patients undergoing unilateral modified radical mastectomy. Paravertebral blocks were given by 0.5% bupivacaine from 2nd to 7th paravertebral spaces. Patients were observed for Pain scorein first 24hour periodby Visual Analogue Scale(VAS). The VAS scoring at first rescue analgesic, duration of post-operative analgesia, frequency of analgesia administration and mean consumption of analgesia in first 24 hours period were calculated.

Results: Out of 100 patients, 65% of the patients belong to age group 35-50 years and only 35% of the patients belong to age group 51-65 years age group. The mean of the VAS scoring at first rescue analgesic was 5.58 ±0.781.The duration of post-operative analgesia was 5.15±1.104 hours (309±66.42 min). The frequency of analgesic administration was 3.53± 1.104. The mean consumption of analgesic given to all patients was 88.22 ±22.32.

Conclusion: The study has demonstrated that the paravertebral blocks lead to prolonged post op analgesia with marked reduction in post op analgesic requirement. **Key words**: Para vertebral Blocks, Modified Radical Mastectomy, Breast Cancer. Visual Analogue Score.

Key Words: Para Vertebral Blocks, Unilateral Modified Radical Mastectomy, Breast Cancer

INTRODUCTION

The Breast cancer (BC) is a common global health problem among women. It is fifth leading cause of death worldwide while it is most common cause of death among women in the developing countries[1]. Breast cancer accounts for one third of all cancer cases followed by oral cavity & ovarian cancers[2]. Oneout of 10 women suffer from breast cancer at any stage of their lives[3].

[1.] Department of Surgery, Ghurki Trust Teaching Hospital, Lahore.

[2.] Department of Surgery, Shalimar Hospital, Lahore.

[3.] Department of Surgery, Pakistan Kidney and liver Institute, Lahore.

[4.] Department of Surgery, Jinnah Hospital Lahore.

Correspondence: Muhammad Saddique Zishan, Senior Registrar, Surgical Unit 1, Ghurki Trust Teaching Hospital, Lahore.
Contact No: 0309-4027387
Email: zishansaroya@gmail.com

About 80% of invasive breast cancer occur in women above 45 years [3].In England && Wales, 1 in 12 women develop the disease during their life time. About 39620 patients estimated to die of breast cancer inUSA[4].The incidence of breast carcinoma in Pakistan is 50/10000 whereas in India it is 19/100000[5]. Approximately 1 in 9 of Pakistani women usually suffer from breast cancer at some stage in their lives [6]. The frequency of breast cancer in Karachi was 69.1 per 100,000 from 1998-2002[7].Advanced age, obesity, family history, hormonal or contraceptive exposure, smoking and lack of physical exercise are considered important risk factors for breast cancer[1,3.]

Paravertebral blocks (PVBs) involve injection of anesthetic agent into the paravertebral space. This is a safe & effective procedure with fewer complications. It is useful for carrying out various procedures like breast surgeries, thoracic surgeries and various abdominal surgeries[8, 9].

The para vertebral space is a wedge-shaped space near vertebral bodies. The spinal roots emerge from the intervertebral foramen into this space & divide into dorsal & ventral rami. The sympathetic chain lies in the same fascial plane & communicates with it via the communicants rami. Hence, PVBs produce unilateral sensory, motor & sympathetic blockade[9].The spinal

nerves are devoid of a fascial sheath in this region that make them exceptionally susceptible to local anesthetics.

For breast surgeries, the PVB should be administered from T2 to T7 spinal levels corresponding to the nerve supply of breast[9,10]. Firstly, points corresponding to 2.5 to 3cm lateral to the T2-T7 spine are marked with skin marker. Under aseptic measures, the marked skin site is infiltrated with local anesthetic agent i.e. lignocaine 2%. A specialized Tuohy needle is advanced perpendicular to the skin, posteroanteriorly, until contact with the pars intervertebralis, articular column, & the transverse process of the particular vertebra is established[9,10]. While continuously testing for loss of resistance to air, the needle is "walked off" the structure in lateral & caudal direction & advanced approximately 1 cm. As the costotransverse ligament is penetrated, a "pop" is felt, & there is a loss of resistance to air. This indicates paravertebral space where 0.5% bupivacaine isinjected for providing PVBs[9].

PVB is technically feasible and easy to learn with a high success rate[11]. The failure rate associated with PVBS is <13%.Other complications include inadvertent vascular puncture (6.8%), hypotension (4%), epidural or intrathecal spread (1%), vascular puncture (0.8%), pneumothorax (0.5%). Likelihood of vascular puncture & pneumothorax is higher in bilateral blocks compared with unilateral block. Burlacu et al have reported contralateral harlequin & ipsilateral Horner's syndrome due to spread to ipsilateral stellate ganglion[12].

MATERIALS AND METHODS

Sample size of 100 cases was calculated with 95% confidence lend, d=0.01 and taking expected mean +/- S.D of mean consumption of analgesia i.e. 0.105 +/- 0.0246 g with paravertebral blocks after breast cancer surgery. Sampling technique was Non-probability purposive sampling.

The inclusion criteria were following

1. All consenting female patients of age 18 to 55 years undergoing unilateral modified radical mastectomy for biopsy proven breast cancer
2. Patients fit for surgery (ASA 1 to 3).
3. The exclusion criteria were following
4. Patients refusing to participate
5. Benign breast diseases like fibroadenoma and duct ectasia etc.
6. Obesity i.e. body mass index > 35kg/m2.
7. Pregnancy and lactating females
8. Bleeding disorders diagnosed by raised PT/APTT>6 seconds
9. Diabetes Mellitus diagnosed by BSF>126mg/dl.
10. Kyphoscoliosis clinically diagnosed
11. Herpes Zoster clinically diagnosed
12. Allergic to the bupivacaine
13. Chronic pain syndrome clinically diagnosed
14. chronic analgesic abuse

15. Not fit for surgery (ASA grade >3)

Paravertebral blocks were given by 0.5% diluted bupivacaine (2.5mg per kg body weight) 2 cc in each Paravertebral space from 2nd to 7th intercostal spaces corresponding to nerve supply of the breast. Patients were observed for Pain score in first 24hour period by Visual Analogue Scale(VAS).Rescue Analgesic (Tramadol) was given 0.025g at any time if pain scoring was greater than 4. The VAS scoring at first rescue analgesic, duration of post-operative analgesia, frequency of analgesic administration and mean consumption of analgesicin 24 hours period were calculated.

RESULTS

The mean age of the patients was 48.54±6.306 with minimum age of 36 years and maximum age of 62 years. Out of hundred patients, 65% of the patients belong to age group 35-50 years and only 35% of the patients belong to age group 51-65 years age group. (Table 1, Figure 1).

The time of first dose of analgesic (tramadol) given after surgery was calculated among all the patients and it was labeled as the **Duration of post-operative analgesia**. The duration of post-operative analgesia was 5.15±1.104 hours (309±66.42 min). The minimum duration of post op analgesia was 3 hours (180 min) and the maximum duration of post op analgesia was 8 hours (480 min). (Table 2).

The mean VAS scoring for first rescue analgesic was 5.58 ±0.781. The minimum VAS scoring for first rescue analgesic was 4 while the maximum VAS scoring was 7. (Table 3).

The total number of times the dosage of analgesic to be repeated in 24 hours was labeled as **Frequency of analgesic administration**& it was 3.53± 1.104. The maximum frequency of analgesic administration was 5 and the minimum was 2. (Table 4).

Table No: 1 Age of subjects

	Statistics	**Age of subjects**	
N		100	
Mean		48.54	
Median		48.00	
Mode		45	
Std. Deviation		6.306	
Minimum		36	
Maximum		62	
		Frequency	Percent
	35 - 50 years	65	65.0
	51 - 65 years	35	35.0
	Total	100	100.0

The mean consumption of analgesic (tramadol) was 88.22 ± 22.32. The maximum consumption of analgesic in 24 hours was 125 mg and the minimum consumption was 50 mg. (Table 5).
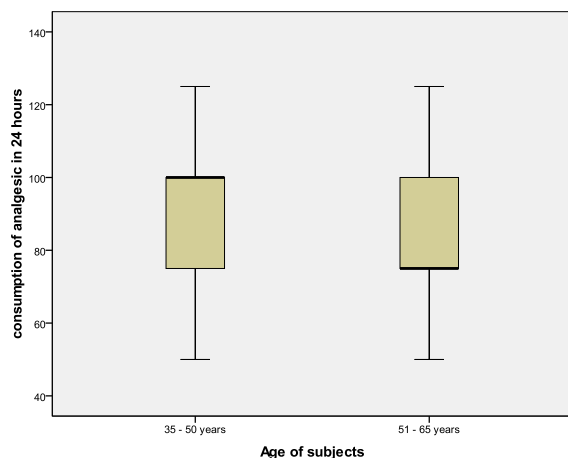
Figure No.1: Consumption of analgesic by patients.

Table No: 2 Duration of post-operative analgesia

Descriptive Statistics					
	N	Min.	Max.	Mean	Std. Devia-tion
The duration of post op analgesia	100	3	8	5.15	1.104
Duration of post-operative analgesia		Frequency		Percent	
	3 hours	5		5.0	
	4 hours	25		25.0	
	5 hours	33		33.0	
	6 hours	25		25.0	
	7 hours	11		11.0	
	8 hours	1		1.0	
	Total	100		100.0	

Table no: 3 VAS Score at first rescue analgesic

Descriptive Statistics					
	N	Min.	Max.	Mean	Std. Devia-tion
VAS scoring for first rescue analgesic	100	4	7	5.58	.781
VAS Score		Frequency		Percent	
	4	7		7.0	
	5	39		39.0	
	6	43		43.0	
	7	11		11.0	
	Total	100		100.0	

Table No: 4 Frequency of analgesic administration

Descriptive Statistics					
	N	Min.	Max.	Mean	Std. Devia-tion
Frequency of analgesic administration	100	2	5	3.53	.893
		Frequency		Percent	
	2	14		14.0	
	3	32		32.0	
	4	41		41.0	
	5	13		13.0	
	Total	100		100.0	

Table No: 5 Mean consumption of analgesic in 24 hours (mg).

	N	Min.	Max.	Mean	Std. Deviation
The consumption of analgesic in 24 hours (mg)	100	50	125	88.25	22.320
		Frequency		Percent	
Valid	50	14		14.0	
	75	32		32.0	
	100	41		41.0	
	125	13		13.0	
	Total	100		100.0	

DISCUSSION

Paravertebral blocks are used in a wide variety of surgeries including thoracic, breast and abdominal surgeries. Most of the elective breast surgeriescan be performed effectively with marked safetyunder paravertebral blocks[13].

The benefits of paravertebral blocks include prolonged post-operative analgesia&marked reduction in post-operative nausea and vomiting (PONV) with the shortened hospital stay that leads to enhanced recovery after surgery[8,9].

Dabbagh A et al (2007) suggested PVBs as a suitable alternative to general anesthesia in selected breast surgical patients regarding postoperative pain[14].

Batra RK, Krishnan et al (2011), published an article regarding efficacy of PVBs & proved it to be efficacious & safe for BC surgeries[15].

Suzanne B. Coopey et al. (2013), conducted a retrospective study regarding efficacy of PVBs in the patients undergoing mastectomies with immediate reconstructive breast reconstructive surgeries & concluded that PVBs lead to markedly shortened hospital stay & improved patient outcome[16].

Syal K. et al has reported that PVBs are superior to wound infiltration with local anesthetic agents in terms of prolonged post op analgesia and little need for rescue analgesic [17].

The post-operative analgesia associated with paravertebral blocks depends on following factors[18]

- The type of anesthetic agent and its dosage.
- Presence of additives like clonidine, fentanyl.
- Single or multiple injection techniques.
- Continuous infusion or bolus injection techniques.
- Ultrasonographic or neuro stimulation guided paravertebral block.
- Use of patient-controlled analgesia (PCA) in the post-operative regimen.
- The age of the patient.

In our study, all the selected 100 patients were given paravertebral blocksby injecting 0.5% diluted bupivacaine (2.5mg/Kg) 2 cc in each paravertebral space about 2.5 cm lateral to spinous processes of T2-T7 vertebrae corresponding to the nerve supply of the breast.

The mean age of the patients was 48.54±6.306 with minimum age of 36 years and maximum age of 62 years. Out of hundred patients, 65% of the patients belong to age group 35-50 years and only 35% of the patients belong to age group 51-65 years age group. Shahida Parveen et al conducted a study in from 2007 to 2010 &found mean age of the patients 41.9 ±10.9 years with majority of the patients lying in third and fourth decades of life in contrary with the western countries where majority of the patients lie in 5th and 6th decades of life[6]. This indicates early age presentation of CA breast in Pakistan with poor prognosis.

The time of first analgesic given after surgery was calculated among all the patients and it was considered as the Duration of post-operative analgesia. The duration of post-operative analgesia was 5.15±1.104 hours (309±66.42 min). The minimum duration of post op analgesia was 3 hours (180 min) and the maximum time was 8 hours(480 min). The results are similar to a study conducted by Sabyasachi Das et al. in which the duration of post-operative analgesia with paravertebral blocks was 303.97±76.08 min[9]. This is due to longer duration of post op analgesia achieved with paravertebral blocks contrary with conventional techniques.

The mean consumption of tramadol as a rescue analgesic was 88.22mg ±22.32mg. The maximum consumption of rescue analgesic was 125 mg and the minimum was50 mg. Sabyasachi Das et al. showed similar results regarding consumption of rescue analgesic with paravertebral blocks (about 105.17mg±20.46 mg in 24 hours)[9].

Back up analgesic in the form of NSAIDS (Diclofenac Sodium) was not needed in any of the patients similar to Sabyasachi Das et al[9].

The meanfrequency of analgesic administration was 3.53± 1.104. The maximum frequency of analgesic administration was 5 and the minimum was 2.

The mean VAS scoringfor first rescue analgesic was 5.58 ± 0.781 that is comparable with a study conducted by Sabyasachi Das et al. who showed mean VAS scoring as 4.24±0.58.The minimum VAS scoring was 4 while the maximum VAS scoring was 7.[9]

The non-availability of a patient-controlled analgesia device (PCA) at the time of study resulted in more fluctuation in the VAS scores & thus a difference of VAS scoring in the early post-operative period can be explained in this way.

High speed of injection promotesthe contralateral spread & leads to more complications like hypotension. Beyaz SG et al reported epidural thoracic spread with paravertebral blocks leading to hypotension[19].

The single injection technique provides more patient comfort by lowering the need for sedation during performance of the PVB while multiple injection does improve the duration and quality of analgesia but at the cost of more possible complications[9,18.] It was also found that multiple injection PVB (T3-T6) resulted in adequate analgesia for breast surgeries but without axillary clearance. However, extended block level of T1 to T6 provided adequate analgesia for breast surgeries with axillary clearance like modified radical mastectomy.

Ultrasonographic & neuro stimulation guided technique increases the safety and the success of technique as compared with the conventional loss of resistance technique[18,20]. But it was not used in our study because it had been proved that it didn't affect the actual outcome.

The failure rate associated with paravertebral blocks is <13% & mostly it is associated with single injection paravertebral blocks due to technical difficulty in localizing paravertebral space [9].

The reduction in the dosage of post op analgesia with excellent analgesic effect of paravertebral blocks in early post-operative period leads to decreased occurrence of post op nausea and vomiting (PONV), early recovery, mobilization and discharge of the patient from hospital[8,9]. Simultaneously, paravertebral blocks can be used as an alternative to the general anesthesia and the breast surgeries can be performed locally at the day case basis. The inconsistent bock and the failure rate of paravertebral blocks leads to hesitation in its use by our consultants but taking care of patient's benefit with its use and also with the help of ultrasonographic and neurostimulation guided techniques, we can get better results with more patient satisfaction[20].

CONCLUSION

The presented study concludes that the unilateral paravertebral blocks are efficacious in terms of prolonged post op analgesia with marked reduction in post op analgesic requirement, thus, reducing morbidities in the patients undergoing unilateral breast cancer surgeries.

Author's Contribution:

Concept & Design of Study:	Muhammad Saddique Zishan
Drafting:	Taimur Ali, Shahid Rafiq
Data Analysis:	Muhammad Sartaaj Khan, Amman Sartaaj Khan, Hafiz Muhammad Amjad
Revisiting Critically:	Muhammad Saddique Zishan, Taimur Ali
Final Approval of version:	Muhammad Saddique Zishan

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Original Article

Celiac Disease: Prevalence in Bahawalpur Region and Pharmacological Evaluation of Natural Products in its Treatment

Shahbaz Ahmed Qureshi[1], Javeria Shahbaz[1], Anas Ahmed[2], Sh. Khurram Salam Sehgal[3] and Qaiser Bajeen[4]

ABSTRACT

Objective: To assess the prevalence of celiac disease in Bahawalpur region Southern Punjab, Pakistan and to determine the pharmacological efficacy of kalonji seeds, olives and shawarma bread as its remedy.

Study Design: Experimental study

Place and Duration of Study: This study was conducted at the Bahawal Victoria Hospital Bahawalpur and private Gastroenterology and Hepatology clinics in Bahawalpur from January 2015 to June 2016.

Materials and Methods: Both male and female patients visiting the Bahawal Victoria Hospital Bahawalpur and private Gastroenterology and Hepatology clinics in Bahawalpur, presenting with the symptoms of celiac disease such as chronic diarrhea, vomiting, abdominal pain and / or weight loss, were included in the study. A questionnaire consisting questions regarding demographic data, presenting complaints, associated illness, dietary habits and family history was applied and serology as well as small intestinal biopsy of the patients was performed by the expert gastroenterologist, and the patients with positive biopsy were designated as celiac. Out of 300 patients, only 203 agreed for biopsy and among these 203 patients, 150 were confirmed as celiac by biopsy reports. Celiac patients were divided into five main groups, each containing 30 according to their chief complaints. These groups were further divided into two sub-groups, A and B gluten free or control group and on gluten with remedy respectively. The group on gluten plus remedy was further divided into three sub-groups and each of them was given one of the natural edibles; i.e. kalonji seeds, olives and shawarma bread. The results were evaluated in terms of the recovery from chief complaints (diarrhea, vomiting, indigestion, abdominal pain and weight loss). The patients visited the consultant after 2nd,4th and 8th week of treatment to give the feedback of regimen.

Results: Kalonji reduced diarrhea, nausea and abdominal pain in 75% of the patients and completely cured weight loss i.e. 100%. The efficacy of olives was also same. Shawarma bread reduce the symptoms of diarrhea upto100%, nausea, vomiting and abdominal pain 75%, indigestion and gas (50%), and weight loss in 100% of the patients.

Conclusion: The symptoms of celiac disease can be reduced by bringing mild changes in the diet plan and addition of the edibles which have ability to prevent and reduce the symptoms of celiac disease.

Key Words: celiac, gluten, Olives, kalonji, shawarma.

INTRODUCTION

Celiac disease (also called sprue, celiac sprue, and gluten enteropathy) is a permanent dietary disorder caused by an immunologic response to gluten, a storage protein found in certain grains, which results in diffuse damage to the proximal small intestinal mucosa with malabsorption of nutrients. Celiac disease results from the interaction between gluten and immune, genetic, and environmental factors. In celiac disease when gluten is ingested, the immune system of the patient gets activated causing inflammation. Celiac disease is an immune-mediated enteropathy triggered in genetically susceptible individuals by the ingestion of gluten-containing grains (wheat, barley and rye). The disease is associated with human leukocyte antigen (HLA) DQ2 and DQ8 haplotypes. Gluten is digested by luminal and brush-border enzymes into amino acids and peptides. Classic, atypical, silent, latent and refractory are common forms of celiac disease.[1] The prevalence of celiac disease in world is about 1% of individuals and CD is the commonest genetically induced chronic disorders with female to male ratio of 2:1 to 3:1.[2]

1. Department of Gastroenterology & Hepatology Unit / Medicine2 / Biochemistry3 / Pharmacology4, Bahawal Victoria Hospital, Bahawalpur.

Correspondence: Dr. Shahbaz Ahmed Qureshi, Associate Professor and Head of Gastroenterology & Heptology Unit, Bahawal Victoria Hospital, Bahawalpur.
Contact No: 0321-6818394
Email: shahbazq08@hotmail.com

However, it is estimated that 90% of these individuals remain undiagnosed. The prevalence of celiac disease in Pakistan is unknown. However, it is felt to be a very common disorder both in children and adults.[3,4]

Currently, there is only a single way to resolve the pathological changes and symptoms of celiac disease; i.e. exclusion of gluten from the diet for a sustained period of growth and development in children till it returns to normal and in adults, many disease complications are avoided. Green and colleagues found that 70% of patients reported an improvement in symptoms within 2 weeks of initiating the gluten-free diet. With strict dietary control, antibody levels may revert to normal during 6 to 12 months of instituting the diet, complete histologic resolution may take up to 2 years. In a small percentage of patients it has been reported that small intestinal recovery and resolution of symptoms is incomplete.[4,5] We aimed to assess the prevalence of celiac disease in Bahawalpur region Southern Punjab, Pakistan and to determine the pharmacological efficacy of kalonji seeds, olives and shawarma bread as its remedy.

MATERIALS AND METHODS

This study is of experimental type and conducted in the Region of Bahawalpur, Punjab, Pakistan. The duration of the study was 15 months i.e. from January 2015 to June 2016. The technique used for the data collection was the convenient sampling technique.

Both male and female patients visiting the Bahawalpur Victoria Hospital, Bahawalpur and private Gastroenterology and Hepatology clinics in Bahawalpur, presenting with any of the symptoms of celiac disease; i.e. chronic diarrhea, vomiting, abdominal pain or weight loss, were included in the study. The patients with raised tissue antitransglutaminase antibodies (IgG & IgA) along with positive biopsy report became the part of the study. Patients from other cities, irrespective of the city of residence, were also included. All the patients were taking gluten in their diet.

The patients below the age of 11 years were excluded from the study. Participants having thyroid disease, diabetes mellitus and / or on laxative therapy were also excluded because this might interfere with autonomic neuropathy. Patients who had Marsh 0 Grade on biopsy were also excluded from study as according to the Marsh-Oberhuber classification, Marsh 0 Grade (pre-infiltrative), represents normal histology[(5)].The experimental tool for this study was researcher supported questionnaire which consisted of six different sections. The Sections of questionnaire recorded demographic data, individual's chief complaints as; diarrhea, nausea and vomiting,, indigestion and gas , abdominal pain and loss of weight along with its duration, mode of occurrence and if relieved by anything. In another section of questionnaire the

subjects were asked for any associated illnesses like Diabetes mellitus, Dermatitis Herpetiformicus, Down's syndrome and Thyroid disease along with the duration of occurrence and was noted. Data also comprises of miscellaneous personal information of patients as their dietary habits, medicinal history, family history, gynecological history in case of females and history of their past illness. After getting the history of the subjects, they were undergone for the assessment of weight .This all was recorded on zero day of patient that was the first day when patient comes with anyone of the complaints of celiac disease.

Then the patient was asked to visit a laboratory for his/her blood investigation which included blood glucose and serum Thyroid Stimulating Hormone (TSH). His/her serum autoantibodies i.e., Anti tissue transglutaminase antibodies (IgG & IgA) were also done at the same time. This was all noted. Reviewing the serum auto antibodies level reports and signs and symptoms of the patients, they were asked to come for endoscopy and tissue from duodenal part of small intestine was taken. Endoscopy was done after signing the consent. . All the agreed patients were entertained for small intestinal biopsy. The reporting was done according to Marsh-Oberhuber classification. Only positive cases on histopathology were confirmed for celiac disease and entertained for the study.

Then the confirmed cases of celiac disease were divided into set of 30 patients each in five major groups according to their chief complaints. These five groups were further divided into two groups :A (On Gluten free n=6), for each presenting complaint.

B (On gluten=24) as for comparison.

The group B was further divided into three sub-groups for their treatment regimen. The sub- groups were as follows.

Group An=6: Control: With no natural treatment but only normal diet as before.

Group BI n=8:Kalonji one fourth teaspoon with breakfast and dinner.

Group BII n=8:Two to three olives (FIGGARO Company) in breakfast and dinner.

Group BIII n=8: Shawarma bread occasionally with gluten containing diet.

Patients belonging to these four groups were asked to follow the prescribed remedy strictly and note the changes regarding their chief complaints and come back after two, four and eight weeks. The improvement in their signs & symptoms; i.e. diarrhoea, nausea and vomiting, indigestion and gas abdominal pain & weight loss were noted and recorded on follow-up questionnaire. After recording the data after two, four and eight weeks of treatment, the results were analysed. At the end of 8th week, improvement was assessed in terms of symptoms and signs and wellbeing. However, the serology and histopathology could not be repeated due to certain limitations of study.

RESULTS

The population of Bahawalpur region of Southern Punjab is estimated approximately as 3000000. About 0.7 % of total population of Bahawalpur was found to be visiting the medical out-patient department, emergency unit and different private clinics for GIT disorder during the study period; i.eFifteen month duration. Among the patients with GI complaints, about 4 % of patients were seem to be Celiac according to their chief complaints; i.e. chronic diarrhoea, abdominal pain, indigestion and gas. However, about 1.2 % of the above suspected Celiac patients were confirmed for the presence of celiac disease through intestinal biopsy. Hence, the prevalence of celiac disease in Bahawalpur region was almost in accordance with available literature for world-wide population; i.e. 1 %.

Demographic data reveals that 65 % of patients were females and rest 35% were males. Most of the participants, 55% were young; i.e. belonging to the age group of 21-40 years as shown in Table 1. The patients belong to various districts of Punjab showing 39%(maximum) of distribution in District of Bahawalpur as the center of study was Bahawalpur, therefore the frequency of patients in this region was high. The results regarding chief complaints of celiac disease such as diarrhea, vomiting, indigestion and gas, abdominal pain and weight loss were noted on follow-up visits of the patients at 2nd, 4th and 8th weeks and the outcomes were interpreted.

Regarding Diarrhea at 0 week, patients in both the groups; i.e. A (Gluten free) and B (On Gluten), were having diarrhea. On follow up at week two, four and eight, the difference was very clear that patients on gluten free (A) showed 100% cure as compared to group-B i.e. On gluten diet and different edibles. Different treatment regimens were compared as shown in Table-2and the results revealed that in group-BI(Gluten+Kalonji), 75 % of patients at 2nd week, 25 % at 4th and at 8th week had diarrhea showing that gluten with Kalonji can reduce diarrhea up to 75%; whereas, in group-BII (Gluten+Olives), 75 % of patients at 2nd week, 50 % at 4th week and 25 % at 8th week had diarrhea which indicated that gluten with olives can reduce diarrhea up to 75%. In group-BIII (Gluten+Shawarma bread), 50 % of patients at 2nd and 4th week and 0 % at 8th week had diarrhea which illustrates that gluten with Shawarma bread can reduce diarrhea up to 100%.

Effects of treatment on Nausea and Vomiting at 0 week, patients in both the groups; i.e. A (Gluten free) and B (On Gluten), were having Nausea and Vomiting. On follow up at week two, four and eight, the difference was very clear that patients on gluten free (A) showed 100% cure as compared to group-B i.e. on gluten diet and various natural remedies.

Different treatment regimens were compared as shown in Table-2and the results showed thatIn group-BI(Gluten+Kalonji), 75 % of patients at 2nd week, 25 % at 4th and at 8th week had nausea and vomiting showing that gluten with Kalonji can reduce nausea and vomiting up to 75%; whereas, in group-BII (Gluten+Olives), 75 % of patients at 2nd week, 50 % at 4th week and 25 % at 8th week had nausea and vomiting which indicated that gluten with olives can reduce nausea and vomiting up to 75%.In group BIII(Gluten +Shawarma bread) 25 % of patients at 2nd, $4^{th}$and 8th week had nausea and vomiting which illustrates that gluten with Shawarma bread can reduce nausea and vomiting up to 75 %.

Discussing the Abdominal Pain at week zero, patients in both the groups; i.e. A (Gluten free) and B (On Gluten), were having abdominal pain. The Table-2 shows that on follow-up the symptom of abdominal pain in group BII (Gluten +Olives) was 50 % at 2nd and 4th week and 0% at 8th week which illustrates that gluten with olives can reduce abdominal pain up to 100%.Pain was reduced up to 75% in groups on kalonji and shawarma.

In case of Indigestion and Gas at 0 week, patients in both the groups; i.e. A (Gluten free) and B (On Gluten), were having indigestion and gas. On follow up at two, four and eight week the Table-2showed that in group in group BI (Gluten + Kalonji) 50 % of patients at 2nd, 4th and 8th week had indigestion and gas which illustrates that gluten with Kalonji can reduce indigestion and gas up to 50 %. Among BII (Gluten +Olives) 0 % of patients at 2nd , 4th and 8th week had indigestion and gas which illustrates that gluten with olives can reduce indigestion and gas up to 100%. In group BIII(Gluten +Shawarma bread) 75 % of patients at 2nd week, 50 % at 4th week and 50% at 8th week had indigestion and gas which illustrates that gluten with Shawarma bread can reduce indigestion and gas up to 50 % only.

Table No.1: Age group of Patients

Age groups	Total	Percentage
0-20 yrs	22	15%
21-40 yrs	83	55%
41-60 yrs	28	19%
> 60 yrs	17	11%
Total	150	100%

Results regarding Weight Loss at 0 week, patients in both the groups; i.e. A (Gluten free) and B (On Gluten), were having the complaint. On follow up at week two, four and eight, the difference was very clear that patients on gluten free (A) showed improvement as compared to group-B where the patients remained as such. The Table showed that in group BI (Gluten + Kalonji) 50 % of patients at 2nd week, 100 % at $4^{th}$and at 8th week had weight loss which illustrates that gluten with Kalonji can reduce weight loss up to 100%.In group BII (Gluten +Olives) 25 % of patients at 2nd week, 0% at 4th week and at 8th week had weight loss

which illustrates that gluten with olives can reduce weight loss up to 100%. In group BIII(Gluten +Shawarma bread) 25 % of patients at 2nd week,0 % at 4th week and 8th week had weight loss which illustrates that gluten with Shawarma bread can reduce weight loss up to 100 %.

Table No.2: Cumulative table showing outcome of different treatment regimen and their effect on different symptoms of celiac disease

Symptoms	Group A Control Gluten Free) N=6 each	Group B(Gluten + Remedy)											
		B1-Effect of kalonji (weeks)				B2Effect of olives (weeks)				B3-Effect of shawarma bread (weeks)			
		0	2nd	4th	8th	0	2nd	4th	8th	0	2nd	4th	8th
Diarrhea (n) 30	0 0%	8 100%	6 75%	2 25%	2 25%	8 100%	6 75%	4 50%	2 25%	8 100%	4 50%	4 50%	0 0%
Nausea & vomiting (n) 30	0 0%	8 100%	2 25%	2 25%	2 25%	8 100%	6 75%	4 50%	2 25%	8 100%	2 25%	2 25%	2 25%
Abdominal Pain (n) 30	0 0%	8 100%	2 25%	2 25%	2 25%	8 100%	4 50%	4 50%	0 0%	8 100%	2 25%	2 25%	2 25%
Indigestion & Gas (n) 30	0 0%	8 100%	4 50%	4 50%	4 50%	8 100%	0 0%	0 0%	0 0%	8 100%	2 25%	4 50%	4 50%
Loss of weight (n) 30	0 0%	8 100%	4 50%	0 0%	0 0%	8 100%	6 75%	4 50%	0 0%	8 100%	2 25%	0 0%	0 0%

DISCUSSION

Celiac disease, also known as *celiac sprue,* is one of the most common small intestinal autoimmune disorders. It is possibly due to ingestion of gluten, a storage protein in wheat, rye and barley, the major components of the daily diet. The patients with celiac disease present with diarrhea, vomiting, indigestion, anemia and weight loss. The prevalence of the disease in the world is about 1% and its number is reported to increase alarmingly around the globe.[4-7] There is not much work done regarding celiac disease in Pakistan therefore, no reported data is available for this region, especially the area of Bahawalpur, where most of the people belong to economically poor class and are usually reluctant to visit the medical experts for their complaints like GIT disorders. Majority of the population of BWP region is not well-educated and even not aware of the health issues, and mostly patients visit general practitioners and quacks and receive only temporary treatment. Celiac disease, if not properly diagnosed and managed, may lead to severe malabsorption, increased morbidity and serious complications like small gut lymphoma and adenocarcinoma etc.[8,9] Southern Punjab is the area with rural community which is almost wholly dependent on wheat as source of the diet which has "gluten", the main causative agent of celiac disease. There were many cases reporting the above stated complaints but due to limited facilities of investigation as serology and

biopsy, the cases were not registered under proper diagnosis. This study was aimed to document the reported cases of celiac disease to check the prevalence of the disease in Bahawalpur region, and thus, to generate awareness both in the local and scientific communities for the disease as well as the exact etiology and importance of diet especially the natural products which can help the patients to set their diet plans in order to reduce their discomfort and improve the quality of their lives.[10-12]

The results revealed that among the presenting complaints of celiac disease, diarrhea was the most common, and then abdominal pain and indigestion. The results showed that there was recovery from chief complaints like diarrhea, vomiting, indigestion and weight loss in the patients receiving olives, kalonji seeds and shawarma bread along with gluten diet, shawarma bread being the best. As expected, patients with gluten free diet showed good results as compared to patients on gluten diet.[6]

The study shows that celiac disease is a hidden disease and needs to be discussed at national and international forums to minimize its lifelong persistent nature, impact on social life and its complications. The patients as well as their first and second degree relatives should be provided information regarding the disease. It is very difficult to live on gluten free diet especially in a poor country like Pakistan due to limited resources as well as non-availability of gluten free diet, hence such types of

edibles, like olives, shawarma bread and Kalonji, may be added in the daily diet plan of the patients with celiac disease.

As far as limitations of the current study are concerned, we could not perform the experiments in animal models due to no availability of transgenic mice. The serology being expensive could be done only once and not after the treatment.

CONCLUSION

The symptoms of celiac disease can be reduced by bringing mild changes in the diet plan and addition of the edibles which have ability to prevent and reduce the symptoms of celiac disease. There is a need to study these edibles as well as others, which can easily be added in the diet regimen, by administering them to increased number of patients and to explore their mechanism of action.

Author's Contribution:

Concept & Design of Study:	Shahbaz Ahmed Qureshi
Drafting:	Javeria Shahbaz, Anas Ahmed
Data Analysis:	Sh. Khurram Salam Sehgal, Qaiser Bajeen
Revisiting Critically:	Shahbaz Ahmed Qureshi, Javeria Shahbaz
Final Approval of version:	Shahbaz Ahmed Qureshi

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Original Article

Comparison of Nitroglycerine VS Nifedipine for Preterm Labour

Maryam Khan Badshah[1], Naeem Utman[2], Jehan Ara[1], Tariq Shahab[2] and Robina Khattak[2]

ABSTRACT

Objective: The objective of this study is to compare outcome of Nitroglycerine versus Nifedipine to delay the time of preterm delivery.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the Obstetrics and Gynaecology Department, Hayatabad Medical Complex, Peshawar, from July, 2016 to January, 2017.

Materials and Methods: This study was carried out over 154 women with preterm delivery who were divided into two groups equally through lottery method. One group, group A, was subjected to treatment with Nifedipine and the other group, group B, to nitroglycerine. After informed consent, all the females were followed until the delivery of baby and the complications were noted in predesigned Performa. The subjects were selected through non-probability purposive sampling. Entry and analysis of the data was done in SPSS (version 10).

Results: A total of 154 patients were observed, who were divided in two equal groups. Average age was 29.58 years $\pm$7.75SD with range of 16-42 years. In group A, out of 77 patients, there was 1 day prolongation of pregnancy in 18 (23.4%),in 42 (54.5%) there was 2 days prolongation of pregnancy followed by 17(22.1%)in whom pregnancy was prolonged for more than 2 days. While in-group B in 19(24.7%) there was 1 day prolongation of pregnancy,in 46(59.7%)there was 2 days prolongation of pregnancy followed by 12(15.6%) patients in whom pregnancy was prolonged for more than 2 days. Although the difference in prolongation of pregnancy in both the groups was insignificant with p-value 0.585 but it was prolonged in Group A. Post-treatment headache occurred to 15(19.5%) patients in group A and to 20(26%)patients in group B, however it did not reach statistical significance with p- value 0.336. Of the neonates born to mothers in group A 15(19.5%) were admitted in NICU while in group B 25(32.5%) were admitted in NICU with p-value 0.066.

Conclusion: Nifedipine is better treatment as compared to Nitroglycerine for preterm delivery.

Key Words: Nifedipine, preterm delivery, prolongation of pregnancy, headache, NICU and Nitroglycerine.

INTRODUCTION

Pre-term labor is one of the most common complications of pregnancy and has a major role in neonatal mortality and morbidity.[1]Across 184 countries, the rate of preterm birth ranges from 5% to 18% of new born babies.[2]Almost 15 million infants are born preterm every year all over the world.[3]It affects around 9% of births in high income countries and an estimated 13% of births in low and middle income countries.[4]

1. Department of Obstet and Gynae, Baacha Khan Medical Complex, Swabi.
2. Department of Obstet and Gynae, Hayatabad Medical Complex, Peshawar.

Correspondence: Dr. Maryam Khan Badshah, MBBS, FCPS (GYNAE), Senior Registrar Baacha Khan Medical Complex, Swabi.
Contact No: 0333-9418941
Email: maryam.guday@gmail.com

Preterm labouris the occurrence of uterine contractions of sufficient strength to bring about effacement and dilatation of the cervix before full term gestation and it occurs at 20-37 weeks.[5] Preterm labour is responsible for 50% of preterm births. It occurs in approximately 12% of pregnancies and is the leading cause of neonatal mortality in the United States.[6]Various drugs and strategies have been used for the treatment of preterm labor however mixed results have been reported.[7] Tocolytic drugs used commonly as a therapy for preterm labour are magnesium sulfate (MgSO4), Nifedipine and indomethacin.[8] Nifedipine has proved to be a safe drug in managing preterm labour.[9]As compared with other tocolytic agents, Nifedipine is more effective in prolongation of pregnancy, leading to fewer number of admissions to NICU and lesser occurrence of necrotizing enterocolitis, RDS and intraventricular hemorrhage.[9] Nifedipine and Nitroglycerine have been used globally for preventing preterm labour ,however no local data is available to confirm supremacy of either drug.[7] This study is designed to compare outcome of Nitroglycerine and Nifedipine in females presenting with preterm labour to prolong their gestational age.

Until now, no local study is published and global data supports Nifedipine for prevention of preterm delivery till 48 hours but there is controversy regarding need for NICU care and maternal headache.[7] This study will help us to verify the role of Nitroglycerine and Nifedipine for the prolongation of pregnancy and know exact statistics regarding need of neonates stay in NICU and maternal headache. After completing this study superior drug will be used in future as first line treatment for managing preterm labour.

MATERIALS AND METHODS

Obstetrics and Gynaecology Department, PGMI Hayatabad Medical Complex, Peshawar was the place where the study was conducted from Jul 20, 2016 To Jan 19, 2017. Total sample size was 154 (77 in each group). Sampling technique was Consecutive (Non-Probability) Sampling. Design of the study was Randomized controlled trial. A total of 154 pregnant females aged 16-42 years presenting with preterm labour, as per definition described above were included in this study. These females had a cervical dilatation of> 1 cm and cervical effacement of $\geq$ 50%. All had singleton pregnancy(confirmed on USG). To avoid confounding factors, patients with ruptured membranes were excluded from the study. Patients having maternal and fetal indications for termination of pregnancy were also excluded from the study.

154 females(77 females in each group) were enrolled from labour ward of Obstetrics and Gynaecology department PGMI, HMC. After approval from hospital ethical committee all pregnant females fulfilling the required criteria were included in the study. An informed consent was taken and their basic demographic information (such as name and age), contact details and gestational age (weeks) were taken. All females were divided randomly using lottery method in two groups (Group-A and Group-B). In Group-A females were given 20mg Nifedipine orally as a loading dose. This could be repeated after 1 hour. If successful, a maintenance dose of 20 mg was started 6 hours from the last dose and continued Q.I.Dfor further 48 hours. The therapy for women in group-B was administration of transdermal Nitroglycerin patch Nitroderm 10, abdominally, which provides 10 mg nitroglycerin over 24 hours. Additional patch was applied in case contractions did not cease at the end of one hour. At one point in time no more than 2 patches were administered together. After 24 hours a fresh patch was applied. Patches were not removed until 12 hours after cessation of contractions. All females were followed up until the delivery of the baby; maternal headache and neonates admission to NICU as per operational definition were noted. All data were collected in an attached proforma by the researcher herself.

All the data was entered and analyzed in SPSS (version 10). Frequencies and percentages were calculated for categorical variables like prolongation of pregnancy and complications (post treatment headache, admission of NICU). Mean± SD was calculated for numerical variables like age, gestational age, parity and gravida. For comparing the prolongation of pregnancy and complications in both the groups, Chi-Square test applied. Prolongation of pregnancy and complications in both groups were stratified among the age, gestational age, parity and gravida to see the effect modifiers. P value of less than 0.05 was taken as significant. Post stratification chi square test was applied. All the results were presented as tables and charts.

RESULTS

Average prolongation of pregnancy in Group A was 40.09 hours ± 26.26SD. Out of 77 patients; in 42(54.5%) there was 2 days prolongation of pregnancy followed by 18(23.4%) patients who had 1 day prolongation in pregnancy in Group A.In Group B out of 77 patients; in 46(59.7%) there was 2 days prolongation of pregnancy followed by 19(24.7%) patients who had 1 day prolongation in pregnancy.In group A, 17(22.1%) patients had more than 2 days prolongation of pregnancy while in group B pregnancy was prolonged in 12(15.6%) patients for more than 2 days. Although the difference in prolongation of pregnancy in both the groups was insignificant with p-value 0.585 but it was prolong in Group A.

Table No.1: **Prolongation of pregnancy in both the groups**

		Groups		Total	P-Value
		A	B		0.5854
Prolongation of Pregnancy (in days)	1 Day	18 23.4%	19 24.7%	37 24.0%	
	2 Days	42 54.5%	46 59.7%	88 57.1%	
	> 2 Days	17 22.1%	12 15.6%	29 18.8%	
Total		77 100%	77 100%	154 100%	
Mean +- SD		40.09+-26.26	36.93+-23.64	38.51+-24.96	0.4338

Group-B showed a higher rate of complications than group-A. Group A showed 19.5% post treatment headache. While in Group B, it was 26% of the patients. Admission in NICU in group A was 19.5% patients, while 32.5% found in Group B.

Table No.2: Comparison of complications in both the groups

		Groups		P- Value
		A	B	
Post Treatment Headache	Yes	15	20	0.336
		19.5%	26%	
	No	62	57	
		80.5%	74%	
Admission in NICU	Yes	15	25	0.066
		19.5%	32.5%	
	No	62	52	
		80.5%	67.5%	

DISCUSSION

Preterm birth remains one of the main causes of perinatal mortality and long term morbidity. More than 70% of the total perinatal mortality can be attributed to preterm birth.[10]

Preterm birth is becoming more and more common across low and middle income countries. In such countries the rate of preterm birth ranges from 7.4-13.3% while it is 8.6% in high income countries.[11] Multiple causes of perinatal morbidity including intraventricular haemorrhage, cerebral palsy, chronic lung disease and respiratory distress syndrome are due to Preterm birth .[12]

The performance of numerous tocolytic agents has been demonstrated by a number of studies but comparison between tocolytic agents of the same group has been made by only a few studies. Multiple drugs have been used to treat preterm labour but the choice for first line tocolytic drug still remains controversial.[13]

Code-Aqudelo et al., agrees with the authors who proposed that acalcium channel blocker, like Nifedipine can be administered as a first line therapy for tocolysis.[14-17] A Cochrane review about calcium channel blockers (CCBs) for acute tocolysis in preterm labor including 12 randomized controlled trials showed that when Nifedipine therapy is started, the preterm delivery risk before 34 weeks is decreased within 7 days, and neonatal outcomes are improved.[18]The differences in the result of this study is due to the fact that our sample comprised of local population.

When Nitroglycerin and Nifedipine were compared by Amorim et al., it was demonstrated that the rate of preterm labour within 48 hours of their administration was15.4% and 12.5% respectively.[19]A study by Dhawle et al.[20],showed that beyond 48 hours labour prolongation was significantly greater in the Nifedipine arm 88.4% as compared to Nitroglycerin 68.3%. Nifedipine prolonged pregnancy for 7 days in 72.1% and 14 days in 62.8% cases. This was not significantly different as compared to NTG which prolonged pregnancy for 7 days in 65.9% and for 14 days in 58.6% cases.[21,22] Our study took into consideration the complications too in terms of NICU admissions and maternal headache which showed significant results.

In this study, delivery was delayed for beyond 2 days by Nifedipine in 76.6% and by NTG in 75.3%, which was not significantly different. The average prolongation in pregnancyin the current study was 36.93 Hour +23.64 in the NTG group against 40.09hours+26.26 in the Nifedipinearm. This is same as the conclusionof Papatsonis et al[21] 39.2 in Nifedipinearm as compared to 22.1% in Ritodrine arm& Lees et al[22] 35.8 in NTG as compared to Ritodrine36.9.

CONCLUSION

To conclude, oral Nifedipine is more effective in delaying delivery beyond 48 hours as compared to transdermal NTG. Tocolysis was more frequently failed with transdermal NTG patch. This study also shows that the complication rate was higher with nitroglycerine as compared to Nifedipine in terms of post treatment headache and admissions of neonates to ICU. However to arrive at a final conclusion, further studies need to be conducted with a larger sample size and ones in which preterm labour is more precisely defined in terms of cervical length measurement using transvaginal ultrasound or fetal fibronectin assay.

Author's Contribution:

Concept & Design of Study:	Maryam Khan Badshah
Drafting:	Naeem Utman, Jehan Ara
Data Analysis:	Tariq Shahab, Robina Khattak
Revisiting Critically:	Maryam Khan Badshah, Naeem Utman
Final Approval of version:	Maryam Khan Badshah

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

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Original Article

Demographics, Clinical Profile and Outcome of Children with Diabetic Ketoacidosis

Syed Fawad Saleem, Iftikhar Ahmad and Abdul Rehman

ABSTRACT

Objective: To determine the demographic data as well as clinical profile and outcome of DKA in children aged < 18 years with T1DM.

Study Design: Observational / case series study

Place and Duration of Study: This study was conducted at the Pediatrics unit 2 of Bahawal Victoria Hospital, Bahawalpur from January 2017 to November 2018.

Materials and Methods: This study was conducted on children aged ≤ 18 years admitting with T1DM with DKA. Demographic features, clinical presentation, laboratory findings and outcome were recorded for all patients.

Results: A total of 52 children of T1DM with DKA were reported during the study period. Mean age amongst all the patients was 9.8 years. Most of the patients i.e. 66.7% cases belonged to urban areas and 59.6% cases newly diagnosed cases of T1DM. The most frequent symptoms at the time of hospitalization were polyuria 88.5% and polydipsia 82.7%. Mean time for recovery amongst all was 23.4 hours while 2 (3.8%) deaths occurred during hospital stay. The most frequent complication seen were hypokalemia 20 (38.5%) and hypernatraemia 16 (30.8%).

Conclusions: Diagnosis of T1DM should be made at earliest so that DKA and its complications can be prevented in our population.

Key Words: Type 1 diabetes mellitus, ketoacidosis, polyuria, mortality, cerebral edema.

INTRODUCTION

Prevalence of Type 1 diabetes mellitus (T1DM) has been rising amongst the children in the recent decades.[1] Middle income countries are affected most by Diabetes so a country like Pakistan is at increased risk when we consider the impact of diabetes in our general population.[2]

Diabetic ketoacidosis (DKA) is known as a leading complication of diabetes specially T1DM. Poor physiologic effects of Insulin results in reduced uptake of glucose at cellular levels, resulting in a stern cycle which may go on to end up as DKA.[3] It is estimated globally that prevalence of DKA is increasing 3% annually.[3-5] In children, diagnostic criteria for DKA is defined by "International Society for Pediatric and Adolescent Diabetes (ISPAD)" in 2018 as blood

Department of Pediatric, Bahawal Victoria Hospital Bahawalpur.

Correspondence: Dr. Abdul Rehman, Associate Professor of Pediatric, Bahawal Victoria Hospital Bahawalpur R/o 47-B, Medical Colony, Quaid e Azam Medical College, B/pur.
Contact No: 03006848195
Email: drarehman100@gmail.com

glucose more than 11 mmol/L (approx. 198 mg/dL), venous pH less than 7.3, or bicarbonate less than 15 mmol/L and Ketonemia or ketonuria.[6] DKA is categorized in terms of mild, moderate or severe. Known risk factors in children for DKA include younger age, late diagnosis, poor socioeconomic status, lapse of insulin and poor access to medical facilities.[7,8]

Despite growing incidence of T1DM in our country, its complications like DKA have been neglected as not much recent local literature is available concerning DKA.[9-16] Without further study on the clinical profile and demographics of T1DM patients it is not possible for us to form better protocols for the management of DKA. The objective of the study was to determine the demographic data as well as clinical profile and outcome of DKA in children aged < 18 years with T1DM.

MATERIALS AND METHODS

This was an observational study (case series) conducted on children aged ≤ 18 years having T1DM (new as well as established cases) admitting with DKA during 1st January 2017 to 30th November 2018 in the Pediatrics unit 2 of Bahawal Victoria Hospital, Bahawalpur. The approval of this study was granted by local ethical committee. Children whose parents/guardians refused to give consent or left the ward before completion of investigations were excluded from the study. Children who were admitted more than once due to DKA during

the study period were included only once i.e. at the first admission during the study period.

The parents/guardians were interviewed about the demographic data like age, gender, area of residence, newly diagnosed or established case of T1DM, presenting symptoms and the duration of symptoms. The clinical examination and laboratory investigations like blood glucose, urine ketones, venous blood gases and serum elcotrolytes and the serum creatinine were performed and the outcome in the form of mortality or survival during the hospital stay in all the children was also noted. DKA was labeled as blood glucose >200 mg/dL, pH less than 7.3, bicarbonate less than 15 mmol/L and ketonuria. The severity of DKA was classified based on venous blood pH or bicarbonate levels as:

Mild DKA: Venous blood pH between 7.21 to 7.30 or bicarbonate level between 10 mmol/L to 15 mmol/L.

Moderate DKA: Venous blood pH between 7.11 to 7.20 or bicarbonate level between 5 mmol/L to 10 mmol/L.

Severe DKA: Venous blood pH < 7.10 or bicarbonate level <5 mmol/L.

The children were managed according to ISPAD Clinical guidelines.[6] Hyponatremia and hypernatremia was labeled when serum sodium was <135mEq/l and >145mEq/l respectively whereas hypokalemia and hyperkalemia was declared with serum potassium < 3.5 mEq/l and > 5mEq/l respectively. The diagnosis of the cerebral edema was made on deterioration in neurological function after the initial improvement in the absence of any evident cause and was confirmed on the presence of papilledema and CT scan brain findings. Serum creatinine level more than 1.5mg/dL was taken as abnormally high (deranged).

SPSS version 20.0 used for data entry and analysis. Frequency and percentages were calculated for qualitative variables while quantitative variables were presented in terms of mean and standard deviation.

RESULTS

A total of 52 children of T1DM with DKA episodes were reported during the study period. Mean age amongst all the patients was 9.8 years with standard deviation of 2.3 years. There were 29 (55.8%) patients between 10 to 18 years of age while 23 (44.2%) were less than 10 years of age. There were 22 (42.3%) male and 30 (57.7%) female in our study. We found 34 (66.7%) cases that belonged to urban areas while remaining 18 (33.3%) belonged to rural areas. A total of 31 (59.6%) cases were newly diagnosed cases of T1DM. Mean duration of symptoms prior to admission in hospital was 9.3 days with standard deviation of 2.6 days. The most frequent symptoms at the time of hospitalization were noted as polyuria 46 (88.5%) and polydipsia 43 (82.7%). Mean blood glucose at the time

of admission was 408.45 mg/dl. Most of the patients, 23 (44.2%) had severe DKA.

Table No.1: Demographics and Clinical Characteristics (52 children)

Characteristics	Results
Age in years (mean ± standard Deviation)	9.8 ± 2.3
Age Distribution in years, n (%)	
< 10	23 (44.2%)
10-18	29 (55.8%)
Duration of Symptom in Days (mean ± standard Deviation)	9.3 ± 2.6
Gender, n (%): Male	22 (42.3%)
Female	30 (57.7%)
Disease Presentation, n (%)	
Newly Diagnosed	31 (59.6%)
Established Diabetes	21 (38.4%)
Area of Residence, n (%)	
Urban	34 (66.7%)
Rural	18 (33.3%)
Presenting Symptoms	
Polyuria	46 (88.5%)
Polydipsia	43 (82.7%)
Nausea / Vomiting	26 (50.0%)
Abdominal Pain	21 (40.4%)
Altered Consciousness	20 (38.5%)
Respiratory distress	13 (25.0%)
Glasgow coma scale at the time of presentation, n (%):Less than 9	6 (11.5%)
9-11	3 (5.8%)
More than 11	43 (82.7%)
Severity, n (%): Mild	13 (25.0%)
Moderate	16 (30.8%)
Severe	23 (44.2%)
Complications	
Cerebral edema	4 (7.7%)
High serum creatinine level (deranged)	3 (5.8%)
Hypokalemia	20 (38.5%)
hypernatraemia	16 (30.8%)
Outcome, n (%): Survived	50 (96.2%)
Died	2 (3.8%)
Recover Time in Days (mean ± standard deviation)	18.45 ± 4.7

Table No.2: Laboratory Parameters at the time of Presentation

Laboratory Parameters	Mean ± Standard Deviation
Blood Glucose, mg/dL	405.45 ± 88.1
pH	7.12 ± 0.13
pCO_2	16.2 ± 3.4
HCO_3	5.6 ± 0.23
Na	132.25 ± 11.2
K	5.08 ± 1.6
Cl	103.23 ± 6.8
Creatinine	1.13 ± 0.32

Mean time for recovery amongst all was 23.4 hours. The most frequent complication seen was hypokalemia 20 (38.5%) and hypernateremia 16 (30.8%). There were 2 (3.8%) deaths occurred during hospital stay (Table-1). Both were newly diagnosed cases and having brain edema along with high serum creatinine(deranged).

As far as laboratory parameters of the cases at the time of presentation were concerned, mean pH, pCO_2, HCO_3, Na, K and Cl are shown in table-2.

DISCUSSION

DKA is known to be one of the major causes of mortality amongst T1DM.[2] The mean age of cases in the present study was 9.8 years and 55.8% were between the age of 10 to 18 years. A recent study from Indonesia also found that most of the DKA cases having T1DM were teenagers which correlates with the findings of the current study.[1] A study conducted in Saudi Arabia also noted a mean age of 11 years that was more close to what we found as well.[17] Indian researchers also found mean age of 11.4 years.[18]

In the present study 57.7% were females. Pulangan AB and colleagues recently found a little higher ratio of females to males (1.4 to 1).[1] Pulungan et al[19] found a more higher prevalence of females as compared to male as well. Some other authors found the same pattern which might be due to puberty related hormonal changes like growth hormone as well as estrogen. At the same stage both genders, male and female, react differently to these hormonal shifts, estrogen levels are much higher in girls as compared to boys when they approach puberty.[20]

There were 66.7% cases that belonged to urban areas in the present study. Razavi Z et al[21] in a 7 year study from Iran found that 61% of the cases reported with DKA having T1DM belonged to urban areas.

We recorded newly diagnosed cases of T1DM to form 59.6% cases. Razavi et al[21] noted an even higher number i.e. 82% were newly diagnosed cases of T1DM with DKA. Presentation of DKA is similar to few other illnesses and this could be the reason why so many of the cases end with being diagnosed so late. The delay in diagnosis has been found to be a cause of increased mortality in cases of T1DM.[22] Pediatricians and general public must be provided about the possible risk factors and their preventions to eliminate the risk of late diagnosis.

Most frequent symptoms of DKA has been described as polyuria and polydipsia along with nausea/ vomiting as well as altered level of consciousness.[17,21, 23] Our results fell well in line with the previous findings. Our study showed respiratory distress in 25% cases while it was 58.6%-87.1% in other studies.[1,9,18]

Similar to some previous results,[1, 21,24] severe DKA turned out to be the most common type. Some other like Schober et al[25] from Australia and Oyarzabal et al[26] found small number of cases with severe DKA. These differences could be due to differences in approach to healthcare facilities or due to a delay in the diagnosis by the healthcare professional.

Hypokalemia along with hyponatraemia were the most common complications found in our study. Our results were found to be consistent with some other studies.[27,28] Glasgow coma scale score at presentation was less than 9 in 11.5% cases, 9-11 in 5.8% while 12 and above in 82.7% cases. Similar results were obtained in the study by Syed M et al.[30]

The frequency of cerebral edema as a complication of management was variable in different studies. Our study showed cerebral edema in 7.7% while Pulungan AB et al[1] showed 6.2% cases were having cerebral edema. None of the children developed cerebral edema during the treatment in the study by Lone SW.[9]

The mortality varies from study to study. Our study showed mortality 3.8% cases similar to that of Bhardwaj P[18] while Niaz Z et al[16] showed high rate of mortality i.e. 15.9%. Other studies [1,9,17] showed no mortality. Both the cases that died in our study were newly diagnosed cases and having brain edema along with deranged serum creatinine.

Our study showed deranged serum creatinine level in 5.8% cases while other studies showed variable results about acute kidney injury which might be transient. None of the children developed acute kidney injury in the study by Lone SW et al[9]. 10.27% cases developed acute kidney injury in study by Abbas Q et al [31] while 64.2% cases developed AKI in the study by Hursh BE et al[32]

As far as limitations of the current study are concerned, there are few. The sample size in the current work was relatively small so studies with more centers be involved, with more active information seeking as well as bigger sample size will have more concrete evidence. Despite all these limitations, we feel that the results of our study have given an ample insight about the patient profile of DKA in our area.

CONCLUSION

Diagnosis of T1DM should be made at earliest so that DKA and its complications can be prevented in our population.

Author's Contribution:

Concept & Design of Study:	Syed Fawad Saleem
Drafting:	Iftikhar Ahmad
Data Analysis:	Abdul Rehman
Revisiting Critically:	Syed Fawad Saleem, Iftikhar Ahmad
Final Approval of version:	Syed Fawad Saleem

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

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Frequency of Lower Limb Amputations in Diabetic Foot Disease at Public Sector Hospital

Zahoor Illahi Soomro[1], Abdul Aziz Sahito[2] and Bashir Ahmed Khuhrro[2]

ABSTRACT

Objective: The aim of this study is to determine the frequency of minor and major amputations in diabetic foot disease patients at different Wagner's grades of severity and correlate it with the glycemic control.

Study Design: Prospective descriptive study

Place and Duration of Study: This study was conducted at the Department of Orthopaedic Surgery Peoples University of Medical & Health Sciences (PUMHS) Nawabshah from January 2015 to December 2017.

Materials and Methods: Total number of 120 patients of diabetic foot disease were included in this study. According to the Wagner's classification these patients were divided into six grades. Each patient's glycemic control was monitored byHbA1c level, fasting blood sugar level, and random blood sugar level. Patients were admitted at medical department and operated at Orthopaedics operation theatre and the outcome of lower limb amputations were determined.

Results: In Wagner's grade-0, there was no any patient,in Wagner's grade-I, 12(10%) patients, in Wagner's grade-II, 26 (21.6%) patients, in Wagner's grade-III, 28 (23.3%) patients, in Wagner's grade-IV, 36 (30%) patients, andin Wagner's grade-V18(15%) patients were included. Out of 120 patients 74 (61.6%) patients were male.50.88 ± 11.06 years was the mean age of the patients. There was history of Diabetes Mellitus of 9 years or longer in 80 (66.7%) patients.NIDDM was found in 112 (93.3%) patients. The most common organism isolated from wounds was Staphylococcus aureus. In grade-I only 2(16.6%) patients underwent minor amputation, while 6 (23.7%) in grade-II, 16 (57.14%) in grade-III, and 16 (44.44%) in grade-IV underwent minor amputation. In grade-III, 6 (21.42%), in grade-IV, 20 (55.55%) and in grade V, all 18 (100%) underwent major amputations. The most common performed procedure was below-the-knee amputation. There were 40 (33.3%) overall frequency of minor amputations and 44 (36.3%) overall frequency of major amputations. There was higher percentage of minor and major amputations in patients with poor glycemic control (p-value = 0.001).

Conclusion: This study concluded that the frequency of amputations in lower limb increases withpoor glycemic control and higher Wagner's grades of diabetic foot disease patients.

Key Words: Diabetic foot, Amputation, Wagner's grading

INTRODUCTION

Diabetic foot disease affects about 15% of the diabetic pateitns. Multiple risk factors have been implicated[1,2]. Neuropathy, peripheral vascular disease, limited joint mobility, cigarette smoking, hyperglycemia and reduced resistance to infections, all play a role in the development of foot pathology in diabetic pateints[3-6]. Once established ulcerations, infection and gangrene may provoke an irreversible cascade of events, culmin-ating in limb loss. Lower extremity amputation in diabetic patients is associated with high postoperative mortality and a high rate of secondary amputation[7,8]. Foot problems are the major cause of hospital bed occupancy by diabetic patients[9]. Hyperglycemia is one of the major risk factor in diabetic foot disease patients underwent amputations. Good glycemiccontrol is crucial in preventing diabetic foot compliations[10-12].

The objectives of this study were to determinethe frequency of minor and major amputation in diabetic foot patients at different grades of Wager's classification and to correlate these with glycemic control of the patients.

1. Department of Orthopaedics / Medicine[2], PUMHSW, Nawabshah, (SBA).

Correspondence: Dr. Zahoor Illahi Soomro, Assistant Professor of Orthopaedics, PUMHSW, Nawabshah, (SBA).
Contact No: 0301-3814247
Email: Sizoomro786@yahoo.com

MATERIALS AND METHODS

This was an descriptive study conducted from January 2015 to December 2017 at the Department of Orthopedic Surgery Peoples University of Medical & Health Science (PUMHS) Nawabshah. It included all the patients with diabetic foot disease admitted on the

medical ward. Patients with previous major amputations due to diabetic foot disease and those with cause other than diabetes were excluded from the study. A detailed history was taken from each patientintended to obtain the information regarding the general bio data of the patients, cigarette smoking, history of foot problems, its duration, any treatment taken for it and the response about the foot care practice, blood sugar control and any other co-morbid condition like hypertension, ischemic heart disease, renal or vision problem. General and systemic examination was performed. Detailed examinationof involved feet were done to determine the nature of the lesion, extent and vascularity of the limb as well as its motor and sensory supply. Glycosylated hemoglobin (HbA1c), fasting blood sugar (FBS) level, and random blood sugar (RBS) level were performed in each patientselected for the study. These levels were used to determine the previous blood sugar control and for comparison of treatment results. The other investigations performed included complete blood picture, erythrocyte sedimentation rate (ESR), urine analysis, urea, creatinine, electrolytes, lipid profile, pus from wound for culture and sensitivity.

X-rays of the involved feet and chest and ECG were carried out necessary. Color Doppler ultrasound was used to determine the patency of the vessels in the involve limb.

According to Wagner's classification the patients were then distributed into six grades of severity as follows.

Grade-O: No ulcer, intact skin, high risk foot due to bony deformities.

Grade-I: Superficial ulcer with exposed subcutaneous tissues.

Grade-II: Deep extension of ulcer into soft tissues.

Grade-III: Ulceration with abscess formation or osteomyelitis

Grade-IV: Gangrene of toes of forefoot.

Grade-V: Gangrene of entire foot.

Each patient was managed according to the grade of the disease. Previous medications were stopped and patients were placed on the sliding scale of regular insulin at start and during the surgical procedures. It was then converted to fix dose of 70/30 mixed insulin. Blood sugar levels were monitored daily, in patients with grade-I disease the ulcer was debrided off dry scale or callosity and wound was dressed. Repeated dressings were then done till the ulcer healed. In grade-II ulcer patients wound debridement was done under ankle block or spinal anesthesia. In infected lesions, antibiotics were given accordingly to the culture and sensitivity results. As the wound become aseptic, total contact cast was applied for two weeks, weight bearing was not allowed in patients with heel ulcer. At two weeks, a window was made in the cast at ulcer site and dressings were then changed through it. As the ulcer healed, the patients were advised to wear soft cushion shoes and keep foot hygiene. Antibiotics were given to all the patients in grade-III and above extensive debridement and curettage was done for osteomyelitis lesions under spinal or general anesthesia. Many patients needed repeated debridement and dressings. EUSOL solution was used for dressings in these patients. Large skin affected was covered with split thickness skin graft. Where indicated, minor (amputation of a toe or forefoot) or major (amputation of whole foot or leg) amputation were performed. In some patients, multiple level amputations were needed. The disease outcome in each patient was determined. Data was collected and analyses on SPSS package. Chi-square test of significance was applied to compare disease outcome with the baseline reading of FBS, RBS an HbA1c levels to find out the influence of blood sugar control on the diseaseoutcome at $p<0.05$ level of significance.

RESULTS

Out of 120 patients selected for study 74 (61.6%) were males and 46 (38.3%) were females.50.88 ± 11.06 years was the mean age of the patients. 92 (76.66%) patients were more than 40 years of age. 112 (93.3%) patients were of non-insulin dependent diabetes mellitus (NIDDM) against 8 (6.6%) insulin dependent diabetes mellitus (IDMM) patients. There was history of Diabetes Mellitus of 9 years or longer in 80 (66.7%)patients(Table-I), 70 (58.3%) were smokers. In 84 (70%) patients, baseline FBS more than 120mg/dl and RBS > 180mg/dl were found while in 96 (80%) patients HbA1c values higher than 9% were found, indicating poor glycemic control. The most frequent site for ulceration was the base of big toe on the planter aspect and the heel. Debridement alone was successful in 36 (30%) patients who were fitted with TCC responded well. The ulcers in 2 patients out of 12 in grade-I and 6 out of 26 in grade-II extended deeply and resulted in toe and ray amputations.

Patients with osteomyelitis (grade-III) had poor outcomes. In only 6 out of 28 patients, the lesion was eradicated without any amputation though extensive debridement and curettage. S. aurous was cultured in 75% cases. 16 patients in this group needed minor amputation while 6 ended up in below-the-knee amputation.

There were 36 (30%) patients in Wagner's grade-IV and 18 (15%) patients in Wagner's grade-V at presentation which needed minor and major amputations at different levels (Table-II). 16 patients needed split thickness skin grafts for wound coverage. The ray (whole toe) amputation was the most frequently done 18 of 40 minor and below-the-knee 28 of 44 was major amputation. The overall frequency of minor amputation was 33.3% and major amputation was 36.3% (Table-2).

Table No. I: Type and duration of diabetes mellitus.

Type of diabetes mellitus	No. of Cases (n=120)	Duration of DM	Percentage	95% Confidence Interval
IDDM*	8 (6.66%)	<10 Years 10 – 20 Years > 20 Years	0 (0%) 2 (3.3%) 2 (3.3%)	 2.15 – 15.3
NIDDM*	112 (93.4%)	<8 Years 8 – 12 Years > 12 Years	20 (33.3%) 30 (50%) 6 (10%)	 84.6 – 97.8
*IDDM = insulin dependent diabetes mellitus; *NIDDM = non - insulin dependent diabetes mellitus				

Table No. 2: Disease out come with reference to grade severity and management.

Grade	Total No. of Patients (n=120)	Healed Without Amputation	Minor Amputation	Major Amputation
Grade-0	0 (0%)	0	0	0
Grade-I	12 (10%	10 (8.3%)	Ray amp. = 2	0
Grade -II	26 (21.6%)	20 (16.6%)	Toe amp. = 4 Ray amp. = 2	0 0
Grade-III	28 (23.3%)	6 (5%)	Toe amp. = 2 Ray amp. = 6 Lisferanc = 8	Blow knee = 6
Grade-IV	36 (30%)	0 (0%)	Toe = 4 Ray = 8 Lisferanc = 4	Chopart = 4 Below knee = 16
Grade-V	18 (15%)	0	0	Below knee = 6 Above knee = 6 Knee Dis. = 4 Hip Dis. = 2
Overall	120 (100%)	36 (30%, 9.5% Cl 19.4-42.2)	40 (33.3%, 95% Cl 22.3-45.9)	44 (36.3%, 95% Cl, 25.2-49.3)
Key = amp. amputation; dis. = destruction				

Table No. 3: Correlation between the glycemic control and the frequency of amputations.

Glycemic Level (Mg/dl)	No of cases	Healed without amputation	Minor amputation	Major amputation	P=Value
FBS* >120 RBS* > 180	84 (70%)	12 (14.3%)	28 (33.3%)	44 (52.3%)	P=0.005**
FBS* >120 RBS* > 180	36 (30%)	24 (66.7%)	12 (33.3%)	0	P=0.001**
HbA1c* 6 – 8%	24 (20%)	20 (83.3%)	4 (16.7%)	-	P=0.001**
9 – 12%	60 (56.6%)	12 (17.6%)	30 (44.1%)	26 (38.2%)	P=0.001**
> 12%	28 (23.3%)	4 (14.3%)	6 (21.4%)	18 (64.2%)	P=0.13
*FBS=Fasting blood sugar, RBS = random blood sugar HbA1c=glycosylated hemoglobin; **statistically significant					

When the treatment results were compared with the baseline value of FBS, RBS and HbA1c level (Table-III), it was found that outcome of 84 (70%) patients with baseline FBS>120mg% and RBS>180mg%, 28 (33.3%) patients underwent minor and 44 (52.3%) major amputations (P = 0.001). similarly out of 96 (80%) patients with HbA1c level 9% or more, 80 (83.33%) patients underwent some sort of amputation

(P = 0.001). The diabetic foot lesion in 24 of 36 patients with controlled blood sugar levels healed without any amputation.

DISCUSSION

Lower extremity amputation is a common disabling complication occurring in diabetes mellitus, it is

associated with high mortality with survival after lower extremity amputation being less than 50% at 3 years[13].

Most patients in the study were males, above 40 years of the age and with diabetes duration longer than 9 years. Male gender and duration of diabetes more than 10 years are known risk factor for lower limb amputation in diabetes[14]. Majority of the lower limb amputations are associated with NIDDM. The reason may be the greater prevalence of NIDDM in older people with associated other risk factors such as atherosclerosis, reduced immunity and longer duration of the disease.

The treatment results in the present series are comparable to national and international studies. In a study conducted in Scotland, there were 55.8% first lower limb amputations. Out of these, 29 (55.8%) were major and 23 (44.2%) were minor. Below-the-knee amputation was done in 24 (46.2%) and Ray amputation in 21 (40.4%) patients[15]. Similarly, in a study in Nauru, the incidence of first lower extremity amputation was 8.1/1000 person-year. Out of 46 patients who underwent amputation, 18 had single minor, 18 had single major 7 had major and minor amputation and 3 had more than one major amputation. The were no amputation among individuals with baseline fasting plasma glucose less than 7.8mmo/1, irrespective of diabetic duration. Comparable frequencies of different amputation have been reported in a study by Khan et al. where debridement alone was sufficient in 42 (62%) patients, ray amputation in 12%, metatarsal amputations in 6%, Syme's amputation in 3%, below the knee amputation in 14% and above the knee in 3%. S. aureus was cultured from wounds in 80% cases[16]. Below-the-knee is the most frequently performed amputation. This level offers most promise of rehabilitation compared with above the knee amputation, the success rate of prosthetic rehabilitation for the former is 60 to 66%[17].

Several studies proved the importance of good blood sugar control for the prevention of lower limb amputation in diabetic people. In a study conducted by Jamil et al.[18] all the patients who underwent major amputation had uncontrolled diabetes mellitus at presentation, while the lesion in the rest of the patients, who had controlled blood sugar, either healed without any amputation or with minor amputation. The diabetic control and complication trail (DCCT) is a land mark multicenter trial designed to test the preposition that the complication of diabetes mellitus are related to evolution of plasma glucose concentration. A strong association of hyperglycemia with amputation risk is consistently found in multiple studies in Prima[19], Oklahoma[20], Indians and whites from Wisconsin[21] and in California[22]. Significant reduction in incidence of amputation has been achieved through effective diabetic education and awareness program addressing self-care and foot-care behavior[23-25].

CONCLUSION

This study concluded that the frequency of amputations in lower limb increases with poor glycemic control and higher Wagner's grades of diabetic foot disease patients. To help patients and physicians to prevent foot complications and improved diabetes care, health care facilities should institute a standard diabetic education and awareness programme addressing self-care and foot-care behavior.

Author's Contribution:

Concept & Design of Study:	Zahoor Illahi Soomro
Drafting:	Abdul Aziz Sahito
Data Analysis:	Bashir Ahmed Khuhrro
Revisiting Critically:	Zahoor Illahi Soomro, Abdul Aziz Sahito
Final Approval of version:	Zahoor Illahi Soomro

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

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Original Article

Outcome of Non Operative VS Operative Technique in Managing Mid Shaft Humerus Fracture

Babar Bakht Chughtai, Zulfiqar Ali, Asad Ali Bubak and Zobia Zulifqar

ABSTRACT

Objective: To compare the outcome of non-operative technique Vs operative technique in the treatment of mid shaft fractures of humerus.

Study Design: Randomize controlled trial study.

Place and Duration of Study: This study was conducted at the Orthopedic complex, Bahawal Victoria Hospital, Bahawalpur from March 2018 to October 2018.

Materials and Methods: 72 Patients fulfilling the inclusion criteria were selected for this study. The patients were allocated and divided into two groups A and B. Group A patients were managed by non-operative technique (U Slab) and Group B patients by operative technique. Follow up was taken at 48 hours, 8 week and 16 weeks. Outcome was compared between both groups.

Results: In this study we have 74 patients, half of them were in Group A and other half were in Group B. Patients were between ages of 15 years to 72 years. Male Patients were 47 in number and female were 27. We are comparing the two groups on the basis of pain intensity, union and movements of shoulder and elbow joints and their radiographic findings. Group A patients were treated conservatively. Out of 37 patients male patients are 22 and Females are 15 in numbers. During follow up period one patient was missed in Group A on 8th and 16th week because he had no union. But in Group B two patients were not included in our study due to iatrogenic injury of radial nerve and he was not recovered till 16th weeks and the other had developed osteomyelitis.

Conclusion: According to the data in our study there was no significant differences between conservative treatment and operative treatment in the management of mid shaft fracture of humerus regarding union. Although there is a trend towards conservative treatment to avoid the hazards of surgery as well as financial burdens on the shoulder of poor people and the Government.

Key Words: Humerus shaft fracture, non-operative (U-slab), operative (DCP)

INTRODUCTION

In this modern age humerus fractures are increasing day by day and there management is important for orthopedic management for good outcome[2,4]. These fractures are an injury to the bone of the arm. Most of the time these are caused by road traffic accidents and the Gun shot injuries in the young people. The older people get injuries after fall from due to their osteoporotic bone[1,5]. These fractures are commonly 3 to 5% of all fractures. Humeral dya physical fractures account for 1.2% of all fractures.

Department of Orthopaedic Surgery, Quaid e Azam Medical College, Bahawal Victoria Hospital. Bahawalpur.

Correspondence: Dr. Zulfiqar Ali, Associate Professor of Orthopaedic Surgery, Quaid-e-Azam Medical College, Bahawal Victoria Hospital. Bahawalpur
Contact No: 0300-6830434
Email: zobiazulfiqar01@gmail.com

These are divided into proximal fracture, mid-shaft fractures, and distal fractures.[3,7] These patients are presented with pain, deformity, loss of function of limb and neurological deficit which is up to 18%.[5,7]

The treatment depends on the type of fracture, duration of fracture, presence of associated injuries availability of facilities and the managing surgeon experience.[9,10] Mostly these fractures are treated non-operatively. There are various modes of non-operative technique such as hanging arm cast, U slab, functional brace, co-aptation splints, collar and cuff sling, and shoulder spicca cast.[11] The aim of these techniques is to keep the patient comfortable, establish union with acceptable, functional alignment and restoration of function. In conservative treatment it is to save the patient from the hazards of surgery.[12,13,14] However, there are few drawbacks of these conservative methods like immobilization of the limb, prolonged period of time, stiffness of the elbow joint, irritation inside the cast, mal-union, and non-union. These techniques are not helpful in case of poly trauma patients, comminuted fractures, segmental fractures, floating elbow and with secondary radial nerve injury.[15, 16]

To overcome these above problems operative techniques are applied which are dynamic impression, interlocking nail, and locking plates. Our four most object of operative technique is to early mobilization of the poly trauma patients and anatomical reduction of bone and stable fixation. However, operative techniques have its own hazards like infection, non-union, hardware failure and autogenic radial nerve injury.[17] However, most of the time these fractures are managed operatively and non-operatively at different centers of world by orthopedic surgeons.[18] But it emphasizes me to study both the techniques for the management of humeral shaft fractures, to see which is more beneficial and less financial burden on the shoulder of the patients and the Government.[19,20]

MATERIALS AND METHODS

This study was done at Bahawal Victoria Hospital in Orthopedics Complex with randomized control trial including patients who are treated conservatively and operatively between from 24th March 2018 to 24th October 2018.

According to WHO the calculation of the sample size is , confidence level is 95%, Absolute precision is 5%, Power is about 80%, P1 is equal to 18% and P2 is 5%.. Our patients are 74 which are divided into A and B groups. Our patients are between the ages of 15 to 75 years of both genders. Causes include road traffic accidents, fall from height, gunshot injury, fracture with radial nerve injury and fractures within two weeks and patients who are not included in our study are the open fractures, poor general medical condition, pathological fractures, fractures with vascular injury, patients with any metabolic diseases like diabetes mellitus and hypothyroidism.

RESULTS

In this study we have 74 patients, half of them are in group A and half of them are in group B. The average age of the patients are 15 to 72 years, male patients are 47 in number and female are 27. We are comparing the two groups on the basis of pain intensity and union and shoulder movements, elbow movement and radiographic findings. In Group A patients are treated conservatively. During Follow up period, one patient was missed on 8th week and 16th week because he had no union but in Group B was not included in our study, one had iatrogenic injury of radial nerve and he was not recovered till 16th week and the other got osteomyelitis. The results of the Group A were in first 48 hours the 21.6 % had no pain and 54.05% had mild pain, 16.22 % had moderate pain, and 8.11% had severe pain. On 8th week 86.11% had no pain, 8.33% had mild pain, 5.5% had moderate pain. On 16th week 91.6% had no pain, 5.6% had mild pain and 2.78% had no pain. After 48 hours, there is no shoulder movement. On 8th weeks 86.11% had movements, On 16th week 94.44% had movements. On 48 hours there no elbow movements but on 8th weeks 94.4% had movements. On 16th week, 97.22% had movement; Union on X-ray is 88.89% on 8th week, and on 16th week 97.22% had union.

In Group B, pain intensity in 48 hours is 10.81% had mild pain, 32.43 % had moderate pain and 56.76% had severe pain. On 8th week 74.25% had no pain, 20.0% had mild pain and 5.7% had moderate pain. On 16th week, 91.67% had no pain, 5.6% had mild pain and 2.76% had moderate pain. Shoulder movement in 48 hour is 2.7% had movement. On 8th week 88.57% had movements and on 16th week 91.43% had movement. Elbow movement in 48 hour is 5.4%. On 8th week 91.43 had movement and on 16th week 94.29% had movement. Union on X-rays is 92.43% on 8th week and 94.23% on 16th week.

No. of Patients in each Gourp

	Group A	Group B
	37	37

Gender of Patients

	Male	Female
	47	27

Pain intensity in 48 hours of Group A			
No pain	Mild Pain	Moderate	Severe Pain
21.6%	54.05%	16.22%	8.11%
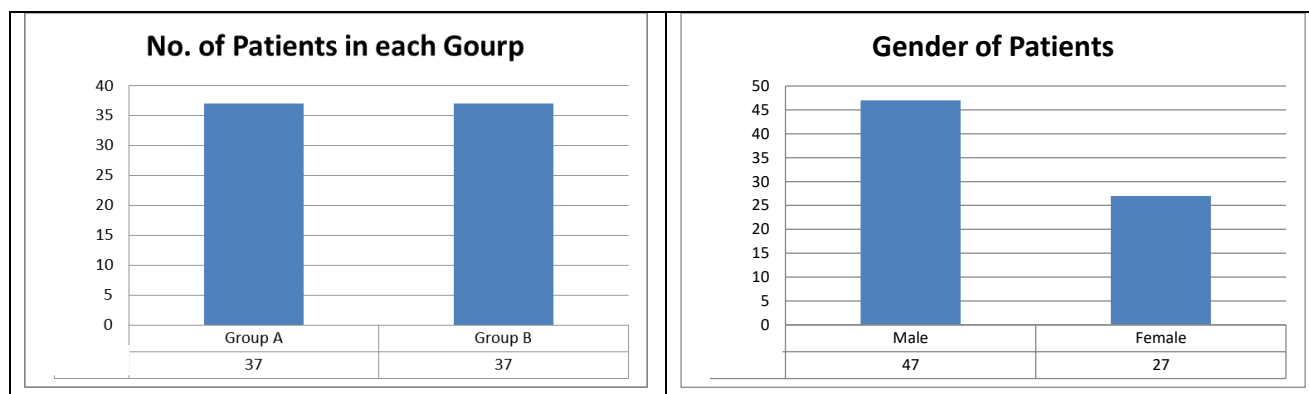
Pain intensity in 48 hours of Group B			
No pain	Mild Pain	Moderate	Severe Pain
0%	10.84%	32.43%	56.76%

Pain Intensity in 8th Week Group A		
No pain	Mild Pain	Moderate
86.11%	8.33%	5.5%

Pain Intensity in 8th Week Group B		
No pain	Mild Pain	Moderate
74.25%	20.0%	5.7%

Pain Intensity in 16th Week Group A		
No pain	Mild Pain	Moderate
91.6%	5.6%	2.78%

Pain Intensity in 16th Week Group B		
No pain	Mild Pain	Moderate
91.67%	5.6%	2.76%

Shoulder Movement in Group A		
After 48 hrs	8th week	16th week
0%	86.11%	94.44%

Shoulder Movement in Group A		
After48 hrs	8th week	16th week
2.7%	88.57%	91.43%

Elbow Movement in Group A		
After 48 hrs	8th week	16th week
0%	94.4%	97.22%

Elbow Movement in Group B		
After48 hrs	8th week	16th week
5.4%	91.43%	94.29%

Union Seen on X-ray Group A		
8th week	16th week	
88.89%	97.22%	

Union Seen on X-ray Group B		
8th week	16th week	
92.43%	94.23%	

DISCUSSION

Non-operative management of humeral shaft fractures is the main part of treatment, however there can be some drawbacks with non-operative treatment like immobilization of the joint for a long period of time resulting in decreased movements of the joins. There is decreased movement in the elbow joint.97% of the union rate can be achieved by using the non-operative technique such as U-slab and bracing. It leads to good results with minor morbidity.

Wallny et al, treated the mid shaft fractures by using the functional humeral brace and he achieved very good results in these cases. They used mostly these braces for spiral/oblique fractures of the humerus.

Jawa et al, compared functional bracing and plate fixation. In the plate fixation, he studied that there was mild decrease in the shoulder movement and also in the elbow joint movements and there were no non-unions. But the cases which were dealt by the non-operative, they developed radial nerve palsy in 3 cases. They also noticed mal alignment in few of the patients and he found more than 90% results achieved by non-operative methods. Both the techniques had their own advantages as well as disadvantages

The operative treatment had the advantage of good alignment with immediate stability and early restoration of function.

Denard et al compared the results of non-operative versus operative management of humeral shaft fractures. They found mal-alignment and non-union in non-operative cases. But in operated cases there was no such difference of union and movements of the joints as compared with the non-operative cases. They also found that with the recent improvement in plating techniques and implants get good results and by using braces same results were achieved.

The Union rates either with non-operatively or operatively for the treatment of humeral shaft fractures approximately between the 8th to 16th weeks. In younger patients, non-operative management maydelay their ability to return to work. Nerve palsy is the most common complication, reported in up to 7% of patients. Infection is also a common complication, affecting up to 3% of patients.

CONCLUSION

Surgeon experience and assessing functional outcomes in non-operative patients have challenged the belief that humeral shaft fractures uniformly do well without surgery. In operative cases there is early mobilization of the joints and patient go to work early but there are complications like osteomyelitis and radial nerve injury. In non-operative cases there is no risk of surgical and anesthesia hazards. Therefore, non-operative treatment is safer for the patient and for surgeon.

Group A have better results that are treated conservatively as compared to Group B who are operated.

Author's Contribution:

Concept & Design of Study:	Babar Bakht Chughtai
Drafting:	Zulfiqar Ali
Data Analysis:	Asad Ali Bubak, Zobia Zulifqar

Revisiting Critically: Babar Bakht Chughtai, Zulfiqar Ali

Final Approval of version: Babar Bakht Chughtai

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Original Article

Relationship Between Study Habits and Academic Achievements in Undergraduate Medical Students

Nighat Kafil

ABSTRACT

Objective: To relate the study habits of medical students in Muhammad Medical College (MMC). To analyse the difference in study habits and academic achievements in male and female medical students in MMC.

Study Design: Correlational comparative study design

Place and Duration of Study: This study was conducted at Muhammad Medical College, Mirpurkhas from February 2018 to April 2018.

Materials and Methods: Medical students of 2nd and final year were asked to fill a questionnaire regarding their study habits and academic performance after obtaining written consent from them. After fulfilling the inclusion and exclusion criteria a total of 109 students (50 from 2nd year and 59 from final year) entered the study.

Results: A strong association amongst study habits and academic achievements (94.3%) was seen.

There was a significant difference (p-value 0.003) among the study habits and academic achievements of male/female medical students.Female students have significantly better (p-value 0.003)study habits than their male counterparts.

Conclusion: Student's study habits are likely to affect their academic achievement.The findings of the study identified that good study habits of students contribute as learning guidelines for them leading academic achievement.

Key Words: Study habits, questionnaire, academic achievement.

INTRODUCTION

Study habits of a student are the preferential way in which a student absorbs, comprehends, and retains information. It is the tendency of a student to undertake regular learning activities regarding academic tasks. Habits are reflected in the study routines of students (such as revising study material, number and frequency of study sessions, self-study, combined study choices)[1,2]. Study habits are the ways in which students plan studies after lecture hours [3].

This study has been carried out particularly for the purpose of analysing the role of study habits in the context of academic achievement.

Medical student soften enter in medical schools without sufficient skills needed in order to overcome challenges that they are about to face.

Department of Pharmacology, Muhammad Medical College, Mirpurkhas.

Correspondence: Prof. Dr Nighat Kafil, Department of Pharmacology, Muhammad Medical College, Mirpurkhas.
Contact No: 0323-8226979
Email: nkafil@hotmail.com

Academic growth of medical students is linked with adequate learning habits as well as with discussion and cooperation with peers and teachers[4]. Students need to develop various skills to succeed in modern healthcare environment which include being self-directed, critical thinkers working with teams[3,5]. These skills are often linked with study habits of medical students[5]. Student's success is dependent upon their study habits and how academic tasks are approached[6].

Studies also show differences in study habits according to gender that can influence academic achievement hence it can be said that there are certain prominent differences in the study habits of male/female students when it comes to studying[7,8].

MATERIALS AND METHODS

This was a correlational comparative study conducted at MMC. The study is survey based on a questionnaire inquiring about the study habits of the students and then to associate study habits with academic achievements.

Study Population: All 2nd and final year medical students. A total of 109 medical (59 - final year, 50 – 2nd year) students of Muhammad Medical College completed the forms. Total female students were 55 while male were 54.

Inclusion Criteria: Second year and final year students who successfully passed the first year and 4th year examinations respectively.

- All students who gave written consent and filled the questionnaire.

Exclusion Criteria

- Students who did not reveal their enrolment number/identity.
- All students who had migrated to the college in 2nd/final year or with results withheld.

Sample Size Estimation: At MMC, the researcher was able to distribute and collect 200 questionnaires. However, 40 respondents did not sign the consent form and 51 respondents did not complete the questionnaire. After discardingthem, results and conclusions were based on 109 questionnaires.

Methodology: Data was analyzed for percentages of baseline characteristics. Mean scores were calculated after comparing the study habits of students with respect to gender and examination results. Relationship of study habits with gender and academic achievements was analyzed.

Research Instruments: Data was collected through a questionnaire consisting of two sections, first consisting of the demographic data: student's name, roll number, gender, academic year they are currently in. Next section in the questionnaire is related to study habits of respondents. 14 questions centred on study habits were asked with 5 options - strongly agree (3 points), agree (2 points), neutral (0 points), disagree (-2 points) and strongly disagree (-1 points) as answers. The students choose the answer they most approved of.

Data Collection: This study focused on collecting data from 2nd and 5th year M.B.B.S. students. The researcher obtained permission from the ethical review board of Muhammad Medical College to conduct the research process. Consent from all participants was obtained. Permission was obtained to acquire results of the students participating in the study from the examination department to relate their study habits with their academic achievements.

The questionnaire was developed in consultation with heads of departments of Physiology, Anatomy and Pathology. The researcher also conducted a pilot study on 30, 4th year medical students. Changes in the questionnaire were made in accordance with student's requirements.

Statistical Analysis: The data was stored and analyzed using SPSS –IBM version 23.0. All values were checked twice for any error. All p-values less than 0.05 were considered significant.

RESULTS

The relationship between study habits and academic achievements of 109 students was assessed. The results in table 1 show the value of Pearson Correlation coefficient and the significance value. The value of Pearson Correlation in the above table is 0.943 showing that there is strong association among both the variables. This can be re-phrased that among study habits and academic achievement there is 94.3% strong relationship. The sig value in the above table is 0.000 which is less than 0.05 hence there is a strong association amongst study habits and academic achievements.

Table No.1: relationship b/w study habits and academic achievements - Correlations

		Study Habits	Academic Achieve-ments
Study Habits	Pearson Correlation	1	.943**
	Sig. (2 tailed)		.000
	N	109	109
Academic Achieve-ments	Pearson Correlation	.943**	1
	Sig. (2 tailed)	.000	
	N	109	109

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

Table No.2:Comparison b/w Study habits & Academic achievements in total number of male and female students - Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Study Habits	Female	55	1.7614	.81411	.10977
	Male	54	1.3009	.78590	.10695
Academic Achievements	Female	55	1.4515	.87057	.11739
	Male	54	.9198	.92414	.12576

Table 2 shows the group statistics for comparison of gender with the studying habits and academic achievements. The first variable which is compared against male and female students is studying habits of the students. The mean value for the studying habits for female is 1.76 with 0.814 standard deviation. The mean value for the studying habits for male is 1.30 with 0.784 standard deviation. The mean value for females is greater than the mean value of males. The second variable compared against male and female students is academic achievement of the students. The mean value for the academic achievements for female is 1.45 with 0.87 standard deviation. The mean value for the academic achievement for male is 0.919 with 0.924 standard deviation. From the comparison of both male and female respondents it can be said that the mean value for females is greater than the mean value of males and the deviation in the mean is greater for males in terms of academic achievements. Thus it shows that in terms of academic achievement females tend to perform more efficiently as compared to their male counterparts.

Table No.3: Difference in Study habits and Academic achievements of male & female medical students – Independence Sample Test.

		Levene's Test for Equality of variances		t-test for equality of means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	St. Error Difference	Lower	Upper
Study Habits	Equal Variances assumed	.224	.637	3.003	107	.003	.46044	.15331	.15652	.76435
	Equal Variances not assumed			3.004	106.970	.003	.46044	.15326	.15662	.76426
Academic Achieve-ments	Equal Variances assumed	.022	.882	3.093	107	.003	.53176	.17194	.19092	.87261
	Equal Variances not assumed			3.091	106.351	.003	.53176	.17203	.19070	.87282

Table 3 shows the differences in mean values where the two genders (male and female) are compared against the study habits and their academic achievementand shows if there is any difference among the study habits and academic achievement of male and female medical students. The T-test for the first variable clearly shows that the p-value is 0.003 hence there is a significant difference among the studying habits of male and female students. The second variable which is tested against the gender of the respondents is academic achievement. We wanted to analyze if there is a difference among both the groups. Here the p-value is 0.003.Hence, there is a significant difference among the academic achievements of male and female students.

The results of the correlation analysis shows that there is a strong association amongst study habits and academic achievements and there is a significant difference among the study habits and academic achievements of male and female students.

DISCUSSION

The findings of the study identified that study habits of the student in order to complete their studies contributes as learning guideline for them and results in their academic achievement. Most of the respondents responded that effective learning habits are likely to play essential role in the improvement of academic performance within medical education. It has been identified that there is a significant relationship between study habits, learning strategies and academic success, particularly in the field of medical education. Academic achievement is an important aspect in the entire educational process and aimed by all students at every stage of the learning process[9,10,11].

There have been several factors that are considered to be influencing the academic achievements and learning outcomes of a student[12,13]. The responses of the respondents claimed that if a student has good study habits such as studying regularly, making and reviewing notes, listening attentively in class, working on a planned and organised basis, and reading textbooks, then the student is likely to succeed and achieve academic achievement successfully in the learning process[12,13]. On the other hand, it has also been identified through findings of the study[9] in 2010 that if a student has bad study habits such as not completing work on time, being excessively involved in extracurricular activities, low attendance, and not studying regularly enable students to perform incompetently in the education and learning process and not able to achieve desirable academic success in his/her academic life[10].

While considering the study habits and academic achievements, it is essential to assess and discuss the gender differences and how gender differences are perceived to act upon these factors. The study of Farooqi[11] supports this and found that female students perform better than male students within the medical field. Few researchers have indicated differences in attitude, behaviour, and values of female and male students towards the academic performance and hence both of the gender develop different learning habits and styles[12]. Educational attainment of student is much more dependent upon attitude, interest, and motivation of students. However, one study found that gender difference has no impact on study habits and academic achievement within the context of medical students[13]probably because the number of female students in the study was much lower than the male students.

The findings of the study emphasised that student's study habits are likely to prepare students for their assessment and examination tasks, their level of understanding and intellectual ability. Most of the

respondents also agreed with the statement that medical students are required to adopt new study habits for attaining their set academic goals and higher grades in their courses[13].

The responses of the respondents identified that high attendance in lectures and classes is a significant factor that impacts on the student performance to work at their optimum level of efficiency[13,14]. Student habits like attending classes regularly and staying updated with the course work provided by the institute enable students in staying up to date and also influence directly on their performance level. This asserts that attendance is one of the major factors that has direct influence on their study habits and academic achievement[15].

Giving extra hours to the study is also an essential aspect that has impact on learning outcomes.

Moreover, students who have high intellectual abilities evaluate and sustain their study habits, and cautiously evaluate the factors that impact on their learning and achievement and they always look for guidance from their peers and teachers. High performing students are also self-motivated and have good time management skills[16].

Characteristics of low performing students have also been identified and respondents of the study stated that bad study habits, low socio-economic status, bad social integration, poor family culture, low self-esteem are factors that contribute in low performance of the students unable to achieve desirable academic success in their educational efforts.

Our study has identified that interest influences the study habits and learning behaviour of a student and interest enables students to acquire good study habits for in-depth insight and knowledge regarding courses and syllabus that assist them to achieve higher grades and academic achievement in the medical field. The findings of research determined that undergraduate medical students have a positive relation of study habits and gender differences. Male students are observed as lower performance students and have lack of ability for taking notes of the lecture and have poor reading skills. This study also proves that the students of both the genders are likely to spend more time on reading the non-academic material and extra-curricular activities that result in bad performance and failure in exams and thus affects the overall academic achievements[13,14].

On the other hand, there is a significant relationship between the studying habits of male students and female students. This study[15] supports the findings of our study and determined that the study habits are likely to change the academic performance of the medical students. Our study has been carried out effectively and revealed that the students are likely to have better academic performance and exhibit effective study attitude through which the students can attain better academic results if they can divide efficient time for learning and indulge in effective study habits[16].

CONCLUSION

On the whole, the study proved that student's study habits are likely to affect their academic achievement.The findings of the study identified that study habits of the student and their effort in order to complete the studies contribute as learning guidelines for them and leads to academic achievement.

Author's Contribution:

Concept & Design of Study:	Nighat Kafil
Drafting:	Nighat Kafil
Data Analysis:	Nighat Kafil
Revisiting Critically:	Nighat Kafil
Final Approval of version:	Nighat Kafil

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

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To Evaluate the Open Surgical Management Options in Patients Suffering from Symptomatic Uterine Fibroids at Tertiary Care Hospital

Open Surgical Management Options in Patients Suffering from Symptomatic Uterine Fibroids

Saira Parveen, Yasmeen Joyo and Afra Rehman

ABSTRACT

Objective: To evaluate the open interventional management options and their outcome in patients suffering from fibroid uterus at tertiary care hospital

Study Design: Cross Sectional study.

Place and Duration of Study: This study was conducted at the Department of Gynae and Obstet Unit 2, PMC Hospital Nawabshah from January 2017 to December 2017.

Materials and Methods: This study was conducted at Peoples Medical College Hospital Nawabshah. All the patients were admitted through Out Patient Department (OPD) and emergency department with history heavy menstrual bleeding lower back pain, pelvic pain, infertility, miscarriages and pain during intercourse etc. Thorough clinical examination along with required biochemical and radiological investigations were done. Diagnosis was made and treated accordingly.

Results: This is one year study of total 50 patients. It included two groups of female patients. Group A included 15 (30%) patients aged between 20 to 35 years. Group B included 35 (70%) aged from 36 to 56 years. Group A patients underwent myomectomy and group B were operated for open trans abdominal Hysterectomy (open TAH).

Conclusion: Myomectomy and trans abdominal hysterectomy are the better procedures in our study to cure the disease of uterine fibroids.

Key Words: Uterine Fibroid, Myomectomy, Bleeding, Back pain

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INTRODUCTION

Uterine fibroids are simply defined as the benign tumors of smooth muscle of the uterus. They originate from myometric cells. According to estimates, this disease affects 20-80% of women by the age of fifth decade of their life. In America, this disease directly costs upto 10.3 billion U.S dollars in a year.[1]According to an estimate, about 2 lac hysterectomies, 30000 myomectomies and thousands of uterine artery embolizations are done in a year. This immensely affects the psychology and economy of the patient. In 2013, 171 million people were affected by this disease.[2]

The most common type known as intramural is found in muscular wall of uterus. Another type is subserosal fibroids present on uterine surface.

Department of Obstet & Gynea, PUMHSW Nawabshah.

Correspondence: Dr. Saira Parveen, Assistant Professor of Obstet & Gynea, PUMHSW Nawabshah.
Contact No: 0335-3159532
Email: sairamemon1976@gmail.com

Submucosal fibroids are located in muscle beneath endometrim of uterus. The site of cervical fibroids is cervix wall/neck of uterus. Rarely these are found in round ligament, broad ligament or uterosacral ligament.[3]Growth, site and number are important factors playing role in the development of this disease. They are monoclonal in origin and 50% develop owing to chromosomal abnormalities. Mutations of the MED12 protein occur in 70% of patients.[4]

Risk factors for the development of this disease are obesity, level of estrogen and progesterone growth, diabetes mellitus, polycystic ovarian syndrome and hypertension. Half of the patients develop this disease due to genetic abnormality as diseased mother make their daughter's prone to develop the same disease. First degree relatives are more prone to develop this disease. Same is for monozygotic twins as compared to dizygotic ones.[5]

Women of reproductive age develop the disease because menopause decreases their size that is why it is rarely found in menopausal age. Symptoms are variable in patients as most of the females are usually asymptomatic while others present with complain of painful or heavy menstrual cycle. They also have complaint of menorrhagia, dymenorrhia, retention of urine, tenesmus, hydronephrosis, iron deficiency anemia, constipation, belatedness and lower back pain.

During pregnancy, miscarriage, bleeding, premature labor or changes in position of baby are also due to uterine fibroids. On examination, pelvic mass is palpated that may be single or multiple, irregular and nodular.[6]Blood investigations include blood complete picture, iron studies, thyroid profile and measurement of follicular stimulating hormone, leutenizing hormone, estrogen and beta human chorionic gonadotrophin levels.[7]

Ultrasonography is the investigation of choice in its diagnosis. It evaluates the endometrium and myometrium and provides information regarding the number, size and position of fobroids and the vasularity of uterus. Transvaginal ultrasound is the gold standard method to get accuracy of diagnosis. Additional investigation to get more accurate diagnosis is hysteroscopy and guides the treatment plan for the disease.Magnetic resonance imagimg (MRI) tells the size and site of fibroids in uterus. Large fibroids more than 9 cm needs computed tomography Scan (CT Scan) and this modality helps to evaluate the malignancy in postoperative follow up.[8]

Symptomatic uterine fibroids are treated by various methods viz medical therapy, ultrasound guided destruction, myomectomy/radiofrequency ablation, hysterectomy and uterine artery embolization.[9] Conservative treatment involves Non Steroidal Anti Inflamatory Drugs (NSAIDS), iron supplementation, oral contraceptive pills, levonorgestrel intrauterine devices, Cabergoline, Ulipristal acetate, Danazol, Gonadotropin releasing hormone analogs, mifepristone and aromatose inhibitors. Surgical options includs myomectomy, Hysterectomy and endometrial ablations. These procedures can b e done by open or laparoscopic methods.[10]

The rationale of our study is to evaluate open surgical procedures in patients suffering from uterine fibroids in order to protect patient from psychological trauma and economic loss.

MATERIALS AND METHODS

A one year cross sectional study of 50 patients was conducted at Peoples Medical College Hospital Department of Gynecology/Obstetrics Unit 2 from January 2017 to December 2017. This tertiary care hospital not only serves the patients of Sind province but also throughout Pakistan. It not only drains whole Sind Province but the patients coming from other provinces of Pakistan. All the patients were admitted through the outdoor patient department (O.P.D) and emergency departments. The patients suffering from minor/ heavy bleeding per vagina, lower abdominal pain, pain during intercourse, lower back pain, menorrhagia, dysmenorrhia and sometimes constipation, tenesmus were admitted. Detailed history along with thorough clinical abdominal, pelvic, vaginal and back examination in addition to digital rectal examination (DRE) was done. Apart from routine biochemical investigations, patient was advised to get ultrasound of abdomen and pelvis. Transvaginal ultrasound was also done to evaluate the disease in all aspects. X ray abdomen and pelvis was gotten to reach the diagnosis.Patients having large fibroids were evaluated by CT scan. Diagnosis was made and surgery was made according to the location, growth and the number of fibroids in the Uterus. Cardiac and anesthesia fitness was gotten to proceed for the procedure. After taking consent, patient was shifted to O.T and the required procedure was performed.

RESULTS

In our study, total 50 patients were studied. All patients were divided into two groups. Group A patients included 15 (30%) patients aged between 20 to 35 years. The average age in this group was 30. Group B included 35 (70%) patients aged from 36 years to 56 years. Average age in this group was 40 years.Of group A 15 patients, 10 (20%) patients had single fibroids where as 5 (10%) had small multiple fibroids diagnosed after required investigations. Of total 35 patients of group B, 25 (50%) patients had multiple large fibroids and 8 (16%) patients had endometrial masses2 (4%) patients had large uterus ovarian masses as shown in table below

Table No.1: Diagnosis

S.No	No of Patients	Percentage	Diagnosis
1	10	20%	Single Fibroid
2	30	60%	Multiple fibroids
3	8	16%	Endometrial mass
4	2	4%	Utero ovarian mass
Total	50	100%	

The type of procedure wad decided keeping in view the symptoms, signs and result of investigations. The symptoms are different according to the size, type and number of fibroids as is shown in table 2.

Table No.2: Symptoms/Signs

S.No	Symptoms/signs	No of patients	%age
1	Painful menstrual bleeding	30	60%
2	Heavy menstrual bleeding	30	60%
3	Anemia	31	62%
4	Retention of urine	2	4%
5	Constipation	5	10%

Type and Size of the fibroid was also kept in view for making decision of type of surgery to be performed.

Group A patients had mild to moderate symptoms with size of fibroids ranging from 2 to 5cm and the type was subserosal. Number of fibroids was from single to multiple. Type B had severe symptoms with large size having number from single to multiple. Size of fibroids was from 6 to 20cm. Total 15 patients of Group A underwent Myomectomy whereas 35 patients of Group B were operated for open Total Abdominal Hysterectomy.

The parity of patients also was different accordingly. 15 patients of group A had parity from 0, 1^{+0}, 2^{+0}, 3^{+0}. 35 patients parity also varied from 0^{+3}, 2^{+0}, 0, 5^{+3}, 3^{+0}, 4^{+0}, 8^{+1}. 9^{+2}, 10^{+0}, 4^{+1} as is shown in table 3 below

Table No.3: Parity

S.No	Group A patients	Parity
1	5	1^{+0}
2	5	2^{+0}
3	5	3^{+0}
Total	15	
S.No	Group B patients	Parity
1	2	0^{+3}
2	2	2^{+0}
3	10	0
4	3	5^{+3}
5	4	3^{+0}
6	5	4^{+0}
7	2	8^{+1}
8	1	10^{+0}
9	2	9^{+2}
10	4	4^{+1}
Total	35	

Among group A patients, 2 (4%) developed infected wound postoperatively. Only 1(2%) patient presented with subcutaneous hematoma. None of the patients came with complain of postoperative adhesions or bleeding from operative site.

Table No.4: Postoperative complications

S.No	Postoperative complications	Group A	Group B
1	Infected wound	2(4%)	7(14%)
2	Subcutaneous hematoma	1(2%)	2(4%)
3	Adhesions	0%	5(10%)
4	Bleeding	0%	0%
5	Hematuria	-	0%
6	Ureter ligation	-	0%

Group B patients also came with postoperative complications. 7(14%) patients developed infected wound that was treated accordingly. 2 (4%) patients developed subcutaneous hematoma that was drained. 5 (10%) patients were readmitted with complain of postoperative adhesions and sub acute intestinal obstructions that were treated conservatively. None of the patient came with complain of ureter ligation, bleeding from operative site or hemturia as is shown in table 4.

DISCUSSION

The uterine fibroid is a benign tumor commonly leiomyoma. It enormously affects the life of a women suffering from single or multiple uterine fibroids. It creates a psychological trauma to the patient. In our setup, it is commonly treated by three ways viz conservatively, uterus sparing procedure (Myomectomy) and Trans abdominal Hysterectomy. Though laparoscopic procedures are commonly being performed throughout globe but in our set up, open interventions are considered to be good with excellent outcomes.[11]

Stewart et al study showed heavy menstrual bleeding and anemia as most common clinical features. Similarly in our study, patients usually presented with complain of heavy menstrual bleeding and anemia. Baird et al concluded that the uterine fibroids are common by age 50. Same is found in our study that average age for Group B patients is 40. Wise at el showed the prevalence of uterine fibroids at earlier age but in our study most of the patients have been admitted at age of their third and fourth decade of life. Donnez at el has indicated in study the high recurrence rate by 59% among those patients who underwent myomectomy but in our study, recurrence rate is 10% only.[12]

Peddad et al has concluded the study with increase in size of fibroids with increasing age. Same is noted in our study also. Petreglia et al study showed the 1st pregnancy in third decade of life as major risk factor for developing fibroids in uterus. But in our study no any such thing is noted.[13]

Fibroids cause infertility to women at any stage by several mechanisms. It changes the local anatomy of uterine cavity changing the functions of endometrium of uterus subsequently functional changes. Fertility is affected by impairment of gamete transport and reduction of blastocyst implantation.[14]

Hysterectomy for benign diseases usually improves in symptoms and rarely develops pelvic pain but it is contradictory to hysterectomy done for malignant cause as patients continuously complain of pelvic pain. A study showed that patients have greater risk of cardiovascular disease if hysterectomy is done at 50 or before but no association is found in studies after 50. A study showed that patients after this procedure developed osteoporosis and bone fractures due to effect of estrogen on calcium metabolism.[15]

One study showed that patients developed postoperative adhesions after hysterectomy due to gravity dependent pelvis where bowel fall and adhere. In our study, 10% of patients developed postoperative adhesions. A study concluded the wound infection up to 3% postoperatively but in our study, it was 14%.[16]

CONCLUSION

It is concluded that myomectomy is the uterus sparing procedure so that women may keep on continuing her family. Abdominal hysterectomy is the procedure with uterus removing but giving relief patients from psychological trauma of severe symptoms and economical loss.

Author's Contribution:

Concept & Design of Study:	Saira Parveen
Drafting:	Yasmeen Joyo
Data Analysis:	Afra Rehman
Revisiting Critically:	Saira Parveen, Yasmeen Joyo
Final Approval of version:	Saira Parveen

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Original Article

Efficacy of Mitomycin C and BCG in Urinary Bladder Tumor

Sardar Khatoon Chandio[1], Ghulam Asghar Chandio[1], Aijaz Hussain Memon[2], Altaf Hussain Ghumro[4] and Abdul Hakeem Jamali[3]

ABSTRACT

Objective: To compare the treatments of urinary bladder cancer by Mitomycin C and BCG in order to find out the better drug with good outcomes and least complications.

Study Design: Comparative study.

Place and Duration of Study: This study was conducted at the NORIN Hospital Nawabsah and Urology Department PMC Hospital Nawabshah from July 2016 to June 2018.

Materials and Methods: This is a two years study of total 40 patients included 25 (62.5%) males and 15 (37.5%) females suffering from urinary bladder tumor. All the patients were admitted from Urology OPD and emergency investigated and treated accordingly.

Results: Total 40 were included, only 15 (37.5%) were females and 25 (62.5%) were males. Dysuria was common after use of MMC as compared to BCG. Fever was common after use of BCG. Cystitis was little more after use of BCG as compared to MMC. Recurrence was least in case of BCG as compared to MMC use.

Conclusion: It is concluded from our study that BCG is the better drug as compared to MMC because the former has least complications particularly recurrence as compared to MMC use.

Key Words: bladder cancer, BCG, MMC, Cystitis, Dysuria

INTRODUCTION

Urinary bladder cancer is counted as the 9th most commonly occurring throughout world. It is 5th most common in Europe and 4th in United States Of America (U.S.A). Its incidence is increasing in the globe. Most of the patients initially present with superficial disease (non muscle invasive). Non invasive muscle bladder cancers/carcinoma in situ is a heterogeneous group of tumors with different outcomes. In early stage, the disease is confined tiurothelium (Ta) or lamina propria (T1).[1] Bladder cancer is commonly prevalent among men as compared to females having ratio of 4:3 respectively.[2]

These tumors are usually managed initially by cystoscopic observation followed by transurethral resection (TUR). Biopsy is done.

1. Department of Oncology, NORIN Nawabshah.
2. Department of Urology / Surgery[3], PUMHSW Nawabshah
4. Department of Surgery, Peoples University Hospital, Nawabshah.

Correspondence: Dr. Sardar Khatoon Chandio, Clinical Oncologist, Head Oncology Division, NORIN Nawabshah.
Contact No: 0331-8770333
Email: drsardarchnadio1@yahoo.com

If resectable, the entire tumor is resected. Despite complete surgical resection, two thirds recur. High risk patients are treated with adjuvant intravesical therapy aiming at preventing it from recurrence. This is called intravesical therapy. The most commonly drugs used for this purpose are Mitimycin C (MMC) and Bacillus Calmette Guerin (BCG). There is a high recurrence rate in non-muscle invasive cancer after resection and can progress to muscle invasive cancer with poor prognosis.[3,4]

Centanni and Rezzesi were the first who unveiled the use of Bacillus Calmette Guerin (BCG) against cancer in mice in 1926 A.D. later on other experiments were also conducted in this regard by using this therapy against melanoma, leukemia, colon cancer and lung cancer getting good results of remission in 1960 A.D. In 1976 A.D, the first person used BCG against bladder cancer was Morales and collaborators.[5]

Various intravesicalcytotxic agents are given in superficial bladder cancer. These include mitomycin C, adriamycin, bleomycin, epirubicin, thiotepa and cytosine-arabinoside. The antitumor antibiotic MMC is commonly used for treating superficial bladder cancer and recurrence rate is 7-81%. MMC has been considered to be better than adriamycin and thiotepa but equivalent to epirubicin. The adverse effects of MMC are chemical cystitis and contact dermatitis.[6,7]

Other intravesicaltherapy commonly used includes nonspecific immunotherapy with BCG. This has been

used as treatment of superficial bladder tumors since 1976 A.D.[8]

Recent advances suggest that the tumors having risk of recurrence must be treated with adjuvant intravesical immunotherapy with BCG or adjuvant intravesical chemotherapy with MMC, epirubicin or doxorubicin.[9,10] This therapy has effect on initial cancer recurrence but not on the progression of the disease. BCG is considered to be superior to intravesical chemotherapy with regard to recurrence of the disease. But BCG is more toxic as compared to MMC. Some studies have called superiority of BCG as unclear against MMC.[11,12]

The rationale of our study is to find out the outcomes of comparison of MMC and BCG as intravesical therapy in patients suffering from Urinary Bladder tumors so that patients may get benefit from the better therapy and prevent from recurrence.

MATERIALS AND METHODS

A comparative study of 40 patients was conducted at NORIN Nawabshah and Urology Department of Peoples Medical College Hospital from July 2016 to June 2018. All patients were admitted through Urology Out Patient Department (OPD) and emergency. History and clinical examination were done. The provisional diagnosis was made and patient was advised to get Ultrasound and plain X-Ray abdomen apart from CT scan abdomen and pelvis to reach the diagnosis. Diagnosis was made and prepared for cystoscopic biopsy and required surgery. After getting the histopathological report, intravesical chemotherapy as well as immunotherapy (MMC & BCG) was started respectively at NORIN Nawabshah as well as PMCH Urology Department.

Patients included in this study were aged from 18 years to 80 years. Diagnosed cases of pathologically confirmed non-muscle invasive bladder tumors from Private Hospital and Other Urological institutions were also included. Patients operated for biopsy and tumor resection later on diagnosed as carcinomas were also part of our study. Only Ta or T1 non muscle invasive tumors were included. The patients with advanced bladder tumor were excluded from the study.

RESULTS

This is a comparative study of 2 years from July 2016 to June 2018. Total 40 patients were admitted and study was conducted at NORIN Nawabshah and Urological Department of Peoples Medical College Hospital.

Of 40, only 15 (37.5%) were females and 25 (62.5%) were male. Two drugs were given to patients according to the stage of disease. MMC were given to patients of T1, G1 and also G2. It was given state in a dose of 40mg diluted in 20 ml Normal saline after 6 hours of Surgery. Whereas 1 vial of BCG diluted in 50 ml normal saline was given state to patients 14 hours after surgical interventions. Agent was retained in bladder for 2 hours and then retained. It was not used in patients suffering from bleeding disorder, urethral stricture , urinary tract infections and pregnancy.

The use of both drugs showed various side effects. Only 6% and 2% patients showed hematuria by use of MMC and BCG respectively. Dysuria was common after use of MMC as compared to BCG. 17% was in case of MMC and only 7% was of BCG use. 9% patients presented with fever after use of BCG and 2% in case of MMC. Patients of BCG use developed Cystitis in 41% and 30% after MMC use. Recurrence was least in case of BCG as compared to MMC. Only 2% showed recurrence after use of BCG. This is shown in Table below.

Table No.1: Side Effects

S.No	Side Effects	MMC Use	BCG Use
1	Hematuria	6%	2%
2	Dysuria	17%	7%
3	Fever	2%	9%
4	Cystitis	30%	41%
5	Recurrence	10%	2%

DISCUSSION

Currently, urinary bladder cancer is counted as the most common malignancy of the Urinary tract. It is the 6th common in men and the 19% in women.[13] Most of the patients are usually diagnosed at the age of 63 years. Recurrence rate is at 80%. Tumor recurrence after TUR is the major problem for the patient as well as Surgeon. Intravesical treatment with either BCG or MMC is effective for the bladder tumors of Ta and T1.[14]

The studies have shown that prolonged treatment of BCG is effective as compared to short scheduled MMC. Same is shown in our study. Some studies have shown that the side effects of BCG are intensive to MMC.[15] Our study also shows more complications after use of BCG as compared to MMC but the big advantage of BCG use in our study is shown that is the reduction in recurrence rate of Tumor. The most dangerous complication is recurrence that is more after use of MMC in our study.

In a study of DI Stasi et al, cystitis and hematuria are noted in 66% and 72.7% patients after use of BCG. Same is the result of our study in case of cystitis with41% patients developed after BCG but only 2% patients developed hematuria that was opposite to the respective study. The study showed 16% hematuria and 16% cystitis after use of MMC but in our study Hematuria was found among only 6% of patients whereas 30% patients developed Cystitis after use of MMC.[16]

In a study by Correa et al, the use of BCG showed 38% recurrence in 12 months and 27% recurrence after 24 months. But in our study, the use of BCG has showed the 2% recurrence after follow up period of 6 months. Many subsequent reports have supported the use of BCG in decreasing the recurrence of bladder tumor and delaying the progression of the cancer. The AUA Guidelines have recommended the use of both agents as treatment of bladder cancer but are deficient of defining clear criterion for the choice of agents. The studies conducted by the European Organisation for Research and Treatment of Cancer (EORTC) have ended result less.[17]

CONCLUSION

Our study concluded that the use of Bacillus Chalmette Gureau (BCG) is better than MItomycin C with regard to its effect on decreasing the recurrence and subsequently lessening the progression of the cancer in urinary bladder. Though, the MMC has decreased occurrence of other side effects as compared to BCG but former has limited role in reducing the recurrence.

Author's Contribution:

Concept & Design of Study:	Sardar Khatoon Chandio
Drafting:	Ghulam Asghar Chandio, Aijaz Hussain Memon
Data Analysis:	Altaf Hussain Ghumro, Abdul Hakeem Jamali
Revisiting Critically:	Sardar Khatoon Chandio, Ghulam Asghar Chandio
Final Approval of version:	Sardar Khatoon Chandio

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Original Article

Teenage Drug Abuse: A Cross-Sectional Study among Students in Sialkot

Hamza Tanveer, Imran Javid, Rana Mozammil Shamsher Khan and Maria Butt

ABSTRACT

Objective: The objective of the current study was to investigate drug abuse among teenage students in Sialkot
Study Design: Cross-sectional study.
Place and Duration of Study: This study was conducted at the Department of Psychiatry & Behavioural Sciences, Government Khawaja Muhammad Safdar Medical College, Sialkot in October 2018.
Materials and Methods: 427 Adult teenagers studying in 13th and 14th class and abusing drugs were included by non-probability convenience sampling technique. Exclusion criteria were students with severe medical illness. Questionnaire contained demographic details and substance being abused by the students. Students from Arts, General Science, Medical and computer & IT were included. Data was analyzed by SPSS v 23.
Results: 306 (71.66%) students were male. Family background of 246 (57.62 %) students was urban and 289 (67.68%) were day scholars. Monthly income of majority 228 (53.39%) were between 25000-50000. 243 (56.90%) had family history of substance abuse. Medical students were 106 (24.83%), General science 109 (25.53%), Arts 105 (24.59%) and computer & IT 107 (25.05%). The most common substance of abuse was cigarette smoking 105 (24.59 %). The second most common were students with poly substance abuse 97 (22.72 %).The third most common was abuse of sleeping pills in 58 (13.58 %) students.
Conclusion: The most common substance of abuse was cigarette smoking 105 (24.59 %) followed by poly substance abuse 97 (22.72 %) and sleeping pills in 58 (13.58 %) students.
Key Words: Teenage, Students, Drug abuse, addiction

INTRODUCTION

Substance with sedative affects is being used therapeutically. Excess of things beyond its therapeutic range adversely affect the persons' life and we call it substance abuse. Substance abuse is the major concern of our society. Many families lost their soul earners, increased criminal activities, affecting relationships to divorced and even inheritance of drug abuse activities among their offspring. A study conducted in Iran revealed that, one of the common dilemma in this world is substance abuse, that has affected the society to much extent.[1,2] Multiple grave issues have arisen from substance abuse including cognitive, psychological and behavioral.[3]

Department of Psychiatry & Behavioural Sciences, Government Khawaja Muhammad Safdar Medical College, Sialkot.

Correspondence: Dr. Rana Mozammil Shamsher Khan, Assistant Professor, Department of Psychiatry & Behavioural Sciences, Government Khawaja Muhammad Safdar Medical College, Sialkot.
Contact No: 0333-8607078
Email: ranamozi@yahoo.com

A report published by WHO in 2005 depicts that opiate addicts are about 200 million all around the world. It is also found in studies, that alcohol and cigarette consumption are more common in young people.[4] The age in which most commonly drug use has started is in early 20s. A study conducted in Iran which describes that even the law and religion refrain from it and culturally it is not acceptable in their families.[5] According to the study 0.3-0.9% of drug addicts are pupils and cigarette, opium, cannabis and alcohol are the leading drugs which are being abused.[6]

Among many risk factors for substance abuse inclination is, being male and presence of a cigarette smoker in the family. Men and women have equal chances (11.2%) to become a smoker in life, according to a detailed study. Alcohol consumption has found to be more in men (22.4) than to be prevalent in women (19.3)[7]Amphetamine like methylphenidate are very common among college and university students and it is known as a "study drug". These drugs are being used to increased concentration level and maintain the conscious level throughout the day especially at the end of the day and during examination days. It is estimated that amphetamines are being used about 35.3% among students.[8,9]

To the best of our knowledge no study has been conducted on the topic of drug abuse among students in Sialkot. The objective of the current study was to investigate drug abuse among teenage students in Sialkot.

MATERIALS AND METHODS

This cross sectional study was conducted at Department of Psychiatry & Behavioural Sciences, Government Khawaja Muhammad Safdar Medical College, Sialkot. The study was conducted during the month of October 2018. Ethical approval was taken from institutional ethical review committee. Guidelines in the Declaration of Helsinki were followed. Non-probability convenience sampling technique was used. 434 students of class thirteen and fourteen were approached. Title along with purpose of the study were explained to students. 427 students were included in the final analysis. Sample size was calculated by open pie method. Written informed consent was taken. 7 students refused to give written informed consent. They were excluded from the study. The demographics of these 7 students were not different from rest of the students.

Exclusion criteria were the students who were not abusing any substance, unconscious, with severe medical or surgical illness or any severe psychiatric illness. Inclusion criteria were students giving written informed consent and abusing any substance. A questionnaire was designed, it contained demographic details of the students and it also noted the substance being abused by the students. Students were assured of confidentiality. Some students were hesitant but they were assured that their data will remain confidential. Students from Arts, General Science, Medical and computer & IT were included. Four groups were included in this study. After obtaining the demographic details and details of substance being abused, data was analyzed by SPSS v 23.

RESULTS

Of the 427 students 121 (28.34 %) were female and 306 (71.66%) were male. Mean age of the male students was 20.11 ± 2.17 years with range from 18-22 years. Mean age of female students was 19.86 ± 1.97 with range from 18-21 yeas. There was preponderance of male students. Family background of 246 (57.62 %) students was urban while 181 (42.38%) students were from rural back ground. 138 (32.32%) were living in hostels while 289 (67.68%) were day scholars. Monthly income of 67 (15.70%) participants were below 25000, 228 (53.39%) were between 25000-50000 and 132 (39.91%) were above 50000. Out of total 427 participants 243 (56.90%) had positive family history of substance abuse while, 184 (43.10%) had no history of substance of abuse. There were four study subjects. Medical students were 106 (24.83%), General science 109 (25.53%), Arts 105 (24.59%) and computer & IT 107 (25.05%). (Table 1)

The most common substance of abuse among students was cigarette smoking 105 (24.59 %). 23 (21.90 %) of arts students, 24 (22.02 %) of general science, 31 (29.24 %) of medical and 27 (25.23 %) were smokers.

Table No.1: Demographic of the teenagers N=427

Variable	Number (n)	%age
Gender		
Female	121	**28.34 %**
Male	306	**71.66 %**
Family Background		
Rural	181	**42.38%**
Urban	246	**57.62%**
Residence		
Hostel	138	**32.32%**
Day scholar	289	**67.68%**
Family monthly income		
Below 25000	67	**15.70%**
Between 25000-50000	228	**53.39%**
Above 50000	132	**39.91%**
Other family members using substance of abuse		
Yes	243	**56.90%**
No	184	**43.10%**
Study subjects		
Medical	106	**24.83%**
General Science	109	**25.53%**
Arts	105	**24.59%**
Computer & IT	107	**25.05%**

The second most common were students with poly substance abuse 97 (22.72 %). 27 (25.71%) of arts students, 25 (22.93 %) of general science, 22 (20.75 %) of medical and 23 (21.49 %) students of computer and information technology were poly substance abusers. The third most common was abuse of sleeping pills in 58 (13.58 %) students. 15 (14.28 %) students of arts, 23 (21.10 %) of general science, 17 (16.04%) of medical students and 15 (14.02%) of students from computer and information technology were abusing sleeping pills. Betel nuts and leafs were abused by 50 (11.71 %) students. 14 (3.28 %) students of arts, 14 (3.28%) students of general science, 9 (2.11 %) students of medical and 13 (3.04%) students of computer and IT were abusing betel nuts and leafs. Cocaine and heroin were abused by 11 (2.58%) students. 4 (0.94%) students of arts,3 (0.70%) students of general science,2 (0.47%) students of medical and 2 (0.47%) students of computer & IT were abusing cocaine and heroin. Alcohol was abused by 7 (1.64%) students. 3 (2.86%) students of arts, 2 (1.83%) students of general science, 1 (0.94%) student of medical and 1 (0.93%) student of computer & information and technology were abusing alcohol. Cannabis was abused by 22 (5.15%) students. 4 (3.81%) students of arts,3 (2.75%) students of general science, 8 (7.55%) students of medical and 7 (6.54%) students of computer & information technology were abusing cannabis. Sheesha was abused by 31 (7.26%) students. 3(2.86%) students of arts, 5 (4.59%) students

of general science, 11(10.34%) students of medical and 12(11.21%) students of computer & information technology were abusing sheesha. Gutka was abused by 33(7.73%) students. 12(11.43%) students of arts, 10(9.17%) students of general science, 5(4.72%) students of medical and 6(5.61%) students of computer & information technology were abusing gutka(Table 2).

Table No.2: Substances abused by the teenagers N=427

Substance being abuse	Arts students N=105		General science N=109		Medical students N=106		Computer & IT N=107		427	100%
	No.	%age	No.	%age	No.	%age	No.	%age	Total	%age
Poly substance abuse	27	25.71%	25	22.93%	22	20.75%	23	21.49%	97	22.72 %
Betel nuts	9	8.57%	8	7.34 %	5	4.72%	8	7.48%	30	7.02 %
Betel leaf	5	4.76%	6	5.50%	4	3.77%	5	4.67%	20	4.68 %
Cigarette	23	21.90%	24	22.02%	31	29.24%	27	25.23%	105	24.59 %
Gutka	12	11.43%	10	9.17%	5	4.72%	6	5.61%	33	7.73%
Sheesha	3	2.86%	5	4.59%	11	10.34%	12	11.21%	31	7.26%
Cannabis	4	3.81%	3	2.75%	8	7.55%	7	6.54%	22	5.15%
Cocaine	2	1.90%	1	0.92%	1	0.94%	1	0.93%	5	1.17%
Heroin	2	1.90%	2	1.83%	1	0.94%	1	0.93%	6	1.40%
Alcohol	3	2.86%	2	1.83%	1	0.94%	1	0.93%	7	1.64%
Sleeping pills	15	14.28%	23	21.10%	17	16.04%	15	14.02%	58	13.58 %

DISCUSSION

In our study there is dominancy of male 306 (71.66%), urban populated 246 (57.62%), day scholar 289 (67.68%), and general science students 109 (25.53%). Three most commonly used substances are cigarette smoking 105 (24.59%), poly substance abuse 97 (22.72%) and sleeping pills 58 (13.58%). Out of these three, medical students are dominant in smoking 27 (25.23%), arts students in poly substance abuse 27 (25.71%) and general science students are dominant in abusing sleeping pills 23 (21.10%). A study conducted in Iran showed that, alcohol and cigarette smoking were commonly used substances which is quite similar to our results in which cigarettes smokers are dominant.[4] Study showed that 20th years of life was the age at which respondents start abusing drugs, which synchronized with our results.[5]

Another study in Iran revealed, cigarette, opium and cannabis were the three most commonly drug abused which contrast our result.[6] A study showed that, risk of being a drug abuse was increased with positive family history of drug abuse, which is analogues to our results.[7] Two studies revealed amphetamine was being most commonly used drug which contradict our results.[8] The strength of our study was its easy methodology. Being cross-sectional, limited size of students and not using a standardized questionnaire are limitations of the study. In future studies with better methodology are needed.

CONCLUSION

Of the 427 students there was dominancy of male 306 (71.66%), urban dwelling 246 (57.62%), day scholar 289 (67.68%), and general science students 109 (25.53%). Three most commonly used substances are cigarette smoking 105 (24.59%), poly substance abuse 97 (22.72%) and sleeping pills 58 (13.58%). Out of these three, medical students are dominant in smoking 27 (25.23%), arts students in poly substance abuse 27 (25.71%) and general science students are dominant in abusing sleeping pills 23 (21.10%).

Author's Contribution:

Concept & Design of Study:	Hamza Tanveer
Drafting:	Imran Javid, Rana Mozammil Shamsher Khan
Data Analysis:	Maria Butt
Revisiting Critically:	Hamza Tanveer, Imran Javid
Final Approval of version:	Hamza Tanveer

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

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Diagnostic Utility
of WBC, Serum
Bilirubin and
CRP in Acute
and Perforated
Appendix

Original Article

Diagnostic Utility of White Cell Count, Serum Bilirubin and C Reactive Protein in Acute and Perforated Appendix

Muhammad Fahim Ahsan[1], Abeer Irshad[2], Ahmareen Khalid Sheikh[1], Muhammad Asif[3] and Majida Zafar[1]

ABSTRACT

Objective: To determine the diagnostic utility of white blood cell count (WBC), serum bilirubin and C-reactive protein (CRP) by to determine perforation in acute appendicitis.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Surgical Department of PIMS Hospital Islamabad from January 2015 to December 2017.

Materials and Methods: This study was conducted on patients undergoing emergency appendectomies. Blood samples were taken from all patients in the first hour of admission for WBC count, serum bilirubin and CRP level and referred to the Hospital laboratory. The appendix specimens submitted in sterile container containing formalin as preservative to histopathology department to assess the inflammatory or perforated appendix as a gold standard. All the data was recorded in the proforma and analyzed by SPSS version 16.

Results: Total 190 patients underwent appendectomies during two year period, their mean age was 26.59 ± 8.78 years and males were in majority.23(12.1%) patients were diagnosed with perforated appendix by histological examination. Mean of serum bilirubin, WBC and CRPl evels were significantly higher among perforated appendix as compare to inflammatory appendix (P-value 0.001). Logistic regression analysis with forward selection shows that serum bilirubin, WBC and CRP was significant factors of the perforated appendix according to histopathology findings (p<0.05).

Conclusion: It was concluded that WBC, Bilirubin, and CRP are the best diagnostic markers for perforated appendix. Suspected appendicitis patients with significant raised CRP, WBC and bilirubin suggests that the patients are unsuitable for conservative treatment.

Key Words: Diagnostic utility, WBC, Serum bilirubin, C-reactive protein, appendicitis

INTRODUCTION

Acute appendicitis is a commonest abdominal emergency and appendectomy is a very common emergency operation performed worldwide[1]. Acute appendicitis is disease of teenager and is rare in infants and elderly peoples. Lifetime threat for acquiring appendicitis testified to be about 7 to 10 %[1,2]. The prevalence of acute appendicitis is the same among females and males before puberty.

[1.] Department of General Surgery / Histopathology[2], PIMS Hospital Islamabad.

[3.] Department of General Surgery, PAEC General Hospital Islamabad.

Correspondence: Muhammad Fahim Ahsan, Assistant Professor of General Surgery, PIMS Hospital Islamabad.
Contact No: 0336-5201661
Email: dr.fahim@hotmail.com

Among young adults and teenagers, the male to female ratio elevates to 3:2 at the age of 25; later, the higher prevalence among males declines [1,3]. The diagnosis of perforated appendicitis is based upon imaging modalities, laboratory tests, clinical course and history. Acute appendicitis can present with advanced complications, including lump formation, perforation, and abscess creation.[3,4] The benchmark in the diagnosis of perforated Appendix is histopathology assessment of the specimen following surgical procedure[5].This fact has recuperated the need for further effective application of inflammatory indicators to the institution of diagnosis and its complications. Recently, several fresh inflammatory markers have been practiced for confirming the diagnosis of appendix perforation and its complications[2,4,6,7]. The widely practiced laboratory markers to reinforce the diagnosis are yetthe leukocytes counts, serum bilirubin level and C-reactive protein etc.[6,8,9] Initial margin of peripheral leukocytes due to catecholamine and cytokine release represents leukocytosis in majority of cases with acute appendicitis. Even though leukocytosis is not indicative for any specific disease, its existence is a frequent

outcome in appendicitis. Leukocytosis along with neutrophil supremacy has been highly prognostic of perforated appendicitis within several studies[4,7,]. The specificity and sensitivity values of neutrophil dominance in this study are compatible with the earlier studies. Several scoring methods quote leukocytes count as inflammatory parameter for the assessment of acute appendicitis.[8,9,11] In acute appendicitis, serum bilirubin is not a common significant marker. Though, hyperbilirubinemiais found to be a high specificity marker for studies of perforated appendix[5,7,12]. In appendicitis, compromised appendix wall integrity causes movement of endotoxins and bacteria from appendix lumen into portal system. Inflammatory cytokines can possibly then move to liver, provoking intrahepatic cholestasis. Studies have also exhibited that E. coli endotoxin triggers cholestasis depending upon dose,[10,13] which would clarify our outcomes of raised bilirubin levels with increasing severity if appendicitis. Bilirubin can possibly be raised in further sources of gram-negative associated sepsis, which can possibly be of abdominal origin (E. coliin diverticulitis) or from further sources for example pyelonephritis, endocarditis, pneumonia and soft-tissue abscesses[1,14,20] In acute appendicitis occlusion of appendicular lumen results in the mucosal disruption and damage of blood flow. Afterwards, bacteria proliferate and leukocytes infiltration develops in this malfunctioningsite. Migration of WBCs to targeted tissues leads to the liberation of cytokines such as CRP[10,15,16].C-reactive protein, an acute phase protein produced in liver cells, was uncovered in 1930 by Tillette and Francis. Synthesis of CRP elevates during 4-6 hours following acute tissue impairment or commencement of inflammation and becomes two-fold every eight hours then peaks at around 36–50 hours. Because its half-life is just 4-7 hours, its concentration declines rapidly. Thus, among subjects whose symptoms manifest in the course of<12 hours, it has a rather lower sensitivity.[4,15,17] The morbidity and mortality rates elevate if the surgical intervention delays in perforated appendix. It has been reported that diagnostic aids can noticeably diminish the quantity of appendectomies among subjects without appendicitis, the quantity of perforations as well as the length of time consumed in the Hospital stay[5,21]. No fixed technique is presently available to differentiate uncomplicated from complicated appendicitis preoperatively, although many studies on forecasting perforated appendicitis were published [1,6,18,19,]. As acute appendicitis is a surgical emergency and around 16 to 17 % cases are complicated by perforation that is correlated with high risk of complications and morbidity. So these biomarkers assign risk and assist the clinicians in diagnosing the appendicitis specially severity prediction i.e. perforation.[4,20-22]

MATERIALS AND METHODS

This prospective study was conducted in department of general surgery at Pakistan institute of medical sciences Islamabad from January 2015 to December 2017. Well-versed consent was taken. All the patients underwent appendectomies after taking informed consent were included. Complete medical history and clinical examination were carried out. Patients who underwent conservative management based on the surgeon's decision, histopathology report shows normal appendix, having hematological disorder and hepatobiliary disorder were excluded. Blood samples were taken from all patients in the first hour of admission for WBC count, serum bilirubin and CRP level Hospital laboratory. Quantitative CRP concentration measured by immuneturbidometry by an experienced laboratory technologist. After surgeries, appendix specimens submitted in sterile container containing formalin as preservative to histopathology department. Data was collected through structured Performa. Data was analyzed using SPSS-16.

RESULTS

The study consisted of 190 patients. The mean age of the patients was 26.590 ±8.787years.There were 96 (50.52%) males and 94(49.47%)females. Out of 190, 167(87.89%) had acute inflammation of appendix and 23 (12.10%) patients were found to have perforated appendix. Overall mean of white blood cell count was $15.92\pm22\times10^9$/L. Serum bilirubin mean was 0.551±0.30mg/dl and the overallmean of c reactive protein was 10.07±19.52 mg/l (Table 1).

There was no significant difference in histopathological findings according to gender (P-value 0.866). Mena of WBC was significantly higher $18.85\pm1.96\times10^9$/L among perforated cases in contrast to patients had inflammatory appendix $15.60\pm1.99\times10^9$/L, p-value 0.001. Serum bilirubin level was high 1.11±0.59 mg/dl in perforated appendix cases as compare to patients having inflammatory appendix 0.51±0.45 mg/dl, these findings were statistically significant, p-value 0.001. C-reactive protein was also, markedly high among perforated patients as; 51.83±32.40 mg/l as compare to patients had inflammatory appendix as 4.32±4.47 mg/l, p-value 0.0001, (Table 2).

To identify the intention and power of our covariates we applied logit regression model with forward selection method. In the final model, which was set on step 3 was in (Table 3). In the final logit model age was not included, as age was dropped at first stage with β= 0.036 (p value= 0.850). With the above logit model, we can predict inflamed and perforated appendix correctly with high accuracy up to 98.4%. The Nagelkerke R square of our logit model was 0.858,

which tells us that the final logit model explained approximately 85% variation of histopathology results.

Table No.1: Descriptive analysis of Quantitative variables n=190

Variables		Frequ-encies	%tage
Gender	Male	96	50.5
	Female	94	49.5
Histo-pathology	Inflamed	167	87.9
	Perforated	23	12.1
CRP categories	Less or equal to 20	170	89.5
	More than 20	20	10.5
	Mean ± Standard deviation		
Age	26.59±8.78 years		
White cell count	15.92±2.200 $\times10^9$/L		
Serum bilirubin	0.551±0.308 mg/dl		
C-reactive protein	10.07±19.53mg/l		

Table No.2: Comparison of gender, CRP, WBC and serum Bilirubin according to histopathology n=190

Variables		Histopathology findings		P value
		Inflamed	Perforated	
Gender	Male	84	12	0.866
	Female	83	11	
		Mean ± Standard deviation		
White cell count		15.60±1.99×10^9/L	18.85±1.96×10^9/L	0.001
Serum bilirubin		0.51±0.45 mg/dl	1.11±0.59 mg/dl	0.001
C-reactive protein		4.32±4.47 mg/l	51.83±32.40 mg/l	0.001

Table No.3: Final logit model with their p values n=190

covariates	Estimates	P value
Constant	-20.287	0.000
Serum bilirubin	3.243	0.039
WBC (in thousands)	0.806	0.004
CRP	0.135	0.000

DISCUSSION

Acute Appendicitis is a commonest cause of sprouting surgical intervention in teen agers or adolescents[5]. Diagnosis is usually based upon physical evaluation, medical historyand investigations like high WBC count, elevated serum bilirubin, CRP level, ultra-sonography (USG) signs and CT scan abdomen are used in confirmation diagnosis of the disease and its complications[1,5]. Diagnosis establishment is problematic especially in teen-age (females) group and pregnant patients[4,6]. In this study male to female ratio among patients who presented with acute appendicitis in this study was 1:1. This was comparable to the study ofBuckiusetal[10].

In this series mean age of patients was26.59±8.78 years, this is similar a study conducted by J.A Shelton et al.where mean age was 32 years [19].In another study conducted by Mohamed Amine Msolli etal. found similar result, which waspatients mean age 28 ± 3 years with limits formeightto 85 years. Young aged patients under 30-yearand males were in majority[4]. One local study conducted by Tanveer Ahmad et al. mentioned incidence of perforated appendix is higher in males (69.17%) as compared to females (30.82%)[24]. In the present study, perforated/gangrenous appendix was found in 52.2% of males and in 47.8% of females with acute appendicitis. The rate of appendicular perforation fluctuated between 5.5 and 17.0% in different studies while in our study it is 12.1% [6,7,15,17]. Male female ratio presented is almost equal in acutely inflamed appendix and perforated appendix in this study.

In this study WBC count was found between 9000 to 23000 $\times10^9$/L in patients operated for acute appendicitis while 15.605±1.995×10^9/L, 16 (Mean ± Standard deviation, median) in inflamed appendix and 18.222±2.2907×10^9/L, 19.5 was identified in perforated appendix. SushruthS et al[25] found similar findings, but in his study he compared inflammatory appendix with normal appendix. In a similar study by Sheikh MuzamilShafi et al., they found that WBC raised and sensitivity and specificity of WBC were 97.82% and 55.55%the PPVs for WBC were 91.8%.[12] In another retrospective study carry out by AnshumanSengupta et al. found that for the same cut off value WBC alone had a high NPV of 95% for acute appendicitis. Though, no subjects with both values in typical range had acute appendicitis, providing sensitivity and a NPV of 100% each.[23]

The mean levels of bilirubin were greater for cases with perforated acute appendixthan those with inflamed appendix (0.517 ±0.455mg/dl vs 1.111±0.592d/l, $p<0.001$). Andrew Emmanuel et al. established that hyperbilirubinaemia had a high specificity of 88.0% and PPV of 91.0% for simple acute appendicitis[27]. In his study, hyperbilirubinaemia (>1.0mg/dl) was seen in 69.2% of cases with appendicitis than the cases with complicated appendicitis 78.4% had hyperbilirubinaemia. Abouzeid AE al[26] also found similar findings. The specificity and sensitivity of bilirubin (>1.0mg/dl) as a predictor of complicated appendicitis were 78% and 33.9%, respectively[27].Another study conducted by D'Souza Nshows hyperbilirubinaemia in simple appendicitis vs. perforated appendicitis, had a specificity of 0.82 for perforated appendicitis, odds ratio of 10.8 and a

sensitivity of 0.70. Comparing serum bilirubin to CRP and WBC in perforated appendix, bilirubin had a higher specificity (0.82) as compared to both CRP (0.21) and WBC (0.34), however a lower sensitivity (0.70 vs0.95 and 0.80 respectively)[21].

In this study acute appendicitis the C-reactive protein was 4.32±4.47 mg/l, and in perforated appendix it was higher 51.830±32.40 mg/l. The utility of CRP in diagnosing of appendicitis had evaluated in many studies. Negative CRP levels would most likely be associated with normal appendix [17]. In contrary, Amalesh T et al. exhibited that the sensitivity, specificity, PPV, and NPV for CRP in appendicitis was 91%, 42%, 88%, and 48%, respectively, and that it may not be a useful tool to surgeons [22]. When CRP taken alone, the PPV was 94.7%, specificity was 72%, and sensitivity was 85.1% in a study done by Shefki Xharra et al [11].

CONCLUSION

It was concluded that markedly elevated WBC, Bilirubin, and CRP are the non-invasive and best diagnostic toolsfor perforated appendix. Suspected appendicitis patients with significant raised CRP, WBC and bilirubin suggests that the patientsare unsuitable for conservative treatment.

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Author's Contribution:

Concept & Design of Study:	Muhammad Fahim Ahsan
Drafting:	Abeer Irshad, Ahmareen Khalid Sheikh
Data Analysis:	Muhammad Asif, Majida Zafar
Revisiting Critically:	Muhammad Fahim Ahsan, Abeer Irshad,
Final Approval of version:	Muhammad Fahim Ahsan

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The Profile of Severe Acute Malnutrition in Infants below 6 Months versus 6-60 Months of Age Children

Iftikhar Ahmad, Imran Qaisar and Abdul Rehman

ABSTRACT

Objective: To compare the clinical and laboratory findings, the comorbid conditions and the outcome in children aged < 6 months versus those aged 6 to 60 months with SAM.

Study Design: Cohort study

Place and Duration of Study: This study was conducted at the Pediatrics Unit 2, Bahawal Victoria Hospital, Bahawalpur from April 2018 to November 2018.

Materials and Methods: This cohort study was conducted on children, aged 1-60 months, having WHO criteria of SAM.

Results: Out of a total of 62 cases, 29.0% were less than 6 months of age whereas 71.0% were 6 to 60 months. There were a total of 56.5% male and 43.5% female. Only 14.5% children were exclusively breast fed. Out of 62 cases, 56 (90.3%) recovered well while 2 (3.2%) deaths were reported. The raised blood urea level and leukocytosis turned out to be statistically significant in children < 6 months of age while anemia (p = 0.017) was noted to be statistically significant in 6 to 60 months age group.

Conclusion: Lack of breastfeeding was found to be very high in children with SAM. The raised blood urea levels as well as the leukocytosis were found to be significantly more common in children with SAM who were aged less than 6 months while anemia was significantly more common in children aged 6 to 60 months.

Key Words: Sever acute malnutrition, anemia, leukocytosis, raised blood urea level.

INTRODUCTION

Malnutrition is said to be underreported and not addressed properly in a developing country like Pakistan. Globally, one out of every four child is estimated to be stunted due to malnutrition in countries which are underdeveloped. In Africa, the situation is even more worse where two out of every five children experience malnutrition. In developing countries, malnutrition is estimated to contribute more than 50% to mortality in children who are under 5 years of age.[1,2]

Severe acute malnutrition (SAM) is defined as the presence of one or more than one of the following three signs in children 6-60 months of age:

1- Edema of both feet
2- Weight for height/length less than -3SD
3- Mid-upper arm circumference less than 115 mm

Department of Pediatric, Bahawalpur Victoria Hospital Bahawalpur.

Correspondence: Dr. Abdul Rehman, Associate Professor of Pediatric, Bahawal Victoria Hospital Bahawalpur.
Contact No: 0300-6848195
Email: drarehman100@gmail.com

For infants less than 6 months of age the presence of one or more than one of the above mentioned signs except third one is used to label SAM.[3]

In children who are reported with SAM along with diarrhea, studies report a high rate of mortality which is said to be in between 67 to 71%. Dehydration coupled with imbalance of electrolytes is the most frequent reason of deaths in such cases. Some studies have pointed out sepsis, pneumonia and malaria as the other major causes of mortality in SAM.[4-7]

Being a developing country, Pakistan has a high mortality rate under 5 years of age and there is very little local studies available about SAM especially in infants < 6 months of age. The objective of the study was to compare the clinical and laboratory findings, the comorbid conditions and the outcome in children aged < 6 months versus to those aged 6 to 60 months with SAM.

MATERIALS AND METHODS

This cohort study was conducted from April 2018 to November 2018, on children, aged 1-60 months, having WHO criteria of SAM admitting in Pediatrics unit 2, Bahawal Victoria Hospital, Bahawalpur. This study was approved by local ethical committee. The verbal consent was taken from the parents/guardians of the enrolled cases. Children whose parents/guardians refused to give consent or left the ward before

completion of investigations were excluded from the study. The relevant history was taken from the parents/guardians and clinical examination was done by one of the authors. The relevant investigations were done in the Pathology/Radiology department of the Bahawal Victoria Hospital/ Quaid e Azam Medical College Bahawalpur. The children were managed according to WHO guidelines.[3]

The level of Hemoglobin (Hb) < 11 gm/dl was considered as anemia in children in all age groups.[8,9] Leukocyte Count (TLC) < 4000 cells/cu mm was considered to be leukopenia and > 16000 cells/cu mm as leukocytosis. The random Blood Sugar (RBS) < 54 mg% was considered as hypoglycemia according to WHO SAM guidelines. The blood urea > 40 mg/dl was taken as high while serum creatinine > 0.90 mg/dl was taken as high (deranged). Hyponatremia was labeled when serum sodium was <135mEq/l whereas hypokalemia was declared with serum potassium < 3.5 mEq/l. Urinary tract infection was diagnosed by doing complete urine report as well as culture.

The clinical profile and laboratory findings, the comorbid conditions at the time of admission as well as outcome during hospital stay of SAM infants < 6 months were compared with those of children aged 6 to 60 months with SAM.

SPSS version 20 was used for data entry and statistical analysis. The continuous variables were presented with confidence interval (95% CI). Chi Square test was applied to compare qualitative data and p value of less than or equal to 0.05 was considered as statistically significant.

RESULTS

Out of a total of 62 cases, 18 (29.0%) were less than 6 months of age whereas 44 (71.0%) were 6 to 60 months. There were a total of 35 (56.5%) male and 27 (43.5%) female. Only 9 (14.5%) children were exclusively breast fed. Diarrhea was found in 38 (61.3%), pneumonia 35 (56.5%) and urinary tract infection 9 (14.5%). Anemia was noted to be present in 47 (75.8%), hyponatremia 38 (61.3%), deranged creatinine 7(11.3%), leukocytosis 20 (32.3%) and raised blood urea in 19 (30.6%) cases.

Out of 62 cases, 56 (90.3%) recovered well and got discharged while 4 cases left against medical advice. Two deaths (3.2%) were reported (one in 6-60 months and other in infants less than 6 months of age groups). Mean weight gain of the cases was 10.7 grams per kg per day with a standard deviation of 6.2 whereas mean duration of hospital stay was noted as 8.3 days ranging from 3 to 42 days.

When both groups were compared as shown in Table No.1, raised blood urea (p = 0.001) and leukocytosis (p = 0.012) turned out to be statistically significant in children < 6 months of age while anemia (p = 0.017) was noted to be statistically significant in 6 to 60

months age group. All other variables were noted to be insignificant between the two study groups.

Table No.1: Comparison of Clinical Profile and Laboratory Findings of SAM in between both study groups

Characte-ristics	Age group <6 months (n=18)	Age group 6-60 months (n=44)	Total cases (n=62)	P Value
Male	10 (55.6%)	25 (56.8%)	35 (56.4%)	0.927
Exclusively breast fed	3 (16.7%)	6 (13.6%)	9 (14.5%)	0.758
Pneumonia	7 (38.9%)	28 (63.6%)	35 (56.4%)	0.074
Diarrhea	11 (61.1%)	27 (61.4%)	38 (61.3%)	0.985
Urinary tract infection	4 (22.2%)	5 (11.4%)	9 (14.5%)	0.271
Malaria	1(5.5%)	4 (9.1%)	5 (8.1%)	0.6426
Tuberculosis	0 (0%)	1(2.3%)	1(1.5%)	0.519
Anemia	10 (55.6%)	37 (84.1%)	47(75.8%)	0.017
Leukopenia	3 (16.7%)	10 (22.7%)	13 (21%)	0.595
Leukocytosis	10 (55.6%)	10 (22.7%)	20 (32.3%)	0.012
Raised blood urea	11 (61.7%)	8 (18.2%)	19 (30.6%)	0.001
Deranged Creatinine	2 (11.2%)	5 (11.4%)	7 (11.3%)	0.977
Hypoglycemia	4 (22.2%)	11 (25.0%)	15 (24.2%)	0.817
Hyponatremia	11 (61.1%)	27 (61.4%)	38 (61.3%)	0.985
Hypokalemia	7 (38.9%)	15 (34.1%)	22 (35.5%)	0.720
Mortality during hospital stay	1 (5.6%)	1 (2.3%)	2 (3.2%)	0.507
Left against medical advice	1 (5.6%)	3 (6.8%)	4 (6.4%)	0.854
Recovered well and got discharged	16 (88.9%)	40 (90.9%)	56 (90.3%)	0.807

DISCUSSION

SAM is a serious public health issue globally. Researchers around the world have been more focused related to SAM's management in the children who are from 6 to 60 months of age but recently more evidence is forming an opinion that SAM also affects infants who are less than 6 months of age. In the present study, we found that there were 29% infants with SAM aged less than 6 months. Ali SM et al in 2017 found 24% infants with SAM in the age group of < 6 months in the 2 year study.[10] In another recent study,[11] the prevalence of this age group was found to be 10% that is lesser than the present work. Main factor contributing to SAM

in children less than 6 months could be low number of infants being exclusively breast fed. We also found only 14.5% children on exclusive breastfeeding in the current study. Ali SM et al also had found only 7% children having exclusive breastfeeding from India.[10]

Comorbid conditions affiliating SAM are known to be the main challenge confronting management. Comorbid conditions also contribute significantly in treatment failure and prolonge duration of hospital stays.[1,10,11] Major focus on comorbid conditions while managing SAM improves treatment outcome as has been suggested previously.[12,13]

We found diarrhea in 38 (61.3%), pneumonia 35 (56.4%) and urinary tract infection 9 (14.5%). Diarrhea, pneumonia and UTI, all have been found to be predominantly present in children with SAM who are aged 1 to 60 months[10] previously as well but nor many publications have documented much about these comorbidities. We found leukocytosis as well a raised level of blood urea significantly more common in infants who were aged less than 6 months. A similar finding has been observed previously[10] but not much material was found for comparison of these conditions in the past literature. These relations may be described on the fact that SAM in infants < 6 months of age have more probability of infections along with dehydration. This arises the point that young infants with SAM should be given extra attention for detection and management of any subclinical infection in this particular age group.

We found anemia as significant underlying morbidity in children who were aged 6 to 60 months. Anemia has been known to be the most common comorbidity accompanying children with SAM in a recent study while the same study stated that those children who are presented without anemia are more likely (more than 3 times) to have positive outcomes when coming with SAM.[1] Children in the studied age group have good outcome if treated properly during their stays.[14-17] We found 90.3% children in the present study who recovered well.

We found a mean weight gain of 10.7 grams per kg per day that is highly acceptable in terms of international standards (more than 8 grams per kg bodyweight per day).[18,19]

Infants who are aged less than 6 months with SAM have been found neglected for much data as not many studies are witnessed in this age group.[20] Management of infants who are aged less than 6 months with SAM vary in comparison to those who are aged 6 to 60 months so we need to effectively apply WHO protocol while managing such cases to reduce the burden of SAM in our population.

CONCLUSION

Lack of breastfeeding was found to be very high in children with SAM. a raised level of blood urea as well as leukocytosis were found to be significantly more common in children with SAM who were aged less than 6 months while Anemia was significantly more common in children aged 6 to 60 months.

Author's Contribution:
Concept & Design of Study: Iftikhar Ahmad
Drafting: Imran Qaisar
Data Analysis: Abdul Rehman
Revisiting Critically: Iftikhar Ahmad, Imran Qaisar
Final Approval of version: Iftikhar Ahmad

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Simvastatin's Intrinsic Calcium Channel Antagonistic Activity on Vascular Smooth Muscle Cells

Wajid Ali, Saima Bukhari, Muhammad Adeel and Khadija Imran

ABSTRACT

Objective: To determine the intrinsic calcium channel antagonistic activity of Simvastatin on vascular smooth muscle cells.

Study design: Experimental animal study on Rabbits aortic strips.

Place and duration of study: This study was conducted at Pharmacology department lab "Ayub Medical College, Abbottabad" from Jan, 2017 to Jan, 2018.

Material and Methods: In tissue organ bath of Power lab, different molar concentrations of Simvastatin were applied on the rabbit's aortic strips to record its relaxing effects on the Spontaneous, KCl-induced and NE-induced contractions. Calcium chloride response curves (CCRCs) were drawn by decalcification of rabbit's aortic strips and then the known concentration of calcium chloride was provided to draw control calcium chloride curves to compare it with simvastatin treated tissues; calcium chloride curves for simvastatin were constructed by using calcium channel blocker Verapamil as standard.

Results: Our study showed significant results for intrinsic calcium channel antagonistic activity of Simvastatin on Vascular smooth muscles (VSMCs), in comparison with Verapamil as standard.

Conclusion: This study demonstrates that Simvastatin have an intrinsic calcium channels (L-Type) antagonistic activity on vascular smooth muscle cells (VSMCs), besides its normal lipid lowering effects.

Key Words: Simvastatin. Vascular smooth muscle cells (VSMCs), Verapamil, Cardiovascular diseases (CVDs), CCB (Calcium channel blocker), Potassium chloride (KCl), Nor-Epinephrine (NE), CCRCs (Calcium chloride response curves)

INTRODUCTION

Cardiovascular diseases are the most prevalent cause of mortality and morbidity[1]. Most important cause of cardiovascular disease is high blood cholesterol levels[2]. Lipid lowering drugs which are used to lower the blood cholesterol levels in patients with hypercholesterolemia include Simvastatin (Statins) as first line drugs[3], prevention of atheromateous lesion and prevention of subsequent development of atherosclerosis is the virtue of Statins. Mechanism of action via which Simvastatin lowers blood cholesterol level is HMG-COA reductaseinhibition, with inhibition ofDe-novo synthesis of cholesterol as well[4]. Simvastatin also increases the LDL receptors that can combine and internalize circulating LDLs, so the plasma levels of

Department of Pharmacology, Ayub medical college Abbotabad.

Correspondence: Wajid Ali, Lectuer in Pharmacology, Ayub medical college Abbotabad.
Contact No: 0333-5715816
Email: dr.wajidali161@gmail.com

cholesterol is reduced by inhibiting the cholesterol synthesis and raise of LDL catabolism. Simvastatin also have pleotrophic effects[5]. In 1990, three different Statins were introduced to the market that are Simvastatin, Lovastatinand Pravastatin[6]. Valuable effects of these Statins were seen in Hypercholestrolemics but with the passage of time side effects were seen. GIT system side effects of Statins include Constipation, dyspepsia, abdominal pain, nausea, vomiting, heart burn and flatulence[7]. These side effects of Statins are proved to be due to the Calcium channels blocking activity of Statins on smooth muscles of GIT[8]. Statins also deregulate the calcium channels that stimulate differentiated phenotype of vascular smooth muscle cells. A study also reports that Statins also up-regulate the L-type calcium channels but this up-regulation takes time as this study was performed in cell lines[9].In another study it was noted that the long term use of Statins in hypertensive patients normalized blood pressure[10,11]. In the light of above studies and the approval of Statins side effects on GIT due to calcium channel blocking activity, so we designed our study to check the calcium channel blocking activity of Simvastatin in Smooth muscle cells (SMCs) of vascular system thus our objective was to check the possible inhibitory effects of Simvastatin on L-Type voltage gated calcium channels in vascular system[12] that may

describe possible rationale for blood pressure lowering effects of Simvastatin (Statin).

MATERIALS AND METHODS

We conducted this study in lab of Pharmacology department, Ayub Medical College, Abbottabad, from Jan, 2017 to Jan, 2018. Our experimental models for the study were Rabbit aortic strips. The rabbits were kept in Pharmacology lab, water and standard diet was freely available. Rabbits were slaughtered and dissection was done, the aorta was carefully extracted and then divided into small strips. These were mounted in the tissue organ baths of Power lab, Carbogen gas was continuously supplied with Kreb's solution in each organ bath, temperature of each organ bath was kept at 37C.[13]

Simvastatin in different molar concentrations (10^{-8} M to 10^{-2}M) were applied directly first on spontaneously contracting aortic tissues, then KCl-induced contacting aortic tissues, then Nor epinephrine (NE)-induced aortic tissues, to study the relaxing effects of Simvastatin. All the above observations were repeated three times using the Lab Chart 7 software of Power lab.[13,14,15]

Finally Calcium Chloride Curves (CCRC), were constructed for Simvastatin to determine its effects on calcium channels in aortic tissues and possible mechanism of its blood pressure lowering effects by following the following procedure, the aortic strips were maintained in Kreb's solution. After stabilization of tissues in organ baths of Power lab, the aortic tissues were exposed to a series of wash with Kreb's normal (Calcium free) solution, followed by exposure to K-rich Kreb's solution[17]. This led to the decalcification of tissues and control CCRC were constructed in absence of Statins. Then CCRC were constructed in the presence of different molar concentrations of Simvastatin following incubation period of 1 hour. Similarly curves were constructed in the absence and presence of Verapamil, a standard calcium channel blocker. The CCRCs were compared for any possible right shift[8,13,14,15,17].

RESULTS

The relaxing effects of different molar concentrations of Simvastatin were noted as follows:-

1-Simvastatin's Effects On Spontaneous Contractions: The relaxing effects of Simvastatin on spontaneous activity of aortic strips started at 10^{-7}M and reached maximum at 10^{-4}M. The mean EC_{50} value of Simvastatin for spontaneous contractions of aortic strips was $1.94\pm0.5\times10^{-5}$M.

2-Simvastatin's Effects On KCl-induced
KCl-induced contractions in aortic strips started relaxing at a concentration of 10^{-6}M of Simvastatin and reached maximum on 10^{-2}M. Mean EC_{50} of Simvastatin for KCl-induced contractions were $4.74\pm 0.02 \times 10^{-4}$M.

3-Simvastatin's Effects On NE-induced Contractions:
NE-induced contractions in aortic strips were started relaxing at a concentration of 10^{-6}M and reached maximum at about 10^{-3}M of Simvastatin. Mean EC_{50} value of Simvastatin for NE-induced contractions were $8.35\pm 0.03 \times 10^{-5}$M, as shown in the table 1.

MIN, MAX & MEAN MOLAR EC_{50}(MEAN±SD) CONCENTRATION(n=3) OF SIMVASTATIN.

Table No.1: To Show the Effects of Simvastatin on Spontaneous, KCl-induced & NE-induced contractions in isolated Rabbit's aortic Strips.

Types of contractions	Simvastatin (Min Relaxing Conc)	Simvastatin (Max Relaxing Conc)	Simvastatin (EC_{50}value)
Spontaneous	10^{-7}M	10^{-4}M	$1.94\pm0.5\times10^{-5}$M
KCl-Induced	10^{-6}M	10^{-2}M	$4.74\pm0.22\times10^{-4}$M
NE-Induced	10^{-6}M	10^{-3}M	$8.35\pm0.33\times10^{-5}$

4-Calcium Chloride Response Curves:
CCRCs were constructed for Simvastatin according to standard protocoal which showed that EC_{50} of Simvastatin for control curve is -2.8 ± 0.04 [log (Ca++) M], while rabbits aortic strips pretreated with 1.33×10^{-5}M of Simvastatin, EC_{50} is -1.77 ± 0.03 [log (Ca++)M], which showed us that the Simvastatin shifted the calcium chloride curve to right that were similar to the effects of Verapamil(A standard CCB).

Calcium Channels Response Curves (CCRs)

Table No.2: To represent the EC_{50} values in absence (Control) and presence of different concentrations of test Simvastatin.

Statins	CCRCs Specifications	EC_{50} Log[Ca++]M
Simvastatin	Control	-2.8 ± 0.004
	Test Conc 1 (1.33×10^{-5}M)	-1.77 ± 0.03
	Test Conc 2 (2.6×10^{-5}M)	-3.54 ± 0.02

When the dose of the pretreated Simvastatin was doubled that is 2.6×10^{-5}M, then the EC_{50} was -3.54 ± 0.02 [log (Ca++)M], which also showed that the Simvastatin shifted the Calcium chloride curve further to the right, which follows the pattern of Verapamil. The results of different molar concentrations of Simvastatin for CCRCs are shown in table 2.

DISCUSSION

The findings of our study have proven that Simvastatin (A Statin) have intrinsic inhibitory effects on the voltage gated calcium channels on vascular smooth

muscles of blood vessels. It means that Simvastatin causes its vasodilatory effects by blocking the L-Type calcium channels in the vessels leading to lowering of blood pressure in addition to its normal lipid lowering effects.

Simvastatin's intrinsic calcium channels inhibitory effects are very crucial interms of the use of Simvastatin (Statins) along with other antihypertensives because the combined effects may lead to increased lowering of blood pressure in patients who are hypertensive and hypercholestrolemics simultaneously (Obese Patients).

Our study was supported by the results of research work conducted by ALI N, which proved calcium channel antagonistic activity of Statins on the Gastro-intestinal (GIT) smooth muscles[8], another study by Clunn GF, which shows the Statins up-regulates calcium channels in vascular smooth muscles[9] and another study by ALI W, which shows potentiating effects of Simvastatin and Amlodipine in hypertensive rats[18, 19].

Conclusion: Based on the findings of our experimental works, it is concluded that Simvastatin intrinsic calcium channel antagonistic activity on Vascular smooth muscles and when it is used in combination with other antihypertensives, in patients suffering from hypertension and hypercholestrolemia simultaneously, then Simvastatin may have additive or potentiating effects on blood pressure (BP) which explicit the pharmacodynamicinteractions of Simvastatin.

This may sometime distort the therapeutic or pharmaceutical cure plan defined for patients who have hypercholestrolemia or are hypertensives, because the dose has to be adjusted according to the combined effects of the two drugs.

CONCLUSION

This study demonstrates that Simvastatin have an intrinsic calcium channels (L-Type) antagonistic activity on vascular smooth muscle cells (VSMCs), besides its normal lipid lowering effects.

Author's Contribution:

Concept & Design of Study:	Wajid Ali
Drafting:	Saima Bukhari, Muhammad Adeel
Data Analysis:	Saima Bukhari, Muhammad Adeel
Revisiting Critically:	Muhammad Adeel, Khadija Imran
Final Approval of version:	Wajid Ali

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Original Article

Self-Esteem Levels among Patients in a Surgical Ward in Public Sector Tertiary Care Hospitals in Karachi, Pakistan

Atif Mahmood[1], Atif Jawad[2], Ali Maqbool[3], Safdar Ali[4], Hamza Akhtar[4] and Faria Khan[1]

ABSTRACT

Objective: To find out the self-esteem levels of the patients admitted in surgical wards of government sector tertiary care hospitals in Karachi.

Study Design: Cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Surgery at Civil Hospital Karachi, Lyari General Hospital, Jinnah Postgraduate Medical Center, Karachi from May 2018 to October 2018.

Materials and Methods: A written informed consent was obtained from each and every patient. A total of 198 subjects were enrolled by non probability convenient sampling majority of which were postoperative. The patients of both sexes of the age ranging from >15 years were included in the study. The State Self-Esteem scale was used for evaluation of self-esteem. The 20 item scale has an acceptable internal consistency (alpha = .92). Self-esteem evaluated can be subdivided into performance self-esteem, social self-esteem, and appearance self-esteem. All items are answered using a 5-point scale (1= not at all, 2= a little bit, 3= somewhat, 4= very much, 5= extremely). All the data was analyzed using SPSS version 17.0.

Results: The studied patients comprised of 144 males and 54 females. The mean age of the patients was 31.36 ±12.31. The mean score of SSE was found to be 45.62 (7.08) showing an overall low self-esteem of the subjects. The mean scores for performance SSE was 17.02 (3.21), Social SSE was 17.12 (3.5) and appearance SSE was 14.5 (3.49). The duration of the disease was found to be significantly associated with the Appearance SSE (p value= 0.000).

Conclusion: Those who have high self-esteem are presumed to be psychologically happy and healthy whereas those with low self-esteem are believed to be psychologically distressed and perhaps even depressed. It was found that duration of disease had a significant impact on the psychological state of the patient which lowered their overall self-esteem.

Key Words: State self-esteem scale, surgical patients

INTRODUCTION

In modern times, reconstructive intervention like surgeries can have very traumatizing effects on psychological health of patients' including their self-esteem. Self-esteem state is actually a feeling of having respect for yourself and your abilities[1].

Self-esteem is built on peoples perspective about themselves by analyzing their mind and body they build a certain emotional response to their body which develop their self-esteem[2]. People with low self-esteem see the world in a more negative way and their general dislike for themselves fades every color around them.

Self-esteem is strongly related to different aspects like depression, loneliness, shyness and alienation which bring down their confidence and their self-image. Acertain law was passed in California to encourage schools to develop programs for improving self-esteem in young children.[3]

Among general surgery patients post-operative complications are the most significant independent risk factors leading to 30-day hospital readmissions[4] which usually leads to change in patient's self-esteem[5]. Patients known surgical results even with the known post-operative discomforts to which they are submitted, is highlighted in many studies, alleging gains because of improvement in appearance which reflects a patient desire to recover self-esteem[6]. Oncoplastic surgeries have shown to have a positive impact on self-esteem of patients undergoing breast-conserving treatment[7]. There has been a lack of consensus on role of hospital

[1.] Department of Oral Physiology / Prosthodontics[2] / Oral Biology[3], Bhitai Dental and Medical College, Mirpurkhas

[2.] Shaheed Mohtarma Benazir Bhutto Medical College, Lyari.

Correspondence: Dr. Atif Jawad, Associate Professor of Prosthodontics, Bhitai Dental and Medical College, Mirpurkhas.
Contact No: 0300-8544867
Email: atif_jawad@hotmail.com

facilities which were available during the post-operative stay of the patient in hospital which has been shown to be an important aspect of building self-esteem. The objective of the present study was to study self-esteem in post-operative patients in surgical ward of tertiary care public sector hospitals in Karachi, Pakistan.

MATERIALS AND METHODS

A cross-sectional study was conducted in the patients of department of Surgery at Civil Hospital Karachi, Lyari General Hospital, Jinnah Postgraduate Medical Center, Karachi, from May 2018 to October 2018. A written informed consent was obtained from each and every patient. A total of 198 subjects were enrolled by non-probability convenient sampling; all of which were postoperative. The patients of both sexes of >15 years of age were included in the study.

The State Self-Esteem scale (SSES)[8] is a commonly used tool to measure self-esteem that is sensitive to laboratory manipulations of self-esteem. The Urdu version of SSES was used in the present study[9]. The scale has acceptable internal consistency (alpha = 0.92) and it is responsive to temporary changes in self-evaluation. Psychometric studies have shown SSES to be separable from mood. The SSES consists of 20 items that tap momentary fluctuations and a participant's self-esteem at a given point in time. The items are subdivided into performance self-esteem, social self-esteem, and appearance self-esteem. All items are answered using a 5-point scale (1= not at all, 2= a little bit, 3= somewhat, 4= very much, 5= extremely).To calculate the total score, all the positively coded items 1, 3, 6, 9, 11, 12, & 14 and reverse coded items 2, 4, 5, 7, 8, 10, 13, 15, 16, 17, 18, 19, & 20 are summed up together. The higher numbers indicate higher state self-esteem. The performance subscale is made up of items 1, 4, 5, 9, 14, 18, & 19. The social subscale is made up of items 2, 8, 10, 13, 15, 17, & 20. The appearance subscale is made up of items 3, 6, 7, 11, 12, & 16. All the data was analyzed using SPSS version 17.0. The study was approved from Ethics Review Committee of Bhitai Dental and Medical College.

RESULTS

In total, 198 post-operative patients were recruited among which 144 (72.7%) were males and 44 (27.3%) females. Most of the patients 81 (40.9 %) were among the age group of 15-25, 78 (39.4%) were 26-40, 31 (15.7%) were 41-55, 8 (4.0%) >55 years of age. The educational status of the enrolled patients was 41 (20.7%) illiterate, 30 (15.7%) primary, 46 (23.2%) secondary, 57 (28.8%) intermediate, 24 (12.1%) were graduate. The occupational status was 56 (28.3%) un-employed, 90 (45.5%) employed, 47 (23.7%) student and 5 (2.5%) were self-employed. The duration of disease in years was 142 (72.7%) less than 3 years, 45

(22.7%) 3-5 years of age and 11 (5.6%) were greater than 5 years of age. (Table 1)

Minimum age included was 15 and maximum age presented was 65 years; mean age was 31.36 ± 12.3. The overall mean SSE score was 45.62 ± 7.08. The mean score on Performance Self-esteem items was 17.02 ± 3.21, Social Self-esteem items was 17.12 ± 3.5 and Appearance Self-esteem items was 14.5 ± 3.49. (Table 2)

Table No.I: Demographics of the studied subjects (N=198)

Parameters Studied	Classification	Frequency	%age
Age in groups (years)	15-25	81	40.9
	26-40	78	39.4
	41-55	31	15.7
	>55	8	4.0
Gender	Male	144	72.7
	Female	54	27.3
Duration of Disease (years)	Less than 3 years	142	71.7
	3-5 years	45	22.7
	Greater than 5 years	11	5.6
Educational Status	Illiterate	41	20.7
	Primary	30	15.2
	Secondary	46	23.2
	Intermediate	57	28.8
	Graduate	24	12.1
Occupational Status	Unemployed	56	28.3
	Employed	90	45.5
	Student	47	23.7
	Self employed	5	2.5

Table No.2: Statistics of Studied variables

Study Variables	Mean (± SD)	95% CI	Range (Min – Max)
Age (in years)	31.36 (12.31)	29.64 – 33.09	53 (15-65)
Overall SSE scores	45.62 (7.08)	44.63-46.61	35 (29-64)
Performance Self-esteem items	17.02 (3.21)	16.56 – 17.47	16 (9-25)
Social Self-esteem items	17.12 (3.5)	16.63 – 17.61	19 (7-26)
Appearance Self-esteem items	14.5 (3.49)	14.01 – 14.99	16 (8-24)

Upon screening for association of duration of disease with performance self-esteem patients with duration of disease less than 3 years were mostly found to have moderate self-esteem n=84 (59.2%), n=25 (17.6%) were having high self-esteem, n=33 (23.3%) had low self-esteem. And those with duration of disease 3-5

years mostly had n=23 (51.1%) moderate self-esteem, n=12 (26.7%) high self-esteem, n=10 (22.2%) were having low self-esteem. While patients had duration of disease greater than 5 year n=6 (54.4%) were having low self-esteem, n=1 (9.1%) had high self-esteem, n=4 (36.4%) were found to have moderate self-esteem. Mean performance self-esteem was found to 17.02 ±3.21. p value was 0.113. (Table 3)

Upon screening for association of duration of disease with social self-esteem patients with duration of disease less than 3 years were mostly found to have moderate self-esteem n=86 (60.6%), n=28 (19.7%) were having high self-esteem, n=28 (19.7%) had low self-esteem. And those with duration of disease 3-5 years mostly had n=27 (60.6%) moderate self-esteem, n=14 (31.1%) high self-esteem, n=4 (8.9%) were having low self-esteem. While patients had duration of disease greater than 5 year n=5 (45.5%) were having moderate self-esteem, n=5 (45.5%) had high self-esteem, n=1(9.1%) were found to have low self-esteem. Mean performance self-esteem was found to 17.12 ±3.5. p value was 0.117.Table 4.

Table No.3: Association of Duration of Disease with Performance Self esteem

		Performance Self-esteem items						
		High self esteem		Moderate Self esteem		Low self esteem		*P* value*
		n	%	n	%	n	%	n	
Duration of the Disease	Less than 3 yrs.	25	17.6	84	59.2	33	23.3	142	0.113*
	3 – 5 years	12	26.7	23	51.1	10	22.2	45	
	Greater than 5 yrs.	1	9.1	4	36.4	6	54.5	11	
	Total	38	19.2	111	56.1	49	24.7	198	

*P value < 0.05 is significant

Table No.4: Association of Duration of Disease with Social Self esteem

		Social Self-esteem items						
		High self esteem		Moderate Self esteem		Low self esteem		*P* value*
		n	%	n	%	n	%	n	
Duration of the Disease	Less than 3 yrs.	28	19.7	86	60.6	28	19.7	142	0.117*
	3 – 5 years	14	31.1	27	60.0	4	8.9	45	
	Greater than 5 yrs.	5	45.5	5	45.5	1	9.1	11	
	Total	47	23.7	118	59.6	33	16.7	198	

*P value < 0.05 is significant

Table No.5: Association of Duration of Disease with Appearance Self esteem

		Appearance Self-esteem items						
		High self esteem		Moderate Self esteem		Low self esteem		*P* value*
		n	%	n	%	n	%	n	
Duration of the Disease	Less than 3 yrs.	8	5.6	41	28.9	93	65.5	142	0.000*
	3 – 5 years	7	15.6	23	51.1	15	33.3	45	
	Greater than 5 yrs.	3	27.3	1	9.1	7	63.6	11	
	Total	18	9.1	65	32.8	115	58.1	198	

*P value < 0.05 is significant

Upon screening for association of duration of disease with appearance self-esteem patients with duration of disease less than 3 years were mostly found to have low self-esteem n=93 (65.5%), n=41 (28.9%) were having moderate self-esteem, n=8 (5.6%) had high self-esteem. And those with duration of disease 3-5 years mostly had n=23 (51.1%) moderate self-esteem, n=15 (33.3%) low self-esteem, n=7 (15.6 %%) were having high self-esteem. While patients had duration of disease greater than 5 year n=7 (63.6%) were having low self-esteem, n=3 (27.3%) had high self-esteem, n=1(9.1%) were found to have moderate self-esteem. Mean performance self-esteem was found to 14.5 ±3.49. p value was 0.00.Table 5.

DISCUSSION

To determine mental well-being, health and self-esteem which is the part of self-concept has always been the focus of many psychological studies particularly after the patient has gone through any reconstructive procedure which, in any form, has altered his/her body image[10-12]. The present study is conducted in a wider angle to observe and compare results with the previous findings and empirically derive a post-surgical screening instrument by which different psychological

outcomes like self-esteem and post-operative satisfaction of a general surgery can be understood.

On different occasions researchers have observed lowered overall self-esteem[1] and 'universal helplessness' among patients diagnosed with chronic illness resulting in long stays in hospital[13]. Similarly, in the present study, duration of the disease due to any chronic illness for which the patient seek stay in hospitals after surgery had significant impact on psychological state which lowered their overall self-esteem.

Although, we did not come across many studies on self-esteem of patients undergoing non-specific general surgical procedures, however, several studies have been conducted on specific surgeries related to specialties especially those procedures which were associated with the appearance and self-esteem of the patient. Honigman et al. (2004) conducted a review of 37 retrospective and prospective studies published from 1960 to 2002 which included preoperative and post-operative states of psychological outcomes including self-esteem(6). Most of the patients were contended and had positive views about them, but these results were more consistently satisfying for breast reduction and augmentation which was directly related to the appearance as compare to other general procedures which otherwise showed lowered self-esteem in the present study.

Individuals with low self-esteem may additionally fail to fulfill and form new social relationships due to the fact they are less likely to go out and participate in social activities. Especially, after surgical treatment, the appalling self-concept due to prolonged stay in hospitals is associated with low self-esteem which might also hinder them from absconding to their 'disease focused world', making it further challenging for them to involve themselves in social interactions and attachments. Another important fact in such patients can be the poor self-image after any surgical procedure which prevents them further from making any interpersonal or social interaction. Evidence suggests that the social interaction and community participation is more important in alleviating the low self-esteem due to chronic disease in such patients[14].

Moreover, it is absolutely necessary that psychological and functional issues related to social interaction, low self-esteem and other negative impacts that might hinder patient's quality of life and performance be identified. A study was conducted to evaluate women's sexual function, self-esteem, body image, and health-related quality of life after colorectal surgery which concluded that surgical treatment of colorectal diseases leads to overall improvement in quality of life and self-esteem, however, a significant decline in sexual function was seen postoperatively[12].

In the current study, association of duration of disease with self-esteem showed that majority of the patients carrying the disease for less than 3 years had moderate self-esteem (59.2%). Majority of those with duration of disease between 3-5 years had (51.1%) moderate self-esteem while those with duration of disease greater than 5 year (54.4%) were having low self-esteem. Thus, making it clear that as the duration of the disease was increased, performance self-esteem decreased deliberately, however, it could be improved if there were positive impact of surgery like in a study on cognitive performance before and after coronary artery bypass graft surgery indicated beneficial effects of CABG surgery on cognitive performance and highlighted the importance of controlling the medical and demographic factors[15,16].

CONCLUSION

Those who have high self-esteem are presumed to be psychologically happy and healthy whereas those with low self-esteem are believed to be psychologically distressed and perhaps even depressed. It was found that duration of disease had a significant impact on the psychological state of the patient which lowered their overall self-esteem.

Author's Contribution:

Concept & Design of Study:	Atif Mahmood
Drafting:	Atif Jawad, Ali Maqbool
Data Analysis:	Safdar Ali, Hamza Akhtar, Faria Khan
Revisiting Critically:	Atif Mahmood, Atif Jawad,
Final Approval of version:	Atif Mahmood

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

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Clinico-Pathological Evaluation of Oral Leukoplakia at Urban Sindh

Clinico-Pathological Evaluation of Oral Leukoplakia

Shahzaman Memon[1], Atif Mahmood[2], Ali Maqbool[3], Waqas Iqbal[1], Surwaich Ali[1] and Arhama Surwaich[1]

ABSTRACT

Objective: To determine clinicopathological patterns of oral leukoplakia lesions in patients presenting at tertiary care hospitals of Rural Sindh.

Study Design: Descriptive / cross-sectional study

Place and Duration of Study: This study was conducted at the Dental Departments at Tertiary Care Hospitals in Urban Sindh from January 2016 to December 2016.

Materials and Methods: One hundred and twenty patients having suspicious oral leukoplakia belonging to both gender and age between 20-70 years were included in the study. All the cases below 20 and above 70 years of age and having oral lesions that were not classified as leukoplakia were excluded. After initial thorough oral examination, an incisional and excisional biopsy of selected patients was carried out under local anesthesia. The oral tissues were processed with H & E staining which was then examined for histopathological changes by microscopy.

Results: The most common age group (40%) was 31-40 years. Males were found in the majority (85%) as compare to female (15%). Majority (38.3%) patients were found to have more than one addictive chewing habits following by Smoking, Paan, Gutka, betel nut and Mainpuri which were found in percentages of 20.0%, 15.0%, 06.7%, 10.0% and 10.0% respectively. Most of the patients (56.7%) had lesion in buccal mucosa. Majority of the cases (76.7%) were found with homogenous leukoplakia. According to histopathological examination, almost all cases had mild and moderate dysplasia with percentage of 53.3% and 31.7% respectively. Hyperkeratosis without dysplasia was found in 8.3% patients, while only one case was found with severe dysplasia. A significant association was found between homogenous leukoplakia and mild and moderate dysplasia (p-value 0.001).

Conclusion: The study concluded that young males were more affected by oral leukoplakia. Homogenous leukoplakia was the most common finding on clinical examination whereas mild and moderate dysplasia was found to be common on histopathology and the clinical type of leukoplakia correlates with the severity of dysplasia which increases the risk of malignancy in this population.

Key Words: Clinical Patterns, Oral Leukoplakia, Histopathology

INTRODUCTION

One of the greatest challenges faced by oral medicine specialists is the assessment of the risk status and the potentially malignant status of oral lesions in a clinical setting." Oral leukoplakia is explained as "a predominantly white lesion of the oral mucosa that cannot be characterized as any other definable lesion" or when all further likely factors have been rejected making it "a diagnosis of exclusion[1,2]. Oral leukoplakia is a premalignant lesion hence carries risk of oral cancer which not only increases the morbidity and mortality associated with the disease but also makes most frequent precancerous lesion in mouth[3].

The projected reported incidence of oral leukoplakia globally is estimated almost 2%[4,5] whereas a pooled prevalence obtained from systematic reviews from all over the world was estimated between 1.49% and 4.27%[6]. A rate of 1% prevalence shows an alarming malignant transformation rate of twenty per one million populations annually for oral cancer. Certain geographical variances do exist among gender distribution[7].

Middle-aged males are affected more; it rises with age and even more with smokeless tobacco use[1,8]. Oral leukoplakia may be idiopathic or may be associated with tobacco/areca nut use. Nearly 90% of all oral leukoplakia are associated to related and remaining are idiopathic, however, the role of tobacco for the causation of leukoplakia (oral) has also been extensively reported[9,10]. In certain geographic areas like the Indian subcontinent, areca nut and tobacco usage, either in combination or separately, account for most cases of oral leukoplakia[11].

1. Department of Oral Pathology / Physiology[2] / Oral Biology[3], Bhitai Dental and Medical College, Mirpurkhas

Correspondence: Dr. Ali Maqbool, Assistant Professor of Oral Biology, Bhitai Dental and Medical College, Mirpurkhas
Contact No: 0321-2088693
Email: khuwajas@gmail.com

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted on one hundred and twenty cases at Out-patient departments of tertiary care dental hospitals in Urban Sindh from January 2016 to December 2016 for one year. The sample size was calculated to be 120 with α = level of error = 5% (0.05), and Confidence Interval = 95%. The sampling technique was non-probability Purposive sampling. All the patients with ages from 20-70 years irrespective of gender and with suspicious oral leukoplakia were included in the study however; patients below 20 years of age or above 70 years with any other oral lesions that was not classified as leukoplakia or with known oral squamous cell carcinoma were excluded from the study.

The word leukoplakia can possibly be applied at various certainty levels (C-factor). "C1 or C2" can be used as a clinical expression while "C3 or C4" as clinicopathological expression. C1- Confirmation from is done on single visitusing palpation and examination as the only diagnostic method (temporary clinical finding). C2- Confirmation is found via a negative outcome of removal of doubted etiologic causes, for instance "mechanical irritation," with follow-up time of 2 to 4 weeks or without any doubted etiological causes (absolute clinical finding). C3- is similar to C2 but supplemented through incisional biopsy (temporary histopathological finding). And C4- confirmation is done after removal as well as pathological investigation of the resected sample (absolute histopathological diagnosis) [4].

After thorough oral examination done in a single visit, suspicious patients with oral leukoplakia with certainty factor 1 (C1), were asked about willingness for oral biopsy. An informed written consent was obtained from all the patients. The patients were assured of the anonymity of the data and that the oral biopsy of the sample was used only for study purpose. The objectives of the study were also explained along with the benefits or hazards of the procedure and protocols. An incisional/ excisional biopsy was carried out under local anesthesia. The oral tissues were processed with H &E stain which was followed by examination for histopathological changes by microscopy which included Dysplasia, Atypia, Metaplasia, Nuclear atypia. The study was approved by ERC(Ethical Review Committee) of Isra University. IBM SPSS version 22.0was used for the analysis of the data using Chi-Square and t-testwas used.Percentages, frequency, S.D, mean were calculated at <0.05 significance value.

RESULTS

In this study most common age group was 31-40 years in 40.0% cases, and 2nd most common age group was 41-50 years in 23.3%. Males were found in the majority 85% as compare to female 15%. In this study different patients had different habits out of them more than one habits were in majority 38.3%, following by Smoking, Paan, Gutka, betel nut and Mainpuri were found with percentage of 20.0%, 15.0%, 06.7%, 10.0% and 10.0% respectively. According to the site involvement, mostly patients 56.7% were found with buccal mucosa, tongue 26.7%, lip 8.3%, Flour of mouth 3.3% and alveolar region 3.3%. According to the clinical examination majority of the cases 76.7% were found with homogenous leukoplakia, while 16.7% were found with speckled leukoplakia, nodular leukoplakia 3.3% and proliferative verrucous leukoplakia was found in 3.3% of the cases.According to histopathological examination almost all cases were found with mild and moderate dysplasia with percentage of 53.3% and 31.7% respectively, Hyperkeratosis without dysplasia was found in 8.3% patients, while only one cases was found with severe dysplasia as shown in Table I.
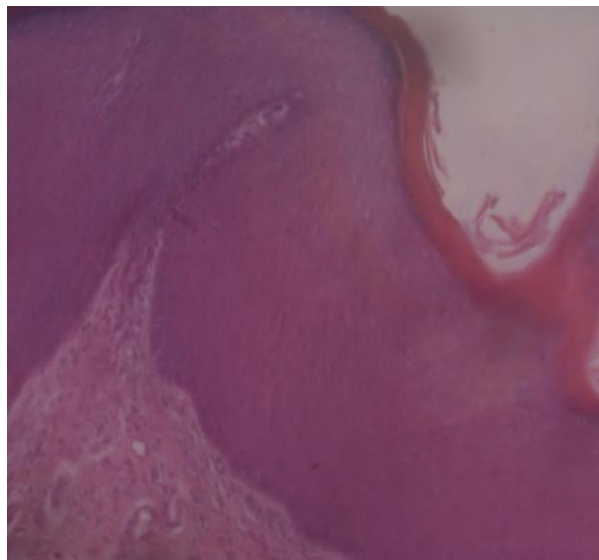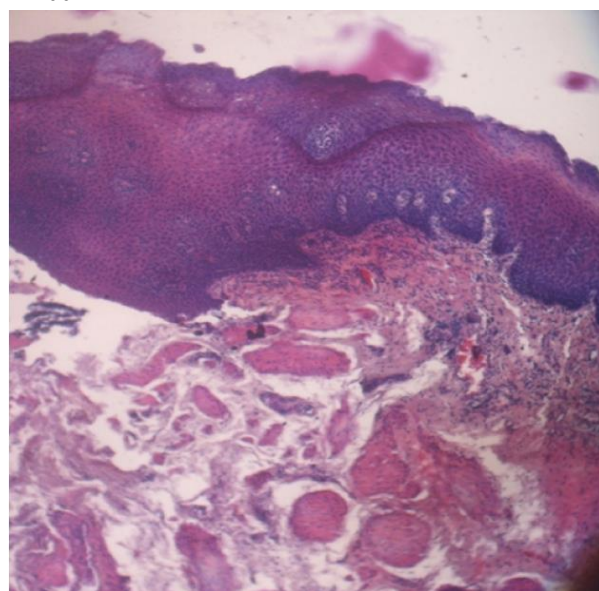
In this study, Homogenous leukoplakia was found significantly associated with mild dysplasia and moderate dysplasia p-value 0.001. While Speckled leukoplakia and nodular leukoplakia were found significantly associated with moderate dysplasia p-value 0.001 as shown in Table 2.

Table No.I:Distribution of the demographic characteristics of the patients (N= 120)

Variables		Freq-uency	%age
Age in years	20-30	20	16.7%
	31-40	48	40.0%
	41-50	28	23.3%
	51-60	16	13.3%
	61-70	08	6.7%
Gender	Male	102	85.0%
	Female	18	15.0%
Habits	Smoking	24	20.0%
	Mainpuri	18	15.0%
	Gutka	08	6.7%
	Betel nut	12	10.0%
	Paan	12	10.0%
	More than one Habit	46	38.3%
Site of Involvement	Buccal mucosa	68	56.7%
	Tongue	32	26.7%
	Lip	10	8.3%
	Floor of mouth	04	3.3%
	Alveolar region	06	5.0%
Degree of Dysplasia	Hyperkeratosis without dysplasia	10	8.3%
	Mild dysplasia	70	58.3%
	Moderate dysplasia	38	31.7%
	Severe dysplasia	02	1.7%

Table No.2:Comparison of clinical type of leukoplakia and degree of dysplasia (n=60)"

Histopathology	Clinical types of leukoplakia				P- value
	Homogenous leukoplakia n=46	Non Homogenous leukoplakia			
		Speckled leukoplakia n=10	Nodular Leukoplakia n=02	proliferative verrucous leukoplakia n=02	
Mild Dysplasia	33	02	0	0	0.001
Moderate Dysplasia	08	08	02	01	
Severe Dysplasia	0	0	0	01	
Hyperkeratosis without Dysplasia	05	0	0	0	

Figure No.I: Photograph of a patient with Homogenous Leukoplakia

Figure No.2:Photograph of a patient with Non Homogenous Leukoplakia (speckled type) (Printed with permission of patient)

DISCUSSION

Leukoplakia is a clinicopathological diagnosis that can only be made after histological examination of the tissue.

Figure No.3: Microscopic features showing Hyperkeratosis, acanthosis without dysplasia. H&E X 100"

Figure No.4: Microscopic features showing Moderate dysplasia showing marked acanthosis, dysplastic changes, bulbous rete ridges. H&E X 100"

It may exist under different forms such as "benign hyperkeratosis, mild dysplasia, moderate dysplasia, severe dysplasia or microscopically invasive carcinomas[12]." Although, "the risk of transformation of leukoplakia to oral cancer remains difficult to assess, some clinical factors have been identified as indicators of higher risk." These factors include older age, gender, tobacco and alcohol consumption, during of evolution, anatomical location and size of the lesion[13]. All these factors may contribute to the progression of oral leukoplakia into cancer[14,15].

In this study, most common age group was 31-40 years in 40.0% cases, and 2nd most common age group was 41-50 years in 23.3%.However the increase predilection for younger age group is probably due to decrease in the age of patients taking gutka/pan masala, smoking, increased substance abuse early screening, easier access, peer pressure, and advertisement of the substance in the media contribute significantly to this disturbing change in age distribution

The present study observed males were found in the majority 85% as compare to female 15%. According to the Bisht, Ravindra S., et al[16] percentage of oral leukoplakia is higher in men (77.78%) than in women (22.22%) which are similar to the findings of our study. Similarly Maia, Haline Cunha de Medeiros, et al[17] shows consistent result with the present study that the higher percentage of oral leukoplakia was found in males which were (62.3%) and in female (37.7%). This can be explained by a higher incidence of substance abuse in males. Similarly Ohta kazutoshi et al[18] in 2011 reported inconsistent results with the present study showing that 56% female and 52% males in their study.

In this study different patients had different habits out of them more than one habits were in majority 38.3%, following by Smoking, Paan, Gutka, betel nut and Mainpuri were found with percentage of 20.0%, 15.0%, 06.7%, 10.0% and 10.0% respectively. In our study majority of the cases were using more than one habits which are consistent with the previous studies of Rao, Suresh R., et al[19] in (2015) and Gopinath D et al[20] in (2016) reported that multiple habits were commonest. However it is contrary with findings of Liu, Wei et al[21] in (2010) who reported that "oral leukoplakia can be induced and promoted by cigarette smoking." Interestingly researches from indo Pak have revealed tobacco in various form are more commonly use than the smoked one.

In present study according to the site involvement, mostly patients 56.7% were found with buccal mucosa, tongue 26.7%, lip 8.3%, Floor of mouth 3.3% and alveolar region 3.3%. The present study which is consistent with the previous studies of Feller, L et al[3] in (2012), Gurung P et al[22] in (2012) reported that "buccal mucosa was the most common site" observed and Bisht, Ravindra S., et al[16] in (2013) also showed "buccal mucosa is the most common site of leukoplakia comprising 73 cases (81%) out of 90 patients.

In our study severity of the dysplasia significantly was associated with higher grade of clinical staging as, Homogenous leukoplakia associated with mild dysplasia, while speckled leukoplakia and nodular leukoplakia were found significantly associated with moderate dysplasia. Consistent finding were reported in the study of Shetty P et al[23] in (2016), Feller L et al [3] in (2012) and Lan AX et al[24] in (2009) also found that mild dysplasia is more associated with homogenous leukoplakia.

CONCLUSION

We concluded that young male are more effected by oral leukoplakia, on clinical examination homogenous leukoplakia was most common, on histopathology mild and moderate dysplasia commonest and the clinical type of leukoplakia correlate with the severity of dysplasia which increase the risk of malignancy.

Author's Contribution:

Concept & Design of Study:	Shahzaman Memon
Drafting:	Atif Mahmood, Ali Maqbool
Data Analysis:	Waqas Iqbal, Surwaich Ali, Arhama Surwaich
Revisiting Critically:	Shahzaman Memon, Atif Mahmood
Final Approval of version:	Shahzaman Memon

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

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Association of Anemia with Intestinal Parasites in Children age (5-12) Years in District Bannu

Muhammad Fayaz Khan Barki[1], Firdos Jabeen[2] and Shehnaz Dilawar[3]

ABSTRACT

Objective: To determine the association of anemia with intestinal parasites and identify the risk factors in school children from different Schools of Bannu**.**

Study Design: Cross-sectional study

Place and Duration of Study: The study was conducted at Bannu Medical College with the collaboration of Jinnah medical college Peshawar from March 2018 to October 2018.

Materials and Methods: 360 school children from ages 5 to 12 were selected for the study. The presence of intestinal parasites was tested from a direct stool examination, and risk factors were evaluated through a structured survey which included general, housing, socio-economic, biological, behavioral and environmental aspects. The processing and statistical analysis was carried out with the program SPSS 19 version.

Results: Out of 360 children studied prevalence of anaemia was found to be 60 %. Frequency of anaemia in lower age group (6-9 years) was 70 % as compared to 30% in upper age group (10-12years). 56 % boys and 69 % girls were affected. Of 360 stool samples examined, 233 were tested positive for various intestinal parasites. The frequency of helminthic infestation was found to be 65%. There were 5 different types of helminths found in the specimens. By far the highest frequency of 101 cases was noted for Ascaris Lumbricoides and 86 cases for hookworm forming the bulk of these infestations. Other helminthes found were Trichurius Trichiura (9 cases), Hemonolepsis Nana (32 cases) and Taenia Sagiinita (5 cases). Interestingly Enterobious Vermicularis was not detected in any sample. Among the 233 infected cases major worm burden was by Ascaris Lumbricoides (43%) and Hookworm (36%).

Conclusions: This study shows a high prevalence of intestinal parasites, especially of Ascaris Lumbricoides

Key Words: Anemia, Intestinal Parasites, risk factors.

INTRODUCTION

Iron deficiency represents a public health problem. Worldwide, about 2,150 million people suffer from deficiency of this element and of these more than 50% have anemia. Child malnutrition in underdeveloped countries is one of the main causes of mortality[1]. Intestinal worm infestations are widely prevalent in tropical and subtropical countries and occur where there is poverty and poor sanitation. Soil-transmitted helminth (STH) infections form the most important group of intestinal worms affecting 2 billion

[1.] Department of Paediatrics / Community Medicine[2] / Biochemistry[3], Jinnah Medical College, Peshawar.

Correspondence: Dr. Muhammad Fayaz Khan Barki, Associate Professor of Paediatrics, Jinnah Medical College Peshawar.
Contact No: 0321-9087688 / 0333-9367545
Email: Sohaib765@gmail.com

people worldwide and the main species which infect are Ascaris lumbricoides, (roundworms), Trichuris trichiura, (whip worms) and Necator americanus/ Ancylostoma duodenale (hookworms)[2].To diagnose an intestinal parasites in human being it is important to consider three aspects, transmission mechanism, source of infection and the presence of a susceptible host.This transmission happens because of the water consumption or food contaminated with fecal matter, from an infected person or animal, by penetration of larvae, by skin or consumption of meat with parasitic stages[3].The present stations where this study has been carried out is to be highly endemic for intestinal worm infestations. With this in the backdrop, the present study has been undertaken to assess the parasite load in the target population with primary focus on School going children (5-12years) from three Primary Schools in district Bannu.

MATERIALS AND METHODS

It was a Descriptive Cross sectional study conducted at Bannu Medical College with the collaboration of Jinnah medical college Peshawar from March 2018 to October 2018.

Population: School going children (5-12years) from three Primary Schools in district Bannu. School included in the study were Primary School Zarger Mama Khel Bannu, Govt. Primary School for Boys Imaro Kala Mandan Bannu and Govt. Girls Primary School bada mir abbas khan mandan bannu

Sample Size: In this cross sectional study sample size was calculated for each variable. The reported prevalence for anaemia varied from 10.5% to 58% among children. For estimation of prevalence of anaemia in the children, following assumptions were made.

The prevalence to be estimated (P) =0.5 with a bound on error of estimation (β) =5%, hence the sample size calculated for the assumed prevalence at 5% significance level (α) and power of study at 80% was at least 360 subjects. All the children in specified age group and studying in the primary schools were included in the study.

Sampling Technique: It was Convenient Non Probability Sample

Inclusion criteria: All Children (5-12 years) present in the School while conducting the survey in that particular School.

Exclusion Criteria: All Children (5-12 years) not enrolled in the Schools. All children below 5 years and above 12 years in the Schools and all those children not present while conducting the study.

Data Collection Procedure: Executive District Officer, Education was contacted who granted proper approval to carry out the study, and then issued a letter to the in charges of concerned schools to help and facilitate the survey. Written consent forms in urdu distributed among the children before the study day to get consent of their parents. The parents who had reservations were negotiated and convinced to include their children in the study.

Schools visited on alternate days and 15 to 25 students surveyed during each visit. Responses to structured questionnaire collected from all the children in the sample. Questionnaires were filled from students as per their responses. Help was also sought from the school teachers in this regard when and where felt necessary.

Pathology Department (Laboratory) of Bannu medical college was used for Laboratory Investigations after proper permission from the Pathologist of the College.

Sample Collection: Each student of the sample population was provided with a clean, broad mouthed plastic container to collect the stool specimen. The students were instructed how to collect the sample and avoid contamination. These containers were provided to the students one day before the study to bring stool from home which were later examined for ova detection.

Blood Samples collected from the same specified group of children at the school for assessment of Haemoglobin Level.

Laboratory Investigations: Laboratory Investigations performed at Pathology Department (Laboratory) of Bannu medical college Bannu.

Blood and Stool Samples collected from the children and brought to the laboratory for examination. Stool examined directly by saline and iodine wet preparation microscopy. The blood hemoglobin (Hb) was estimated by Sahli's method.

Data Analysis Procedure: Questionnaire developed in epi info 6.4 software. Data entered in the rec files and analysis performed in the same soft ware and SPSS. By giving different commands analyzed data retrieved in the form of Numbers, means and percentages. Then results framed in the form of statements, tables, bar charts and pie charts. Bar charts and Pie charts developed in Excel software while tables in MS Word Software.

RESULTS

Study was conducted in all of the three Primary Schools in district Bannu. School included in the study were Primary School Zarger Mama Khel Bannu ,Govt Primary School for Boys Imaro Kala Mandan Bannu and Govt girls primary school bada mir abbas khan mandan bannu. Total of 300 children aged 6 to 12 years studied and they included 210 (70 %) boys and 90 (30%) girls (Fig 1).

Table 1. shows age and sex wise distribution of all anaemic children. Data shows that out of 220 anaemic children 140 boys and 80 girls were affected. Among 246 boys included in the study 140 were found anaemic (56 %) and likewise among girls 80 out of 114 were affected (69 %). And in terms of age the frequency of anaemia in lower age group (5-8 years) was 70 % as compared to 30% in upper age group (9-12 years). Out of 360 stool samples examined, 233 were tested positive for various intestinal parasites. The frequency of helminthic infestation was found to be 65% (Fig 3).

Figure 4 shows five different types of helminths found in the specimens . By far the highest frequency of 101 cases was witnessed for Ascaris Lumbricoides and 86 cases for hookworm Other helminthes found were Trichurius Trichiura (9 cases), Hemonolepsis Nana (32 cases) and Taenia Sagiinita (5 cases). Interestingly Enterobious Vermicularis was not detected in any sample.

Table No.1: Age and Sex wise distribution of Anaemic Children

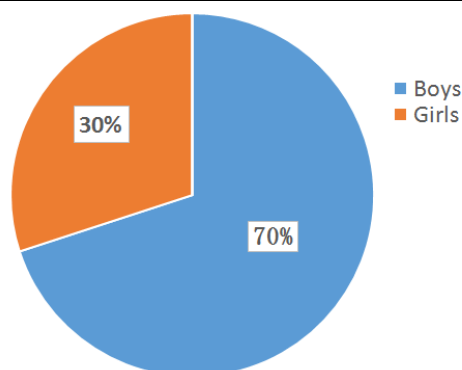| Age Range	Boys	Girls	Total
5 to 8years	98	58	156
9 to 12 years	42	22	64
Total	140 (64%)	80 (36%)	320

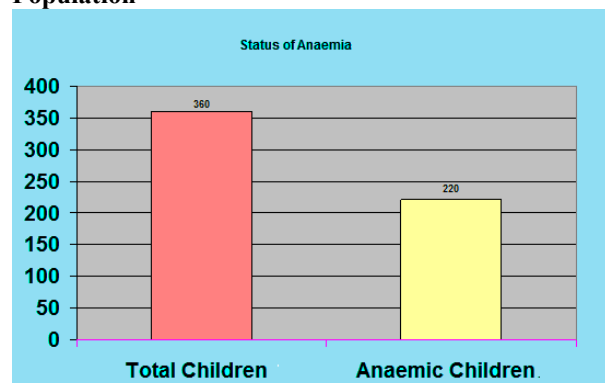**Figure No.1: Sex wise distribution of the study Population**

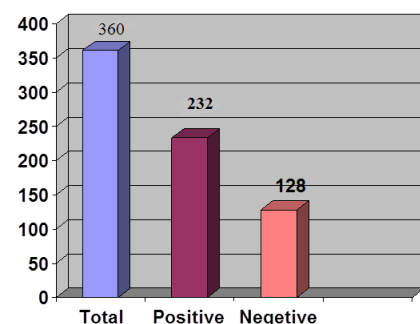**Figure No.2: Overall prevalence of anemia in children**
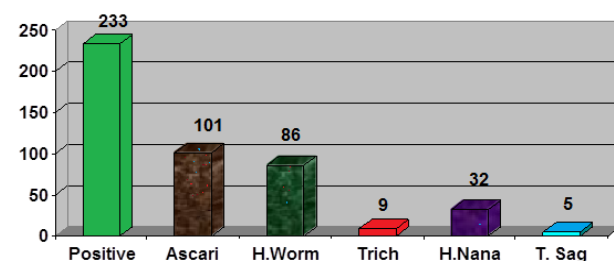

Figure No.3: Frequency of Worms.

Figure No.4: Distribution of different worms

DISCUSSION

Iron deficiency anemia in young children is recognized as a major public health issue and the most prevalent form of micronutrient deficiency worldwide [4-5]

The prevalence of IDA in our study is lower than in previous studies in other low resource countries such as Palestine and Kenya [6-7] and substantially below the estimate from a previous study in Pakistan [8]. These differences could be attributed to variations in the study settings or factors such as the rate of parasitic infections and dietary habits. "Studies conducted in other parts of the world shows almost the same results. A study conducted among school going children (6-14 years) of Baiga, Abuihmadia and Bharia tribes of Madhya Pradesh India to assess the prevalence of anaemia and intestinal parasitic infestation concluded that 50% children had intestinal parasites[9]. Most of the studies conducted in past indicate that among intestinal helmenths major worm burden is by Ascaris Lumbricoides and Hookworms and likewise current study also confirms the previous findings. Among positive cases contribution of Ascaris Lumbricoides and Hookworms was 43% and 36% respectively.

A higher level of the infection can be attributed to lack of personal hygiene and poor sanitation. Open defecation seems to be responsible for the higher prevalence of intestinal worms infestation in this particular study. Children are more prone to the infection partly due to poor living conditions, and partly to the lack of awareness of hygienic practices on the part of their parents.

Data in this study clearly reveled that there was strong association of Anaemia with Intestinal Worms especially Hook Worm. 78% of the anaemic children were found infected with one or other worm.

A comparative study was carried out to identify the prevalence of anemia, nutritional indices and intestinal parasitic infestation in primary school children. Among anaemic children who were infected by intestinal helmenths 85% were by Hook Worms and Ascaris Lumbricoides. Strong association of anaemia with Hookworm (45%) and Ascaris Lumbricoides (39%) was also found in this study. Hence findings of this study are consistent with the previous studies and worms like Hook Worms and Ascaris Lumbricoides are still major risks causing iron deficiency anamia and malnutrition.

In the current study, the income level and family size of the studied population have also been assessed. The monthly house hold income was mostly very low and that had a direct impact on their state of iron deficiency owing to the reduced purchasing power. Because of extended families and large number of dependants the nutritional requirements and caloric needs are difficult to be met. The income earnings are in fact below the internationally accepted levels and due to growing poverty, these poor people cannot afford to eat iron rich foods and consequently undergo malnutrition and nutritional deficiency anemia.

Age of the students was found to have epidemiologically significant affect on the causation of

the problem. Both anaemia & worms infestation are more prevalent in the younger age group. The reason is that this age group can care for themselves less as compared to the older age group and have poor personal hygiene.

Both anaemia & worms infestation were more prevalent in females as compared to males. Other studies [10,11] found that the prevalence of anemia was higher in females. and is mainly due to gender bias and male dominant society where the females even if children, are neglected and suffer.

Low literacy of the fathers is another contributory factor in causing anaemia & worms infestation. Study showed that 61% fathers of students had no education. Children in these rural families are ignored and even deprived of their basic needs.

CONCLUSION

Anaemia and worms infestation both were significantly associated with the age and sex of the subjects, parent's education level, family size and income, personal and community hygiene,. The problem was more prevalent in those living in large, congested and poor families, low sanitation, and poor personal and environmental hygiene. Insensitivity of the parents to children's hygiene and the children's frequent exposure to ova-laden soil also emerged as important factors. So this study revealed the fact that anaemia and intestinal helminthiasis still continues to be major public health problems in this area.

Measures for the control and prevention of the problem are suggested. Also further and more detailed studies are needed to see the affects of this high load of anaemia and worms on the health status of the children.

Author's Contribution:

Concept & Design of Study:	Muhammad Fayaz Khan Barki
Drafting:	Firdos Jabeen
Data Analysis:	Shehnaz Dilawar
Revisiting Critically:	Muhammad Fayaz Khan Barki, Firdos Jabeen
Final Approval of version:	Muhammad Fayaz Khan Barki

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

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Original Article

Effect of Prophylactic Antenatal Cortecosteroid and Incidence of Neonatal Respiratory Morbidity after Elective Cesarean Section in Patients Having Previous Cesarean Section

Munawar Afzal, Humera Bilal and Tasneem Hayat

ABSTRACT

Objective: To assess administration of prophylactic use of corticosteroid 48 hours before elective caesarean section reduces neonatal respiratory morbidity in patients having previous caesarean sections and to see the relationship of neonatal respiratory morbidity with the gestational age at which caesarean section done.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Department of Gynaecology and Obstetrics Sughra Shafi Medical Complex Narowal from 1st January to 30th June 2018.

Materials and Methods: This study included one hundred twenty consenting women. These women were scheduled for elective caesarean section and all had previous caesarean delivery, 60 randomized to Group A, who received I/M dexamethasone in 2 doses of 12mg/12 hours apart 48 hours before caesarean section and 60 to Group B who did not receive dexamethasone.

Results: Fourteen infants were admitted to nursery, 4 newborns from the group A and 10 from the group B. Regarding indication of admission in group A only 1 (2%) baby developed RDS to 3(5%) in group B (p=0.0461).Besides 7 (12%) babies were admitted to nursery in group B due to TTN compared to 3 (5%) in Group A (p=0.0361).One baby in Group B expired .Admissions due to neonatal respiratory morbidity were more at 37 weeks than at 38 or 39 weeks. There were 9 at 37 weeks, 4 at 38 weeks and 1 at 39 weeks.

Conclusion: Elective section should be delayed up to 39 weeks and if early term elective section is required, prophylactic dexamethasone 48 hours before caesarean section reduces neonatal respiratory morbidity and can be safely used.

Key Words: Neonatal respiratory morbidity, Transient tachypnea of newborn, Respiratory distress syndrome

INTRODUCTION

Rate of elective caesarean section is increasing worldwide. Almost it is between 30-40%.[1] Main contribution towards this rise is that management of previous one scar has been changed (1st: there is low threshold for caesarean section in patients having previous one caesarean section due to fear of complications which includes risk of rupture of scar and maternal and fetal complications 2nd: women also request for repeat caesarean section).[2,3]

Department of Gynae and Obstet, Sahara Medical College Narowal.

Correspondence: Dr. Munawar Afzal, Assistant Professor of Gynaecology and Obstetrics, Sahara Medical College Narowal.
Contact No: 0332-8596407
Email: munawarfarid78@gmail.com

Other reasons for this increase practice are breach presentation, improved hemorrhage and infection controlling techniques, increased safety of procedure and reduced threshold for choosing it by obstetricians and strong maternal request.[4,5]

Although maternal risks have decreased but elective delivery by caesarean section is risk factor for neonatal respiratory morbidity both in term and preterm infants.[6] Neonatal respiratory morbidity ranges from TTN of newborn to respiratory failure. This risk of respiratory morbidity is more by caesarean delivery than infants born vaginally. Additional factor which increases the risk is when caesarean section is elective that is before onset of labor and when delivery is before 39 weeks.[7]

Multiple studies[8,9] have shown that risk of neonatal respiratory complications is decreasing with advancing gestational age at the time of elective LSCS. The risk at 37+6 weeks is 73.8/1000(7.38%),42.3/1000(4.23%) at 38+6 weeks and 17.6/1000 (1.76%)at 39+6 weeks.[10] The development of neonatal respiratory morbidity leads to admission to neonatal intensive care unit, increase in parental anxiety, separation from the

mother effecting mother child bonding, cost to nursery unit and the risk of complications from invasive procedures and later on increases the risk of asthma in childhood.[11]

In addition to delivery by elective LSCS and gestational age other risk factors that contribute to development of neonatal respiratory disease include type of anesthesia (regional or general), fetal weight, male sex and antenatal maternal disorders like maternal asthma and diabetes.

In order to decrease this complication it is recommended that elective LSCS should be planned at 39+0 weeks.[12] However, approximately 15% of women planned for cesarean section may deliver before 39 weeks and in the presence of specific clinical indications or previous history, early term caesarean section may be required before 39 weeks.

If elective LSCS is considered necessary prior to 39 weeks then prophylactic dexamethasone 48 hours before cesarean section will decrease the risk of NRM.[13]

There is important role of corticosteroids in final maturation of lungs as they increase the number and functions of sodium channels and increase production of surfactant. Antenatal steroids reduce the incidence of respiratory distress to half at 37 -39 weeks of gestation as proven by ASTEC trial.[14]

Multiple studies have shown no adverse effects of single course of corticosteroids for both mother and child.[15]

MATERIALS AND METHODS

This prospective study was conducted in period of 1st January – 30th June 2018 at Sughra Shafi Medical Complex Narowal. It included all women who were planned for EL-LSCS between 37-39 weeks but 120 women met the inclusion criteria and these women were randomly selected. Inclusion criteria for case and control group was the same; it included women delivered by El-.LSCS between 37-39 weeks of pregnancy having previous cesarean section , singleton pregnancies and only women with confirmed dates (by earliest USG or sure of LMP). Exclusion criteria were also the same in both groups and included women with diabetes, IUGR, Preterm babies, multiple pregnancies and congenital malformed babies. Two groups were made. Group A or dexamethasone group comprised data of women who received prophylactic dose of dexamethasone intramuscularly in two doses of 12mg / 12hours apart 48 hours prior to date of cesarean section. Group B comprised data who did not receive dexamethasone. Primary outcome measures were number of babies with neonatal respiratory disease in both groups, and secondary outcome measures were to see the severity of respiratory disease, length of stay in hospital in each group and to compare difference in nursery admission in according to gestational age.

Neonatal respiratory morbidity was diagnosed by neonatologist. Data was analyzed by using SPSS 19.

RESULTS

Overall 14 babies admitted with neonatal respiratory morbidity, 10 in group B and 4 in Group A. The incidence of admission with respiratory disease was 17% in Group B and 7% in Group A, a relative risk of 0.54 in favor of treatment. Total 10 babies experienced TTN, only 3 (5%) in Group A and 7 (12%) in Group B while RDS developed in one baby (2%) in Group A versus 3 (5%) in Group B. In 120 patients 27/60(37%) babies were born at 37 weeks working gestation, 26/60(43%) at 38 weeks, 12/60(20%) at 39 weeks. At Gestational age of 37-37+6 weeks total admitted cases were 9, 6 in Group B and 3 in Group A. At Gestational age of 38 – 38+6 weeks admitted cases were 4, there were 3 in Group B and 1 in Group A and at Gestational age of 39 weeks there was no admission in Group A and 1 admission in Group B. Severity of respiratory morbidity and length of hospital stay in babies admitted to nursery was same in both groups. One male baby was expired, his mother did not receive dexamethasone (from Group B) and that elective section was done at 38 weeks (Tables 1-2).

Table No.1: Baseline characteristics of the two studied groups

Baseline characteristics	Group A (n=60)	Group B (n=60)	P-value
Maternal age	30.03±1.06	29.77±3.80	0.292
Gestational age	37.83±0.77	37.38±4.56	0.260
Neonatal gender (male/female)	1.45±0.501	1.52±0.50	0.980
Birth weight(g)	3.13±0.085	3.50±3.22	0.245
Indication of cesarean section			
Prev 1LSCS	28	34	
Prev 2 LSCS	19	11	
Prev 3 LSCS	11	15	
Prev 4 LSCS	2	-	

Table No.2: Outcome of two studied groups and relative risk of dexamethasone group

	Group A	Group B	RR	CI	P-value
No. of babies admitted	4(7%)	10(17%)	0.54	0.31-1.22	0.0432
RDS	1(2%)	3(5%)	0.59	0.11-2.10	0.0461
TTN	3(5%)	7(12%)	0.42	0.13-2.12	0.0361
Mechanical ventilation	Nil (0%)	1(2%)	0.71	0.09-3.21	0.0456

Admission b/w 37-37+6 wks	3(5%)	6(10%)
38-38+6 weeks	1(2%)	3(5%)
At 39 weeks	Nil 0%)	1(2%)
Length of hospital stay	3.2±1.3	3.5±1.71
Neonatal death	Nil (%)	1(%)

DISCUSSION

This randomized control trial showed significant relationship of antenatal dexamethasone with neonatal respiratory morbidity for El.LSCS scheduled between 37-39 weeks. Dexamethasone administration reduces the frequency of RDS, TTN or need for mechanical ventilation. Our results are supported by ASTEC trial which showed significant reduction in neonatal respiratory morbidity in dexamethasone group.[14]

Another trial conducted in Pakistan published similar results showing beneficial association between prophylactic dexamethasone and decrease in NRM and NICU admission.[16] Local study in Egypt conducted in 2015 also has similar results.[17]

Results of Cochrane systemic review (2009) on prophylactic administration of corticosteroid before El.LSCS at term showed that there was no significant difference between treatment and control group with regard to the incidence of RDS, TTN and need for mechanical ventilation. There was marked decrease in incidence of neonatal admission to NICU (RR=0.15). The study concluded that more studies with relatively great sample sizes are required for further clarification.[18]

Results of study conducted by Ashraf Nabhan in 2014 were different from our study. This study showed that regarding admission to NICU, respiratory and non respiratory complications there was no significant difference between intervention and control group. The results were different from our study may be due to: dose of dexamethasone (I/M in 4 doses of 6mg/12 hours) used was different and gestation age at elective cesarean was between 34 and 37 weeks.[19]

Our study shows relation of neonatal admission having respiratory morbidity with gestation age, as there were 9 admissions at gestation age of 37-37+6 weeks (3 in group A and 6 in Group B), 4 admissions at gestation age of 38-38+6 weeks (1 in Group A and 3 in Group B) and 1 admission at 39 weeks(nil in Group A and 1 in Group B).Another study conducted in 2014 revealed that no. of admission was same at 37-37+6 weeks and 38-38+6 weeks, while there was no admission at 39 weeks.[20] Another study in Hong Kong showed that risk of neonatal respiratory morbidity was significantly increased in those delivered by El.LSCS before 38 weeks.[21]

In this study one baby was expired, that baby was from group B & delivered at 38 weeks. Use of antenatal steroid between 37-38+6 week may decrease neonatal respiratory morbidity by different mechanisms. They may act by promoting molecular mechanism predominantly by increasing number and function of lung Na channel that allow alveolar fluid drainage. Fetuses which are not exposed to process of labor may have underactive Na channel. Antenatal corticosteroids may also increase the responsiveness to catecholamine and thyroid hormones, providing reason for their administration in cases of elective caesarean section.[22]

CONCLUSION

According to findings of current study we conclude that elective LSCS should be planned as close to 39 weeks as possible, but in the cases where early term elective LSCS is deemed necessary, prophylactic dexamethasone 48 hours before caesarean section was found to reduce neonatal respiratory morbidity, it also decreases the number of admissions to NICU, so decreasing the cost of cure. Dexamethasone as prophylaxis is inexpensive, easy to administer and drug can be used safely in two doses 12 hours apart.

Author's Contribution:

Concept & Design of Study:	Munawar Afzal
Drafting:	Humera Bilal
Data Analysis:	Tasneem Hayat
Revisiting Critically:	Munawar Afzal, Humera Bilal
Final Approval of version:	Munawar Afzal

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

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Original Article

Learning to Learn - Study of Learning Styles at Medical School

Tayyeba Iftikhar Mirza, Irfan Shukr, Naushaba Sadiq, Ayesha Ghassan, Shazia Inam and Syeda Sana Fatima

ABSTRACT

Objective: To identify the different learning styles of third year medical students at foundation university medical college, by using VARK questionnaire, so that we can modify our teaching strategies accordingly and help students improve their academic performance.

Study Design: Descriptive / Cross sectional study

Place and Duration of study: This study was conducted at Foundation University Medical College, Islamabad May to July 2018.

Materials and Methods: Data was collected using VARK questionnaire from 90students of third year MBBS using convenience sampling. They were fully explained the whole process. The modality that got maximum marks was considered to be the preferred learning style of student. Students had the permission of circling more than one option. Selection of one option pointed that the student was unimodal and mainly had one learning style preference whereas the selection of two or more options pointed that the student was multimodal and had two or more learning style preferences.

Results: The majority of the students of third year MBBS are auditory learners. Out of the total 53% were unimodal, 37% were bimodal and 10% were trimodal. Among unimodal 40% were auditory, 29% were kinesthetic, 23% were read/write and only 8% were visual.

Conclusion: Knowledge regarding students' different preferred learning styles helped the medical teachers in developing suitable learning approaches to make the students' educational journey more constructive.

Key Words: medical students, learning styles, VARK, educational strategies

INTRODUCTION

The term "learning styles" has been derived from the concept that every student is different in the course of gaining and processing information[1]. The participation of a student in the learning environment depends upon his learning style, mental capabilities and his strengths and weaknesses[2]. If the teaching learning environment is in accordance with the student's learning style, he will gain in a better way, but if it is not then the student will surely suffer[3]. An effective teacher has content and pedagogical knowledge and knowledge of his learner[4].The success of a teacher lies in the fact that he fulfills the educational needs of each student[5]. Having knowledge that students have different preference in

Department of Medical Education, Foundation University Medical College, Islamabad.

Correspondence: Tayyeba Iftikhar Mirza, Demonstrator, Department of Medical Education, Foundation University Medical College, Islamabad.
Contact No: 0331-5564232
Email: Tayyeba.i.mirza@gmail.com

learning; the medical instructors can plan the lessons accordingly[6]. In fact, this should be an important component of faculty development plan in which faculty is trained for different educational strategies, in order to guide their students. Student motivation and academic performance gets better when instruction is tailored to student learning styles[7].

Our medical schools are unsuccessful in producing problem solvers, deep and lifelong learners, reason being the culture of rote memorization and non-alignment of teaching strategies with students learning preferences [8]. No one has ever tried finding out the preferences of students, perhaps the teachers themselves are unaware of the fact that different students learn differently and if they are not catered for according to their learning styles, their performance is affected. During literature review, it was found that most of the studies on learning styles have been done on students from primary schools, and only few studies have been conducted on medical students and that also in different context. It is the need of the hour to find out the learning styles of our medical students, so that we can modify the teaching strategies according to the learning preferences of students, and help them in becoming deep divers[9].Carl Jung (1927) was the first person who gave the concept of learning style in his personality theory[2].Many educational scientists have defined the concept of learning style by using personality theory[10]. The most common classification

that is used is VARK (elaborated in figure 1), proposed by Fleming and Mills in 1992. The VARK questionnaire is based on information processing model. This is very helpful for instructors in selecting the teaching and assessment strategies. VARK preferences can be useful for learners in developing effective learning skills in order to receive and process information and, as a result, do well in examination[11,12]. As every individual has different capabilities for thinking, comprehending, and problem solving, it's their right to know their best convenient learning styles[13]. There is a need to look in depth of different learning styles of medical students as our aim is to produce professionals who are problem solvers, deep and live long learners. Knowing their learning styles and modifying the educational strategies is the first step to move our students from surface to deep divers. So the objective of the study was to identify the different learning styles of third year medical students at foundation university medical college.

MATERIALS AND METHODS

The study was conducted on undergraduate third year medical students of Foundation University Medical College, Islamabad from May to July 2018. This was a descriptive cross sectional study with convenient sampling. The purpose of the study was explained to them and informed written consent was obtained from those who agreed to participate. The participants were given the choice to either enter their personal identification data or to leave the form anonymous. The students were handed the hard copies of VARK questionnaire version 7.8[14], which consisted of 16 questions, each with 4 options corresponding to the four learning styles. The modality that got maximum marks was considered to be the preferred learning style of student. Students had the permission of circling more than one option.Selection of one option pointed that the student was unimodal and mainly had one learning style preference whereas the selection of two or more options pointed that the student was multimodal and had two or more learning style preferences. The completed questionnaires were collected after 30 minutes; the answers were plotted according to the validated scoring chart and instructions. The reason for choosing VARK questionnaire was its validity, reliability and it is easy to comprehend and freely available[15]. Ethical approval was obtained from the Institutional Review Board (IRB) at the University.

The paper based Data was entered into Microsoft access Database. Students' scores were computed based on the recommended scoring system provided by VARK producers. The highest score in a particular modality was taken as student's preferred learning style. Then percentage of each modality was calculated. Students were then categorized into unimodal, bimodal and trimodal.

RESULTS

Out of the 150 students invited, 90 students participated to answer the VARK questionnaire. 48(53%) out of 90 showed a unimodal learning style preference. In these unimodal 40% were auditory, 29% were kinesthetic, 23% were read/write and only 8% were visual. This is shown in figure 2 and 3. 33(37%) out of 90 showed bimodal. Out of which maximum 36% were kinesthetic and read/write and 27% were kinesthetic and auditory. 9(10%) out of 90 were trimodal.
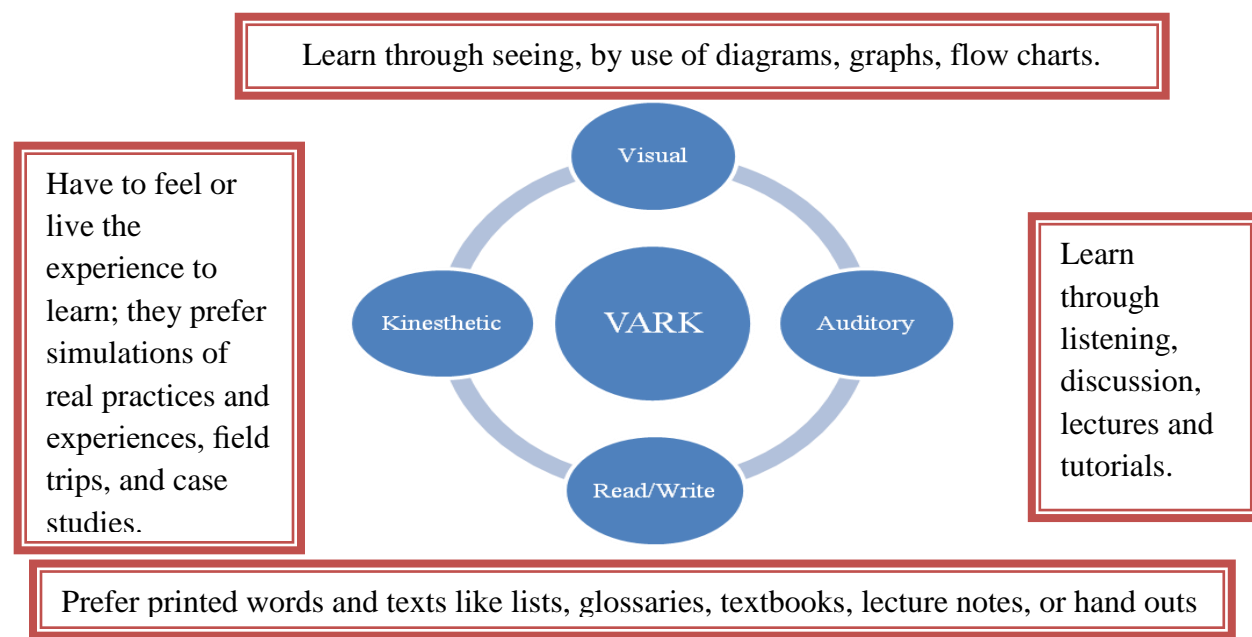

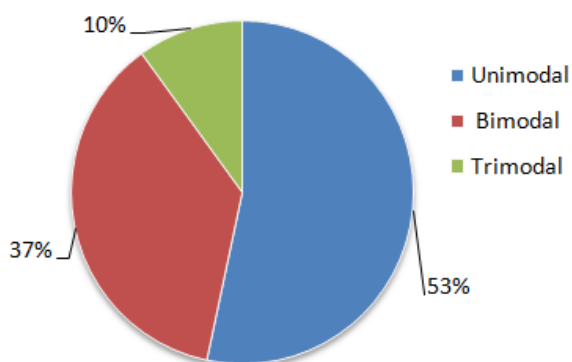**Figure No.1: Students preferred learning style**

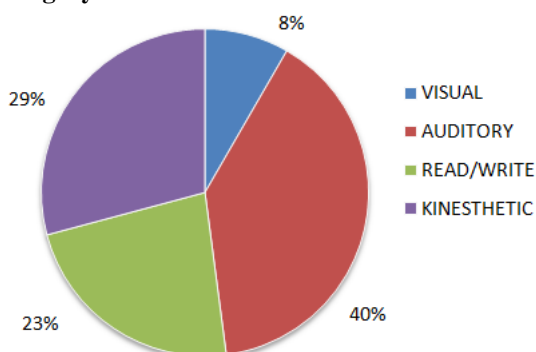**Figure No.2: Unimodal, Bimodal and Trimodal Learning styles**

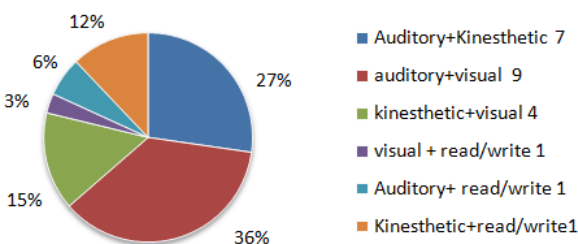**Figure No.3: Distribution Of Unimodal Learning Style**

Figure No.4: Distribution of Bimodal learning styles

DISCUSSION

The aim of academic programs is to equip the medical graduate with knowledge, skills and attitude which they will use throughout their professional life[1]. Thus creating, effective programs is essential as it support the success of all students who will begin the journey of lifelong learning[10]. So the instructional strategies should be planned in such a way that learners gain maximum out of it. This is only possible if the learners learning preferences are incorporated in the instructional techniques. Most of the third year medical students (53%) exhibited unimodal learning style. 40% had auditory, which was the top preference among unimodal. Similar findings were found in a study conducted in turkey on first year medical students and another study in Saudia[1,16]. Auditory learner's best learn by listening. These learners enjoy studying with background music, group work, lectures, debates,

audiotapes and discussions. 37% of the students had bimodal learning preference, among which most (36%) were auditory and visual. They learn best when they can observe pictures, diagrams, films and displays[17].Flashcards, cartoons and the use of highlighted material or different computer fonts is appealing to them. Teachers should consider the use of maps, flowcharts or webs to help these students learn concepts. There are 5 factors which effect student's performance in learning. These are environmental, emotional, sociological, physiological and psychological[13]. Some students will prefer a quiet and cool place; others would want a bright place with people around. Some students may need motivational support; others might take the task as individual responsibility. The VARK learning styles come under the physiological factors[13]. By sociological it means that some students would like to work in groups others might like studying in isolation.

Many studies conducted on learning styles state that if teaching strategies match with student's learning style preferences, students scored higher than those with whom the teaching strategies did not match[18]. But then there is another opinion which states that deliberate mismatch between teaching strategies and learning style helps student learn more, and this is supported by the fact that students get bored and disengage with static teaching strategies, so deliberate change is necessary to keep them motivated[15]. This is a simple study to identify the learning styles ofthird year medical students, the role of gender, and academic performance was not taken into account. A better study would be comparison of learning styles of preclinical years with clinical years and keeping in mind the context. The second study could be a longitudinal study to find any change in learning style over a period of time when medical students starts the medical journey and when he completes.

CONCLUSION

The students should be conscious of the strengths and weaknesses of their learning practices. They should be aware of their learning preferences, which they should use to overcome their weaknesses. This will develop in them self confidence, self respect and self regulation. By overcoming the weaknesses the students will be more motivated towards achieving goal. Pedagogically, it is useful for the teachers as well, by knowing the learning styles of their students they can modify their teaching strategies according to their class. This will help them fulfill their student needs.

Author's Contribution:
Concept & Design of Tayyeba Iftikhar Mirza
Study:

Drafting:	Irfan Shukr, Naushaba Sadiq
Data Analysis:	Ayesha Ghassan, Shazia Inam, Syeda Sana Fatima
Revisiting Critically:	Tayyeba Iftikhar Mirza, Irfan Shukr
Final Approval of version:	Tayyeba Iftikhar Mirza

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Comparison of Efficacy of Different Chelation Therapies in Thalassemia Major Patients

Mukhtar Ahmad, Asma Akbar and Kiran Kanwal

ABSTRACT

Objective: This study was aimed to compare the efficacy of different chelation therapies in thalassemia major patients.

Study Design: Observational / prospective cohort.

Place and Duration of Study: This study was conducted at Thalassemia Department of Dera Ghazi Khan Medical College and Teaching Hospital, Dera Ghazi Khan from March 2018 to March 2019.

Materials and Methods: A total of sixty patients with Beta-thalassemia were enrolled. Out of the total, 30 of the patients were given oral iron chelator i.e. Deferiprone and put them in group I whereas the other remaining 30 were grouped into group II and given the injectable iron chelator i.e. deferoxamine. Patients with any renal or respiratory diseases or those who were using antibiotics for longer durations were excluded.

Results: The average age amongst all the patients was 19.6 ±5.5 years. Out of the total patients, 32 (53.3%) were male and 28 (46.7%) female. The average ferritin (ng/ml) among all the patients was 2600+1190.5 while 2455+1134 and 2745+1245 in group I and group II respectively (P value= 0.322). In terms of complications, Impaired glucose tolerance (IGT) was reported as 17.5%, diabetes mellitus (DM) 6.9%, hypothyroidism clinical and subclinical 18.05% and 26.45% respectively among all the Beta-thalassemia patients.

Conclusion: Both the therapies are equally effective in controlling the iron overload in beta-thalassemia patients.

Key Words: Hemoglobinopathy, Beta-thalassemia, iron chelators, Deferiprone

INTRODUCTION

The Beta-thalassemia is the foremost hemoglobinopathy and it is just because of the Beta-globulin chain production flaw. The commonest disease expressions include the hepatosplenomegaly and anemia. The backbone of the management of Beta-thalassemia is usually the transfusion of blood yielding an overload of iron in certain organs including the heart, liver and certain glands like the endocrine.[1,2] The iron chelators for reduced iron load in the body is generally used in the two different means i) Oral and ii) Injectable.

The first option includes the Deferiprone is inserted soundly in the body cells to remove the iron and hence much effective than the injectable that comprises of Desferoxamine aiming to reduce the complications of the endocrine the iron overload of the heart.[3,4] The leading iron overload complication is the endocrinopathies with involvement of at least one endocrine organ among almost 60% of the patients.[5-7] Very fewer studies are available in literature that compare the iron chelator effectiveness orally and as injectable in Beta-thalassemia patients. In this study we compared certain endocrinopathies including the diabetes mellitus (DM), impaired glucose tolerance (IGT) and the hypothyroidism among the Beta-thalassemia patients receiving oral chelators against the injectable chelators.[6,7] The main aim of the study was to compare the efficacy of different chelation therapies in thalassemia major patients.

MATERIALS AND METHODS

We opted an observational prospective cohort study design, where a total of sixty individuals were enrolled. Out of the total 30 of the patients were given with oral iron chelator i.e. Deferiprone and put them in group I where as the other remaining 30 patients were grouped into group II and given the injectable iron chelator i.e. deferoxamine. The venue of the study was Thalassemia department Dera Ghazi Khan Medical College and Teaching Hospital, Dera Ghazi Khan. The study duration was of one year starting from 1st March 2018 to 1st March 2019. All patients having Beta-thalassemia were included in this study while patients with any

Department of Pediatrics, D.G.Khan Medical College and Teaching Hospital D. G. Khan.

Correspondence: Dr. Mukhtar Ahmad, Associate Professor and Head of Pediatric Department, D.G.Khan Medical College and Teaching Hospital D. G. Khan.
Contact No: 0332-6459999, 0311-6528182
Email: drmkagmc@gmail.com

renal or respiratory diseasesor those using long term antibiotic therapy were excluded. Demographic feature along with clinical and diagnostic findings were recorded. The plasma glucose levels while fasting was assessed and the IGT was calculated. The serum calcium and phosphate level and PTH were also assessed. The standard operating procedures were opted while practicing all operative and diagnostic or clinical procedures. Approval from institute's ethical committee was acquired for this study. Informed consent was taken from all the participants / attendants of the patients.

SPSS version 20.0 was used for data handling and analysis. Descriptive statistics were applied by calculating mean and standard deviation. Frequency distribution and percentages were performed for all qualitative variables. Chi square test was applied and P values less than 0.05 was considered statistically significant.

RESULTS

There were a total of 60 Beta-thalassemia patients; 30 in each group. The average age of the entire patients was 19.6 ±5.5. Out of the total patients 32 (53.3) were male and 28 (46.7%) were females. More on the distribution of patient age and sex was given in table 1.

The average ferritin (ng/ml) for the entire patients was 2600+1190.5 group wise it was observed as 2455+1134 and 2745+1245 in group I and group II respectively. We have not observed any significant difference among groups regarding the ferritin level (P value= 0.322).

Table No.1: The group wise age and sex distribution of patients.

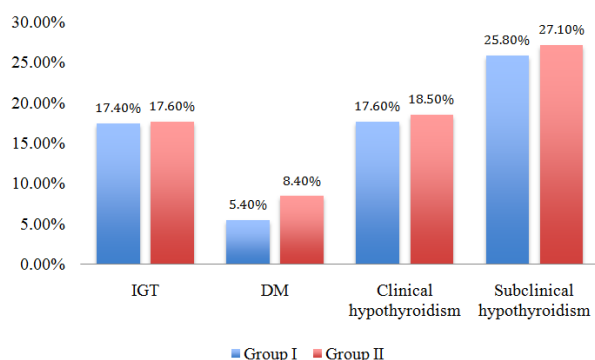|	Group I	Group II
Average Age	18.9±4.6	20.3±6.5
Number of Male	12	20
Number of Female	18	10

Figure No.1: The detailed view of group wise complication.

Additionally the observed complication among patients includes the IGT which was 17.5%, DM was 6.9%, hypothyroidism clinical and subclinical was 18.05% and 26.45% respectively among all the Beta-

thalassemia patients. The group wise distribution is given in figure 1.

DISCUSSION

We not only assessed the efficacy but also highlighted the related complications for both the therapies. The only iron chelator available before 1987 was the desferoxamine.[8]There was a poorer compliance among the patients with this therapy due to discomfort of daily dose and the high price. On the other hand, the deferiprone accessibility bettered the treatment acceptance. Though the deferiprone is less effective than the deferoxamine for abolishing of iron from certain organs including liver.[9]Majority of our patients with Beta-thalassemia also had endocrine disorder where the subclinical hypothyroidism was the commonest complication in patients of both groups.[10]Similarly, the DM and clinical hypothyroidism was seen common in group II patients than the group I. The difference between both groups regarding the complications was not statistically significant. We also did not observed the ferritin level difference between both groups, hence it is high between both the groups, hence we cannot claim to any of the therapy to be superior than the other. Other published studies confirm our findings in literature.[5,11] We suggest using the oral therapy by taking the deferiprone and desferasirox as combination to be used to control the ferritin levels among patients. This falls the average ferritin levels among the patients.[12-14]This suggestion was already addressed in various publications including Farmaki et al.[13-20] The combination therapy appears to be more successful than each of these agent in seclusion. We also recommend the sample size should be large enough with the well-controlled design to demonstrate the efficacy and safety of the oral and injectable iron chelators in Beta-thalassemia patients.

CONCLUSION

Both the therapies are equally effective in controlling the iron overload in beta-thalassemia patients.

Author's Contribution:

Concept & Design of Study:	Mukhtar Ahmad
Drafting:	Asma Akbar
Data Analysis:	Kiran Kanwal
Revisiting Critically:	Mukhtar Ahmad, Asma Akbar
Final Approval of version:	Mukhtar Ahmad

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

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Original Article

Factors Responsible for Surgical Site Infection among Patients Undergoing General Surgeries

Mushtaque Ahmed Abbasi[1], Riffat[2], Fayaz Ahmed Memon[3] and Nasreen Rebeca Wilson[4]

ABSTRACT

Objective: To determine the responsible factors for surgical site infection among patients underwent general surgeries.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Departments of General surgery of Peoples medical University Hospital Nawabshah from September 2016 to February 2017.

Materials and Methods: All the patients who had developed surgical site infections after general surgeries were included. All the patients were noted regarding Hospital stay, surgical duration, obesity, diabetes mellitus, hypertension, history of smoking and numbers of blood transfusions. All the data was recorded in the self-made proforma.

Results: In this study total 70 infected cases were studies. Majority of patients were above 45 years of age, particularly as;42.9% were in age group of 45-60 years and 17.1% were above 60 years. Males were in majority 65.5% and females were 34.5%. Most of the cases 67.10%, underwent emergency surgeries. After old age and emergency surgery; other responsible factors for surgical site infection as; smoking, multiple blood transfusions, obesity and prolonged Hospital stay were found frequent among patients who had surgical site infection as 21.4%, 17.1%, 17.1% and 21.4% respectively. Diabetes was among 12.9% and hypertension was among 11.4% patients, while 20.0% patients were with unknown causes.

Conclusion: It was concluded that emergency surgery, obesity, smoking, prolonged Hospital stay and multiple blood transfusions were frequent factors among patients who had developed surgical site infection.

Key Words: General Surgery, SSI, Factors

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INTRODUCTION

An infection of surgical site is one which takes place following surgical procedure in the surgically operated part of the body. A surgical site infection (SSI) is an accidental and often preventable effect of surgical procedure.[1] SSIs are correlated with patient's morbidity as well as raisedcosts of healthcare.[1] The SSI rate differs greatly from hospital to hospital globally. Various studies reported the rate of SSI ranging between 2.50% and 41.90%.[1,2]

Presently there are over 40,000,000 inpatient and 31,000,000 outpatient surgeries beingcarried out yearly in the United States, and a minimum 2% of these cases,

1. Department of General Surgery, PUMHS, Nawabshah.
2. Department of General Surgery / Physiology[3], LUMHS.
4. Nursing College, Isra University Hyderabad

Correspondence: Dr. Mushtaque Ahmed Abbasi, Assistant Professor General Surgery, PUMHS, Nawabshah.
Contact No: 0333-2794506
Email: mushtaqueabbasi11@gmail.com

or around 1,400,000; develop a SSI with varying severity.[3] Surgical site infections (SSIs) are not only the commonest complications after surgeries, however are as well the commonest type of nosocomial infections. They represent 20.0% of overall healthcare-related infections and 38.0% of NIs in surgical cases.[4,5] A pilot study conducted in Pakistan exhibits that 13.0% of subjects who went through elective surgical procedure had SSIs.[4,6] A large number of studies globally revolve around this issue from various scientific perspectives, improving the definitions of SSI parameters and risk factors in addition to increasing our information of factors that are significant contributors to SSIs and the ways to control these factors at clinical level.[7,8] Majority of authors admit that SSI is a worst complication that a subject can undergo following an intervention.[7] Different studies showed different risk factors as some reported that transfusion was a statistically significant risk factor for wound separation or superficial SSI development.[9,10] Others stated that extended preoperative hospital stay, diabetes mellitus, increasing age, emergency surgery, ASA score >3, extended duration of surgical procedure and contaminated surgical sites were correlated with greater rate of SSI.[1] On other hand a recent systemic review reported that in Pakistan there is inadequate data on the

post-operative wound Infections.[11] Surgical Site Infection (SSI) has raised over the last few years.[11] World Health Organization (WHO) reported that 66.0% of underdeveloped countries have no documented data in terms of the SSI burden and also the data grounded on the surgical prophylaxis is inadequate.[11]Tolower the prevalence of SSIs, underlying risk factors are needed to be identified to implement preventative measures.[10] Therefore this study has been conducted to know the responsible factors for surgical site infection among patients who underwent general surgeries.

MATERIALS AND METHODS

This cross sectional study was done at the Departments of General surgery of Peoples Medical University Hospital Nawabshah. Study duration was 6 months from September 2016 to February 2017. All the patients who had developed surgical site infections after general surgeries, age more than 15 years and both gender were included in the study. All the patients with tuberculosis and malignant diagnosis and patients presented with open dirty wound due to trauma and did not want to participate in the study were excluded. Wound infection was classified according to surgical site classification. All the patients were noted regarding hospital stay, prolonged surgical duration, obesity diabetes mellitus, hypertension, history of smoking and numbers of blood transfusions. All the data was recorded in the self-made proforma. Data was analyzed by spss version 16.

RESULTS

In this study total 70 infected cases were studied to know the factors responsible for surgical site infection. Majority of patients were above 45 years of age, particularly as 42.9% were in age group of 45-60 years and 17.1% were above 60 years. While remaining 28 cases presented with age group of 15-30 years and 31-45 years respectively.

Table No.1: Patient's distribution according to age and gender n=70

	Frequency	Percent
Age groups		
15-30 years	08	11.4
31-45 years	20	28.6
45-60 years	30	42.9
>60 years	12	17.1
Total	70	100.0
Gender		
Male	41	65.5%
Female	29	34.5%
Total	70	100.0%

Age (Mean+SD) =49.22+5.16 years

Males were in majority 65.5% and females were 34.5%. Table 1. Most of the cases 67.10%, underwent emergency surgeries and 32.90% underwent elective surgeries. Fig. 1.

After old age and emergency surgeries other responsible factors for surgical site infection such as; smoking, multiple blood transfusions, obesity and prolonged Hospital stay were found frequent among patients who had surgical site infection as 21.4%, 17.1%, 17.1% and 21.4% respectively. Diabetes was among 12.9% and hypertension was among 11.4% patients, while 20.0% patients were with unknown causes. Table, no, 2
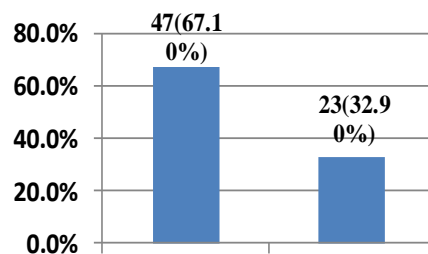

Figure No.1. Type of the surgeryn=70

Table No.2: Otherresponsible factors for SSIn=70

Factors	Frequency	Percent
Obesity	12	17.1%
Diabetes	9	12.9%
Hypertension	8	11.4%
Smoking	15	21.4%
Multiple blood transfusions	12	17.1%
Prolonged Hospital stay	15	21.4%
Unknown	14	20.0%

DISCUSSION

In this study majority of patients were above 45 years of age, particularly as 42.9% had age group of 45-60 years and 17.1% were above 60 years. Study conducted by Neumayer L et al[12] reported that age was an autonomous risk factor for SSI. Qualified nurses collected data on operative and inherent risk factors for SSI in cases experiencing vascular and general surgery, subjects aged >40 had a statistically substantially raised risk of SSI development. Other studies also documented advanced age as a risk factor for SSI development.[13,14] Most of the cases 67.10%, underwent emergency developed SSI in our study. Alike results were found in the study conducted by Sanabria A et al.[15]

In the present study, 17.1% obese patients developed SSI. RasulA et al[16] also found obesity as a comorbid and risk factor among surgical patients. Adipose tissue vascularizes poorly and the resulting effect on tissues'

oxygenation and immune response function is believed to raise the risk for SSI. Additionally, surgeries on obese patients can be further prolonged and complex.[17] Theprocess of wound healing can possibly be influenced by vasoconstrictive effects and decreased oxygen-carrying ability of blood correlated with smoking cigarettes.

In our study 21.4% smokers developed SSI. Similarly in a prospective observational study conducted by Graante G et al[18] who investigated SSI in patients undergoing surgery. Partakers were asked to discontinue smoking at least four weeks before surgical procedure. 24subjects developed SSI that took place 8 days post operative averagely. Statistically considerably more smokers acquired SSI in comparison to non-smokers P < 0.05. 16 out of 43 smokers acquired SSI. The smokers who smoked more cigarettes were further likely to acquire SSI and those who continued smoking cigarettes for an extended period of time also underwent statistically substantially more infections. A number of observational studies in patients of general surgery who were admitted to noncritical care regions have as well exhibited that hyperglycemia is correlated with raised risks of perioperative complications, mortality and length of stay [19]. In this series 12.9% diabetic patients developed SSI. In comparison to our results, study conducted by Ata A et al[20] reported that Postoperative hyperglycemia can possibly be the highlysignificant risk factor for SSI.BibiS et al[21] reported that diabetic cases are 3.6-foldsfurther susceptible to the infection rate in contrast non diabetics.In this study, 17.1% patients developed SSI, in whom blood was transfused. In comparison to our results, study conducted by Michael M et al[22] reported that transfusion of RBC has no evident correlation with raised risk for incisional SSIs, however can possibly be correlated with raised risk for septic shock and organ space SSI following colon resection surgical procedure. Transfusion of RBCs among surgical subjects with major bleeding could be a lifesaving intervention, however transfusion of RBC is as well correlated with several complications, together with infection.[23] Transfusion of RBC has the potential to raise the risk of infection for numerous reasons, and the term transfusion-associated immunomodulation has in recent times been applied to define the immunologic variations that take place with allogeneic blood transfusions. These variations included injury of normal monocyte functions and reducedproduction of tumor necrosis α in response to endotoxin (lipopolysaccharide). The pathophysiology of transfusion-associated immunomodulation is incompletely known, however it is believed to be associated to both the RBC storage solutions and RBC storage lesion .

In this study, 21.4% patients who had prolonged hospital stay developed SSI. In comparison to our results, study conducted by Malik AZ et al[4] reported that subjects with SSIs exhibited a substantial variance in the mean duration of hospital stay than those who did not develop SSIs p<0.001). The increased duration of hospital stay is a major contributor to the mounting costs of SSIs.[24] Another study conducted by Florio M et al[25] also reported that Pre-operative hospital stay $\geq$ 48 h, obesity, diabetes, and HIV/AIDS infection were statistically significantly correlated with raised risk of SSI.

CONCLUSION

It was concluded that emergency surgery, obesity, smoking, prolonged Hospital stay and multiple blood transfusions were frequent factors among patients had developed surgical site infection**.** Surgeons should be conscious regarding infection development among patients presented with these factors.

Author's Contribution:

Concept & Design of Study:	Mushtaque Ahmed Abbasi
Drafting:	Riffat, Fayaz Ahmed Memon
Data Analysis:	Nasreen Rebeca Wilson
Revisiting Critically:	Mushtaque Ahmed Abbasi, Riffat
Final Approval of version:	Mushtaque Ahmed Abbasi

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

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Original Article

Critical Analysis of Adverse Outcomes in Delayed Presentation of Ectopic Pregnancy

Saima Yasmin Qadir[1], Hajra Sultana[1], Kiran Sultana[2], Zahid Sarfraz[1], Shazia Siddiq[1] and Sajjad Masood[1]

ABSTRACT

Objective: The objective of study is to critically analyze the adverse outcomes of delayed presentation in ectopic pregnancy to enhance the importance of early diagnosis and prompt treatment in females with acute abdomen in childbearing age.

Study Design: Descriptive / observational study

Place and Duration of Study: This study was conducted at the Gynecology Department, Nishtar Medical University and Hospital, Multan from January 2018 to December 2018.

Materials and Methods: This study was performed in patients with suspected ectopic pregnancy. The purposive non-probability sampling technique was used for the selection of patients, included patients between 13-50 years of age with abdominal pain with/without bleeding per vagina, missed cycles and hemodynamic instability. The patients with coagulation disorders and on anticoagulant treatment were excluded. Pregnancy was confirmed by urine dipstick/β- human chorionic gonadotrophin and ultrasound. The data was analyzed using statistical analysis program. Frequencies and percentages were presented for variables. Chi-square test was applied to establish the relationship between delayed presentation and complications and $p \leq 0.05$ considered significant.

Results: Sixty two patients were diagnosed as ectopic pregnancy among total 7450 patients admitted in emergency department so the frequency of ectopic pregnancy was 0.85%. The main focus was emphasized on the time duration of symptoms to admission which showed strong relationship, delayed presentation lead to multiple risks like ruptured ectopic pregnancy (90%), presence of shock(76%), multiple blood transfusions (62%) and laparotomy (87%).Only six patients(10%) presented early and they received medical treatment (5%) and laparoscopy(5%), so timely diagnosis and treatment can reduce the morbidity and mortality related to ectopic pregnancy complications.

Conclusion: Timely diagnosis and proper management of patients presenting with ectopic pregnancy can improve outcomes and reduce the complications.

Key words: Mortality, Morbidity, Ectopic pregnancy, Shock. Laparotomy.

INTRODUCTION

Maternal mortality is a major cause of death in early pregnancy complications world wide[1]being more common in nonwhites than whites[2].The risk of death from extrauterine pregnancy is more common as compared to the pregnancy that either results in live birth or is intentionally terminated. The death rate is 1 in 2000 ectopic pregnancies and 15 % of all maternal deaths.

[1.] Department of Obstet and Gynae, Nishtar Medical University and Hospital, Multan.
[1.] Department of Obstet and Gynae, Town Hospital, Multan

Correspondence: Dr. Saima Yasmin Qadir, Senior Registrar, Nishtar Medical University. Multan.
Contact No: 0334-7333129
Email: asharahmad71@hotmail.com

The incidence of ectopic pregnancy in the UK is 11 per 1000 pregnancies, with a mortality of 0.2 per 1000 cases[3] and Gauvin reported 2% incidence of ectopic pregnancy[2]. The risk factors for ectopic pregnancy include pelvic inflammatory disease, previous tubal surgery, previous ectopic pregnancy, copper containing contraceptive device, assisted reproduction and now current use of LNG-IUS and previous use of depot medroxy progesterone acetate has been documented[4,5,6].

In ectopic pregnancy, 90% of fertilized ovum implants in the tubes but it can implant in abdomen[7], cervix, ovary[8], spleen, omentum, cesarean scar[9,10]retro peritoneal pregnancy[10], intramural[11] and rarely patient can present with heterotopic pregnancy in which simultaneous intrauterine as well as extra uterine pregnancy coexist[12].Most of the tubal pregnancies become symptomatic within 12 weeks but small number of tubal pregnancies progress beyond this gestation and are late diagnosed.

The proper management of ectopic pregnancy needs early diagnosis, resuscitation, prompt treatment and

follow up. Early diagnosis of ectopic pregnancy is a difficult task but it can be diagnosed with help of quantitative beta-hCG, transvaginal or transabdominal ultrasonography and laparoscopy[13]. The treatment can be conservative, medical treatment with the use of methotrexate[14] and surgical management depends on the presentation in form of laparotomy or laparoscopy. Early surgical intervention is the key to successful treatment of even heterotopic triplet pregnancy and ensures good neonatal outcome[13].

The purpose of this study was to increase the clinical suspicion of physician for patients who present with sign and symptoms of acute abdomen, missed cycle, hemodynamic instability and to diagnose and treat them promptly. The mortality and morbidity associated with ectopic pregnancy are related to the length of time from symptomatology to diagnosis, increased awareness and knowledge could help by providing better prediction and prevention of delay in at risk-women. Moreover, this could enable an early and accurate diagnosis prior to the rupture, resulting in a reduction in the need for lifesaving surgical procedure and complications.

MATERIALS AND METHODS

Descriptive observational study was performed in Nishtar medical university and Hospital during 1st January 2018 to 31st December 2018 in Gynecology department in patients with suspected ectopic pregnancy prospectively. The purposive (non-probability) sampling was used for the selection, included patients between 13-50 years of age with abdominal pain with/without bleeding per vagina, missed cycles, hemodynamic instability and unexplained shock. The patients with bleeding disorder and on anticoagulant therapy were excluded. All the investigations were performed to diagnose ectopic pregnancy including urine pregnancy test, β-hCG and ultrasonography along with other routine investigations. The different variables like age, parity, gestational age, levels of β-hCG, hemodynamic status, number of blood transfusions and mode of treatment were studied. Time duration between the onset of symptoms and admission were gathered and analyzed by SPSS-17. The results were shown in frequency and percentage tables. The tests of significance was performed and P –values less than 0.05 was considered significant and chi square test was applied to all the categorical variables.

RESULTS

Total 7450 patients were admitted during 1st jan to 31st dec 2018, 62 patients were diagnosed as ectopic pregnancy so the frequency of ectopic pregnancy was 0.85%. Fifty six (90%) patients were diagnosed as ruptured ectopic pregnancy and six (10%) had un-ruptured ectopic pregnancy. There was significant relationship of ectopic pregnancy with age of patients, more common in 26-35 years (p<0.05) (Table I). Pain

abdomen was the most common symptoms present in all most 100% of patients followed by vaginal bleeding 87%(n=54). The most significant sign was abdominal tenderness 96% (n=60). Most of the patients shared multiple symptoms. (Table 2). β-hCG and ultrasonography were the most important tools of diagnosis in ectopic pregnancy.(Table 3). The main focus was emphasized on the time duration of symptoms to admission that showed strong relationship between delayed presentation lead to multiple risks like ruptured ectopic pregnancy (90%), presence of shock (75%), multiple blood transfusions (62%) and laparotomy (90%), laparoscopy (5%) and conservative management (5%).(Table 4).

Table No.I Patient's data(N=62)

Varia-bles			No. of patients		Test of significance
Age	<25 yrs	7	11.3%		X^2(4, N=62)= 9.435, p< 0.05
	26-35yrs	50	80.6%		
	>35yrs	5	8.1%		
Gestational age	4-6 weeks	14	22.6%		X^2(4,N=62)= 11.11, p< 0.024
	6-8 weeks	36	58%		
	>8 weeks	12	19.4%		
Parity	Primi-gravida	26	42%		X^2(2,N=62)= 2.85, p< 0.24
	Multi-gravida	36	58%		

Table No.2. Clinical presentation (N=62)

Clinical features	No.of patients	percentage
Pain abdomen	62	100%
Vaginal bleeding	54	87%
Amenorrhea	45	72%
Shock	47	75%
Pallor	50	80%
Abdominal distension	40	64%
Abdominal tenderness	60	96%

Table No.3: investigations (N=62)

Investigations		No.of patients	%tage
Beta HCG (mIU/ml)	<1000	13	21%
	1000-3000	33	53.2%
	3000-5000	16	25.8%
Transvaginal Ultrasound findings (extrauterine)	Adnexal mass	24	38.7%
	Gestational sac	15	24.1%
	Cardiac activity	2	3.2%
	hemoperitoneum	52	83.8%

DISCUSSION

Ectopic pregnancy is a high risk condition and a leading cause of maternal death in first trimester[3] and accounts for 10% of all maternal deaths[13]. Under developed countries have highest incidence of maternal mortality (1-3%) which is ten times higher than developed

Table No.4: Relationship between time duration and outcomes (N=62)

Outcome		Time (hours)			Test of significance
		<24 hours	>24 hours	>48 hours	
Admission	<24hrs	8(12.8%)	15(24.1%)	1(1.6%)	X^2(4,N=62)=1.657 P<0.043
	>24hrs	7(11.3%)	20(32.2%)	11(18%)	
Mode of treatment	medical	2(3.2%	1(1.6%)	0	X^2(4,N=62)=11.11,P<0.025
	laparotomy	32(51.8%)	15(24.1%)	9(14.5%)	
	laparoscopy	0	0	3(4.8%)	
No. of blood transfusion	none	4(6.5%)	20(32.3%)	0	X^2(6,N=62)=21.5,P<0.001
	one	7(11.2%)	11(17.7%)	5(8%)	
	two	4(6.5%)	4(6.5%)	3(4.8%)	
	three	0	2(3.2%)	2(3.2%)	
Shock	yes	10(16.1%)	26(42%)	11(17.7%)	X^2(2,N=62)=8.07,P<0.018
	no	4(6.5%)	10(16.1%)	1(1.6%)	

countries, in Ghana 8.7%, Cameroon 12.5% of maternal deaths are due to ectopic pregnancies[13]. This could be explained by late diagnosis, although the early diagnosis of ectopic pregnancy became possible with transvaginal ultrasonography and quantitative measurement of the β - human chorionic gonadotropin (β-hCG). A delay in diagnosis most often leads to severe complications like hemodynamic instability, rupture and hemoperitoneum, multiple blood transfusions and shock which consequently leads to many morbidities like surgical treatment by laparotomy with salpingectomy and even mortality.

The incidence of ectopic pregnancy and its associated maternal morbidity and mortality has emphasized the importance of early detection by appropriate investigations and high index of suspicion of having ectopic pregnancy in the reproductive years of all females. Incidence ranges from 0.25% to 2% of all pregnancies[17]. Our frequency of ectopic pregnancy was 0.85%. The rate of ectopic pregnancy was 1.9%[18] and 4.3% according to other studies.[13,3]

We have observed that primary condition of patient depends upon the time duration between the onset of symptoms and time of admission. We observed 61% patients were admitted after 24 hours of symptoms, 75.8% presented in shock, they had multiple blood transfusion (61.2%), laparotomy (87%). In Tanzanian study Mooij concluded that in low income countries it is a big challenge to diagnose the ectopic pregnancy early, less than half patients 47% were diagnosed as ectopic pregnancy in suspected ectopic pregnancy [19].Marion observed that >85% of patients with tubal ectopic pregnancy were diagnosed before rupture which lead to the medical therapy and laparoscopic surgery with tubal preservation[20]. Stulberg concluded that women who experienced fragmented care during pregnancy presented late were those who experienced more complications[21]. Marion suggested that early intervention saves lives and reduces morbidity, but ectopic pregnancy still accounts for 4 to 10% of pregnancy-related deaths[20].

Six patients presented early within 24 hours of symptomology had unruptured ectopic pregnancy. Their diagnosis was made by theserial beta-HCG and transvaginal ultrasonography. They were kept under observation and three patients (4.8%) underwent laparoscopy and three (5%) patients received medical treatment with methotrexate after confirmation of ectopic pregnancy. All three patients received single dose of methotrexate and they were followed till their beta HCG became negative. Merisio recommended single dose methotrexate for the treatment of ectopic pregnancy[17]. Anni Marie reported the success of 88% in single dose methotrexate versus93% in multiple dose of methotrexate[22].

There were few limitations in our study. This was hospital based study not a community based. Nishtar Hospital is the only tertiary care center in South Punjab draining large area of province. So there were limitations like delay in referral to tertiary care center, lack of Infrastructure and transport, lack of awareness along with low literacy rate which all contributed in the delayed presentation and compromised status of patients with ectopic pregnancy. According to Mooij, making the right diagnosis is more difficult, and delay in diagnosis can occur before and after consulting a doctor even[19].

The objective of our study was to increase the clinical knowledge and degree of suspicion of the physician to diagnose the ectopic pregnancy as early as possible. This will avoid the unnecessary delay in presentation and diagnosis which is very important to avoid maternal morbidity and mortality in patients with ectopic pregnancy. As ectopic pregnancy has many long term complications like recurrent ectopic pregnancy and

infertility, we were unable to do long term follow up, but it is very important to educate the females and families at discharge from hospital about early booking and ultrasound in next pregnancies. Moreover, this could enable an early and accurate diagnosis prior to the rupture, resulting in a reduction in the need for surgery and some complications.

CONCLUSION

We can reduce morbidity and mortality by avoiding delay in diagnosis by good clinical experience and investigations like urine pregnancy test and transvaginal ultrasonography. We observed that delay in presentation ended in laparotomy with salpingectomy as a main treatment option which is not superior to laparoscopy.

Author's Contribution:

Concept & Design of Study:	Saima Yasmin Qadir
Drafting:	Hajra Sultana, Kiran Sultana
Data Analysis:	Zahid Sarfraz, Shazia Siddiq, Sajjad Masood
Revisiting Critically:	Saima Yasmin Qadir, Hajra Sultana
Final Approval of version:	Saima Yasmin Qadir

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Original Article

Haematological Profile and Seroprevalence of Hepatitis B & C in Patients Referred For Bone Marrow Examination

Jamila Farid, Muhammad Idris and Nasreen Gul

ABSTRACT

Objective: To find out the seroprevalence of hepatitis B and C in patients referred for bone marrow and to study the hematological profile of these patients.

Study Design: Descriptive / cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Pathology, Ayub Medical College Abbottabad from January 2017 to December 2018.

Materials and Methods: 1000 consecutive patients recruited by non-random convenience sampling, initially screened by Immunochromatographic Technique (ICT), after history and examination. Patients positive for HBV or HCV, were tested further by Enzyme Linked Immunosorbant Assay (ELISA) for confirmation. ICT positive but ELISA negative patients were advised PCR for confirmation. The confirmed HBV or HCV positive patients were considered for seroprevalence of HBV and HCV. Complete blood counts were done on haematology analyzer, giemsa stained blood film used for microscopic examination of blood & bone marrow. Marrow iron was estimated by pearl stained slides. Data analyzed by SPSS 18.

Results: Expressed in tables (1-5), 35 were positive for HBV or HCV, comprising 14 male and 16 females with equal prevalence of HBV in males and females, while hepatitis C more prevalent in females with male: female of 0.78:1, 33.33% patients with hepatitis B and 40% with hepatitis C were >20 years. Anaemia was the commonest (40%) haematological abnormality, followed by thrombocytopenia (23.34%), leucopenia (13.33%), pancytopenia(13.33%) and bicytopenia (10%) respectively. Bone marrow examination revealed increased number of megakaryocytes in 10.8%, lymphocytes in7.7 % and absent marrow iron in 15.7% patients.

Conclusion: As much as 3% patients having HBV or HCV had haematological abnormality.

Key Words: Hepatitis B, Hepatitis C, Chronic Liver Disease, Hepatocellular carcinoma,

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INTRODUCTION

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are DNA and RNA viruses respectively, causing liver infection[1, 2].They are transmitted mainly by parenteral route, though transmission does occur through sexual and vertical mode also. Prevalence of these infections varies from country to country. According to an estimate nearly 240 million people have hepatitis B and 108 million hepatitis C infection [3,4]. Hepatitis B and C are considered the leading causes of chronic liver disease and its complications [5]. (In Pakistan, some of the recent studies have shown that hepatitis C is more prevalent than hepatitis in our country)[6-8].

Department of Pathology, Ayub Medical College, Abbottabad.

Correspondence: Jamila Farid, Associate Professor of Pathology Ayub Medical College, Abbottabad.
Contact No: 0333-5034269
Email: jamilafarid62@yahoo.com

The treatment of these infections, although available, is expensive and not effective in all case. Prevention is the only inexpensive strategy to control the infection to reduce the mortality, morbidity and economic problems associated with them. Studies conducted in Pakistan and many other countries on patients undergoing invasive procedures have revealed variable prevalence of HBV and HCV infection. A thorough literature research did not reveal any notable study conducted on patients undergoing bone marrow aspiration. The presence study was planed with a view to see the status of hepatitis B and C in patients undergoing bone marrow aspiration, a useful diagnostic procedure for haematological and non- haematological diseases.

MATERIALS AND METHODS

Patients were enrolled in the study by non random convenience sampling technique, after taking an informed written consent. The study was approved by the institutional ethical review committee. All the consecutive patients referred to the department of pathology Ayub Medical College between January 2017 and December 2018 was included in the study. For HBV and HCV, the initial screening was done by

Immunochromatographic Technique (ICT), after history and physical examination. Those patients, who were found HBV or HCV positive by this method, were advised further testing by Enzyme linked immunosorbant assay (ELISA) which was used as a confirmatory test. Those patients who were positive by ICT but negative by ELISA were advised PCR for HBV and HCV for confirmation. All those patients who were HBV or HCV positive by confirmatory tests were considered for computing the seroprevalence of HBV and HCV. Their complete blood counts were done on automated haematology analyzer (sysmax KX21). Giemsa stained (Merck) blood film prepared from 3 ml anticoagulated venous blood sample was used for microscopic examination of peripheral blood. The bone marrow was aspirated with the help of a 16 gauge sterilized disposable needle. In children less than 18 months of age the sample was taken from tibia, in older patients the sample was taken from posterior iliac spine under local anaesthesia (2% lignocain by Barrett Hodgson).Bone marrow was examined for morphology by using giemsa stained slides. Marrow iron was estimated by using pearl stained slides. Myelogram was done on bone marrow slides by an experienced haematologist. Data obtained from the viral study, blood and bone marrow examination were entered in a Performa specially designed for this purpose. The data was processed using SPSS 18 for windows. The results were expressed in tables. Informed written consent was taken from every patient at the time of enrolment in the study. The study was approved by the institutional ethical review committee.

RESULTS

Results of our study are shown in tables 1 to 5. A total of 30 patients were positive for hepatitis B or hepatitis C, comprising 14 male and 16 females. Hepatitis B had equal prevalence in males and females, male to female ratio being 1:1. On the other hand, hepatitis C was more prevalent in females (male to female ratio 0.78:1). Table 1. As much as 10/30(33.33%) patients with hepatitis B and 12/30 (40%) with hepatitis C were in the age group more than 20 years (table.2). Anaemia was the commonest (40%) haematological abnormality seen both in male and female patients with hepatitis B or Hepatitis C, followed by thrombocytopenia (23.34 %), leucopenia (13.33%), pancytopenia(13.33%) and bicytopenia (10%) respectively (table 3).Bone marrow examination revealed increased number of megakaryocytes in 10.8%, lymphocytes in7.7 % and absent marrow iron in 15.7% patients with hepatitis B or hepatitis C (table 4) History of exposure to risk factors (blood transfusion, surgical procedure, tattooing, ear and nose piercing) etc was positive in 2 patients (6.7%) with hepatitis C.

Table No.1: Frequency of Hepatitis B and Hepatitis C (n=1000)

Gender	Hepatitis-B		Hepatitis-C	
	No	%	No	%
Male	07	0.7	07	0.7
Female	07	0.7	09	0.9
M:F	1:1		0.78:1	

Table No. 2 Age wise distribution of HBV & HCV positive patients

Age Group	Hepatitis-B		Hepatitis-C	
	No	%	No	%
<20 Years	01	3.33	02	6.66
20-40 Years	02	6.66	03	10.00
40-60 Years	08	26.66	09	24.73
>60 Years	03	10.00	02	6.66
Total	14	46.65	16	48.05

Table No.3 Frequencies of haematological abnormalities in HBV and HCV positive patients

Parameter	Male		Female		Total
	HBV %	HCV %	HBV %	HCV %	No %
Anaemia	03 10	02 06.66	04 13.33	03 10	12 40.00
Thrombo-cytopenia	02 6	02 06.66	02 06.66	01 03.33	07 23.34
Leucopenia	02 6	01 03.33	00.00	01 03.33	04 13.33
Pancytopenia	00 00	01 03.33	01 33.33	02 06.66	04 13.33
Bicytopenia	00 00	01 03.33	00.00	02 06.66	03 10.00
Total	07	07	07	09	30

Table No.4 Bone marrow picture of HBV & HCV positive patients

Parameter	Number of patients		
	Increased	Decreased	Normal
Cellularity	00	00	30
Erythropoiesis	00	00	30
Myelopoiesis)	00	00	30
M:E ratio	00	00	30
Megakaryocyte	07 (10.8 %)	00	23
Lymphocytes	05(7.7%)	00	25
Plasma cells	00	00	30
Abnormal cells	00	00	00
Stainable Iron	00	10 (15.4 %)	20

Table No.5: Haematological Profile of HBV & HCV positive patients

Parameter	Male				Female			
	HBV		HCV		HBV		HCV	
Hemoglobin(g/dl)	13 -16.5	12	13 -16.5	15	12 -14.5	02	12 -14.5	04
	< 13	03	< 13	02	< 12	04	< 12	03
WBC (x10³/µl)	4 -11	18	4 -11	16	4 -11	09	4 -11	08
	< 4	02	< 4	01	< 4	00	< 4	01
Platlets (x10³/µl)	150 -450	15	150 -450	15	150 -450	06	150 -450	07
	< 150	02	< 150	02	< 150	02	< 150	01
MCV (fl)	>97	01	>97	02	>97	03	≥150 ‹450	02
	< 75	19	<75	18	<75	07	<75	08
MCH(pg)	27-32	02	27-32	03	27-32	00	27-32	00
	<27	18	<27	17	<27	10	<27	10

DISCUSSION

The focus of our study was haematological profile as well as the status of hepatitis B and C in patients who were advised bone marrow examination. Many studies have been conducted on screening of patients before doing any invasive procedure and have revealed variable results. In a study conducted in Sind on patients undergoing surgery, hepatitis B was seen in 3.6% and hepatitis C in 12.8 % patient's .In another study, hepatitis B was seen in 2.3% males and 1.3 % females while hepatitis C in 7.4% males and 5.3% females[9]. In a study conducted on patients undergoing percutaneous mitral valvuloplasty, hepatitis B and C was seen in 14% and 8% patients respectively[10]. In a hospital based study conducted on more than 2000 patients, pre-surgical screening by immunochromatographic technique revealed that 10.8% &5.7% patients were positive for hepatitis B and C respectively [11]. A study conducted on 1500 patients waiting for elective gyenaecological surgery were screened by third generation ELISA technique at AFIP Rawalpindi revealing hepatitis B & C in 1.33% & 10.39% patients respectively [12]. In a study conducted at a tertiary care hospital in Abbottabad, as much as 4.1% patients had hepatitis B or hepatitis C infection[13]. In a similar study conducted on 387 patients in Islamabad, seroprevalence of hepatitis B and C was 65 and 11.3 respectively [14]. In another study conducted at Islamabad seroprevalence of hepatitis C abd B was 5.3% and 2.5% respectively[15].A similar study from Punjab revealed results opposite to this[16].

In the present study, the frequency of hepatitis B and hepatitis C was 0.9% and 0.7 % respectively, much less than the figures previously reported for the other invasive procedures. A fall in prevalence rate of hepatitis B and C has been observed in the recent years; probably due to the increasing disease awareness as well as vaccination and prevention campaigns against hepatitis B and C. Haematological parameters observed in the present study are worth mentioning. It is evident from the results that most of the symptomatic patients had anaemia followed by thrombocytopenia,

pancytopenia and bicytopenia in the decreasing order of frequency. The patients had not been previously tested for hepatitis B or C and hence never received any sort of treatment for the same. It is more likely that the cytopenia seen in the study was mainly due to peripheral destruction rather than bone marrow suppression by the viral factors, or any antiviral treatment. Increased number of megakaryocytes in marrow might have also been due to peripheral destruction of platelets due to viral factors. Increased number of lymphocytes in bone marrow seen in 7.7% patients might have also been due to the same reason but not proven as it was beyond the scope of study. Seroprevalence of hepatitis B and hepatitis C varies from region to region. Some researchers have reported very high incidence of hepatitis C in patients referred for bone marrow. These patients had thrombocytopenia in 85% patients[17]. Our findings are not in accordance with this study.

In Pakistan, studies on haematological parameters of patients receiving interferon therapy, as well as haematological malignancies in patients with hepatitis C have been conducted[18-19]. But our literature is silent on haematological profile of untreated patients with hepatitis B and C, which has been the focus of present study. Whatever reason may be, it is evident from the results of all the studies that any patient undergoing invasive procedure, (weather minor or major) must be screened for hepatitis B and C by default. Our study has revealed that patients presenting with cytopenia must be screened for hepatitis B and C before referring for bone marrow examination. This will not only prevent the spread of hepatitis, but will also provide an opportunity for its timely treatment. Our study in this regard is a unique one, as no other study has been conducted previously on this aspect of disease prevention, particularly in patients undergoing bone marrow examination in our country.

CONCLUSION

Hepatitis B and C infection is one of the causes of cytopenia, screening for HBV and HCV is mandatory

before doing further workup of any patient with cytopenia**.**

Recommendations: We recommend that any patient with cytopenia should be screened for hepatitis B and C before proceeding further. We also support the recommendations of adopting a broad based, solid, persistent policy and effective disease prevention strategy covering multiple aspects of spread and treatment of hepatitis and legislative measures in this regard are the need of the day, if we want to solve this important health problem on permanent basis[20].

Author's Contribution:

Concept & Design of Study:	Jamila Farid
Drafting:	Muhammad Idris
Data Analysis:	Nasreen Gul
Revisiting Critically:	Jamila Farid, Muhammad Idris
Final Approval of version:	Jamila Farid

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The manuscript should be typed in double spacing. Begin each section or component on a new page. Review the sequence: Title Page, Abstract, Key Words, Text, Acknowledgement, References, Tables (each on separate page). Illustrations, Uncounted prints, should not be larger than 8 x 10 inches.

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Original Article should be of 2000 Words and not more than 3000 Words, not more than 6 Tables or Figures and at least 20 References but not more than 40.

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Review Article should be of 3000 Words with at least 40 References but not more than 60.

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It should be 600 Words with one Table or Figure and 5 References.

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It should be Accurate, Effective and Represent the main message of Article.

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In Original Article, It should consist of the following subheadings: Objective, Design, Place & Duration, Materials & Methods, Results, Discussion, Conclusion & Key Words. In Original Article, the abstract should not more than 250 Words.

Review Article, Case Report and other require a short unstructured abstract. Short Communications & Commentaries do not require abstract.

INTRODUCTION

The start of the introduction should be Relevant. Reasons and Importance of the study should be clear. In the subject of the paper Significant findings may be elaborated. Previous 10 years National & International literature may be reviewed and recorded in the introduction. State the purpose of the Article and summarize the rationale for the study or observation. Give only strictly pertinent References and do not include data or conclusions from the work being reported.

MATERIALS & METHODS

The Population taken for the study should be uniform and Sample selection criteria should be reliable. Inclusion & Exclusion criteria should be clearly specified. Control within the study or literature may be given. Important variable measurement criteria should be mentioned. Investigation, Procedure & Technique should be clearly described.

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Present yours results in a logical sequence in the Text, Tables, Illustrations. Do not repeat in the text all the data in the tables or illustrations. Emphasize or Summarize only important observations. Do not duplicate data in Graphs & Tables.

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Emphasize the new and important aspects of the study and conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or Results Section. Include in the Discussion Section the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies.

CONCLUSION

In this link write the goals of the study but avoid unqualified statements and conclusions not completely supported by data.

RECOMMENDATIONS

 When appropriate, may be included.

ACKNOWLEDGMENTS

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

REFERENCES

It should be in the **Vancouver style**. References should be numbered in the order in which they are cited in the text. At the end of the article, the full list of references should give the names and initials of all the authors. **(if the authors are more than 6, then et al should be followed after the 6th name).** The author (s) names are followed by the title of the article; title of the journal abbreviated according to the style of the Index Medicus (see "List of Journals Indexed." Printed yearly in the January issue of Index Medicus); year volume and page number; e.g: Hall RR. The healing of tissues by C02 laser. Br J Surg: 1971;58:222-5. (Vancover Style).

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ADDRESS FOR SUBMISSION OF ARTICLES:

66-R, Phase-VIII, Defence Housing Authority, Lahore.
Mob. 0331-6361436, 0300-4879016, 0345-4221303, 0345-4221323
E-mail. med_forum@hotmail.com,
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