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Editorial

Eradicating Polio - Our National Duty

MohsinMasud Jan
Editor

Polio currently remains endemic in only three countries - Afghanistan, Nigeria and Pakistan.

The Polio virus has struck again with vengeance, as confirmed by the sources at The National Institute of Health, Pakistan. The national polio count so far this year has risen to 291 cases.

The visibly rattled Pakistani authorities should take a little heart from the fact that in 1952, over 58,000 Americans-including former US President Franklin D. Roosevelt and the country's Supreme Court Justice William Douglas - were suffering from this disease, research reveals.

Of the nearly 58,000 cases of this epidemic reported in the United States of America in 1952, 3,145 people infected with the disease died and 21,269 were left with mild to disabling paralysis. This was the time when the peak age of incidence of Polio in the United States shifted from infants to children aged five to nine years, when the risk of paralysis is greater; and about one-third of the cases were reported in Americans over the age of 15 years.

These three nations should also bear in mind that in 1916, not less than 27,363 Polio cases were reported in 20 American states.

New York alone had 9,023 cases, of which 2,448 (28 per cent) resulted in death, and a larger number in paralysis.

This number rested at 37,476 in 1954. In 1977, there were 254,000 people living in the United States who had been paralysed by polio.

Moreover, some 40,000 polio survivors with varying degrees of paralysis still live in Germany, 30,000 in Japan, 24,000 in France, 16,000 in Australia, 12,000 in Canada and 12,000 in the United Kingdom.

Polio epidemics began to appear in Europe and the United States around 1900, spreading all over Europe, North America, Australia, and New Zealand during the first half of the 20th century.

In 1960, Czechoslovakia became the first country in the world to scientifically demonstrate nationwide eradication of polio.

According to WHO, Europe was declared polio-free only on June 21, 2002!

It was on March 24, 2014 that the WHO announced the eradication of Poliomyelitis in 11 countries of the South-East Asia region.These countries included Bangladesh, Bhutan, India, Indonesia, Nepal, Myanmar, Maldives, North Korea, Sri Lanka, Thailand and Timor-Leste.

The last case of wild Polio in the South-East Asia Region was reported in India on 13 January 2011.

The Global Polio Eradication Initiative, financed by a wide range of public and private donors, has estimated that the financial requirements for the eradication of Polio from the world would be approximately US$ 5.5 billion for the 2013-18.

Polio was first recognized by a German OrthopaedistJakob Heine (1800-1879), who had authored the first medical report on the disease. Austrian biologist Karl Landsteiner (1868-1943) first discovered the Polio Virus in 1909, making him eligible for the 1930 Nobel Prize in Physiology.Jonas Edward Salk (1914-1995) developed the first successful inactivated Polio vaccine in the 1950s.

On July 2, 1952, assisted by the staff at New York's D.T. Watson Home for Crippled Children, Jonas Salk had injected 43 children with his killed-virus vaccine.

The Jonas Salk vaccine was first introduced in 1957 and an immediate vaccination rush commenced with this medicine in countries including Canada, Sweden, Denmark, Norway, West Germany, Netherlands, Switzerland and Belgium etc.

By 1962, Polio had become almost extinct in United States.

All of that being history, it should be used as inspiration by the administrators of our country. As the Chief Secretary, Punjab has stated, ZERO tolerance will be shown against all districts' administration of the province if they fail in achieving targets pertaining to the polio eradication, primary healthcare. Strict action would be taken if targets were not.

About the polio eradication campaign, DCOs were directed that movement of IDPs from FATA should be monitored, especially in Lahore and Rawalpindi divisions, to check the transfer of polio virus. Besides this, he directed DCOs to ensure persistent positive environmental samples which reflect the increase in internal virus circulation. The DCOs were also directed to ensure monitoring of permanent tehsil posts (PTP) at provincial borders as well as monitoring of vaccinators through Android phones.

The eradication of Polio is not an impossible task.

Border area at provincial, divisional, district and tehsil levels should be completely monitored during polio campaigns and measures should be adopted to safeguard the same.

We still have an opportunity to reverse this trend of crippling our future generation and join the rest of the world on the finish line on eradication. Let us make eradicating polio our national duty.

Original Article

Changes after using Contraceptives

Assessment of Circulating Biochemical, Heamatological and Oxidative Stress Markers in Females Using Contraceptives from Punjab, Pakistan

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ABSTRACT

Objective: To Assess the circulating Biochemical, Heamatological and Oxidative Stress Markers in Females using Contraceptives from Punjab, Pakistan.

Study Design: Case Control Study

Place and Duration of Study: This study was carried out at the Gynae Units of Jinnah Hospital Lahore from January, 2011 to December 2011.

Materials and Methods: Two injectable contraceptives (Depo-Medroxyprogesterone & NorethisteroneEnantate) and Oral contraceptive pills (COCs) were administered in females of reproductive age, the oxidative and nitrosative stress biomarkers (Malondialdehyde, Superoxide Dismutase, Catalase, Nitric oxide and Glutathione) were analyzed in these subjects.

Results: DMPA, NET-EN & COCs treatment could induce oxidative stress with a significant change in lipid profile and other biochemical markers thus affecting the normal biological system. These effects after prolonged use can generate pathological events leading to disease pattern.

Conclusion: These biomarkers can become diagnostic tools to evaluate the health of a woman using these methods as preventive measure in future

Key Words: Contraceptives, Estrogen, Progestin, Stress Biomarkers, Catalase, Glutathione, MDA, SOD

INTRODUCTION

Hormonal contraceptive methods for prevention of unplanned pregnancy have been very popular among females since the beginning of modern era. In developing countries like Pakistan, governments and organizations are running campaigns to increase the use of these methods in order to space pregnancies [1](Emokpaeet al., 2010). These hormonal preparations can be taken orally (taken by mouth), injected beneath the skin, implanted in the body tissues, absorbed from a patch on the skin, or placed inside the vagina.Oral contraceptive pills are mainly of two types, the combined pills and the progestin only pills. Combined pill is a combination of synthetic estrogens and progestin. Mestranol, a synthetic estrogen is the inactive form which is converted to ethinyl estradiol (E2) to cause the action in the body.Effect of injectable contraceptive lasts for two or three months after a single dose.Even most effective and well tolerated contraception is not 100% effective; chances of pregnancy are still 3%.DMPA acts by inhibition of pituitary gonadotropin secretions which results in loss of ovulation, amenorrhea and decline in estrogen production leading to prevention of pregnancy [2](Mia et al, 2005).Level of steroids measured in the blood reflects the difference in formulations of these injectable preparations. Blood levels of NET-EN increase rapidly attaining peak levels within 5 days. In contrast to this, DMPA gains peak levels in ten days [3](Draper et al., 2007).

Ovary is the major synthesizer of estrogen using cholesterol as raw material under the influence of pituitary hormonal secretion. They are also produced by the aromatization of androgens in fat cells, skin, bone, and other tissues. There is production of "good estrogens" and their function is to act as antioxidants exerting their effect as eliminators of damaged or cancerous cells all over the body. "Bad estrogen" is the result of inefficient estrogen metabolism.They act negatively to cause oxidation, damage to DNA, and play a role in promotion of cancer. Body produces many antioxidants which are helpful in detoxifying cancer-causing estrogens, example is glutathione. For excretion of many toxins glutathione levels are important [4](Dalessandri et al., 2004).Endogenous estrogens and exogenous other hormones can act as potential modulators in oxidative stress in otherwise healthy female, it is necessary to clarify their roles in oxidative stress.

The main action of progesterone is to strengthen as well as check the actions of estrogen. Estrogen gives the

message while progesterone controls and modifies that message. Progestins are synthetic progesterone. Chemically similar to progesterone but their action is different.Their contraceptive action is brought about by decreasing gonadotropin releasing hormone [5](Lobo and Stanczyk, 1994)causing thick cervical mucus and renders the endometrium unresponsive to implantation [6](Loose-Mitchell and Stancel, 2001). Progestin only contraceptives are the method of choice in women during lactation and the females in which estrogen is contraindicated [7](Affandi, 1998).

Oxidative stress is referred to imbalance between antioxidants and reactive oxygen species. Reactive oxygen species are highly reactive and unstable due to impaired electrons in their outer shell. In physiological concentrations they are beneficial while their excess can lead to damage to structures of cell. Free radicals are neutralized by antioxidants [8](Palmieri and Sblendorio, 2007). These antioxidants are of two types: enzymatic and non-enzymatic. Enzymatic antioxidants are produced in the body and are proteins i.e. enzymes. Non-enzymatic antioxidants are supplied to the body by dietary intake as vitamins and minerals [9](Agarwal et al., 2005). Free radicals are continuously produced in low concentrations and perform certain important tasks such as regulation of apoptosis, modulation of gene expression related to immune response as well as activating transcriptional factors [10](Pincemail et al., 2007).Estrogens have antioxidant property and this property is exhibited even at low plasma concentrations in vascular systems and lipid metabolism (Palmieri and Sblendorio, 2007).Evidence suggests that as oxidative stress increases, it leads to endothelial dysfunction and ultimately atherosclerosis [11](Cai and Harrison, 2000). During oral contraceptive use, Ethinyl Estradiol and progestin levels in plasma increase leading to oxidative stress. Several studies conducted to demonstrate the effect of oral contraceptives on erythrocytes for evaluation of antioxidant markers such as glutathione peroxidase (GSH-PX), catalase and superoxide dismutase activities [12](Massafra et al., 1993;[13]Subakir et al., 2000) which showed increase in activity of two of these markers (Massafra et al., 1993; Pincemail et al., 2007). The objective of this study was to assess the circulating biochemical markers, antioxidative capacity and lipid peroxidation in premenopausal women due to hormonal contraceptive therapy.

MATERIALS AND METHODS

Study Design: It was a case control study.

Target Population: Healthy women aged 25-40 years in the periphery of city of district Kasur.

Study settings: This study was carried out on women who were attending Jinnah Hospital Lahore and Basic Health Units (BHU) in Kasur.

Sample size and Specifications: 51 women were chosen for this study. 32 of them were using hormonal contraceptives preparations. 19 healthy women of the same age group were taken as control that had not used any method for the last 9 months. Among these 32 subjects, 22 of them were using injectable. Two different preparations of hormonal injectable were used. 17 of them were usinginjection Depo-medroxy-progesterone Acetate (DMPA) while remaining 5 were on injection Norethisterone Enantate (NET-EN).10 subjects had been using Combined Oral Contraceptives pills for the last 9 cycles.

Sampling: 5ml of blood was collected as a sample for study from each woman. Out of that 3ml was separated in a tube without anticoagulant. This portion was preceded by centrifugation at 3000 rpm for 20 minutes to obtain serum samples. These serum samples were stored at 2-5°C for hematological parameter analysis. The remaining 2ml was added to Ethyline Diamine Tatric Acid coated tube for performing Complete Blood Count.

Inclusion Criteria: Subjects selected were of the average age of 30 years. The range of their age was 21-41 years. They had been using these hormonal contraceptive methods for at least 15 months. As for control group they were not using any of these methods for the last 10-12 months. The mean weight and height were 55kg (range) and1.66m (1.6-1.75). Blood pressure range was less than 140/100 and more than 90/60 mm Hg.

Exclusion Criteria: All those women were excluded who had had hypertension, thyroid disease, breast feeding, obesity, diabetes, vascular disease, epilepsy, any pelvic pathology, myomas and polyps. Subjects were fully explained about study and their written consent was taken.

Following parameters were estimated: I-Stress biomarkers estimatedincluding malondialdehyde (MDA) [14](Ohkawa et al., 1979), superoxide dismutase (SOD)[15](Kakkar et al., 1984), catalase [16](Aebi, 1974), reduced glutathione (GSH) [17](Moron et al., 1979) and Nitric oxide (NO) [18](Moshage et al., 1995).

II- Haematological parameters were analyzed by Hemolytic Seismic Analyzer.

RESULTS

The level of bio-markers in oxidative stress is different when compared to each other in different formulations of hormonal contraceptives during 1st year use.

Malondialdehyde (MDA) levels are important markers of lipid per-oxidation product. Our study has shown MDA levels to be increased in all subjects of hormonal contraceptive users significantly. Highest increase was noted in the group using Injection 1, the mean was 6.840nmol/mLwhen compared with control group which was 1.345 nmol/mL. Group using Pills showed mean 4.604µmol/ml, while those using Injection 2 mean 3.692 nmol/mL. Injectable 1 group has shown 508% increase, Pills group 342% and least increase was

noted as 274% in injectable 2 group. Therefore, the result coincides with the statement that lipid peroxidation product MDA shows significant increase during first year of administration of hormonal contraceptives [19](Faddah et al., 2005).

Superoxide Dismutase (SOD) level of control group, non-users of hormonal contraceptives, was 0.473ng/mLand in injectable 1 group 0.118ng/mL. While the comparative mean levels of Pills group was 0.198µ mol/ml and injectable 2 group was 0.276µ mol/ml. The noted levels indicate that there is an overall decrease in SOD in HC user groups in comparison with control group. The result is in accordance with the statement that long term use of DMPA causes oxidative stress [20](Bakry et al., 2011).

Table No.1: Oxidative profile of women receiving contraceptives

		MDA	SOD	GSH	CAT	NO
Groups	**n**	nmol/mL	ng/mL	µg/dL	µmol/mol of protein	µmol/L
Control	19	1.34 ± 0.31	0.47 ± 0.17	9.82 ± 1.16	4.15 ± 0.82	11.20 ± 1.35
Injection-1	17	6.84 ± 1.49	0.11 ± 0.09	2.52 ± 0.81	1.39 ± 0.55	24.10 ± 2.54
Pills	10	4.60 ± 2.15	0.19 ± 0.11	1.81 ± 0.71	0.75 ± 0.58	17.19 ± 3.86
Injection-2	5	3.69 ± 0.60	0.27 ± 0.07	2.00 ± 0.49	0.93 ± 0.20	18.11 ± 1.81
P-Value		0.005	0.005	0.005	0.005	0.005

MDA: malondialdehyde; SOD: superoxide dismutase; GSH: reduced glutathione; CAT: catalase; NO: nitric oxide; Injection-1:DMPA; Injection-2: NET-EN P Value < 0.005 Significant

Table-2: Haematological profile of women receiving contraceptives

Groups	N	RBC	WBC	MCH	MCHC	PLT	BMI	Hb
Control	19	4.44 ± 0.37	8.17 ± 1.68	25.06 ± 2.22	31.97 ± 1.25	2.79 ± 67.4	21.68 ± 1.9	14.1 + 1.00
Injection-1	17	4.58 ± 0.44	8.42 ± 1.51	24.68 ± 1.74	30.12 ± 3.55	2.93 ± 44.1	21.8 ± 3.11	9.2 ± 0.81
Pills	10	4.52 ± 0.31	7.86 ± 1.70	25.13 ± 1.53	31.20 ± 2.40	2.96 ± 49.6	21.3 ± 3.36	10.8 ± 1.33
Injection-2	5	4.59 + 0.63	7.62 ± 1.50	24.74 ± 0.98	32.44 ± 1.12	2.88 ± 37.4	20.74 ± 1.08	12.4 ± 0.92
P-Value		0.759	0.719	0.905	0.113	0.850	0.571	0.000

RBC: red blood cells; WBC: white blood cells; MCH: mean corpuscle haemoglobin; MCHC: mean corpuscle haemoglobin concentration; PLT: platelets; BMI: body mass index; Hb: haemoglobin

The mean levels of reduced glutathione (GSH) of control group were 9.825µg/dL. Comparative study of HC users showed significant decreased levels during first year of use. Mean level of injectable 1 group is 2.52µg/dLwhich is 25% decrease from control group levels. Second group-Pill shows mean 1.81µ mol/ml which is 18% decrease when compared to control group. Third group-Injectable 2 has revealed mean 2.00µg/dLwhich is 20% less in comparison with non HC user control group. This decrease was statistically significant when compared to control group. Reduced glutathione, an important antioxidant shows a decrease during 1st year use is in relevance to the work of Faddah et al., 2005.

Catalase antioxidant enzyme activity has also shown significant decrease in comparison with control group. The control group revealed mean 4.152µmol/mol of proteinwhile Injectable 1 group has mean 1.397 µmol/mol of protein. Pills group has shown .07500µmol/mol of proteinand Injectable 2 group was mean 0.932µmol/mol of protein. This overall decrease is 33%, 18% and 22% respectively when compared to control non HC user group. These observations were also agreeable with the statement of Faddah et al.,2005.

Nitric Oxide (NO) levels have revealed significant increase in HC users as compared to HC non-users control group. Control group has mean 11.22 µmol/Land injectable 1 group has mean 24.14µmol/Lwhich is 215% more than control group. Pills group has mean 17.19µmol/Lwhile Injectable 2 group has mean 18.11µmol/L. These results show significant overall increase during first year use which is in contrast to the previous data stating there is no change in NO level (Faddah et al., 2005).

Study of hematological parameters like RBC, WBC, MCH, MCHC, PLT and BMI have shown no change in all HC users.WBC and BMI results are not in agreement with Pantoja et al., 2010, who stated a significant increase in both WBC and BMI levels with DMPA use during 1st year of administration.

Haemoglobin levels have shown significant decrease in all the HC users. Control group showed the normal value to be 14 gm/dl in comparison with injectable 1 group which showed maximum decreased level of 9.2 gm/dl among the 3 HC-user groups. Other 2 groups

had the values of 10 gm/dl in Pills group and 12 gm/dl in Injectable 2 group.

DISCUSSION

Hormonal Contraceptives whether progesterone only injections or in combination as Pills has gained popularity all over the world. Whether these are long term reversible DMPA and NET-EN injections or combined oral contraceptive pills, their efficacy has been under observation year after year. The purpose of our study was to explore the effects of different hormonal contraceptives on some biochemical markers related to oxidative stress among users.

Our study confirmed certain oxidative stress markers to be raised and others to be decreased as compared to normal control group. Some haematological parameters were also checked and most of them were found unchanged. Previous studies data has been considered and is the basis of this study.

Oxygen metabolism generates molecules which are highly reactive, unstable as well as short lived. These are known as free radicals. Free Radicals, if not balanced with anti-oxidants, lead to cell injury and ultimately cell death. To prevent this damage, nature has provided balance between production and elimination of these free radicals endogenous defence system which, if failed, promotes oxidative stress. Although when existing in low concentrations, these free radical reactions are beneficial to the body.

Measurement of ROS as well as antioxidants in cells/tissues or body fluids can lead us to information about the health of the subject. Stable metabolites are formed as a result of these molecular reactions which are directly or indirectly measured. The quantitative measurements of oxidative damaging end products are a proof of ROS existence in the cell.

Natural and synthetic oestrogens both act as antioxidants attributed to their phenolic group. Thus oestrogens along with their metabolites show pro-oxidants or antioxidants properties which are dependent upon how many metal ions are available or what is the dose or formulation in which they are used. Decrease in antioxidant defences have been reported by oral contraceptive use (Palmieri and Sblendorio, 2007). Increased plasma lipid peroxidation levels are one of the reasons of oxidative stress. As reactive oxygen species are too reactive, and short lived, direct measurements are difficult in body fluids. For this reason their metabolic or end products are usually measured. In cell damage MDA levels are usually the most important clue to confirm the free radical involvement.

Elevation of lipid per-oxidation products (MDA level) during first year of administration of hormonal contraceptive, are in agreement with [21]Kose et al.,1993. It stated that use of DMPA shifted the plasma redox towards the oxidative side, with elevated lipid peroxidation and decrease in antioxidant levels.

Oxidative stress was indicated by the results which showed depletion of GSH, CAT, SOD levels. This is in accordance with Massafra et al., 1993.All the enzymes which catalyse the breakdown as well as destruction of free radical are decreased leading to imbalance and resultant oxidative stress.To clear intermediate toxic products of the cell GSH dependent enzymes like glutathione peroxides and glutathione transferase are important. As GSH is an important factor in the metabolism of free radicals as well as numerous intermediate metabolites. The depletion of GSH is an indicator of oxidative stress.

Along with elevated MDA, NO levels have also been increased. Vascular endothelial cells synthesize NO from L-arginine. It is a chemical messenger and act as a potent vasodilator. It also act as potent free radical scavenger [22](Choudhariet al., 2013).When the levels of NO increase pathologically it plays a different role. It becomes a free radical which is highly reactive and causes inflammation leading to injury of vascular cells (Choudhariet al., 2013). So our results show increase in NO levels which is indicative of oxidative stress.

There was no effect on blood parameters, except haemoglobin levels which were significantly decreased. This result was in contrast to the observations of Anonymous 1998, which showed no change in haemoglobin levels in OC users. This can be correlated with the fact that different concentrations of OC have different effects on blood parameters. It also depends on the regularity and occasional use.

CONCLUSION

These biomarkers can become diagnostic tools to evaluate the health of a woman using these methods as preventive measure in future

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Original Article

Finger Prints Relation Blood Groups

A Study of Finger Prints Pattern in Relation to ABO, RH Blood Groups among Medical Students of AJK Medical College, Muzaffarabad (AJK)

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ABSTRACT

Objective: To find out the relation of pattern of finger prints with blood groups among medical students.
Study Design: Cross sectional study.
Place and Duration of Study: This study was conducted at Azad Jammu Kashmir Medical College Muzaffarabad (AJK) in the department of Forensic Medicine & Toxicology from Feb, 2013 to March, 2013.
Materials and Method: A total of 200 medical students of 1st year and 2nd year MBBS of AJK Medical College Muzaffarabad with known blood groups were included in the study. Finger prints were taken by stamp pad method.
Results: Loops are the most common while arches are the least common occurring finger prints. Loops are predominant in blood group B and lowest in blood group AB and percentage of loops were highest in Rh-positive individuals and lowest in Rh- negative individuals.
Conclusion: There is an association between distribution of finger print pattern and blood groups.
Key words: Finger prints, Blood groups, Whorls, Loops, Arches.

INTRODUCTION

Identification means determination of individuality of a person. It may be complete (Absolute) or incomplete (partial).[1]

There are different parameters of identification both in living as well as in dead that defines the individual. Such as speech, Gait, Handwriting, iririscolors, finger prints, DNA profiling etc. Biometric technologies that is based on one's individual for human identification has gained a key role now a days. Fingerprints have been found on ancient Babylonian clay tablets, seals, and pottery.[2,3,4,5] They have also been found on the walls of Egyptian tombs and on Minoan, Greek, and Chinesepottery, as well as on bricks and tiles from ancient Babylon and Rome. Some of these fingerprints were deposited unintentionally by the potters and masons as a natural consequence of their work, and others were made in the process of adding decoration. However, on some pottery, fingerprints have been impressed so deeply into the clay that they were possibly intended to serve as an identifying mark by the maker. Fingerprints were used as signatures in ancient Babylon in the second millennium BCE. In order to protect against forgery, parties to a legal contract would impress their fingerprints into a clay tablet on which the contract had been written.

The skin of the balls of finger and thumbs is covered with charactertic ridges. The ridges pattern depends upon cornified layer of epidermis as well as dermal papillae. The characteristic pattern of ridges are differenced in their primitive forms during third & Fourth months of fetal life.[6]

Finger prints are constant and individualistic and forms the more reliable criteria for identification[7].Even the finger prints of twins are not similar .Finger prints are classified into three primary patterns.[8]

i. Loops. ii. Whorls. Iii. Arches.

Finger prints follow the Locard's principle of exchange. The secretions in the finger prints contain residues, various chemicals and their metabolites which can be detected and used for Forensic purpose. It they are found on scene of occurrence, then the suspects, can be easily identified. Human fingerprints are detailed, unique, difficult to alter, and durable over the life of an individual making them suitable as long-term markers of human identity and may be employed by police or other authorities to identify individuals who wish to conceal their identity, or to identify people who are incapacitated or deceased and thus unable to identify themselves, as in the aftermath of a natural disaster. Fingerprint analysis, in use since the early 20th century, has led to many crimes being solved.[9] This means that many criminals consider gloves essential.[10,11]

Deliberate impressions of fingerprints may be formed by ink or other substances transferred from the peaks of friction ridges on the skin to a relatively smooth surface such as a fingerprint card.[12]

Blood itself is an extremely important entity in the medico legal practice which alone or along with other trace evidences can play a clinching role to unfold different chemical problems. Blood groups system was discovered by Karl landsterer in 1901.[13] .There are

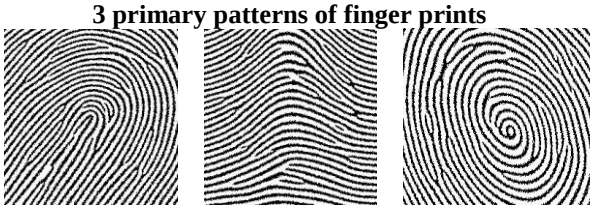
several quite distinct and unrelated types of differences between the bloods of different individuals. There are due to

(1) Red cell antigens responsible for ABO, MN, RH etc.
(2) Blood proteins such as haptoglobens, Ge, Gmetc.
(3) Polymorphic enzymes
(4) White cell antigens.

The red cell antigens are identified by simple objective tests of which ABO and Rh system are for major importance. The genetics of blood groups has proved that specific disease are common in particular blood groups eg duodenal ulcer in "O" and gastric ulcer in "A" blood groups.[14]

Regarding blood groups systems and finger prints extensive research work has been carried out but to co-relate between these two few studies has been carried out.

3 primary patterns of finger prints



Loop **arch** **whorl**

MATERIALS AND METHODS

This study was conducted in 2013 in the department of Forensic Medicine & Toxicology at AJK Medical College Muzaffarabad. Two hundred MBBS Medical students were taken out/Ofwhich 70 were males and 130 were females. All the students were healthy with known blood groups and their age ranges from 19 to 21 years. Consent was taken from study subjects.

Each subject was asked to wash the hands thoroughly with soap and after dry them was asked to press the fingers on the stamp pad and then to the paper sheet to transfer the finger print impression. The same method was repeated for all the finger of both hands. The paper sheet was coded with Name, Age, sex, blood group. Finger prints were analyzed with the help ofmagnifying lens and were identified as Lops, Whorls and Arches based on the appearance of ridge lines.

RESULTS

The study was conducted on 200 subjects out of which 130 were females and 70 were males.

Table No.1: Distribution of cases according to sex and blood groups.

Sex	Blood Groups				
	A%	B%	AB%	O%	Total %
Male	12 (6%)	25 (12.5%)	6 (3%)	27 (13.5%)	70 (35%)
Female	23 (11.5%)	52 (26%)	10 (5%)	45 (22.5%)	130 (65%)
Total	**35 (17.5%)**	**77 (38.5%)**	**16 (8%)**	**72 (36%)**	**200 (100%)**

Majority of the subjects 77 (38.5%) in the study belonged to blood group B followed by blood group O, A and AB which were72 (36%), 35 (17.5%) and 16 (8%) respectively.

Table No.2: Distribution of cases according to Rh factor of blood groups.

Blood Group	Rh- Positive	Rh- Negative
A	32 (16%)	2 (1%)
B	71 (35.5%)	1 (0.5%)
AB	16 (8%)	1 (0.5%)
O	72 (36%)	5 (2.5%)
Total	**191 (95.5%)**	**9 (4.5%)**

Maximum 191 (95.5%) subjects in the study were Rh positive out of which 72 (36%) belonged to blood group O, 71 (35.5%) belonged to blood group B, 32 (16%) belonged to blood group A and 16 (8%) belonged to AB. Among Rh negative individuals 5 (2.5%) belonged to blood group O, 2 (1%) belonged to blood group A and 1 (0.5%) belonged to blood group B and 1(0.5%) belonged to blood group AB.

Table No.3: General distribution of primary finger prints pattern in all fingers of both hands:→(n=2000).

Pattern	Number	Percentage
Loops	1525	76.25%
Whorls	320	16%
Arches	155	7.75%
Total	**2000**	**(100%)**
Pattern	**Number**	**Percentage**

Frequency of Loops (76.25%) is highest in all blood groups followed by Whorls (16%) and Arches (7.75%) in ABO blood groups.

Table No.4: Distribution of pattern of finger prints among subjects of A,B,AB,O and Rh blood groups:→(n=2000).

Type of finger prints	Blood Group "A"		Blood Group "B"		Blood Group "AB"		Blood Group "O"		Total
	Rh+ve	Rh-ve	Rh+ve	Rh-ve	Rh+ve	Rh-ve	Rh+ve	Rh-ve	
Whorl	69 (21.56%)	06 (30%)	22 (3.09%)	03 (30%)	54 (33.75%)	06 (60%)	145 (20.13%)	15 (30%)	320
Loops	230 (71.87%)	10 (50%)	635 (89.43%)	05 (50%)	97 (60.62%)	03 (30%)	515 (71.52%)	30 (60%)	1525
Arches	21 (6.56%)	04 (20%)	53 (7.46%)	02 (20%)	09 (5.62%)	01 (10%)	60 (8.33%)	05 (10%)	155
Total	**320**	**20**	**710**	**10**	**160**	**10**	**720**	**50**	**2000**

Frequency of Loops was highest in both the Rh positive and Rh negative subjects of ABO blood groups followed by Whorls and Arches except blood group AB where the frequency of Whorls in Rh-negative individuals were more.

Incidence of Loops varies between 30% (AB negative) to 60% (O-negative) blood groups. Blood group B showed highest Loops (89.43%) in Rh+ve while blood group O shows highest Loops (60%) in Rh-ve subjects.

Moderate frequency of Whorls ranging between 33.75% (AB positive) to 3.09% (B positive) and 60% (AB negative) to 30% (in A,B,O negative) Were observed.

Arches were lowest ranging between 8.33% (O positive) to 5.62% (AB positive) and 20% (A and B negatives) to 10% (AB & O negatives)

Table No.5: Distribution of various finger print patterns in A,B,AB and O blood groups.

Blood Group	Whorls (%)	Arches (%)	Loops (%)	Total (%)
A	75 (22%)	25 (7.35%)	240 (70.5%)	340 (100%)
B	25 (3.47%)	55 (7.63%)	640 (88.88%)	720 (100%)
AB	60 (35%)	10 (5.86%)	100 (58.82%)	170 (100%)
O	160 (20.77%)	65 (8.44%)	545 (70.77%)	770 (100%)

It was observed that percentage of whorls was highest in blood group AB(35%) and lowest in B blood group(3,47%). Also percentage of Arches in blood group O was highest (8.44%) as compared to lowest in AB blood group (5.86%). Similarly percentage of Loops was highest in B blood group (88.88%) and lowest in AB blood group.(58.8%).

Table No.6: Pattern of finger prints in Rh-positive and Rh-negative blood groups.

Blood Group	**Whorl (%)**	**Arches (%)**	**Loops (%)**	**Total (%)**
Rh +ve	290 (15.18%)	143 (7.48%)	1477 (77.32%)	1910 (100%)
Rh –ve	30 (33.33%)	12 (13.33%)	48 (53.33%)	90 (100%)
Total	**320**	**155**	**1525**	**(2000)**

It was observed that in Rh positive blood group 15.18% were total Whorls, 7.48% were total Arches and 77.32% were total Loops. Also in Rh negative blood group it was observed that 33.33% were Whorls, 13.33% were Arches and 53.33% were total Loops.

DISCUSSION

Finger prints are classified and filed so that they can be retrieved when needed. Single finger files of known criminals are kept in a limited number only. Consequently sometimes it is impossible to make identification from finger print files on the basis of a single print found at the scene of a crime.

The present study reveals that there was an association between distribution of finger print pattern and blood groups. The general distribution pattern of primary finger prints was of the same order in individuals with A,B,AB and O blood group that is frequency of loops,moderate of Whorls and low of Arches. The same findings were seen in Rh positive and Rh negative individuals of ABO blood groups (15,16,17).

Females (65%) outnumbered males (35%) in this study, the male female ratio being 1:1.9.Majority of cases 77(38.5%) in the study belong to blood group B followed by O,A and AB which were 72 (36%), 35 (17.5%) and 16 (8%) respectively. Which was contrary to the findings of Bharadwaja A who observed higher percentage of blood group O, followed by B,A and AB (18).

In our study percentage of Loops were highest in blood group B (88.88%) and lowest in blood group AB (58.82%) which correlates with the findings of Mahajan et al (1986) and Kshirsagar et al (2001)and contrary to the findings with Amit A Mehta (2011) where Loops were highest in blood group O.

In our study percentage of Arches in blood group O (8.44%) as compared to lowest in blood group AB (5.86%) which co-relates with the findings of Bharadwaja et al (2004) who observed lowest percentage of Arches in AB blood group. However Mahajan et al (1986) and Kshirsagar et al (2001) observed highest percentage of Arches in AB blood group (15.46%) and lowest in B blood group (6.15%).

The percentage of Whorls were highest in blood group AB (35%) and lowest in blood group B (3.47%) in our study which were similar to the findings of Bharadwaja et al (2004) who observed higher percentage of Whorls in AB blood group and lower percentage in A blood group. However Mahajan et al (1986) and Kshirsagar et al (2001) observed higher percentage of Whorls in blood group O and lowest percentage in AB blood groups.

Also in our study percentage of Whorls were highest in Rh –ve blood group (33.33%) and lower in Rh +veblood group (15.18%) which co-relates with the findings of Kshirsagar et al (2003) and Bhardwaja et al (2004) and contrary to the findings with Mehta AA (2011). Where Whorls were highest in Rh +ve and lowest in Rh –ve blood groups.

Percentage of Arches were highest in Rh –ve (13.33%) and lowest in Rh +ve blood group in our study which co-relates to the findings with Mehta AA (2011) and Bharadwaja et al (2004).

Also in our study percentage of Loops were highest in Rh +ve blood group (77.32%) and lowest in Rh –ve blood group (53.33%) which co-relates with the findings of Mehata AA (2011), Bharadwaja et al (2004) and Kshirsagar et al (2001).

CONCLUSION

- Whorls were highest in blood group AB and the difference was significant with blood group B.
- Arches were highest in blood group O and the difference was significant with blood group AB.
- Loops were highest in blood group B and the difference was significant with AB blood group.
- Loops were highest in Rh +ve blood groups as compared to in Rh –ve blood groups and the difference was statistically significant.

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Original Article

Effect of Lisinopril in Hypertension

Placebo- Controlled Trial of Pharmaceutical Optimized Lisinopril 10mg (F-5) in Patients with Essential Hypertension for Efficacy & Biochemical Evaluation

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ABSTRACT

Objective: The objective of this double-blind, randomized placebo-controlled trial study evaluating efficacy and biochemical effects of optimized lisinopril 10mg (F-5) as compared to placebo in adult patients with essential hypertension.

Study Design. Double-blind, randomized placebo-controlled trial

Place and Duration of Study: This study was conducted at the Department of Biochemistry, University of Karachi from October 20 11 to January 2012.

Materials and Methods: Patients were randomized to receive once optimized lisinopril 10mg (F-5) daily and Placebo once daily for 8 weeks and at the end of study efficacy and biochemical evaluation was done.

Result: The patients treated with optimized lisinopril 10mg (F-5) alone, blood pressure reduction was lower, although significant; reaching values of 140.1 ± 11.4/ 87.7 ± 5.4 mmHg ($p < 0.05$ versus Placebo) by the end of eight weeks of treatment. .No significant variation of blood glucose was observed and different parameters of lipid profile were also observed during the eight weeks of treatment with antihypertensive regimen used. Thus, the drug regimens used may be considered neutral as regards glucose and plasma lipid metabolism profile because drug used at low doses.

Conclusion: We can suggest that the high antihypertensive efficacy, good tolerability and no biochemical effects of the optimized Lisinopril 10mg (F-5) it is an excellent option for the treatment of hypertension in a wide range of hypertensive patients, with a high potential to reduce cardiovascular risks.

Key Words: Hypertension, Lisinopril, Biochemical Effects

INTRODUCTION

Adequate blood pressure is a treatment of hypertension and it is the risk of cardiovascular morbidity and mortality so proper therapy is essential. And the reduction of blood pressure lower than 130/85 mmHg provides additional benefits regarding both protection of organs and cardiovascular mortality. Guidelines of World Health Organization for the treatment of hypertension that is, 130/85 mmHg which is lower than the previous limit of 140/90 mmHg.[1-6]

Blood pressure is an important modifiable risk factor for the progression of renal disease.[7] of all antihypertensive agents; inhibitors of angiotensin-converting enzyme (ACE) are regarded as particularly effective in limiting renal-disease progression , because of possible beneficial influences on kidney function, which are separate from the effects on systemic blood pressure.ACE inhibitors significantly limit the progression of renal disease in patients with macroalbuminuria,[7] and, at the time our trial was designed, there were indications that this beneficial effect also occurred in patients with micro-albuminuria.[8,9] If ACE inhibitors can slow the relentless decline of renal function in patients with microalbuminuria, it is reasonable to investigate whether use of ACE inhibitors in patients with normoalbuminuria may also be beneficial. However, previous trials of ACE inhibitors in normoalbuminuric patients are few, [10] and have either lacked power or have not been designed as randomized and controlled. [10, 11] consequently, the degree of albuminuria at which treatment with ACE inhibitors should start is unclear.

Lisinopril is one of the most widely used angiotensin-converting enzyme (ACE) inhibitors in adult medicine, and ACE inhibitors (ACE-Is) are a major component of cardiovascular therapy because of their beneficial effects on cardiac function in heart failure and myocardial infarction.[12,13] ACE-Is are particularly effective antihypertensive agents. In most hypertensive pediatric patients, especially younger patients, hypertension is secondary to renal disease and isrenin-mediated with activation of the renin- angiotensin system (RAS). Therapy with an ACE-I is therefore the first choice of drug in the pediatric population. The ability of ACE-Is to block the renin-angiotensin-aldosterone system (RAAS) accounts for their effect in reducing blood pressure (BP) but also prevents the deleterious effects of Ang II on endothelial function.

Lisinopril has been shown to decrease urinary protein excretion in adults with diabetes mellitus.[14]

Comparative safety and efficacy trials indicate that angiotensin receptor blockers like olmesartan medoxomil have superior tolerability and antihypertensive efficacy[15]. Similar investigation using olmesartan, medoxomil and amlodipine besylate showed great effectiveness and tolerance in patient with hypertension[16]. Combination therapies reduced B.P to a greater extent than with amlodipine besylate alone as indicated with benazepril hydrochloride with valsartan and with perindopril[17, 18]

Therefore, the objective of this comparative study evaluating the efficacy and biochemical effects of optimized Lisinopril 10mg (F-5) with placebo in the treatment of patients with essential hypertension.

MATERIALS AND METHODS

This was multicenter, randomized, placebo-controlled, comparative study. Patient was randomized to receive optimized Lisinopril 10mg (F-5) once daily and Placebo once daily for 8 weeks. The study was conducted in Department of Biochemistry, University of Karachi from October 20 11 to January 2012. Patients were selected from four different hospitals of orange Town and 80 patients were selected for the study. Therefore 80 patients were effectively analyzed for efficacy and tolerability the analysis of antihypertensive efficacy and biochemical effects of a therapeutic regimen in the long term becomes important. The primary efficacy variable was change from baseline in MSDP at the end of study. Secondary variable was change in mean sitting systolic blood pressure from baseline. Safety biochemical parameters (complete blood count, renal function, liver function, electrolytes, protein profile, and enzymes) and electrocardiogram at rest were also determined in all patients at the baseline (week O) and at the 8th week of antihypertensive treatment. At the same time points, glucose metabolism parameter values and plasma lipids (total cholesterol, HDL-cholesterol, LDL-cholesterol, and triglycerides) were also recorded. Biochemical parameters were determined using an automated method.

RESULTS

The patients treated with optimized Lisinopril 10mg (F-5) alone, blood pressure reduction was lower, although significant; reaching values of 140.1 ± 11.4 / 87.7 ± 5.4 mmHg ($p < 0.05$ versus Placebo) by the end of eight weeks of treatment. Variations in blood pressure measurement in the standing position during treatment were similar to those recorded in the sitting position, and no episode of orthostatic hypotension was reported in either of the therapeutic regimen. No significant variation in leg volume measurement was observed among the both groups studied during the eight weeks of treatment. No significant variations of blood glucose were observed and different parameters of lipid profile were also observed during the eight weeks of treatment with antihypertensive regimen used. Thus, the drug regimens used may be considered neutral as regards glucose and plasma lipid metabolism profile because drug used at low doses.

Table No.1: Baseline characteristics

	Lisinopril 10mg(F-5) (n=60)	Placebo (n=20)
Age (years)	51.2 ± 9.4	51.5 ± 9.8
Male / Female (%)	40.4 / 59.6	35.0 / 65.0
Body weight (Kg)	69.9 ± 13.5	70.2 ± 12.2
BMI (kg/m2)	27.4 ± 3.6	27.8 ± 3.4
SBP sitting (mmHg)	149.9 ± 11.2	148.7 ± 10.7
DBP sitting (mmHg)	96.7 ± 7.3	95.9 ± 7.5

Table No.2: Ambulatory blood pressure monitoring. Mean values of blood pressure

	Lisinopril 10mg (F-5) (n=60)	Placebo (n=20)	P-value
	Systolic BP - 24 hours (mmHg)		
Baseline	149.9 ± 11.2	148.7± 10.7	NS
Week 8	140.1 ± 11.4	148.9± 11.3	0.0037
	Diastolic BP - 24 hours (mmHg)		
Baseline	96.7 ± 7.3	95.9 ± 7.5	NS
Week 8	87.7 ± 5.4	94.9 ± 7.8	0.0001

NS: Non significant, p: probability

Table No.3: Baseline Biochemical characteristics

	Lisinopril 10mg (F-5) (n=60)	Placebo (n=20)
	Fasting Blood Glucose(mg/dl)	
Baseline	99.4 ± 11.3	98.1 ± 8.7
Week 8	98.5 ± 11.7	97.9 ± 9.5
	Total Cholesterol (mg/dl)	
Baseline	197.9 ± 43.2	194.2 ± 33.4
Week 8	198.2 ± 43.4	193.9 ± 34.2
	LDL - Cholesterol (mg\dl)	
Baseline	114.4 ± 33.2	118.3± 25.8
Week 8	114.9 ± 33.5	117.8 + 24.7
	HDL - Cholesterol (mg\dl)	
Baseline	53.9 ± 13.2	47.9 ± 11.6
Week 8	52.8 ± 12.8	47.7 ± 11.5
	Triglycerides (mg\dl)	
Baseline	137.8 ± 88.7	145.6 ± 88.2
Week 8	137.1 ± 89.2	144.2 ± 88.9

DISCUSSION

Hypertension is a major risk factor for stroke. In relation to other stroke-specific factors, brain tissue loss as a consequence of stroke has been associated with cognitive impairment; these strokes may be isolated or

strategically located ones (e.g. in the thalamus, angular gyrus, frontal white matter).[19] Also, because hypertension often does not exist as a solitary factor but occurs in the presence of other metabolic risks, other stroke-related factors such as inflammation or abnormal insulin signaling in the brain, or the presence of metabolic syndrome could exist and underlie cognitive impairment or dementia in persons with hypertension.[20, 21]

The baseline characteristics of the population included in the study are shown in Table no1. We can observe that the groups were not different in relation to age, body mass index and weight, heart rate, and systolic and diastolic pressure values. The results of this study showed that the optimized product Lisinopril 10mg (F-5) as a high antihypertensive efficacy that is sustained in the long term with a quite reduced percentage of loss of blood pressure control in table No.2 We observed that more than 69.2% of the patients treated with optimized product of Lisinopril 10mg (F-5) remained with diastolic blood pressure levels equal to or lower than 90 mmHg, thus achieving the goals for the treatment of hypertension. The difficulty to achieve the goal of controlling systolic blood pressure explains why the international guidelines for studies on antihypertensive drugs still use criteria based on diastolic blood pressure to describe the antihypertensive efficacy of a drug, in spite of the fact that guidelines indicate the real need to control systolic blood pressure as well. It is important to point out that blood pressure reduction provided by the treatment with optimized product of Lisinopril 10mg (F-5) did not cause any secondary Increase in sympathetic activity, since no significant variations of heart rate occurred. Our results showed that the optimized product of Lisinopril 10mg (F-5) at low doses has a very good biochemical profile with a low incidence of adverse events. The good biochemical profile of the optimized Lisinopril 10mg (F-5) may be explained by the use of lower doses of each of the hypotensive drugs, since the existence of a strong relation between the dose of the hypotensive drug and the frequency of adverse events is known. However, some drugs used in the treatment of hypertension, such as diuretics and beta-blockers, are known to be able to promote harmful alterations in lipid metabolism, especially in glucose metabolism. In our study we observed that the use of the optimized Lisinopril 10mg (F-5) did not change parameters of either glucose metabolism or plasma lipids, thus having a neutral biochemical profile even when used for 8 weeks. Table.No.3 Based on these results we can suggest that the optimized product Lisinopril 10mg (F-5) is safe and adequate for the treatment of hypertension in patients with metabolic syndrome, diabetes mellitus and dyslipidemias .Incidentally, hypertension is frequently associated to the metabolic syndrome; also, the frequency of this association increases with age.

CONCLUSION

In brief, the results of this multicenter study demonstrated that the optimized Lisinopril 10mg (F-5) has a high antihypertensive efficacy, allowing approximately 69.2% of the patients treated to achieve and maintain for eight weeks. We can suggest that the high antihypertensive efficacy, good tolerability and no biochemical effects of the optimized Lisinopril 10mg (F-5) it is an excellent option for the treatment of hypertension.

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Original Article

Findings in Celiac Disease

Diagnostic Accuracy of IgA Anti-Tissue Transglutaminase Antibodies in Comparison with Histopathological Findings in Celiac Disease in Pakistan

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ABSTRACT

Objective: The objective of this study was to assess the diagnostic accuracy of most widely used serological test for diagnosis of celiac disease (CD) i.e. anti-tissue transglutaminase antibody (IgA) in comparison to histopathological lesions in CD.

Study Design: cross sectional study

Place and Duration of Study: This study was carried out at the Departments of Gastroenterology and Pathology of Fatima Memorial Hospital, Shadman, Lahore from March 2014 to October 2014.

Materials and Methods: 121 patients clinically suspected of celiac disease were included in this cross sectional study. The biopsy was taken from the second part of duodenum and was evaluated according to Marsh classification of CD. Blood sample of every patient was obtained to perform anti-tTG antibody test.

Results: The range of the patients included in the study came out to be 18-65 years with 30.24 years as mean age. Out of all the patients included in this study 34 (28.1%) were males and 87(71.9%) were females. The overall sensitivity and specificity of anti-tTG were 78.6% and 98.1%.The positive predictive value (PPV) and negative predictive value (NPV) came out to be 84.6% and 97.2% respectively.

Conclusion: We have come to the conclusion that currently there is no serological test which can be used as a sole tool for the diagnosis of celiac disease. Relying on serological test will lead to missed diagnosis of CD especially those patients which have Marsh lesions of lesser degrees.

Key Words: Celiac Disease, Anti-Tissue Transglutaminase Antibody, Sensitivity, Duodenal Biopsy.

INTRODUCTION

Celiac disease (CD) also called as gluten-sensitive enteropathy is an autoimmune disease triggered by gluten, affects small intestine in genetically susceptible children and adults. It is the only immune-mediated disease which is fully treatable only when a precise diagnosis is established. Gluten is a protein present in wheat, barley and rye etc. It is mainly composed of gliadin and glutenin (Catassi and Fasano, 2010).[1]

The prevalence of CD is becoming significantly higher than that recognized 20 years ago. The prevalence of celiac disease at global level is considered to be 1% (Mustalhati et al, 2010)[2]. According to a study the prevalence of CD varies from 2-13% (van der Windt, 2010)[3].

Scientists have found a strong linkage between presence of human leukocyte antigen (HLA) DQ2 or DQ8 and celiac disease. HLA-DQ typing can be used in ruling out the celiac disease. On the other hand presence of DQ2 or DQ8 does not exhibit the presence of disease as these genes are present in general population as well (Kapitani, 2006)[4].

The parameters to diagnose CD have significantly changed over the last 50 years. Diarrhea and malabsorption once thought to be major mode of presentation of celiac disease are becoming less common (Reily, 2012)[5]. Over time many specific and sensitive serological tests were introduced to make the diagnosis of CD less invasive process. Anti-gliadin antibody (AGA is among the first immunological assays used for screening CD (Fasano and Carlo, 2001)[6].

AGA is also found in diseases like rheumatoid arthritis and depression among elderly population which adds to its poor specificity (Anitta and Katri, 2012)[7]. Later these serological tests have been replaced by more sensitive and specific tests including antiendomysial (EMA), antireticulin (RA) and anti tissue transglutaminase (tTG) antibodies (Shinjini and Nitya, 2006)[8]. The major breakthrough in the shape of the discovery of anti-tTG as the autoantigen recognized by the EMA led to the development of ELISA based assays. These assays were projected at the detection of anti-tissue transglutaminase (anti-tTG) antibody (Dieterich et al, 1997)[9].

The discrepancy associated with anti-EMA and anti-tTG includes their unreliability in children of less than 2 years and IgA dependence (Wang et al, 2014)[10]. The sensitivity of AGA was better than that of anti-EMA and anti-tTGA in children aged less than 2 years (Mankai et al, 2005)[11].

Anti-tTG antibody test is routinely used as the first choice because of its high sensitivity, cost-effectiveness and easy interpretation. However discrepancy of tTG assays is their variable accuracy among manufacturers (Giersiepen et al., 2012[12], & Astrid and Juri, 2013)[13].

The role of pathologist in the diagnosis of celiac disease is of utmost significance. For the histopathological examination scientists have agreed that biopsy for the diagnosis of CD should be taken from 2nd part of duodenum. Marsh was the first scientist who explained the broad spectrum of inflammatory and structural changes which took place in CD. That is why Marsh classification became very popular. Later on Marsh classification was modified by Oberhuber (Oberhuber, 1999)[14].

Once a patient is diagnosed with CD, adherence to gluten free diet (GFD) for life is the only treatment available currently as it leads to complete recovery of the patient (Akobeng and Thomas, 2008)[15]. The patients of CD are suffering from the deficiency of many minerals and vitamins including Iron, copper, zinc, B12, B 6, folic acid and vitamin D which leads to increased risk of fractures. (Rubio et al, 2013)[16].

The risk of premature and low weight infant births, abortions and infertility rises in women suffering from CD. The treatment of CD decreases these risks (Jamot, 2011)[17]. Researchers have shown that those patients who did not get treatment for CD have revealed considerably lower bone mineral density (Mora, 2001)[18].

The celiac disease patients are rarely diagnosed in Pakistan because of two main reasons. Firstly physicians are unaware if its existence and its clinical presentation. Secondly no proper protocol is present to successfully diagnose this disease. Mostly anti-tTG antibody test is used to diagnose or exclude diagnosis of this disease. In addition to this there is no data available about prevalence rate of CD in Pakistan and sensitivity of anti-tTG antibody test. In this study we evaluated the diagnostic accuracy of anti-tTG antibody test in comparison to histopathological lesions according to Marsh classification of CD in order to draft a proper approach to diagnose this disease.

MATERIALS AND METHODS

This cross sectional study was conducted at the departments of gastroenterology and pathology of Fatima Memorial Hospital, Shadman, Lahore, Pakistan from March 2014 to October 2014. In this research, 121 patients were recruited according to our inclusion and exclusion criteria. We included patients from both gender from age 5 to 60 years. These patients were clinically diagnosed for CD. The clinical diagnosis included typical clinical presentation including diarrhea, weight loss, fatigue, iron deficiency anemia and also atypical clinical presentation including non specific GI symptoms for a long duration like abdominal pain, abdominal bloating, short stature and constipation etc. We excluded patients with any other known disease (comorbidity).

All the patients after receiving the oral and written explanation of the whole research study signed the informed consent form. This study protocol was approved by ethics committee.

Four to five biopsies were taken with sterilized forceps from the second part of the duodenum in all patients through endoscopy for histopathological examination. At the same time 5ml blood sample was taken from every patient for serological evaluation. The results of intestinal biopsy were considered as gold standard of our research. The age, gender and complete clinical history of every patient were documented.

RESULTS

Biopsy specimens were kept in labeled and separate collection jars. After fixation in buffered formalin the biopsy specimens were embedded in paraffin wax. The thickness of the sections was kept at standard 3µm.These were stained with hematoxylin and eosin and slides were prepared. The slides were evaluated by expert pathologists who were blinded to the serology results. The number of intraepithelial lymphocytes, crypt hyperplasia and villous atrophy were documented according to modified Marsh classification (Table 1).

Table No.1 Modified Marsh Classification

Marsh Type	*IEL/100 Enterocytes (Duodenum)	Crypt Hyperplasia	Atrophy of Villi
0	<30	Normal	Normal
1	>30	Normal	Normal
2	>30	Increased	Normal
3A	>30	Increased	Mild
3B	>30	Increased	Moderate
3C	>30	Increased	Total

(*Intraepithelial Lymphocytes (IELs) Per 100 Enetrocytes)

According to patient's history and mode of presentation other diseases which cause duodenal damage e.g. Giardia lambia infection, food protein hypersensitivity were also considered.

Serum Analysis: The serum analysis was performed in a laboratory with hundreds of routine samples. The laboratory staff neither knew biopsy results nor clinical presentation of the patient. The serology test was performed on each blood sample with following method through commercial kit in accordance with

guidelines provided by the manufacturer. For IgA tissue Transglutaminase, kit by IBL international, Hamburg, Germany was used. Those patients who were diagnosed as celiac patients on biopsy were also tested for total serum IgA level to rule out deficiency of IgA.

Transglutaminase IgA ELISA: Solid phase enzyme-linked immunosorbent assay (ELISA) based on the sandwich principle. The wells are coated with antigen. Specific antibodies of the sample binding to the antigen coated wells are detected by a secondary enzyme conjugated antibody (E-Ab) specific for human IgA. After the substrate reaction the intensity of the color developed is proportional to the amount of IgA-specific antibodies detected. The values less than 8u/mL were interpreted as negative. The values more than 12u/mL were considered as positive whereas values from 8 to 12 were termed as equivocal as per the manufacturer's guidelines.

Data Analysis Procedure: The collected data was analyzed through SPSS version 16; study variable were the age, gender, celiac disease for serology and histopathology. Mean ± standard deviation such as age of the patient, frequency and percentage were calculated. Sensitivity, specificity, positive predictive value (PPV), negative predictive value(NPV) were determined by taking histopathology as gold standard from 2 x2 table (Table 2).

Table No.2: 2 x 2 table Anti-tTG (CD) Antibody test

	Histopathology (CD)		
		+	–
Anti-tTG (CD)	+	a	B
	–	c	D

Sensitivity of serology = (a/a+c)x 100, Specificity of serology = (d/b+d)x 100, Positive predictive value (PPV) for serology = (a/a=b) x100, Negative predictive value (NPV) for serology = (d/c+d)x100, Accuracy of serology = (d + a)/overall patients x 100

a=True positive, b=False positive, c=False negative, d=True negative

Among CD patients 78.6% (11/14) tested positive for anti-tTG and 21.4 % (3/14) were negative for anti-tTG antibody test. On the other hand 98.1% (105/121) of non-CD were negative and 1.9 % (1/121) came out to be positive for antibody. The overall sensitivity and specificity of anti-tTG antibody were 78.6% and 98.1%. The PPV and NPV came out to be 84.6% and 97.2% respectively.

Six patients exhibited Marsh 3C lesions (total villous atrophy), five patients showed Marsh 3B lesions (moderate villous atrophy) and three patients had Marsh 3A(mild villous atrophy) in small intestine out of fourteen patients diagnosed for celiac disease on intestinal biopsy.

Significantly the sensitivity of anti-tTG antibody test for Marsh IIIA, IIIB and IIIC was 66.6%, 60% and 100% respectively.

Table No.3: Celiac Disease on anti-tTG antibody Test

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positive	13	10.7	10.7	10.7
	Negative	108	89.3	89.3	100.0
	Total	121	100.0	100.0	

Table No.4: Celiac Disease on Histopathology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positive	14	11.6	11.6	11.6
	Negative	107	88.4	88.4	100.0
	Total	121	100.0	100.0	

Table No.5: Celiac Disease on anti-tTG antibody * Celiac Disease on Histopathology Crosstabulation Count

		Celiac Disease on Histopathology		Total
		Positive	Negative	
Celiac Disease on anti-tTG	Positive	11	2	13
	Negative	3	105	108
Total		14	107	121

Table No.6: Celiac Disease on Histopathology * Celiac Disease on anti-tTG antibody Crosstabulation

			Celiac Disease on anti-tTG antibody		Total
			Positive	Negative	
Celiac Disease on Histopathology	Positive	Count	11	3	14
		% within Celiac Disease on Histopathology (Sensitivity)	78.6%	21.4%	100.0%
		% within Celiac Disease on tTG (PPV)	84.6%	2.8%	11.6%
	Negative	Count	2	105	107
		% within Celiac Disease on Histopathology (Specificity)	1.9%	98.1%	100.0%
		% within Celiac Disease on tTG (NPV)	15.4%	97.2%	88.4%
Total		Count	13	108	121
		% within Celiac Disease on Histopathology	10.7%	89.3%	100.0%
		% within Celiac Disease on TTG	100.0%	100.0%	100.0%

DISCUSSION

Our study revealed that the sensitivity of the serum IgA anti-tTG was 78.6%%. The specificity was reported to be 98.1% while PPV and NPV were 84.6% and 97.3% respectively. The diagnostic accuracy came out to be 96.7%. The sensitivity of IgA anti-tTG antibody in our study is substantially higher than the value of 38% documented by Emami M et al in their study conducted in Iran (Emami et al., 2008)1[9?]. A research conducted in USA revealed overall sensitivity of anti-tTG antibody

test at 70.6%, whereas over specificity was found to be 65.0 % (Abrams et al., 2006)[20]. In our study sensitivity of anti-tTG antibody test was 60% for partial villous atrophy which is higher than the 42.3% sensitivity reported by Abram et al. (2006) and 36.8% documented by Emami et al (2008)[19]. According to our research sensitivity of anti-tTG antibody test for total villous atrophy (Mrash III C lesion) was 100% which is again higher than 90.0% sensitivity reported by Abram J et al. for patients with total villous atrophy (Abrams et al., 2006)[20].

Celiac disease can be diagnosed correctly even if the physicians are aware of the several ways in which it is presented. Despite the fact that prevalence of CD is increasing all over the world, still physicians in Pakistan have not made their minds to include this new endemic disease even in their differential diagnosis. It would not be wrong to state that in reality CD is already wide-spread because of wheat consumption but is either misdiagnosed or undiagnosed. On one hand it is very important that physicians learn to recognize signs and symptoms of CD while on the other hand it is equally necessary that pathologist must recognize mild categories of CD including 1, 2 and 3a.

CONCLUSION

We conclude that there is no single serological test with 100% sensitivity and specificity therefore biopsy remains the gold standard for the diagnosis of this disease. On this antibody test many patients were reported as false negatives and also false positives. The sensitivity of anti-tTG antibody for lesser degree of Marsh lesion is considerably low at 60% as compared to 100% for Marsh 3C (total villous atrophy). It reveals that a significant proportion of patients suffering from celiac disease having mild to moderate degree of lesions will remain undiagnosed if only anti-tTG antibody test is used for diagnosis. Therefore it is recommended that when there is persistence of signs and symptoms of celiac disease and patient is reported seronegative for antibody test, still an intestinal biopsy is necessary for making or ruling out the diagnosis. The challenge of diagnosis of celiac disease can be fulfilled through good communication between the pathologist and the clinician. The pathologist's report should concisely highlight the histopathological findings which must be correlated with clinical presentation and serological results.

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Original Article

Inguinal Hernial Repair

Shouldice Versus Bassini'S Procedures for Inguinal Hernial Repair

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ABSTRACT

Objective: To evaluate the optimum surgical technique for inguinal hernia repair, Shouldice or Bassini's ?

Study Design: Retrospective comparative study.

Place and Duration of Study: This study was conducted between 2004 to 2006 in the surgical ward DHQ Hospital Karak. 200 patients with unilateral & primary inguinal hernia were randomly allotted to either Shouldice or Bassini's repair. The cases were collected either as emergencies or electively.

Materials and Methods: All the patients had primary and unilateral inguinal hernia. They were operated electilively or as emergencies. Patients were randomly allotted to either Shouldice or Bassini's repair. The Shouldice was performed with 2/0 prolene in four layers while the bassini's repair was done with prolene 0 or 1.

Results: The patients operated for inguinal hernia were followed for up to 5 years. The shouldice repair was found associated with a lowest recurrence rate of 3% and the Bassini's repair with 5.7%. The difference remains statistically significant (P<0.001).

Conclusion: The Shouldice repair for inguinal hernia was associated with a recurrence rate of less than 1% in the Shouldice clinic at TORONTO[1]. Here in this study the Shouldice resulted in 3% recurrence rate which is nearer to the international value while the Bassini's repair was associated with a recurrence rate of 5.7% which is higher than the Shouldice repair. The Shouldice repair for inguinal hernia should be the Gold Standard and serves as the basis for comparison for all other techniques, be they prosthetic or laparoscopic [2].

Key word: Shouldice, Bassini's, inguinal hernial repair.

INTRODUCTION

The Shouldice surgical technique for inguinal hernia repair; The Shouldice is performed in 4 layers (Glassow) [3-4]; After herniotomy, the fascia transversalis is cut horizontally, starting at the stretched deep inguinal ring and proceed medially to the pubic tubercle, safeguarding the inferior epigastric vessels. The upper and lower flaps of fascia transversalis are formed. The lower flap is stitched to the under surface of the upper flap and the upper flap is stitched to the upper surface of the lower flap with 2/0 prolene. The conjoint tendon and the lateral fleshy part of the internal oblique and transversus abdominus are stitched to the inguinal ligament in two layers with 2/0 prolene. Finally the external oblique is stitched over the cord with catgut 1. Bassini's Repair for Inguinal hernia; Bassini's repair, a massive leap forward and has been the basis of open repair for over hundred years. After herniotomy, the conjoint tendon above is sutured with the lower edge of inguinal ligament with interrupted, non-absorbable sutures e.g. polypropylene, nylon or thick black silk. Today, the Basini's repair is the most commonly performed procedure for inguinal hernia and most surgeons use continuous, non-absorbable sutures which are darned between the conjoint tendon and inguinal ligament. The Shouldice repair is actually a development and refinement on the Bassini's repair [5]. The original Shouldice was performed under local anesthesia. The Shouldice gave excellent results with 2/0 steel wire. Inguinal hernia repair is the second most commonly performed operation (Appendectomy the 1st one) in general surgery all over the world [6]. Shouldice hernia repair provides the best chances of non-recurrence regardless of the anatomical type of hernia.

MATERIALS AND METHODS

This study was conducted between 2004 to 2006 in the surgical ward DHQ Hospital Karak. 200 patients with unilateral & primary inguinal hernia were randomly allotted to either Shouldice or Bassini's repair. The cases were collected either as emergencies or electively. All the patients had primary and unilateral inguinal hernia. They were operated electilively or as emergencies. Patients were randomly allotted to either Shouldice or Bassini's repair. The Shouldice was performed with 2/0 prolene in four layers while the bassini's repair was done with prolene 0 or 1.

RESULTS

All the patients had primary and unilateral inguinal hernia. They were operated electilively or as emergencies. Patients were randomly allotted to either Shouldice or Bassini's repair. The Shouldice was performed with 2/0 prolene in four layers while the

bassini's repair was done with prolene 0 or 1. At the time of induction of anaesthesia, a broad spectrum IV antaibiotic was given. General anaesthesia was given for 75% cases, spinal anaesthesia was given for 20% cases and local anaesthesia was used for 05% cases. Patients remained in surgical ward for 24 to 48 hours. In this comparative study, some 200 patients were randomly allotted to either Shouldice or Bassini's repair.

Patients	200
Age	30-65 years
Average	47 years
Gender	All male patients

Type of Hernia:

Indirect inguinal Hernia:	160
Direct inguinal hernia	40
Shouldice repairs:	130
Bassini's repairs:	70

Follow Up: The operated patients were examined routinely at 1 and 6th month and then every 6 month for a total of 5 years.

Results: Patient was checked for recurrences.

Recurrence: In Shouldice series, there were 4 recurrences out of 130 operations.

Recurrence rate: 3%

In Bassini's Repair: There were 4 recurrences out of 70 operations.

Recurrence rate: 5.7%

Relative risk of Recurrence:

Shouldice: 1 (reference value)

Bassini's: 1.9 (p value = 0.001)

The difference is statistically significant. The Bassini's repair resulted in almost twice as recurrences as in the Shouldice repair.

Follow up: All the patients were seen routinely at 1st week then after 1 and 6th month and every 6th month for 3 years and then every year after. The Shouldice repair was associated with statistically significant fewer recurrences than that of the Bassini's repair (P<0.001)

DISCUSSION

In the population under study, the recurrence occurred less often after the Shouldice repair compared with the Bassini's repair. In the original Shouldice, the posterior inguinal wall was repaired in four layers with running 2/0 stainless steel sutures under local anesthesia. In the Shouldice hospital at Toronto, the repair gave a recurrence rate of less than 01 % where patients were operated by specialists while the recurrence elsewhere was 6-15 % in non specialized centers on long term basis (i.e. 10-15 years) [7,8,9]. Shouldice repair is relatively more efficient for indirect Inguinal hernia than direct one [10], but the difference is not statistically significant. In our study 50% recurrences occurred within 2 years and 75% within 3 years after the operation which compares favorably with the study conducted by Panos-et al [11]. In a controlled trial, Kingsnort et al and Deysine and Soroff reported 2-3 % recurrence rate for Shouldice and 4-6% for Bassini's [12-13]. Suture line tension(and hence ischemia) gives rise to post operative pain and recurrence. In Shouldice repair, the suture line tension is the least while it is high for Bassini's repair. So early post operative pain and numbness below the medial part of Inguinal Ligament were high for Bassini's repair [14-15]. Shouldice gives the lowest recurrence rate next to Lichtenstein with as:

1. Good quality of life
2. Less post operative pain.
3. With less chance of wound infection.
4. And is cost effective

So Shouldice is superior to Bassini for inguinal herniorrhaphy [16-17].

CONCLUSION

The Shouldice technique should be the 1st choice in Unilateral and primary inguinal hernia in adult males with hernial size less than 3cms. The Shouldice repair for inguinal hernia was associated with a recurrence rate of less than 1% in the Shouldice clinic at TORONTO[1]. Here in this study the Shouldice resulted in 3% recurrence rate which is nearer to the international value while the Bassini's repair was associated with a recurrence rate of 5.7% which is higher than the Shouldice repair. The Shouldice repair for inguinal hernia should be the Gold Standard and serves as the basis for comparison for all other techniques, be they prosthetic or laparoscopic[2].

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Original Article

Oral Hygiene Habits

Oral Hygiene Habits Among 6-12 Year Religious School Students

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ABSTRACT

Objective: To assess the knowledge, attitude and practices for oral hygiene habits among 6-12 years religious school students

Study Design: Cross sectional study.

Place and Duration of Study: This study was carried out at the Department of Community Dentistry, LUMHS, Jamshoro from 15th July to 10th August 2014.

Materials and Methods: Cross sectional research was conducted among the religious students of Madarsa Jamia Ghousia Taheria Matiari (Rural Area) and Mumtaz ul Madaris Hirabad Hyderabad (Urban Area). Madrasas were selected on convenient bases. Religious students between age group 6-12 year male only were included in the study. All the students were asked the questions from self-administered questionnaire and were ticked the answers. Data were analyzed in statistical package for social sciences (SPSS) version 16.

Results: Majority of religious students from rural and urban areas were cleaning their teeth once a day. 36% from rural and 28% from urban areas reported for miswak (chewing stick) followed by tooth brush and tooth powder, no one was using dental floss. 59% reported for occasionally usage of miswak at the time of ablution (wadoo). Only 10% religious students were rinsing their mouth after meal. 65% religious students were complaining of bad smell.

Conclusion: it is concluded that oral health knowledge, attitude and practices (KAP) among study participants were poor and needs to be improved.

Key Words: Oral health, Knowledge, Attitude, Religious school children.

INTRODUCTION

Good oral hygiene is the foundation for a healthy mouth and prevents 80% of all dental problems[1-2]. Oral hygiene levels show an inverse relationship with dental caries, especially when using fluoridated toothpastes[3-6]. Dentists play an important role in the improvement of the public's oral health education. Therefore, acquiring knowledge and attitudes related to dental health and the prevention of oral diseases is very important during the future dentists' training period[7]. One of the main objectives of dental education is to train students who can motivate patients and communities to adopt good oral hygiene[8, 9].

The systematic community-oriented oral health promotion programs are needed to target lifestyles and the needs of children, particularly for those living in rural areas. A prevention-oriented oral health care policy would seem more advantageous than the present curative approach[10].Literature shows that oral health is affected by urbanization, gender and important aspects of tooth brushing e.g. frequency, time spent on and method of tooth brushing. Several socio-economic and socio-cultural factors such as religious affiliation, material living conditions and participation in a social network were significantly associated with the use of oral health care services[11-15]. It is recommended by World Health Organization that programs focusing awareness of oral health among school children should be planned for prevention and control of oral diseases[7]. The aim of this study was to assess knowledge, attitude and practices (KAP) of oral health among the 6-12 year religious school students. This study provides baseline information about children's knowledge attitudes and practice about oral health. The results of this study are aimed to give a wakeup call to stakeholders and to design an effective programme which will help to educate the children of madrasas to maintain their oral hygiene.

MATERIALS AND METHODS

Cross sectional study was done from 15th July to 10th August 2014 among the religious students of Madarsa Jamia Ghousia Taheria Matiari (Rural Area) and Mumtaz ul Madaris Hirabad Hyderabad (Urban Area). The permission was obtained from the administrators of Madarsas and from the Ethical committee of University. Madrasas were selected on convenient bases. Administrators were informed about the aims and objectives of the study. Religious students between age group 6-12 year male only were included in the study. Students who were not living in madarsas (day scholars) were excluded from the study. All the

students were asked the questions from self-administered questionnaire and were ticked the answers.

Data were analyzed in statistical package for social sciences (SPSS) version 16. Quantitative variables like type of madarsas, teeth cleaning timings, devices used for cleaning teeth, miswak used at the time of ablution (Wadoo), rinsing of mouth, complain of bad smell are presented in frequencies and percentages.

RESULTS

This study was conducted on rural and urban religious students of madrsas. 54.5% students from rural area and 45.4% were from urban area. Majority of religious students from rural and urban areas were cleaning their teeth once a day (Table-1). When asked about the device used for cleaning teeth; 36% from rural and 28% from urban areas reported for miswak (chewing stick) followed by tooth brush and tooth powder, no one was using dental floss. (Table-2)

When asked about use of miswak at the time of ablution (wadoo) 59% reported for occasionally usage of miswak (Table-3)

Table No.1: Percentage Distribution of Teeth Cleaning Habits

Choice	Rural n (%)	Urban n(%)	Total n(%)
Once a day	51(53.1)	54(67.5)	105(59.6)
Twice a day	16(16.6)	11(13.75)	27(15.3)
Infrequently	02(02,1)	02(02.5)	04(02.2)
Weekly but not regular	27(28.1)	13(16.2)	40(22.7)

Table No.2: Percentage Distribution of Device used for Cleaning Teeth

Choices	Rural n (%)	Urban n(%)	Total n(%)
Tooth brush	11 (11.4)	17(21.25)	28(15.9)
Miswak(chewing stick)	35(36.45)	23(28.7)	58(32.9)
Both tooth brush & Miswak	02(2.0)	05(6.5)	7(3.9)
Tooth powder (Manjan)	00(00)	01(1.25)	1(0.5)
None	48 (50)	34(42.5)	82(46.5)

Table No.3: Percentage distribution of Miswak used at the time of ablution (Wudoo)

	Rural n (%)	Urban n(%)	Total n(%)
Always	16(16.6)	09(11.2)	25(14.2)
Occasionally	56(58.3)	48(60)	104(59)
Never	24(25)	23(28.7)	47(26.7)

There were few religious students who were always rinsing their mouth after meal. (Table-4)

When asked about the self-perceived bad smell; majority of students were complaining of bad smell. (Table-5)

Table No.4: Percentage distribution of rinsing of mouth of water

	Rural n(%)	Urban n (%)	n(%)
No	81(64.3)	48(60)	129(73.2)
Some time	10(10.4)	19(23.7)	29(16.4)
Always	5(5.2)	13 (16.2)	18(10.2)

Table No.5: Percentage distribution of complain of self-perceived bad smell

	Rural n(%)	Urban n(%)	Total n(%)
Yes	68(70.8)	46(57.5)	114(64.7)
No	20(20.8)	28(35)	48(27.2)
Don't Know	08(8.3)	06(7.5)	14(7.9)

DISCUSSION

The present study was conducted to look into aspects of oral hygiene habits among religious school students. Religious School children were selected in this study because of the ease of accessibility, deprived and less aware community. This is embedded by the fact that since the beginning of the modern day dentistry, a strong emphasis has been placed on the importance of oral hygiene and cleaning of teeth[16].

A recent consensus statement on oral hygiene concluded that bacterial plaque plays an important role in the etiology of gingivitis and periodontitis that effective removal of dental plaque can result in the prevention or reduction of these diseases. It has been established that mechanical cleaning procedures are reliable means of controlling plaque, provided cleaning is sufficiently through and performed at regular intervals. Oral hygiene is directly linked with teeth cleaning habit. A quite big proportion of our study i.e. 59.6% of the respondents reported that they clean their teeth only once daily while another 22.7% reported irregular habit of teeth cleaning. The prevalence of oral hygiene habits was interesting as 28.1% of rural and 16.25%of urban students in schools never brushed their teeth that shows the increase in neglecting oral hygiene. In contrast to this, one of the studies aimed at knowing the oral hygiene habits among school children in Lithuania. Children from urban areas reported a regular tooth brushing more often than children from rural areas [17].

Miswak (chewing stick) was commonly used by religious students but tooth brush and pastewas less commonly used. In Pakistan, the miswak is used more among the rural than the urban population. In contrast to this, one of the researches aimed at knowing the use of miswak versus toothbrushes in Jordan. The majority of the respondents (72%) use the toothbrush and 20.5%

use toothbrush-plus-miswak.[18] another study conducted to knowing the oral health status in Pakistan reveals that tooth brush was used by majority (51.3%). Miswak was the second most common (43.1%), while tooth powder was used by very few (5.5%)[19].

The factor associated with oral hygiene habits, especially with teeth brushing, was living environment. Children from rural areas reported higher percentage of inadequate oral hygiene than children from urban areas. This result indicates need of health education efforts at schools located in rural areas. Most of the students of this study do not rinse the mouth after meal with water. Only 10.2% of students always rinse the mouth after meal, this reflects the lack of knowledge about oral hygiene. 65% students of this study complained of self-perceived bad breath which is not in agreement with the study conducted in Thai school children[20]; it might be due to the different study area and sample size.

CONCLUSION

In the light of limitation of this study it is concluded that the results of this study suggest that oral health knowledge, attitude and practices (KAP) among study participants were poor and needs to be improved. Based upon these findings, systematic community-oriented oral health promotion programs are needed to target lifestyles and the needs of school children. Also, information regarding oral health should be included on wider basis in the school curriculum in an attempt to prevent and control dental diseases. Comprehensive oral health educational programs for both children and their parents are required to achieve this goal.

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Original Article

Reversal of Loperamide Induced Intestinal Smooth Muscle Relaxation by Glibenclamide and Repaglinide in Vitro

Effects of Glibenclamide and Repaglinide

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ABSTRACT

Objective: To compare the inhibitory effects of Glibenclamide and Repaglinide on loperamide induced relaxation of isolated ileum of Rabbit.

Study Design: Comparative controlled in-vitro experimental Study.

Place and Duration of Study: This study was conducted at Department of Pharmacology, Yusra Medical & Dental College Islamabad from February to April 2014.

Materials and Methods: Isolated pieces of small intestine of rabbits placed in freshly prepared Tyrode nutritional solution. Six groups were designed. In group I, effect of Acetylcholine on the intestine was observed. In group II ileum was exposed to serial dilutions of acetyl choline in the presence of fixed concentration of loperamide 10^{-6}, dose response curve was plotted. In group III fixed dose of Glibenclamide 10^{-6} was given and dose response curve was plotted with Acetylcholine. In group IV fixed dose of Repaglinide 10^{-6} was given and dose response curve was plotted with Acetylcholine. Group V was given Loperamide+Glibenclamide and dose responce curve was plotted with Acetylcholine, while group VI was given Loperamide+Repaglinide and dose response curve was plotted with Acetylcholine. The effects were observed and recorded on Power lab .

Results: Acetyl choline has produced dose dependent increase in force of contraction from 4.9 to 7.2 mN. In the presence of glibenclamide the force of intestinal smooth muscle contraction increase from 6.4 to 7.8mN and in the presence of loperamide the force decreased from 4.8 to 3.03mN. In the end effect observed with acetyl choline in the presence of loperamide and glibenclamide is 6.5 to 7.7mN. Similarly with repaglinide alone the force of contraction increased from 5.4 to 9.6mN and with repaglindie + loperamide from 4.3 to 21.5 mN. On statistical analysis 't' test was applied and P value was found to be significant that is $P<0.05$.

The dose response curve of acetylcholine on intestinal smooth muscle of rabbit shifted towards left side with glibenclamide and rapaglinide alone. In the presence of Loperamide the curve shifted towards right side. Glibenclamide and repaglinide when given together with loperamide respectively lead to leftwards shift of the dose response curve.

Conclusion: Hence sulfonylurea glibenclamide and repaglinide, the oral anti-diabetics effectively reversed the relaxation of intestinal smooth muscle by loperamide.

Key Words: Loperamide, Relaxation, Meglitinide, Repaglinide, K^+ ATP Channel

INTRODUCTION

Opiate-induced constipation (OIC) is widely observed among patients receiving chemotherapy[1]. In the gastrointestinal system, the opioid peptides are released and activate opioid receptors, which regulate the enteric circuitry by controlling motility and secretion. Together with the inhibition of ion and fluid secretion, these effects result in constipation, one of the most troublesome side effects of opiate analgesic treatment[2]. The development of a better therapy for treating OIC is urgent and necessary. Loperamide is widely used clinically to treat a variety of diarrheal syndromes, including acute and nonspecific (infectious) diarrhea[3]. Loperamide is a peripheral agonist of opioid μ-receptors with poor ability to penetrate the blood-brain barrier [3]. Opioid μ-receptors are divided into three subtypes: μ-1, μ-2 and μ-3 . The activation of opioid μ-1 receptors has been reported to be associated primarily with the phospholipase C (PLC)-protein kinase C (PKC) pathway[4]. PLC-PKC signals can increase the intracellular calcium concentration, inducing gastrointestinal or bladder contraction [5]. Therefore, it is unlikely that intestinal relaxation is induced by the activation of opioid μ-1 receptors. ATP-sensitive K^+ (K_{ATP}) channels are involved in the regulation of intestinal smooth muscle.[6] In addition, the opening of K_{ATP} channels has been reported to reduce intracellular Ca^+ concentration[7]. The K_{ATP} channel opener diazoxide has been shown to have the ability to attenuate indomethacin-induced small intestinal damage in rats [8]. However, the role of K_{ATP} channels in loperamide-induced gastrointestinal transit remains obscure.

Glibenclamide a second generation sulphonylurea, inhibits an ATP-dependent K+ (KATP) channel on the cell membrane of pancreatic beta cells. This depolarization opens voltage-gated Ca2+ channels. The

rise in intracellular calcium leads to increased release of insulin[9] .

Repaglinide belongs to meglitinide class and is used in the management of type 2 diabetes mellitus. This depolarizes the beta cells, opening the cells' calcium channels, and the resulting calcium influx induces insulin secretion[10]

Acetylcholine acts in the gut by stimulation of M_3 muscarinic receptors subtypes, and causes increased contractions of the small intestine[11,12].

In the present study an attempt has been made to cause reversal of loperamide induced relaxation by glibenclamide and rapaglinide as they block K^+ channel.

MATERIALS AND METHODS

All experimental work was carried out in the Department of Pharmacology and Therapeutics, Yusra Medical & Dental College Islamabad. Loperamide Hydrochloride, Acetylcholine, Glibenclamide and Repaglinide was supplied by medizan laboratories (pvt) ltd Pakistan. Serial dilutions of loperamide and acetylcholine were made from 10^{-3} to 10^{-9} gm/ml. The aerated (oxygenated) and fresh specified Tyrode physiological nutrient solution was used for the perfusion of isolated intestinal segments. Healthy rabbits of both sexes (non pregnant) obtained from animal house of college. All animal-handling procedures were performed according to the Guide for the Care and Use of Laboratory Animals of the National Institutes of Health, as well as the Guidelines of the Animal Welfare Act.

The animals were slaughtered (approval for animal experimentation 26). A segment of about 15 – 20 mm long was taken from isolated ileum, and mounted vertically in inner organ bath (which contains 20 ml aerated Tyrode solution). It was connected to the force transducer. Preparations were allowed to stabilize in Tyrode solution for at least 30 – 45 minutes. The drugs were added in small quantities (1 ml) to inner organ bath according to experimental protocol. Study samples were divided in Six groups and six experiments were performed in each group. In group-I, the tissues were exposed to serial dilutions of acetylcholine (from10^{-18} to 10^{-3} gm/ml) and standard (control) concentration of acetylcholine was selected (10^{-6} gm/ml), that had produced maximum stimulation. In group-II, the tissues were exposed to serial dilutions of acetylcholine in the presence of fixed concentration $10^{-6}$of glibenclamide.. While in group III, the tissues were exposed to serial dilutions of acetyl choline in the presence of fixed concentration $10^{-6}$of loperamide [19] In group IV the tissues were exposed to serial dilutions of acetylcholine in the presence of fixed concentration $10^{-6}$of Rapaglinide. In group V effect of serial dilutions of acetylcholine were recorded in presence of loperamide + glibenclamide. In group VI effect of serial dilutions of acetylcholine were recorded in presence of loperamide and rapaglinide. Responses were recorded on Power Lab machine for 30 sec or each dilution in each group

Statistical Analysis: Analysis was done on SPSS version 14 and 't' test was used to evaluate the significance between groups. $P<0.05$ was considered to be a significant

RESULTS

Effect of increasing concentration of acetylcholine in the presence of Glibenclamide on intestinal smooth muscle: Intestinal strips were exposed to serial dilutions of acetyl choline from 10^{-8} to 10^{-6} M. and the force of contraction increased from 6.4 to 7.8 mN as shown in Table 1

Table No.1: Effect of increasing concentration of acetylcholine in the presence of Glibenclamide on intestinal smooth muscle

Sr. No.	Dose µg (Ach)	Conc. (M)	log dose conc.	Force of Contraction (mN)	%age Response
1	0.01	-8	-2.00	6.4	82.05
2	0.05	-8	-1.30	7	89.74
3	0.1	-7	-1.00	7.2	92.31
4	0.5	-7	-0.30	7.5	96.15
5	1	-6	0.00	7.7	98.72
6	5	-6	0.70	7.8	100

Effect of increasing concentration of acetylcholine in the presence of loperamide on intestinal smooth muscle: Intestinal strips were exposed to serial dilutions of acetyl choline from 10^{-8} to 10^{-6} M. in the presence of loperamide and the force of contraction decreased from 4.85 to 3.85 mN as shown in Table 2

Table No.2: Effect of increasing concentration of acetylcholine in the presence of loperamide on intestinal smooth muscle.

Sr. No.	Dose µg (Ach)	Conc. (M)	log dose conc.	Force of Contraction (mN)	%age Response
1	0.01	-8	-2.00	4.85	160.07
2	0.05	-8	-1.30	4.34	143.23
3	0.1	-7	-1.00	4.04	133.33
4	0.5	-7	-0.30	3.85	127.06
5	1	-6	0.00	3.18	104.95
6	5	-6	0.70	3.03	100

Effect of increasing concentration of acetylcholine in the presence of loperamide + Glibenclamide on intestinal smooth muscle: Intestinal strips were exposed to serial dilutions of acetyl choline from 10^{-8} to 10^{-6} M. in the presence of loperamide and Glibenclamide and the force of contraction increased from 6.5 to 7.7 mN as shown in Table 3.

Dose Response Curves with the 4 groups of drugs: The dose response curves of the mean values of all

groups are plotted and are shown in figure I On comparison between groups the curve with acetylcholine and loperamide is reversed in the presence of glibenclamide. On applying 't' test P values are found to be significant as shown in Table 4 & 5.

Table No.3: Effect of increasing concentration of acetylcholine in the presence of loperamide + Glibenclamide on intestinal smooth muscle.

Sr. No	Dose µg (Ach)	Conc. (M)	log dose conc.	Force of Contraction (mN)	%age Response
1	0.01	-8	-2.00	6.5	84.42
2	0.05	-8	-1.30	6.7	87.01
3	0.1	-7	-1.00	7	90.91
4	0.5	-7	-0.30	7.2	93.51
5	1	-6	0.00	7.6	98.70
6	5	-6	0.70	7.7	100

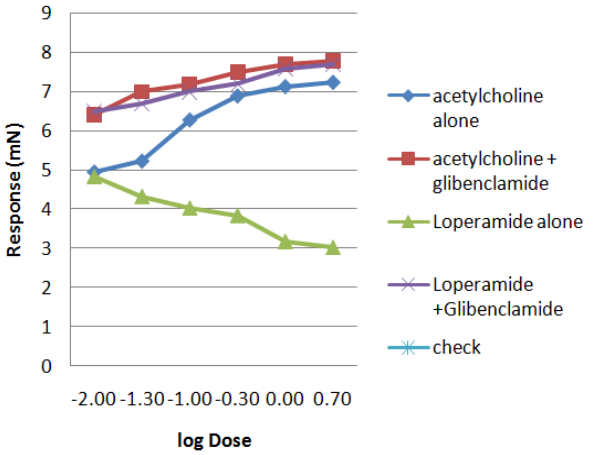

Figure No.1: Dose response curve of acetyl choline in presence of glibenclamide, loperamide + glibenclamide

Table No.4: Comparison between groups also showing P values

Sr. No	Dose of acetylc Acetylcholine in µg	Conc. (M)	Effect of acetylcholine mN (Ach)	Force of Contraction (mN) in the presence of glibenclamide alone	Force of Contraction (mN) in the presence of loperamide	Force of Contraction (mN) in the presence of glibenclamide + loperamide
1	0.01	-8	4.94	6.4	4.85	6.5
2	0.05	-8	5.22	7	4.34	6.7
3	0.1	-7	6.27	7.2	4.04	7
4	0.5	-7	6.88	7.5	3.85	7.2
5	1	-6	7.12	7.7	3.18	7.6
6	5	-6	7.23	7.8	3.03	7.7
P value				0.002664	0.008227 (Ach) 0.00049 (glibenclamide)	0.006407 (Ach) 0.029958 (glibenclamide) 0.000531 (loperamide)

Table No.5: Effect of increasing concentration of acetylcholine in the presence of Repaglinide on intestinal smooth muscle

Sr. No	Dose µg (Ach)	Conc. (M)	log dose conc.	Force of Contraction (mN) (Repaglinide)	%age Response
1	0.01	-8	-2.00	5.44	56.67
2	0.05	-8	-1.30	7.33	76.35
3	0.1	-7	-1.00	7.71	80.31
4	0.5	-7	-0.30	7.94	82.71
5	1	-6	0.00	8.12	84.58
6	5	-6	0.70	9.6	100.00

Effect of increasing concentration of acetylcholine in the presence of loperamide on intestinal smooth muscle: Intestinal strips were exposed to serial dilutions of acetyl choline from 10^{-8} to 10^{-6} M. and the force of contraction decreased from 4.8 to 3.0 mN as shown in Table 6.

Effect of increasing concentration of acetylcholine in the presence of Rapaglinide + loperamide on intestinal smooth muscle: Intestinal strips were exposed to serial dilutions of acetyl choline from 10^{-8} to 10^{-6} M. and the force of contraction increased from 4.37 to 21.5 mN

Table No.6: Effect of increasing concentration of acetylcholine in the presence of loperamide on intestinal smooth muscle

Sr. No	Dose µg (Ach)	Conc. (M)	log dose conc.	Force of Contraction (mN) (loperamide)	%age Response
1	0.01	-8	-2.00	4.85	160.07
2	0.05	-8	-1.30	4.34	143.23
3	0.1	-7	-1.00	4.04	133.33
4	0.5	-7	-0.30	3.85	127.06
5	1	-6	0.00	3.18	104.95
6	5	-6	0.70	3.03	100

Dose Response Curves with the 4 groups of drugs: The dose response curves of the mean values of all groups are plotted and are shown in figure II On comparison between groups the curve with acetylcholine and loperamide is reversed in the presence of Repaglinide.

In figure III bar diagram show the comparison between drugs acetylcholine alone, acetylcholine in the presence of loperamide, Repaglinide and loperamide + Repaglinide.

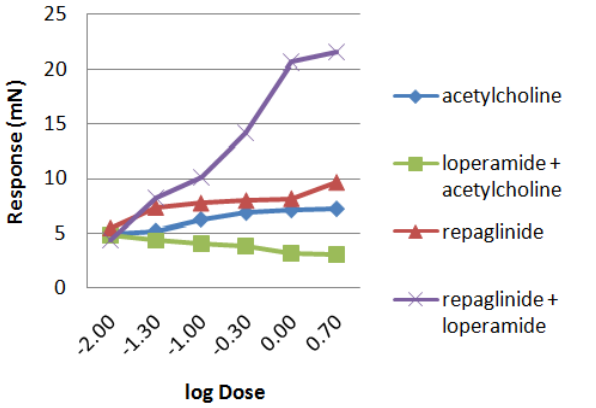

Figure No.2: Dose-Response curves with acetylcholine alone and in the presence of loperamide, repaglinide and repaglinide + loperamide.

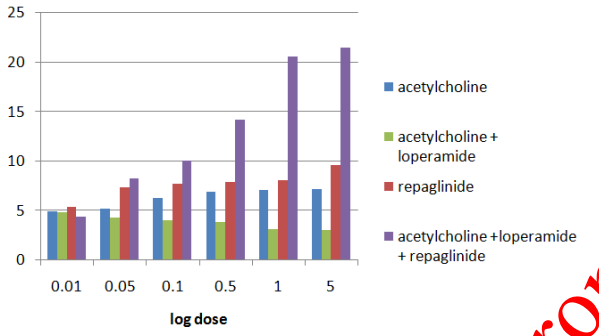

Figure No.3: Bar diagram showing comparison of effects between effects of acetylcholine, Repaglinide, loperamide and Repaglinide + loperamide.

DISCUSSION

In this study it has been seen that the dose response curve of acetylcholine on intestinal smooth muscle of rabbit is shifted toward left side with glibenclamide and rapaglinide alone. In the presence of Loperamide the curve is shifted toward right side. Glibenclamide and repaglinide when given together with loperamide respectively lead to leftward shift of the dose response curve.

The action of loperamide that it causes relaxation of intestinal smooth is related to the activation of opioid receptors in peripheral tissues.[13] Loperamide exert this action by stimulation of μ-2 opioid receptors.[14,15] These receptors lead to activation of K_{ATP} channels which causes hyper polarization of smooth muscle membrane and then its relaxation.

Sulfonylureas (glibenclamide and repaglinide) stimulate insulin secretion from pancreatic β-cells and are widely used to treat type 2 diabetes. Their principal target is the ATP-sensitive potassium (K_{ATP}) channel, which plays a major role in controlling the β-cell membrane potential. Inhibition of K_{ATP} channels by glucose or sulfonylureas causes depolarization of the β-cell membrane; in turn, this triggers the opening of voltage-gated Ca^{2+} channels, eliciting Ca^{2+} influx and a rise in intracellular Ca^{2+} which stimulates the exocytosis of insulin-containing secretory granules[16].

The K^+ ATP channel is a hetero-octameric complex of two different types of protein subunits an inwardly rectifying K^+ channel, Kir6.x, and a sulfonylurea receptor, SUR[23]. Sulfonylureas (e.g., tolbutamide, gliclazide, glimepiride and benzamido derivatives (e.g meglitinide) close K_{ATP} channel by binding with high affinity to SUR [17]

Hence in comparison to study conducted by Chih-Cheng lu it was seen that loperamide induced relaxation of prostatic strip was abolished by pre-treatment with glibenclamide[18]. We have found similar results on intestinal smooth muscle of rabbit. In this study Rapaglinide also has reversed the loperamide induced relaxation in similar way as glibenclamide. Rapaglinide is the member of meglitinide group of insulin secretagogues and act in a similar way as sulfonylureas. The binding sites of rapaglinide on K^+ ATP channel is similar as sulfonylurea and also has one unique binding site. [19]

Loperamide causes relaxation of the intestinal smooth muscle through myenteric plexus, which is the basic mechanism through which it causes its anti diarrheal effect. However, in case of long term use of loperamide toxic megacolon and paralytic ileus have been reported. Since according to this study the smooth muscle relaxation induced by loperamide can be reversed by the use of Glibenclamide, these drugs can prove to be useful in order to prevent or reverse toxic megacolon and ileus, induced by the long term use of loperamide

With the increased use of opioids, there are more patients presenting with Opiate induced constipation or opiate bowel dysfunction (OBD).[20] Constipation may be debilitating among those who require chronic analgesia [21]; OIC or OBD affected an average of 41 % patients taking an oral opioid for up to 8 weeks in a meta-analysis of 11 placebo-controlled, randomized studies in non-malignant pain[22]. Patients may discontinue treatment due to constipation, despite their established need for long-term pain relief. For treatment of this naloxone is used. The therapeutic index of naloxone is very narrow. So, Sulfonylureas along with glucose can be a good substitute for treatment of opioid induced constipation as seen in this study.

CONCLUSION

In conclusion, we suggest that activation of opioid μ-2 receptors to open K_{ATP} channels is responsible for loperamide-induced intestinal relaxation which is blocked by glibenclamide and rapaglinide as they are k^+ chaanel blockers in pancreatic beta cells.

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Original Article

Experimental Study of Antimony Induced Hepato Toxicity in Rabbits

Antimony Induced Hepato Toxicity

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ABSTRACT

Objectives: To demonstrate the effects of antimony on hepatic tissues of Rabbits. To correlate the severity of tissue damage to the dose of antimony and to an immunologically altered state of the animal.
Study Design: Experimental study.
Place and Duration of Study: This study was carried out at PGMI and KEMU, Lahore from January 1988 to March 1988.
Materials and Methods: This study was carried out on 40 healthy rabbits weighing 1.5kg divided into 4 groups each group having 10 animals with one control group. Group I animals were injected with antimony sodium tartrate of ½ MLD 6mg/kg body weight I/V at interval of 2 days for 12 weeks, whereas experimental dose of 1.71mg/kg body weight was injected I/V at interval of 4 days to group II animals. Those of group III were injected 2ml of specific bovine albumin 30%(DADEUSA) followed by schedule of group II animals. Group IV (control group) animals were injected I/V with distilled water.
Results: Hepatic Enzymes, Serum Alanine Aminotransferase and Serum Gamma Glutamyl transpeptidasc (GT) levels were estimated at the end of six weeks and twelve weeks. These were found to be raised gradually from 7th week onwards until the experiment was terminated.
Conclusion: It is concluded from this study that antimony sodium tartrate has toxic effects on liver tissue and can cause hepatocellular damage (if given for prolong period)
Key Words: Antimony, Hepato Toxicity, Hepatic enzymes, S-ALAT, γ GT, H&E, PAS, MSS.

INTRODUCTION

Antimony and its compounds were used medicinally as early as 4000 B.C. Antimony is used in Alloys, lead, tin, and copper. Its compounds are used in textile industry, flame proofing, dies, paints, rubber compounding, ceramic and glass opicifiers [1]. Human beings have always been exposed to antimony but its amount is substantially increased due to industrial production [2]. As regards the therapeutic applications in the 19th century, potassium antimony Tartrate (Tartar emetic) began to be used for the treatment of shistosomiasis and leishmaniasis [3]. The heavy metals have their toxic effects on liver kidneys central nervous system, skin muscles, bone etc. Keeping in mind a wide industrial use of the metals, we have opted to study the effects of antimony on liver tissue.

MATERIALS AND METHODS

This study was carried out on 40 healthy rabbits weighing 1.5kg divided into 4 groups each group having 10 animals with one control group.
Group I animals were injected with antimony sodium tartrate of ½ MLD (minimum lethal dose) 6mg/kg body weight I/V at interval of 2 days for 12 weeks.
Group II where as experimental dose of 1.71mg/kg body weight was injected I/V at interval of 4 days to group II animals.
Group III were injected 2ml of specific bovine albumin 30%(DADEUSA) followed by schedule of group II animals.
Group IV (control group) animals were injected I/V with distilled water.
Blood chemistry was done to see the effects of antimony on liver functions of animals of all groups, to determine the (S-ALAT) activity sclavo diagnostic G.P.T kit was used by calorimetric method and Serum γ GT (Gamma Glutamyl transpeptidase) using kinetic colorimetric method. Blood samples were collected by using disposable syringes from one of peripheral ear veins at the end of six and twelve weeks. Five ml of blood was collected in a test tube, kept for 2 hours to clot and serum was separated after centrifuging the test tubes at 3000 RPM.
Tissue Histology of liver was done at the end of experiment after sacrificing all the animals. Liver tissues were preserved in 10% formalin saline solution, to study the different morphological lesions.
Following staining procedures were carried out:-

1. Haemotoxylin and eosin staining (H&E)
2. Periodic Acid Schiff staining (PAS)
3. Methenamine sliver staining (MSS)
4. Reticulin staining (RS)

RESULTS

Laboratory Results: Liver Chemistry:-. Serum Alanine Aminotranferase (S-ALAT) levels were estimated in group I using the colorimetric method (Reithman-Frankel, 1959, 1970) (modified) at the end of six weeks, and their mean value was found to be 12.3±4.1 IU/L. Their levels rose gradually from 7th week onwards until the experiment was terminated and

their mean value was found to be 25.5±9.09IU/L at the end of experiment (Table 1).

Serum Gamma Glutamyl Transpeptidase (ɣ GT IU/L) levels were estimated using the Kinetic Colorimetric method. The mean value of the ɣ GT was 4.6 ± 1.91 IU/L at the end of six weeks which rose gradually from 7th week onwards until the experiment was terminated and their mean value was found to be 9.3 ± 4.22 IU/L at the end of 12th week (Table 2).

In animal group II and group III, there was gradual increase seen in the levels of S-ALAT and ɣ GT (Gamma Glutamyl Transpeptidasc) after six weeks till the end of experiment (Tables 3, 4, 5, 6).

Table No.1: Serum Alanine Aminotransferase (S-Alat) IU/L after IV Dose of Antimony Sodium Tartrate I in Ten Rabibts of Group I. Duration 12 weeks.

Animal number	Weight of Rabbit K(kg)	End of 6th week IU/L	End of 12th week IU/L
1.	1.5	18	40
2	1.5	13	24
3	1.3	12	20
4	1.5	16	38
5	1.5	7	15
6	1.5	4	10
7	1.5	11	20
8	1.0	15	30
9	1.5	11	28
10	1.5	16	30
Mean X		12.3	25.5
Standard deviation (S.D)		4.1	9.09

Table No.2: Serum Gamma Glutamyl Transpeptidase (ɣ-Gt) IU/L after IV Dose of Antimonmy Sodium Tartrate in Ten Rabbits of Group 1. Duration 12 weeks.

Animal Number	Weight of Rabbit (kg)	End of 6th Week IU/L	End of 12 week. IU/L
1.	1.5	4	7
2.	1.5	7	15
3	1.3	1	2
4	1.5	2	4
5	1.5	4	10
6.	1.5	7	15
7.	1.5	6	12
8.	1.5	5	10
9.	1.5	6	12
10.	1.5	4	6.
Mean X		4.6	9.3
Standard Deviation (S.D)		1.91	4.22

In group IV (Control group) animals, S-ALAT and ɣ GT levels were estimated. The S-ALAT was 20.0, ± 6.32 IU/L and ɣ -GT was -3.16 ± 0.90 at the start, which remained the same at the end of the experiment. (Table 7 & 8)

Histological and Microscopic Study:

Group I

Gross Examination: Livers of all the animals appeared normal in size, shape and color, except two animals in which surface of liver shows slight nodularity. They were triangular in shape and were covered with thin capsule.

Microscopic Examination: Eight animals revealed normal Lobular architecture. Three animals showed mild dilatation of central veins and sinusoids but no significant congestion observed.

Microscopic examination of livers revealed severe degree of lymphocytes infiltration around portal tracts which were widened . Single cell necrosis along with focal fatty change.

A moderate amount of fibrosis around the portal tracts extending to the adjacent portal tracts.

Group II

Gross Examination: Most of the animals revealed congested spots diffusely scattered on surface of liver.

Microscopic Examination: Liver showed mild to moderate degree of congestion of central veins and sinusoids.

Mild to moderate degree of lymphocytic infiltration, singe cell necrosis seen in six animals. Few animals revealed fibrosis around the portal tracts..

Group III

Gross Examination: Livers were rectangular in shape covered with thin capsule.

Microscopic Examination: Revealed maintained lobular architecture with mild dilatation, congestion of central vein and sinusoids. Moderate degree of focal lymphocytic infiltration in portal tracts in few animals . Single cell necrosis , and focal fatty changes seen in few animals..

Table No.3: Serum Alanine Aminotransferase (S-Alat) IU/L after IV Dose of Antimony Sodium Tartrate I in Ten Rabibts of Group II. Duration 12 weeks.

Animal Number	Weight of Rabbit (kg)	End of 6th Week IU/L	End of 12 week. IU/L
1.	1.5	15	30
2.	1.5	12	15
3	1.3	6	16
4	1.5	5	26
5	1.5	16	32
6.	1.5	15	30
7.	1.5	8	36
8.	1.0	10	28
9.	1.5	10	24
10.	1.0	6	15
Mean X		10.3	25.2
Standard Deviation (S.D)		3.87	7.15

Group IV (Control Group)

Gross Examination: The examination of the livers of all the animals normal in size, shape and color; covered

by glisson capsule.

Microscopic Examination: It revealed normal architecture and morphology.

Table No.4: Serum Gamma Glutamyl Transpeptidase (ɣ-Gt) IU/L after IV Dose of Antimonmy Sodium Tartrate in Ten Rabbits of Group II. Duration 12 weeks.

Animal Number	Weight of Rabbit (kg)	End of 6th Week	End of 12 week.
		IU/L	IU/L
1.	1.5	10	20
2.	1.5	7	15
3	1.3	6	15
4	1.5	8	16
5	1.5	5	12
6.	1.5	13	25
7.	1.5	16	33
8.	1.5	3	7
9.	1.5	6	10
10.	1.5	10	20
Mean X		8.4	17.3
Standard Deviation (S.D)		3.72	7.21

Table No.5: Serum Alanine Aminotransferase (S-Alat) IU/L after IV Dose of Antimony Sodium Tartrate I in Ten Rabibts of Group III. Duration 12 weeks.

Animal Number	Weight of Rabbit (kg)	End of 6th Week	End of 12 week.
		IU/L	IU/L
1.	1.5	13	30
2.	1.5	14	28
3	1.3	18	34
4	1.5	15	30
5	1.5	10	25
6.	1.5	12	30
7.	1.5	22	40
8.	1.5	17	36
9.	1.5	16	34
10.	1.5	21	40
Mean X		15.8	32.7
Standard Deviation (S.D)		3.63	4.73

Table No.6: Serum Gamma Glutamyl Transpeptidase (ɣ-Gt) IU/L after IV Dose of Antimonmy Sodium Tartrate in Ten Rabbits of Group 1II. Duration 12 weeks.

Animal Number	Weight of Rabbit (kg)	End of 6th Week	End of 12 week.
		IU/L	IU/L
1.	1.5	5	10
2.	1.5	6	12
3	1.3	2	4
4	1.5	7	15
5	1.5	3	5
6.	1.5	6	11
7.	1.5	4	10
8.	1.5	2	4
9.	1.5	3	5
10.	1.5	8	15
Mean X		4.6	9.1
Standard Deviation (S.D)		2.01	4.11

Table No.7: Serum Alanine Aminotransferase (S-Alat) IU/L after IV Dose of Antimony Sodium Tartrate I in Ten Rabibts of Group IV (Control). Duration 12 weeks.

Animal Number	Weight of Rabbit (kg)	End of 6th Week	End of 12 week.
		IU/L	IU/L
1.	1.5	15	15
2.	1.5	25	25
3	1.3	20	20
4	1.5	10	10
5	1.5	30	30
6.	1.5	10	10
7.	1.5	25	25
8.	1.5	25	25
9.	1.5	20	20
10.	1.5	20	20
Mean X		20.0	20.0
Standard Deviation (S.D)		6.32	6.32

Table No.8: Serum Gamma Glutamyl Transpeptidase (ɣ-Gt) IU/L after IV Dose of Antimonmy Sodium Tartrate in Ten Rabbits of Group 1V (Control). Duration 12 weeks.

Animal Number	Weight of Rabbit (kg)	End of 6th Week	End of 12 week.
		IU/L	IU/L
1.	1.5	2.4	2.4
2.	1.5	4.1	4.1
3	1.3	5.2	5.2
4	1.5	2.5	2.5
5	1.5	2.8	2.8
6.	1.5	3.33	3.33
7.	1.5	2.4	2.4
8.	1.5	3.1	3.1
9.	1.5	3.3	3.3
10.	1.5	2.5	2.5
Mean X		3.16	3.16
Standard Deviation (S.D)		0.90	0.90

DISCUSSION

In present study, the levels of serum-Alanine Amino transferase and serum Gamma-glutamyl transpeptidase varied in different groups. The levels were estimated at the end of 6th and 12th week. In animals of all groups, there was gradual increase in the level of SALAT and Serum ɣ -GT. (Gamma Glutamyl Transpeptidasc) at the end of 12 weeks where as in control group liver enzyme levels were remained the same as estimated at the start of experiment

The patients of schistomomiasis treated with antimonials showed elevation of SGOT and SGPT values which indicate hepatic damage [4]. Simillarly rise in hepatic enzymes observed in patients treated with antimonial suggesting hepato cellular damage [5] .

Simillarly transient rise in alanine amino transferase activity observed in a patient of cutaneous leishmaniasis treated with antimonials [6]. However hepatotoxicity is observed more typically during prolong therapy with antimonial compounds.

Parenteral treatment with antimony compounds has caused hepatic necrosis although reversible elevation of liver enzymes activities are more typical [7].

The above mentioned studies coincides with the observations made in the present study.

As regards morphological appearance of liver tissue, trivalent antimony compounds were found in abnormally high concentration in liver and thyroid [8]. Where as slight to moderate parenchymatous degeneration of liver was observed by workers [9].

In the present study, most of animals from various groups revealed a maintained lobular architecture except few animals showed disorganized architecture. Lymphocytic infiltration of moderate (++) to severe degree (+++) was common feature in most of the animals of various groups. A fatty change was observed in 30% of the animals from group I and III where as no change was seen in group II animals.

Single cell necrosis was observed in most of animals of all groups. A few animals of group I and II, revealed a moderate amount of fibrosis around the portal tracts.

Fatty degeneration of liver reported in chronically exposed guinea pigs to antimonial compounds [10]. Similar fatty degeneration was observed in another experimental study [11]. These observations coincides with the findings seen in the present study.

Centrilobular necrosis was reported in occupationally exposed workers to antimony [12] which is not observed in the present study. On the other hand a moderate amount of fibrosis around the portal tract, a morphological change that has not been demonstrated in the literature.

CONCLUSION

It is concluded that the morphological lesions in the liver appear to be dose and time dependent. As regards biochemical evidence hepatic injury, serum enzyme (S-ALAT, ɣ - GT. (Gamma Glutamyl Transpeptidasc), levels were found to be raised significantly.

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Original Article

Anemia in Pregnant Women

Major Determinants of Anemia in Pregnant Women Residing in the Urban Slums of Taluka Qasimabad, District Hyderabad

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ABSTRACT

Objective: To find out major determinants of anemia in pregnant women residing in the urban slums of Taluka Qasimabad, district Hyderabad.

Study Design: Cross-sectional descriptive study.

Place and Duration of Study: This study was conducted in urban slum areas of Taluka Qasimabad, District Hyderabad during six months of study period i.e. from 1st March 2011 to 31st August 2011.

Patients and Methods: The total population residing in the study areas was twelve thousand two hundred and seven. During the study period of six months, two hundred and fifty pregnant women were enrolled for the study. Pregnant women during 2nd and 3rd trimester of pregnancy were included in the study. The data was collected by conducting interviews, filling of the pre-tested, structured questionnaire and by assessing anemia by determining the hemoglobin level in the enrolled pregnant women. The questionnaire was a close-ended one, filled by the principle researcher herself. It comprised of demographic information about woman. Every woman's hemoglobin was determined by using Sahli's Hemoglobinometer. Anemia in pregnancy according to WHO classified into mild anemia hemoglobin level in the range of 10.0-10.9 g/dl, moderate anemia hemoglobin level in the range of 7-9.9 g/dl and severe anemia hemoglobin level is <7 g/dl.

Results: The association of various factors (determinants) with anemia was analyzed by applying chi-squared test; the p-value of <0.05 was taken as the level of significance. Two hundred and thirty three pregnant women were anemic while only seventeen women (6.8%) were found non-anemic. Majority of the women i.e. 70% presented with moderate anemia (hemoglobin level 7.0-9.9Gm /dl) while severe anemia (hemoglobin level <7 Gm/dl) was recorded in 5.2% pregnant women. There was strong statistically significant association seen between parity of pregnant women and the degree/severity of anemia (p=0.00). There was strong association between socio-economic status and the severity of anemia (p=0.00). The family type was strongly associated with the severity of anemia (p=0.01).

Conclusion: Prevalence and severity of anemia in pregnant women residing in urban slum areas of Taluka Qasimabad, District Hyderabad is high. Current findings highlight the anemia in pregnancy as a priority area of concern.

Key Words: Anemia, Pregnant women, Urban slums.

INTRODUCTION

Iron deficiency anemia is the most prevalent form of malnutrition, affecting around 50% of pregnant women world wide and the eighth leading cause of disease in girls and women in developing countries.[1] The most common cause of anemia in pregnancy is due to iron deficiency, reason for anemia in pregnancy would be lack of nutritious diet.[2] Anemia in pregnancy is defined by the World Health Organization WHO as a hemoglobin concentration below 11 g /dl. It is most common cause of anemia in pregnancy worldwide is iron deficiency. The predisposing factors for it include grand parity, low socioeconomic status, and inadequate birth spacing.[3] It is estimated that 1,200 million people are anemic globally. The prevalence of anemia depends upon socioeconomic status, life style, parity, associated medical problems and regular antenatal care. Maternal anemia in pregnancy is commonly considered as risk factor for poor pregnancy out comes and can threat the life of mother as well as fetus.[4] Risk is also increased with parity nearly 3-fold higher for women with 2-3 children and nearly 4-fold greater for women with four or more children, thus implicating pregnancy.[5] Iron deficiency anemia in pregnancy is highly prevalent in lower southern Thailand where poverty and low levels of education prevail.[6] Iron deficiency is characterized by deficient hemoglobin level synthesis caused by lack of iron. [7]Anemia is now one of the most frequently observed nutritional disease in the world due to inadequate intake[8] and malnutrition.[9] In our society girls are lacking access to balanced diet, adequate health care and proper education particularly pregnancy with iron and folate deficiency due to socially

dominance of males, lack of power of decision making, ignorance by families and herself, lack of employment. Prevalence of anemia also increases with parity especially multi parity, closely spaced pregnancy.[10]

Adverse hemoglobin status of pregnant women attending public sector hospital might be due to socioeconomic status, less income in Pakistan is also associated with poor educational status and high parity. In this vulnerable population, the anemia may become the underlying cause of maternal mortality and perinatal mortality as well as it can lead to the complications to the fetus including risk of premature delivery and low birth weights.[11] According to safe motherhood in Pakistan by Sadiqua Jafary, the maternal mortality ratio in Pakistan remains high in between 350 and 500 per 100,000 live births, while the neonatal mortality ratio is 50 per 1000 live births. In Pakistan a mother dies as a result of giving birth every 20 minutes. For every one maternal mortality, around thirty one mothers suffer from different rates of maternal morbidity. Nearly 1 in 10 new born do not celebrate their birth day.[12] Maternal mortality and morbidity are largely preventable by acquiring Safe motherhood initiative, the antenatal care being one of the pillars of safe motherhood.[13] Maternal nutrition is modifiable risk factor of public health importance that can be integrated into efforts to prevent adverse birth out comes, particularly among economically developing/low income population.[14] It has been estimated that around two billion people in the world are anemic, mostly in the lower income countries of Africa and Asia.[15] The greatest burden of death and disease due to anemia in Africa and Asia is associated with the consequences of anemia among pregnant women and young children. A recent meta-analysis shows that correcting anemia of any severity decreases of maternal mortality by about 20% for each 1g/dl increase in hemoglobin.[16]

MATERIALS AND METHODS

This community based cross-sectional descriptive study. The study was conducted in urban slum areas of Taluka Qasimabad, District Hyderabad during six months ie from 1st March 2011 to 31st August 2011. It was a population based study. All the women in 2nd and 3rd trimester of pregnancy fulfilling the inclusion criteria were included in the study. While those not willing to participate in study, those who were interviewed but later on refused to give blood sample for hemoglobin estimation and all pregnant women in first trimester of pregnancy were excluded in the study. The total population residing in the study areas was twelve thousand two hundred and seven. According to an empirical formula for estimating the number of expectant mothers in developing countries, 24% of the total population is the women in reproductive age and among them 4% are the estimated expectant mothers at a given time.[17] As it was a population based study therefore we did not do sampling. During the study period of six months, two hundred and fifty pregnant women were enrolled for the study. The data was collected by conducting interviews, filling of the pre-tested, structured questionnaire and by assessing anemia by determining the hemoglobin level in the enrolled pregnant women. The questionnaire was a close-ended one, filled by the principle researcher herself. It comprised of demographic information about woman, her family, obstetrical history and her diet. Every woman's hemoglobin was determined by using Sahli's Hemoglobinometer. Data was entered in SPSS-16. Frequencies for all qualitative and quantitative variables were computed. Prevalence of anemia was calculated separately for mild, moderate and severe anemia. The association of various factors (determinants) with anemia was analyzed by applying chi-squared test; the p-value of <0.05 was taken as the level of significance.

RESULTS

Two hundred and thirty three pregnant women were anemic while only seventeen women (6.8%) were found non-anemic. Mild anemia (hemoglobin level 10.0-10.9 g/dl) was reported in 17.6%, while moderate anemia (hemoglobin level 7.0-9.9Gm /dl) was reported in 70.45% women and severe anemia (hemoglobin level <7 Gm/dl) was recorded in 5.2% pregnant women (Table 1).

Table No.1: Anemia in study population (n=250)

Anemia	No.	%
Mild (hemoglobin level 10.0-10.9 g/dl)	44	17.6
Moderate (hemoglobin level 7.0-9.9Gm /dl)	176	70.4
Severe (hemoglobin level <7 Gm/dl)	13	5.2
No	17	6.8

Table No.2: Relationship between parity and degree of anemia

Parity	Mild anemia	Moderate anemia	Severe anemia
Primiparous	10	29	3
Multiparous	32	115	2
Grand Multiparous	2	32	8

p = 0.00 (Chi-square test was applied)

Table No.3: Relationship between socio-economic status and severity of anemia in pregnancy

Socioeconomic status	Mild anemia	Moderate anemia	Severe anemia
Lower class	18	138	8
Middle and upper middle class	26	38	5

p = 0.00 (Chi-square test was applied)

Table No.4: Relationship between family type and severity of anemia in pregnancy

Family type	Mild anemia	Moderate anemia	Severe anemia
Joint family	23	128	12
Nuclear family	21	48	1

p = 0.01 (Chi-square test was applied)

There was strong statistically significant association seen between parity of pregnant women and the degree/severity of anemia (p=0.00) (Table 2). There was strong association between socio-economic status and the severity of anemia (p=0.00) (Table 3). The family type was strongly associated with the severity of anemia (p=0.01) (Table 4).

DISCUSSION

The current study concluded that among anemic pregnant women, one hundred and forty nine were multiparous as compared to 42 women each in primiparous and grand multiparous groups. The study revealed a strong association between parity and severity of anemia (p=0.00). Comparing these results with those of the study by Idowu et al[17] in Abeokuta Nigeria, where 35.3% pregnant anemic women were nulliparous; 48.5% were multiparous, whereas 16.2% were grandmultiparous. A study by Viveki et al[18] in Belgaum Karnataka India found prevalence of anemia was (91.3 %) in parity two or more, those in 3rd trimester (85.6%). Risk is increased with parity nearly 3-fold higher for women with 2-3 children and nearly 4-fold greater for women with 4 or more children.[5] In contrast to my study another study done by Glover et al[3] in Sekyere West districts Ghana showed lower prevalence of anemia to be strongly associated with increasing parity of the women.(p<0.003).

In the current study seventy percent of the total two hundred and thirty three anemic pregnant women belonged to lower socioeconomic class. There was a strong statistically significant association seen between anemia and socio-economic status (p=0.00). This association of anemia with low family income is obvious due to compromised nutritional status resulting from poverty. A study with similar objectives conducted by Hyder[19] in Bangladesh revealed that 72% of the anemic pregnant women were classified as economically deficit. A study by Viveki et al[18] in Belgaum Karnataka India found 47.4% were from below class 1V socioeconomic status. A study done by Bakhtiar[4] in Railway Hospital revealed that out of 860 women, 402 women were anemic in which 187 women earning monthly income less Rs.5000/ were anemic; while those whose family income was between Rs.5,000 to 10,000, one hundred and thirteen were anemic, the women having family earnings of more than Rs.10,000/, only one hundred and two women were found anemic. Another study conducted by Yuan Xing et al[20] with similar objectives in Tibet concluded that among pregnant women with annual income less than $264 had significantly lower Hb levels than those with annual income more than two hundred and sixty four dollars. Study done by Nadeem[21] had shown that severity of anemia was associated with high per capita income. Current study identified seventy percent of the pregnant anemic women residing in joint families. The family type had association with severity of anemia (p=0.01). A study by Viveki et al[18] in Belgaum Karnataka India indicated prevalence of anemia as being more than 53.1%. The majority of the study subjects were from nuclear families and 109 (47.8%) had studied up to primary level only. Study conducted by Bakhtiar[4] also endorsed the results of my study.

CONCLUSION

Prevalence and severity of anemia in pregnant women residing in urban slum areas of Taluka Qasimabad, District Hyderabad is high. Current findings highlight the anemia in pregnancy as a priority area of concern.

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Original Article

Cord Around the Neck

Frequency of Surgical Intervention Due to Cord Around the Neck

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ABSTRACT

Objective: To see the frequency of cord around the neck.
Study Design: Retrospective Observational Study.
Place & Duration of Study: This study was carried out at Shaikh Zaid Women Hospital, CMCH, SMBBMU, Larkana from January 2012 to December 2013.
Materials And Methods: Total patient 8250 taken from Jan 2012 to Dec 2013. All cases were studied in detail with reference to course of labour, mode of delivery, interference required and maternal and fetal outcome. A detailed history was taken and general and systemic examination was done. The muller Munro Kerr maneuver was used to assess the adequacy of the pelvis and diagonal conjugate was accurately measured.
Results: Total patient taken 8250, from Jan 2012 to Dec 2013 among them vaginally delivered 4238(51.3%), 92 have applied forcep 27(0.63%) babies delivered cord around the neck with 30 patient have applied vacuum out of which 16 (0.37%) cord around the neck. Spontaneously vaginal deliveries without surgical intervention 4116 (31.9%), out of which 1312 (15.9%) have cord around the neck. 2360 (28.6%) patient delivered through emergency LSCS. 722(17%) babies with cord around the neck and 1560 (18.9%) patient delivered through elective LSCS among them 759 (17.9%) babies delivered with cord around the neck.
Conclusions: Most of these cases delivered vaginally with minimal maternal and fetal morbidity. Frequency of surgical intervention in these cases can be reduced by proper antenatal care especially in 3rd trimester, by plotting partogram and using oxytocin judiciously during intrapartum period.
Key Words: Surgical intervention, cord around the neck and feto maternal outcome

INTRODUCTION

Nuchal cord is defined as an umbilical cord that passes 360° around the fetal neck[1]. around 25% to 50% of nuchal cord found at any one time will resolve prior to delivery[2] and upto 60% of fetuses have nuchal cord present at some time during pregnancy[3].
The diagnosis is not made routinely of nuchal cord until had is not engaged, however, it can be suspected due to unengaged head prior delivery conduct, with direct method of diagnosis all cardiotocograph during labour due to presence of variable deceleration in fetal heart rate, particularly if there is 'shouldering' are double variable or 'W' pattern[4]. Other indirect methods describe by fetal heart rate change following application of manual compression of fetal neck abdominal[5]. In response to acoustic vibrity stimulations[6]. More recently color Doppler imaging has been used as an aid sonographic diagnosis[7,8,9,10.] The presence of nuchal has been associated with many different factors in the mother, fetus, umbilical cord, placenta, labour and with a less favourable fetal outcome. The impact of nuchal cord on indication of labour is unknown and there are no study have specifically studies this group

MATERIALS AND METHODS

Total patients 8250 taken from jan 2012 to Dec 2013. All cases were studied in detail with reference of cause of labor, mode of delivery, interference required and maternal and fetal outcome. A detailed history was taken and general and systemic examination was done. the Muller Munro kerr manoeuver was used to asses the adequacy of the pelvis and diagonal conjugate was accurately measured. Also cardiotocography, doppler ultrasound has been used as an aid to sonographic diagnosis. The outcome of labor, delivery and neonates were obtained from the women's care notes after delivery.

RESULTS

Total patient taken 8250, from Jan 2012 to Dec 2013. Among them 3599 (44.112%) were primigravida & 4559 (55.88%) were Multigravida[Table No:01]. Vaginally delivery accurred in 4238(51.3%), 92 have applied forcep 27(0.63%) babies delivered cord around the neck with 30 patient have applied vacuum out of which 16 (0.37%) cord around the neck. Spontaneously vaginal deliveries without surgical intervention 4116 (31.9%), out of which 1312 (15.9%) have cord around the neck. 2360 (28.6%) patient delivered through emergency LSCS. 722(17%) babies with cord around the neck and 1560 (18.9%) patient delivered through elective LSCS among them 759 (17.9%) babies delivered with cord around the neck [Table No: 02]. APGAR score at the time of delivery was noticed 7 in 1 & 9 in 5 minutes among 3060 patients, 5 in 1 & 7 in 5 Minutes was noticed among 4550 patients and 4 in 1 minute & 5 in 5

minutes among 140 patients [Table No.03]. outcome of fetus obtained according to apparent aetiology and severity of cord around the neck at the time of labour. There were no neonatal death.

Table No.1: Parity

Parity	No:	Percentage
Primigravida	3599	44.112%
Multigravida	4559	55.88%

Table No.2: Outcome of labour (Mode of delivery) (n=8158)

Mode of Delivery	No: of Delivery	Percentage
SVD without surgical intervention	4116	31.9%
Forceps vaginal delivery	92	2.1%
Vacuum vaginal delivery	30	0.707%
Em-lscs	2360	60.20%
El-lscs	1560	39.795%

Table No.3: Fetal Outcome (Apgar Scores at 1-5 minutes)

Apgar at 1 Minute	Apgar at 5 Minutes	No. of Cases
7	9	3060
5	7	4550
4	5	140

DISCUSSION

This study was carried out on 8158 primigravidas and multigravidas attending labour room with floating heads at onset of labor. All the women recruited had an ultrasound scan performed by one operator in shaikh zaid women hospital larkana and outcomes were obtained for all deliveries. Although a nuchal cord has been associated with several markers of poor neonatal outcome and some groups have reported an increase in perinatal mortality[11,12]. These studies were retrospective. Our studies report the feto-maternal outcome are associated with breech presentation, right sided fetus position, increased fetal activity, reduced fetal movement[13], a long length and less vascular coiling of the cord[14,15], abnormal umbilical artey Doppler findings[16], abnormal ductus venosus velocity waveforms[17], a posterior placenta[18], induction of labor[19], variable decelerations of the fetal heart rate[19,20,21,22], meconium stained amniotic fluid[19,20,21,23], shoulder dystocia[24], operative vaginal deliveries[20], emergency lower segment cesarean section[23], IUGR[25,26], low apgar scores[19,20,12,27], increase neonatal unit admission[23], need for resusctation[19], umbilical artery acedemia[19,28], neonatal hypovolemic shock[29], neonatal anemia[30], dural sinus dilatation, stillbirth, poor neural development performance at 1 year, and cerebral palsy, Despite these reports, cord around the neck is usually associated with a normal neonatal and maternal outcome. study was conducted in UK (2005) shows cord around the neck was present at 18% of delivery[31]. whereas in our studies cord around the neck was present 18.9% in Em-lscs, 17.9% in El-lscs 0.63% in forceps vaginal deliveries and 0.37% in vacuum deliveries.

CONCLUSION

Most of cases of cord around the neck delivered vaginally with minimal maternal and fetal morbidity. Frequency of surgical intervention in these cases can be reduced by proper antenatal care especially in 3rd trimester, by plotting partogram and using oxytocin judiciously during intrapartum period. cord around neck is not preventable so no need to worry because baby is getting oxygen supply via umbilical cord not from air going in trachea. so we can take precaution during delivery and during caesarean section

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Original Article

Poisoning

Trend of Poisoning in Muzaffarabad (AJK)

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ABSTRACT

Objective: The objective of this study is to determine the trend of poisoning in Muzaffarabad AJK.
Study Design: Retrospective study.
Place and Duration of Study: This study was conducted at combined Military Hospital (CMH) Muzaffarabad (AJK) during the period of 1st January 2009 to 31st December 2010.
Material& Methods: One hundred & forty cases of poisoning was brought in hospital. Information regarding Age, Gender, demography, manner, time of occurrence, and patient outcome was confirmed from hospital records and collected data was analyzed.
Results: There were 98 female and 42 mate victims involved in this study and maximum cases belong to second and third decade of life (23.57% and 48.57% respectively. Most common manner of poisoning was suicidal / attempts. Most incidences of poisoning occur in month of June and an organophosphorous compounds was leading cause of poisoning followed by Benzodiazepines.
Conclusion: Organophosphorous compounds are the major chemical agents which pose a health threat particularly to young people.
Key Words: Suicide, organophosphorous, Benzodiazepines, poisoning, Trends.

INTRODUCTION

Poison is a silent weapon capable of destroying life mysteriously secretly and without violence. A poison is a substance which when administered, inhaled or ingested is capable of acting deleteriously on the human body. Thus there are no limits between a medicine and a poison. For a medicine in a toxic dose is a poison and a poison in small doses may be a medicine. The real difference between a medicine and a poison is the intent with which it is given, if the substance is given with the intention to save life it is a medicine, but if it is given with the intention to cause body harm it is a poison[1] .Throughout human history intentional application of poison has been used as a method of assassination, murder, suicide and execution.[2] Formerly all savage tribes used poisoned arrows and historical case like snake bite death of Cleopatra is also on the record.

Poisoning is usually accidental or non-accidental. The non-accidental is ether suicidal or homicidal. Suicidal is either deliberate suicidal attempt or an attempt to gain sympathy or manipulate the environment called Parasuicide[3]. Different poisons in different era, remained a challenge for medical profession. Pakistan is developing country of south Asia, rural population of the country is mostly dependent on agriculture for living.

Now a day's insecticides and pesticides are routinely used for modern cultivation methods and are readily available at all places easily without any check on their sale and also incidence of poisoning with them is also increasing day by day. Previously the cause of poisoning was mostly accidental but presently poisons are the commonest mode of committing suicide. Environmental and cultural factors are known to influence the rate of self-poisoning[4]. Nowadays, self-poisoning has been indicated as major health problems in many developing countries[5]. Killing about 3, 00,000 people each year[6]. However reported incidence of deliberate self-poisoning in Pakistan is about 8 per 1, 00,000 in men and women[7].

MATERIALS AND METHODS

This retrospective study was conducted from 1st January 2009 to 31st December 2010 of all poisoning cases admitted in the emergency of CMH Muzaffarabad. Information regarding Age, gender, demography, manner, time of occurrence, stay in hospital and patient outcome was confirmed from the hospital records to know the current trend of poisoning. The collected data was analyzed, observations were discussed and compared with other studies and final conclusion was drawn.

RESULTS

During the period of study 140 cases of poisoning was reported. The observation and results of 140 cases studied are tabulated.

Table 1 depicts more poisoning in the month of June whereas minimum number of cases seen in the month of October.

Table 2 depicts poisoning more common among females (70%) than males (30%) and maximums

number of cases were from the age group of 21-30 years (48.5%) followed by 11-20 years (23.5%).

Table No.1: Month Wise Distribution.

Months	2009	2010
January	4	2
February	5	3
March	8	6
April	4	4
May	6	8
June	20	18
July	10	10
August	7	6
September	3	2
October	2	1
November	4	3
December	4	1
Total	**77**	**63**

Table No.2: Gender & Age Wise Distribution.

Age Group (in years)	Male	Female	Total	%age
0-10	02	01	03	(2.14%)
11-20	10	23	33	(23.57%)
21-30	15	53	68	(48.57%)
31-40	04	16	20	(14.28%)
41-50	05	05	10	(7.14%)
51-60	03	00	03	(2.14%)
>60	03	00	03	(2.14%)
Total	**42 (30%)**	**98 (70%)**	**140**	**100**

Table No.3: Type And Manner of Poisoning.

Poison	Acci-dental	Suicidal / Attempts	Homicidal	Total
Organo-phosphorous compounds	25	45	00	70(50%)
Benzodia-zepines	02	30	08	40 (28.5%)
Paracetamol	04	06	00	10 (7.14%)
Aluminum phosphide	00	07	00	07 (5%)
Alcohol	05	00	00	05 (3.5%)
Kerosene oil	05	00	00	05 (3.57%)
CUSO4	00	03	00	03 (2.14%)
Total	**41**	**91**	**08**	**140**

Table 3 depicts maximum suicidal attempts/suicide with Organophosphorous compounds followed by Benzodiazepines and accidental poisoning with Alcohol followed by kerosene oil.

Table 4 depicts Organophosphorous compounds are responsible for (50%) of cases followed by Benzodiazepines (28.5%). The most common cause of poisoning among males was insecticides followed by Benzodiazepines and among females was insecticides followed by Benzodiazepines.

Table No.4: Gender And Type of Poison.

Poison	Male	Female	Total %
Organophosphorous compounds	20	50	70 (50%)
Benzodiazepines	10	30	40 (28.5%)
Paracetamol	03	07	10 (7.14%)
Aluminum phosphide	02	05	07 (5%)
Alcohol	05	00	05 (3.5%)
Kerosene oil	02	03	05 (3.5%)
CUSO4	00	03	03 (2.14%)
Total	**42**	**98**	**140**

DISCUSSION

Total 140 patients of acute poisoning were admitted in CMH Muzaffarabad during the period from January 2009 to December 2010. According to WHO three million acute poisoning cases with 2, 20,000 deaths occur annually and of these 90% of fatal poisoning in developing countries.

Muzaffarabad having a population of 5, 45,817 during the study period, the rate of poisoning comes out to 12.824 per / 100000 population per year. Maximum number of poisoning cases occurred in the month of June whereas minimum number of poisoning was seen in the month of October. Increased cases in June were due to increased farming activity like spraying of pesticides in the season.

The poisoning was common in 21-30 years (48.5%) followed by 11-20 years (23.5%) as found by others (8, 9, 10, 11). The higher incidence can be explained by the fact that persons of this age group are suffering from stress of the modern life style, failure of less percentage in the exams, scolding from parents or teachers, failure to love, family problems etc. change over from the concept of joint family to nuclear family has forced modern youth to face the problem of day to day living both at home and outside, on their own, without the much needed advice from the elders. When their problems and tensions become unbearable ending one's life seems to be the only solution for them.

The number of females was more (70%) as compared to males (30%). Almost similar pattern of predominance by females was shown in study by Dr. Afzal Memon (11) where females outnumbered (55.08%) males (44.91%). However the previous studies (12,13) shows male predominance and when compared with current

study it shows shift of trend towards females. Females being alone at home were more prone to suffer from loneliness and depression from various psychological problems. Family problems are also on increase.

The most common poison abused was organophosphorus compounds (50%) followed by Benzodiazepines (28.5%), paracetamol and other drugs (7.14%). Aluminumphosphide (5%). Studies available from other parts of country also denote Agrochemicals are the most commonly abused and of the Agrochemicals organophosphonus compounds are more commonly encountered agents (11) similar reports were seen in the study from Asian countries such as Sri Lanka, Bangladesh(14,15)However some studies from Pakistan and from Malaysia and Oman shows 11 therapeutic agents mostly responsible for poisoning (16,17)

Muzaffarabad is hilly area but for common people main source of bread and butter is farming. These Agrochemicals are easily available, leading to increased incidence of poisoning. In Muzaffarabad most drugs including benzodiazepines are easily available. There are almost 50 different brands available in the market, 10 of which are of diazepam alone. They are particularly popular as sleeping pills and tension relievers. It is extremely easy for someone to walk into a medical store and ask for a packet of diazepam.

The most common manner of poisoning was suicidal followed by accidental this may be because of reasons like economic crises, examination failure, love failure, quarrels, un employment and chronic illness. Similar are the findings of various authors. The results of study showed that trend from accidental poisoning have shifted in favor of suicidal poisoning. The major cause of morbidity and motility in United States is self-poisoning (18). About a million people die by suicide each year worldwide. Organophosphorus compounds are the commonest agent not only for accidental purposes but also for self-poisoning.

We found increase in the use of Organophosphorous compounds poisoning (50 %) as compared to Benzodiazepines (28.5 %). This study is opposite to study by khurramat al(19)that showed that poisoning with Benzodiazepines is more common than Organophosphorous compounds. However the studies done in Karachi Pakistan support our current study (11, 20).

CONCLUSION

Organophosphorous compounds' are the major chemical agents which pose a health threat particularly to young people, our study shows that self-poisoning was common in females and there is a marked decline in the use of benzodiazepines and other agents as compared to Organophosphorous compounds which shows increase in their usage resulting in changing trends of poisonous agents.

Effective measures should be adapted by the concerned authorities to decrease the risk of poisoning and to improve the outcome which many be as follows.

- Continuous Medical Education should be mandatory for doctors to keep them updated regarding diagnoses and management of poisoning.
- Antidotes should be made available in hospitals.
- Storage and sale of insecticides and other drugs should be controlled and there should be strict enforcement of law.
- Government should take necessary steps to improve the condition of farmers and for better employment facilities.
- Basic health education during schooling.
- Educating the teen age population regarding handling of stressful situations.
- Religious scholars must all assist in preventing self-poisoning.
- We must follow the injunctions of Islam which clearly condemn suicide

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Original Article

Protective Effect of Vitamin C on Diameter of Seminiferous Tubules and Spermatogenesis of Albino Rats with Lead Toxicity

Effect of Vit.C on Lead Toxicity

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ABSTRACT

Objectives: The study was undertaken to investigate whether lead toxicity can reduce the diameter and spermatogenesis of testes of albino rats. If the reduction occurs, with what dose the animals can be protected by vitamin C against lead toxicity.

Study Design: Experimental study.

Place and Duration of Study: This study was carried out at the Department of Anatomy, PGMI, Lahore from March 2007 to August, 2007.

Materials and Methods: In this study, 90 animals (albino rats) were taken from National Health Institute Islamabad. These were divided into five groups. Each group has 18 animals as group A,B,C,D and E.

Results: The lead treated animals reduced 16% of diameter in 4 weeks as reported by Harvey. The loss of diameter and reduction in spermatogenesis was due to lead toxicity. In another study by Biswas and Gosh, the animals gave same results with lead toxicity in 14 days. In this experiment it has proved that lead toxicity reduced the body weight of albino rats and this toxicity can be protected with heavy dose of vitamin C.

Conclusion: Vitamin C reduces the toxic effects of lead on diameter of seminiferous tubules and spermatogenesis of rats, which is shown in this study.

Key Words: Lead toxicity, Seminiferous tubules, Vitamin C

INTRODUCTION

Lead is a heavy metal present in earth crust. It is also end product of uranium disintegration. Lead is a common environmental toxic metal used by human beings for thousands of years. Lead is present as inorganic metal in lead oxide, lead chloride, lead sulfide etc and as organic metal in lead tetra ethyl chloride etc. Lead can replace the trace metals from human body such as calcium, copper, chromium, manganese and magnesium. Its absorption enhances from gastrointestinal tract if these trace elements are deficient in human beings.[1] No organ of the body is immune for lead poisoning if it is exposed to it chronically. Lead is continuously emitted from the industries.[2] The mechanism by which blood lead concentration increases depends upon both ingestion and inhalation. It can be mobilized from bone where lead is deposited.[3] It can catalyze the oxidative reaction and produce excessive reactive oxygen species.[4] Beverages and acidic foods can dissolve the lead from improperly glazed containers.[5] Heavy metals exert their toxic effects by combining with more reactive groups reducing the appetite and body weight.

MATERIALS AND METHODS

For this study, 90 animals (albino rats) were taken from National Health Institute Islamabad. These were divided into five groups. Each group has 18 animals as group A,B,C,D and E . The animals of group A were given 1 cc normal saline daily intraperitoneally. Group B animals were given lead acetate 10 mg/kg body weight daily intraperitoneally. Group C animals were given lead acetate 10 mg/kg body weight and vitamin C 250 mg/kg body weight daily intraperitoneally. Group D animals were given lead acetate 10 mg/kg body weight and vitamin C 500 mg/kg body weight daily intraperitoneally. Group E animals were given lead acetate 10 mg/kg body weight and vitamin C 1000 mg/kg body weight daily intraperitoneally.

In the beginning of experiment, Group A was divided into subgroup A1, A2 and A3. Group B into subgroup B1, B2 and B3. Group C, D and E were divided into C1, C2 and C3,D1,D2 and D3 and E1, E2 and E3 respectively. Subgroup 1 was sacrificed after 5th week, subgroup 2 was sacrificed after 6th week and subgroup 3 was sacrificed after 7th week. Lead acetate was purchased from Anarkali near King Edward Medical University, Lahore.

Statistical Analysis: All values were presented by SPSS version 17. The diameter of seminiferous tubules of all the same subgroups were taken and compared as A1, A2 and A3 etc, and with each other as A1, B1 and C1 etc. The significant and insignificant P values were calculated by ANOVA. The diameter was measured under low power microscope with electrometer. ANOVA was applied and P value was calculated. All these values are presented in the form of tables and graphs.

RESULTS

The rats which were treated with lead acetate showed a decrease in diameter and the rats which were treated with both lead acetate and vitamin C showed improvement as compared to those rats which were only treated with lead acetate as evident from table No. 1. The rats which were treated with maximum dose of vitamin C (1000 mg/kg body weight daily) showed the most improved diameter and spermatogenesis. Similarly in the subgroup 2 the effect of lead toxicity and its reversal by vitamin C is more pronounced as given in Table No. 2. The mean diameter of seminiferous tubules of subgroup B2 was 234.16 ± 28.53 µm and the mean diameter of seminiferous tubules of A2 was 266.41 ± 18.1 µm (given in Table No. 2). This showed a significant weight loss in these rats, only treated with lead acetate. The effect of lead toxicity was reversed by vitamin C. The higher the dose of vitamin C, the greater reversal was seen as evident from Table No. 1 and 2. In subgroup 3, the effect of reversal of lead toxicity with vitamin C was the most significant as given in Table No. 3.

Table No. 1 Diameter of Seminiferous Tubules in µm of Subgroup 1

Sub group	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Group A 1	6	242.9667	35.13122	14.34226	206.0987	279.8346	194.70	284.20
Group B 1	6	227.6500	23.91792	9.76445	202.5497	252.7503	193.10	260.90
Group C 1	6	230.6500	17.78637	7.26126	211.9843	249.3157	209.80	256.20
Group D 1	6	235.9667	19.66842	8.02960	215.3259	256.6074	208.60	260.50
Group E 1	6	238.5833	45.98419	18.77297	190.3259	286.8408	170.20	280.60
Total	30	235.1633	28.78003	5.25449	224.4167	245.9100	170.20	284.20

ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	900.325	4	225.081	.243	.911
Within Groups	23120.085	25	924.803		
Total	24020.410	29			

Table No. 2: Diameter of Seminiferous Tubules of subgroup 2

Sub group	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Group A 2	6	266.416	18.196	7.428	247.320	285.512	241.70	291.60
Group B 2	6	234.166	28.532	11.648	204.223	264.110	206.40	280.30
Group C 2	6	241.466	26.047	10.634	214.131	268.802	208.20	278.70
Group D 2	6	246.866	17.675	7.215	228.317	265.415	217.40	261.70
Group E 2	6	260.066	19.690	8.038	239.402	280.730	231.30	282.50
Total	30	249.796	24.099	4.399	240.797	258.795	206.40	291.60

ANOVA

	Sum of Squares	Df	Mean Square	F	P value
Between Groups	4223.808	4	1055.952	2.092	0.112
Within Groups	12619.342	25	504.774		
Total	16843.150	29			

Table No. 3: Diameter of Seminiferous Tubules of subgroup 3

Sub group	N	Mean	Std. Deviation	STD. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Group A 3	6	263.316	17.445	7.122	245.008	281.624	236.40	283.80
Group B 3	6	221.166	36.561	14.926	182.797	259.536	200.70	293.80
Group C 3	6	237.383	43.104	17.597	192.148	282.618	190.20	308.30
Group D 3	6	244.166	31.501	12.860	211.108	277.225	197.80	280.90
Group E 3	6	260.850	28.273	11.542	231.178	290.521	206.80	290.20
Total	30	245.376	34.104	6.226	232.641	258.111	190.20	308.30

ANOVA					
	Sum of Squares	Df	Mean Square	F	P value
Between Groups	7276.495	4	1819.124	1.719	0.177
Within Groups	26454.178	25	1058.167		
Total	33730.674	29			

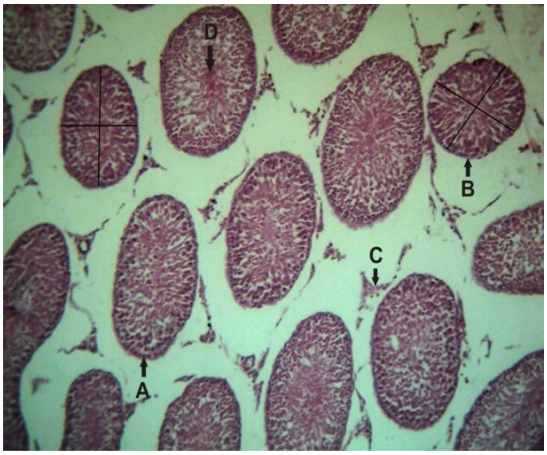

Figure No. 1: Photomicrograph of testicular tubules of group A1.

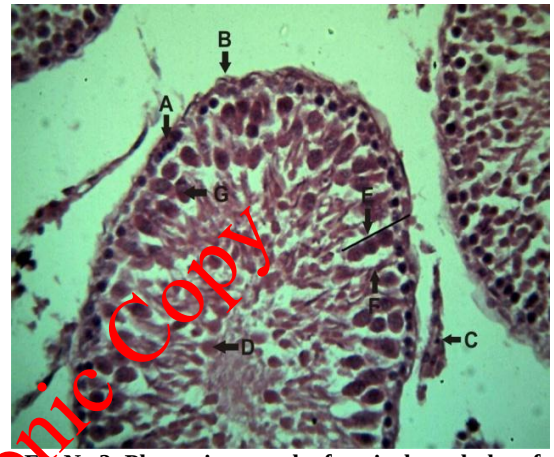

Fig No.2: Photomicrograph of testicular tubules of group A1.

A. A continuous single basal layer of spermatogonia. A. A single continuous basal layer of spermatogonia.
B. An intact basement membrane. B. An intact basement membrane without any disruptionn. C. Leydig cells C. Leydig cells visible.
D. Spermatids with the debris of spermatocytes in the lumen.D.Spermatids in the lumen and debris of spermatocytes. H & E stain, X 100.
E. Number of Epithelial cell layer reduced (4-5). F. Sertoli cell
G. Normal Size of Primary spermatocyte, number reduced. H & E stain, X 400.

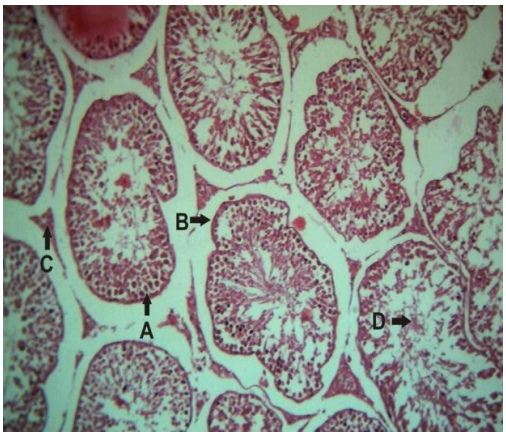

Figure No.3. Photomicrograph of testicular Tubules of group B1.

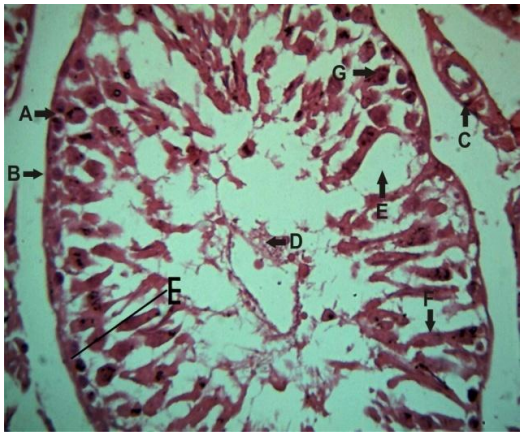

Figure No. 4. Photomicrograph of testicular tubules of group B1.

A. A continuous single basal layer of spermatogonia. A. A single continuous basal layer of spermatogonia.
B. An intact basement membrane. B. An intact basement membrane without any disruptionn. C. Leydig cells C. Leydig cells visible.
D. Spermatids with the debris of spermatocytes in the lumen. D. Spermatids in the lumen and debris of spermatocytes.
H & E stain, X 100. E. Number of Epithelial cell layer reduced (4-5). F. Sertoli cell
G. Normal Size of Primary spermatocyte, number reduced. H & E stain, X 400.

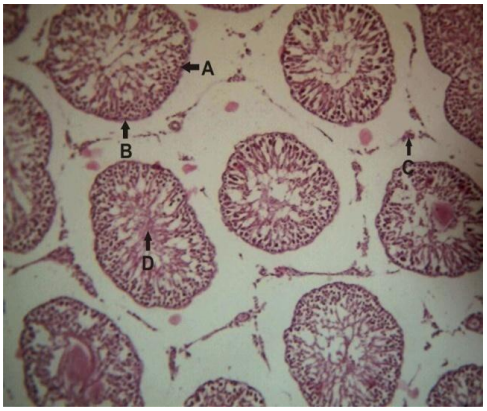

Figure No. 5: Photomicrograph of testicular tubules of group C1.

A. A single basal layer of spermatogonia.
B. An intact basement membrane.
C. Leydig cells present.
D. Spermatids in the lumen with the debris.
H & E stain, X 100.

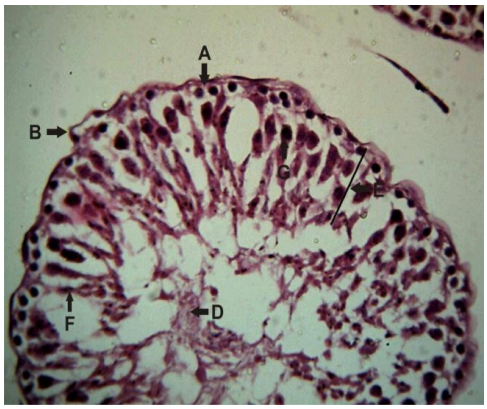

Figure No. 6: Photomicrograph of testicular tubules of group C1.

A. A single basal layer of spermatogonia.
B. An intact basement membrane.
C. Leydig cells visible.
D. Spermatids in the lumen with the debris of spermatocytes
E. Epithelial cell layer reduced, 4-5 cells visible.
F. Sertoli cell present
G. Primary spermatocyte reduced in size and number. H & E stain, X 400.

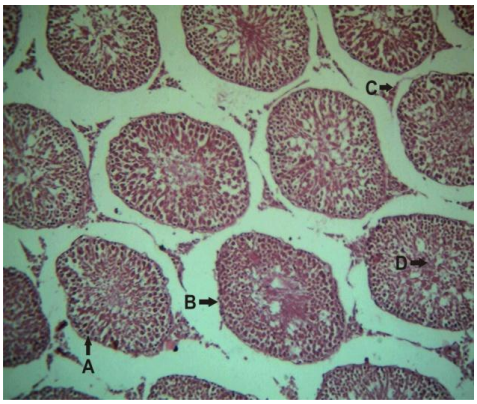

Figure No. 7: Photomicrograph of testicular tubules of group D1.

A. A single uninterrupted basal layer of spermatogonia.
B. An intact basement membrane just below stem cells.
C. Leydig cells.
D. Spermatids in the lumen
H & E Stain, X 100
F. Sertoli cell visible normal.

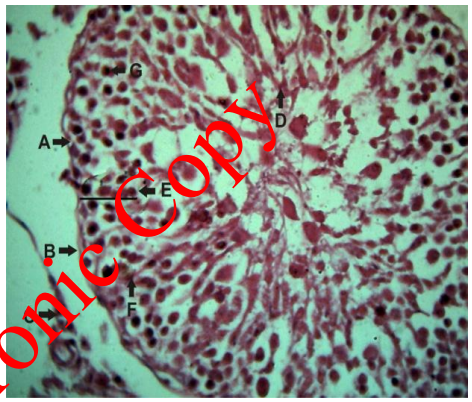

Figure No. 8: Photomicrograph of testicular tubules of group D1.

A. A single basal layer of spermatogonia.
B. An intact basement membrane.
C. Leydig cells visible
D. Spermatids in the lumen with scanty debris.
E. Epithelial cell layer improved (5-6 cells).
G. Normal Primary spermatocyte in size and number. H & E Stain. X 400.

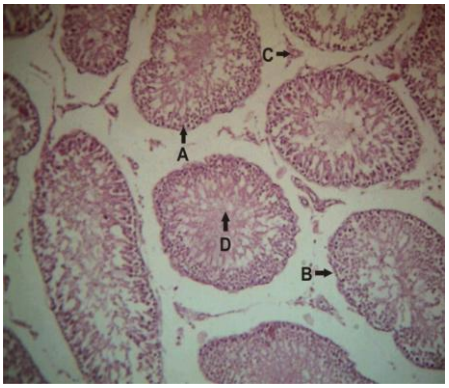

Figure No. 9. Photomicrograph of testicular tubules of group E1.

A. A regular single basal layer of spermatogonia.
B. An intact basement membrane.
C. Leydig cells.
H & E Stain, X 100.
E. Epithelial cell layer.

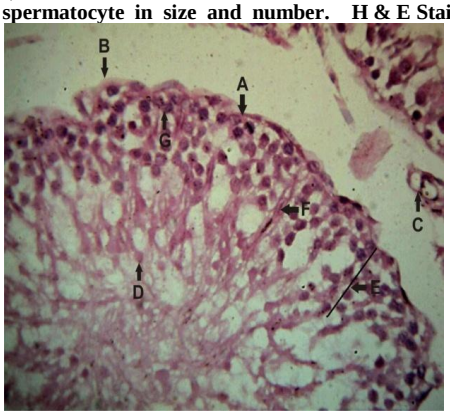

Figure No. 10. Photomicrograph of testicular tubules of group E1.

A. A single basal layer of spermatogonia.
B. An intact basement membrane.
C. Leydig cells.
D. Spermatids in the lumen.
F. Sertoli cell.
G. Primary spermatocyte.
H &E Stain, X 400.

Effect of lead toxicity and its reversal by vitamin C on diameter and spermatogenesis of testes of albino rats concluded. In table no 1 and 2 the mean diameter of semniferous tubules of rats of different subgroups showed that the rats which were treated with lead alone showed a significant decrease in mean diameter while those treated with vitamin C along with lead acetate showed better results. The subgroup C showed less decline as compared to subgroup B. The subgroup D showed increased mean diameter while subgroup E showed more increased mean diameter compared to subgroup D. This showed that the rats which were treated with higher dose of vitamin C showed better response as compared to those which were treated with lower doses of vitamin C (as evident in Table 1,2 & 3 and photograph 1 to 10).

DISCUSSION

The rats of group B which were treated only with lead showed a significant decrease in diameter over different times of scarification. This significant decrease in diameter and spermatogenesis was due to lead toxicity which were documented by Harvey.[6] According to another study by Ahmad I et al, the reason for the toxic effect of lead is accumulation of lead in testes of albino rats.[7] The group C rats which were treated with lead and vitamin C (250 mg/kg body weight daily) showed less decrease in diameter and spermatogenesis as compared to group B rats which were treated with lead only and showed a significant decrease in diameter and spermatogenesis. This shows that the toxic effect of lead is being lessen by vitamin C. The protective action of vitamin C against lead acetate can be attributed to the antioxidant action of vitamin C.[8] A study conducted by Bassem M. Raafat et al showed that administration of vitamin C with lead exposed animals exerts an obvious ameliorating as well as treatment effects.[9] The rats of group D showed more improvement in diameter and spermatogenesis as compared to group C animals, the reason behind this is that the group D rats were treated with higher dose of vitamin C as compared to rats of group C. The rats of group E were treated with the highest dose of vitamin C while all experimental groups (group B, group C, group D and group E) were given the same quantity of lead. The rats of group E showed most improved results among the experimental groups. A study by Hsu P C et al showed that vitamin C in considerable concentration showed significant reversal of lead toxicity in rats.[10] Thus greater the amount of vitamin C the more is the reversal against lead toxicity. In addition to acting as an antioxidant vitamin C also has an inhibiting effect on lead uptake on a cellular level.[11]

A number of studies showed that lead has no effect on diameter and spermatogenesis. A study conducted by Ping-Chi Hsu et al showed that there were no essential differences among the diameter either taking lead or not.[12] While Beata M. Pace et al showed in their studies that there were significant changes in pup over the first 3 weeks of lead treatment, when compared with the control group.[13] In another study, a slight reduction of diameter was observed where lead acetate was given for 14 days.[14] Thus, lead has decreased the normal diameter and spermatogenesis of the rats which is also shown in this study. The effect of vitamin C on lead levels has been clarified by studies that showed that ascorbic acid (vitamin C) decreased intestinal absorption of lead.[15] Vitamin C has a significant role in reversing the lead toxicity which is proved by a number of studies. One rat pharmacokinetic study found that intravenously administered vitamin C lowered lead tissue levels in rats that were continuously administered lead.[16] Another study showed that the adults with the highest ascorbic acid (vitamin C) levels had a 60-80% decreased prevalence of elevated blood lead.[17]

CONCLUSION

Vitamin C reduces the toxic effects of lead on diameter of seminiferous tubules and spermatogenesis of rats, which is shown in this study.

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Original Article

Anxiety in Dental Patients

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ABSTRACT

Objective: To determine the frequency of self-reported anxiety levels related to dental procedures amongst dental patients using Revised Corah's Dental Anxiety Scale, (DAS-R).
Study Design: A cross sectional descriptive study
Place and Duration of Study: This study was carried out at the Medical, Dental and Allied Health Professionals' College from October 2010 and April 2011.
Materials and Methods: 485 patients comprised the study sample. All those patients who consented to participate and were 12-65 years of age were included. They were scored for anxiety using revised Corah's Dental Anxiety Scale (DAS-R).
Results: The mean DAS score for our study population was 9.91 (SD 3.29), while the modal score was 12. Based on the DAS Score, distribution of the respondents was: Non anxious - 63.1% (n=304); Anxious - 33.2% (n=160); and Phobic - 3.7% (n=18). Other findings are detailed subsequently. We found that self-reported-phobic levels were higher in males compared to females, while the DAS scores on the contrary were higher for females than males.
Conclusion: We found that DAS score were higher (more anxiety) in females than in males. Interestingly, we also found that self-reported dental phobia was observed more often in males than females.
Key Words: Anxiety, Dental Procedures, Revised Corah's Dental Anxiety Scale, (Das-R), Dental Phobia, Patients

INTRODUCTION

Anxiety to dental procedures is not uncommon.[1] It not only results in cancelling and delaying of dental appointments[2] but also leads to an experience of enhanced pain in an anxious patient.[3,4] Moreover, anxiety may lead to systemic complications.[5,6] Avoidance of dental treatment and management of anxious dental patients adds another paradigm of challenging issues that may have a negative effect on dental health[7] and at large, the general health. Studies from Europe[8,9] America[10] and Australia[11,12] have shown the presence of high levels of fear and anxiety in patients towards dental procedures. A Norwegian study reported anxiety scores (DAS ≥ 13) in 11.5% males and 23% females.[13] Avoidance behavior with resultant compromise to oral health eventually set up a vicious cycle which leads to exacerbation of fear for dental treatments and greater likelihood of avoidance of dental treatment leading to poorer dental outcomes. The transfer of this dental anxiety from one generation to the next, with resultant aggravation of the problem, raises further challenge.[14] Many stimuli related to dental settings can evoke dental anxiety.[15] Boyle, Newton and Milgrom have particularly addressed the issue of receiving injections and its relation to anxiety.16

When compared with ten other common fears, among Dutch adults Oosternik et al observed that dental fear was fourth in ranking.[17] Muppa and co-workers suggested that noise produced in the dental clinic setting was the third most important reason of ignoring a dental appointment.[18]

Evidence suggests that young females are more commonly afflicted with dental fear and anxiety than young males and that a reduction in these issues was noted with advancement of age of those affected.[19]

In a study conducted at Isfahan University on children's dental fear, the parents blamed traumatic dental experiences amongst other external factors, as the cause.[20] Cases with dental fear require careful management to alleviate anxiety.[21]

To manage dental anxiety, the logical first step is to measure its burden. An objective study is needed to assess dental anxiety, beyond subjective perception of individual clinicians and using pre-validated tools. Corah's Revised-Dental Anxiety Score test, commonly known as DAS, is a well-recognized, widely used, and pre-validated tool for assessment of dental anxiety and phobia.

It has also shown high internal consistency[22,23] and test-retest reliability.[24]

To our knowledge, no literature was available on prevalence of dental anxiety in Pakistan until 2011 when a short communication was published. It highlighted a study conducted in Islamabad, Rawalpindi and Multan. We conducted our study to determine the frequency of dental anxiety in the patients presenting to dental OPDs at two centers, one each in Karachi and Hyderabad.

MATERIALS AND METHODS

Self –responding questionnaires were administered in this cross sectional study to a convenient sample of about 550 patients of Jinnah Medical and Dental College, Karachi, and, Isra University, Hyderabad. We

received back 503 questionnaires. Of these questionnaires, 18 were rejected due to invalid responses. The remaining 485 were used for data analysis. This data was collected as part of a larger study, conducted from 2010 to 2011.

Norman Corah's Revised Dental Anxiety Scale questions were used as part of the questionnaire. This scale utilizes four questions, with five options grading anxiety from 'not anxious' (score 1) to 'extreme anxiety' (score 5). Each question depicts a dentally related scenario. The maximum possible score being 20, these scores are used to measure an individual's anxiety levels. Score 12 or less is considered non anxious, higher than 12 indicates the presence of anxiety,[25,26,27] and above 15 suggests dental phobia which indicates that patients with these scores may require extra help.[28]

Inclusion and exclusion criteria: The only two inclusion criteria were to be a patient of above mentioned dental OPDs and belonging to the age group 12 to 65 years. The exclusion criteria were, to not consent to participate in the study and not fulfilling inclusion criteria.

Sampling technique: The selection was a convenient sample of all patients from the stated OPDs. We distributed 550 questionnaires. Out of these, 503 questionnaires could be recollected and the study was continued with 485 valid responses, after data editing. Unanswered questions in any of the section were excluded from data analysis and the statistics that followed.

Data analysis: SPSS version 19 was used to perform statistical derivations.

RESULTS

The age of the respondents ranged between 12 and 65 years, with mean age of 27.22 years (SD 10.09). Of these 48.49% were males and 51.51% were females.

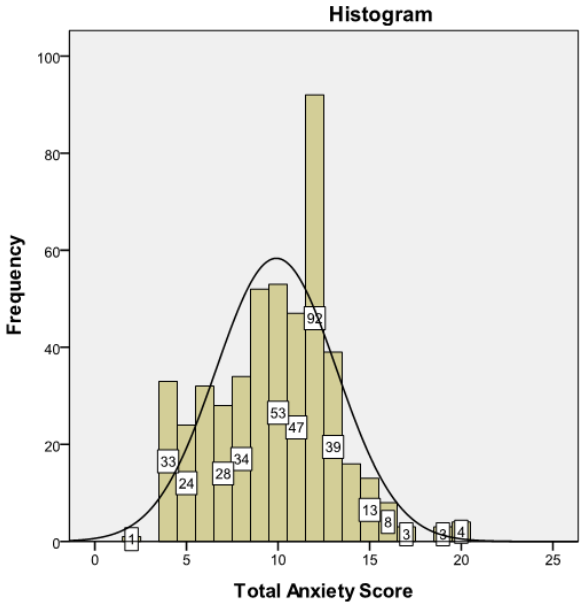
Close ended, direct questions for anxiety assessment were asked. The response options were ordinal, from no anxiety at all to a high level of anxiety manifesting physical signs. The analyzed data for the four questions is summarized in Table I and Graph 3. While the table is self-explanatory, the graph shows another aspect. The level of anxiety is consistently increasing with each situation closing into the dental procedure, expressed by question from 1 to 3. However, by the time of Q4, there is an overall decrease in anxiety, which is still more than that as a day ahead of going to the clinic, but least of all the three situations within the clinic.

The mean DAS score for our study population was 9.91 (SD 3.29), while the modal score was 12. Based on the DAS Score, distribution of the respondents was: Non anxious - 63.1% (n=304); Anxious - 33.2% (n=160); and Phobic - 3.7% (n=18). (Graph I)

When results were analyzed based on gender the mean DAS Score for females was 10.32 (SD 3.34) and modal score was 12. Distribution of the respondents was: Non-anxious 53.8% (n= 128); Anxious 42.0% (n= 100); and Phobic 4.2% (n= 10). On the other hand, mean DAS score for males was 9.47 (SD 3.17) and modal score was 10. Distribution of respondents was: Non-anxious 72.3% (n= 162); Anxious 25.0% (n = 56) and Phobic 2.7% (n= 06). (Graph II). Based on the above comparison and cross tabulation through Pearson Chi-Squared test, we found that in our study population, the difference between male and female anxiety levels was highly significant (p <0.001).

Table No.I: Data summary of the anxiety assessment

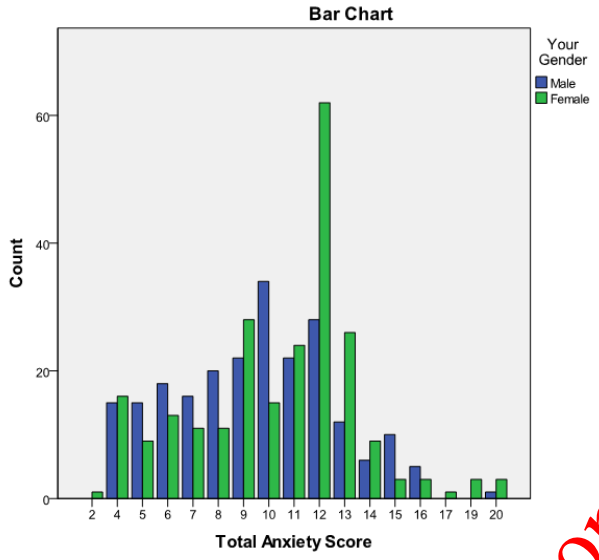
	Q. 1.		Q. 2.		Q. 3.		Q. 4.	
	N	%	N	%	n	%	n	%
Relaxed	175	36.2	114	23.6	74	15.4	141	29.3
A little uneasy	122	25.3	94	19.4	117	24.4	112	23.3
Tense	136	28.2	166	34.3	183	38.1	155	32.2
Anxious	37	7.7	80	16.5	76	15.8	44	9.1
So anxious that I sometimes break out in a sweat or almost feel physically sick	13	2.7	30	6.2	30	6.3	29	6.0
Invalid or missing responses (excluded from analysis)	2		1		5		4	



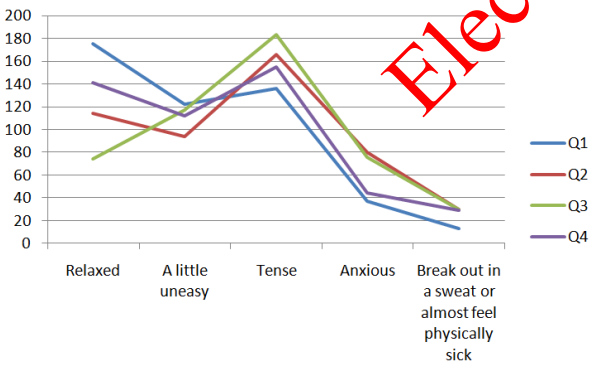
Graph No.I: A histogram of total anxiety score (0-20), of the study subjects

It is also interesting to note that while the objectively calculated DAS score in males was lower than that in females, the *subjectively* reported 'dental phobia' was higher in males than in females.

The standard DAS questions were preceded by some other questions. They included questions about (a) whether or not the respondents considered themselves as 'dental phobics' (where dental phobia was defined as the level of anxiety that interferes with getting the dental treatment done); b) How did their dental phobia start; c) The age at the start of dental phobia; d) Who were they comfortable talking to, when feeling concerned. Dental phobia was self-declared by 59.34% of the respondents. The Pearson Chi Squared test results showed that there was a statistically significant ($p < 0.03$) relationship between gender and 'dental phobia'.



Graph No.2: A bar chart of total anxiety score (0-20), of the study subjects (gender-based)



Graph No.3: Summary of anxiety assessment

The reported mean age of onset of dental phobia was 17.4 years (SD 8.76). Responding to how their dental phobia started, 45.67% of the respondents thought that they had a bad experience, 20.13% of the patients blamed a family member's bad experience as the reason for dental anxiety and 34.20% of the respondents did not have any clue as to what caused this dental phobia. No statistically significant difference could be found in the number of the respondents of the two genders for the ways dental phobia started. Responding to their preference for whom to talk to when they had a dental concern, 39.58% of the respondents felt comfortable talking to the dentist, 38.54% to the dental assistant and 17.71% to the receptionist. The rest, 4.17%, were not comfortable sharing their concerns with any of the above.

DISCUSSION

Anxiety is a multisystem response to a perceived threat or danger. Dental phobia is a more extreme form of dental anxiety. It is therefore not uncommon for patients who have dental anxiety to delay dental treatment and in some cases, avoid it altogether.[29,30] Moreover, of the anxious patients who do present for treatment, demonstrate low compliance and hence, compromise their dental treatment.[31]

Negative experience in the past, lack of control over the situation, unpredictable nature of dental treatment and a feeling of danger, have all been blamed for dental fear and anxiety. However, negative 'perceptions' about dental treatment were more likely to result in anxiety and fear than negative 'experiences'.[32] Parental fear and anxiety has a direct relationship with child's fear and anxiety, more pronounced in children below eight years of age. This implies that anxiety and fear may be communicated from the parent to the offspring, increasing the seriousness of the problem.[33,34] Cultural background, psycho-social factors and an individual's unique circumstances are also thought to be related to an individual's anxiety.[35,36]

Age of onset of dental anxiety has received relatively less research interest so far. Theories surrounding the relationship between age of onset of dental anxiety (or fear) and its results towards seeking dental care have seen both ends of the spectrum. Locker and colleagues are of the view that an individual with a negative dental experience is likely to be anxious towards dental procedures irrespective of the age at which anxiety was first noticed. The authors also suggested that family history was related to child-onset anxiety only, while adult onset anxiety indicates issues with trait and psychiatric problems.[37] In contrast to this, Poulton and colleagues suggest that these depend on the different conditioning experiences they have had.[38] In our study the age of onset of anxiety ranged between 02 and 60 years with mean age of 17.4 years (SD 8.76) and in most cases related to a bad experience, by one's self (45.67%) or a family member (20.13%).

Literature is over-whelming with suggestions that females are more commonly afflicted with dental anxiety than males.[39] A Brazilian study regarding prevalence and predictors of anxiety showed that two out of every eight individuals were suffering from moderate to severe anxiety. It also found that females were more severely afflicted with the anxiety issue during dental treatment than males.[40] A similar

Brazilian research done on adolescents found that 18% manifested moderate to severe anxiety towards dental treatment and that females were more commonly affected.[41] Our study result was also aligned to the above international finding that the average DAS score for females was higher than that for males and this difference was statistically significant.

A Norwegian study observed 25-year old, randomly selected individuals, grouped in 2 separate cohorts of 1997 and 2007. Their findings were also suggestive of the fact that females (23%) have a higher prevalence of dental anxiety than males (11%).**Error! Bookmark not defined.** Another observation in the same study was that rising education level from 1997 to 2007 had reduced the anxiety level in the latter cohort.

CONCLUSION

We found that the R-DAS scores based on self-reported anxiety levels related to dental procedures, were higher in females compared to males and the difference was statistically significant. We also found that conversely, self-reported-phobic levels were higher in males compared to females.

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Original Article

Pilonidal Sinus Excision

To Evaluate the Outcome of Sacrococcygeal Pilonidal Sinus Excision Using Karydakis Technique

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ABSTRACT

Objective: To evaluate the outcome of sacrococcygeal pilonidal sinus excision using karydakis technique.
Study Design: Prospective case series study.
Place and Duration of Study: This study was carried out in the Department of General Surgery Unit III, Ward 26, Jinnah Post graduate Medical Centre, Karachi form March 2005 to Feb 2012.
Materials and Methods: The study included 85 consecutive patients who underwent pilonidal sinus excision by karydakis technique fulfilling the inclusion criteria. We excluded the cases of pilonidal abscess and the cases which came with acute infections. Patients under 12 years were also excluded. A prospective method of data collection was utilizes by filling in the proforma designed for the study. A complete record of the procedure, follow up was done initially on weekly basis for one month and then fortnightly for 6 months and subsequently monthly for 30 months.
Results: Total of 85 patents were included in our study in which 68 (80%) were male and 17 (20%) were female. The mean age of the group was 30.56 years. All patients were followed postoperatively for 30 months. Mean hospital stay was 2.5 days. Majority 63(74.1%) of the patients underwent smoothly without major complication. In all 85 patients wound closed with prolene 2/0 interrupted sutures. In 9(10.6%) patients developed minor wound infection while 4(4.7%) patients develop wound dehiscence and 3(3.52%) patients develop recurrence. In all 85 patients prophylactic antibiotics amoxicillin + clavulanic acid 1.2gm was used. In infected patients accounting to a total of 13(15.3%), both major and minor infections were included and appropriate antibiotic was used as indicated in the culture and sensitivity report.
Conclusion: Karydakis technique is superior to midline excision surgery. It is associated with significantly shorter complication rate, shorter hospital length of duration, rapid healing, cost effective, good cosmetic satisfaction, a high patient satisfaction rate and low rate of recurrence.
Key Words: Sacrococcygeal Pilonidal, Karydakis Technique, Complication.

INTRODUCTION

Pilonidal means pertaining to a nest of hair' (latin:pilus=hair, nidus=nest).Initially thought to be congenital in origin, pilonidal sinus disease is now thought to be an acquired disease.[1,2] The mode of origin of a pilonidal sinus is now believed to be that: on sitting, the buttocks take the weight of the body, and move independently, or together. Hairs broken off by friction against clothing, and shed short hairs, from the nape of the neck, back, or buttocks, tend to collect in the cleft of the nates and/or a post anal dimple. Furthermore, it is suggested that the use of toilet paper may contribute to hair entangled in fecal matter being swept into the cleft; pilonidal sinus is extremely rare in those races that employ ablution after defecation.[3] According to Hodges in 1880, pilonidal sinus disease, is an epithelial tract at the natal cleft.[4] Herbert Mayo in 1883, describe a disease that involve a hair atthe base of the coccyx.[5] Pilonidal sinus is common disease that affect young people.[6] There are various surgical options for the treatment of pilonidal sinus disease, Controversy still exists as to the best technique, however Karydakis technique proves to be with lower post operative complication rate, shorter hospital stay and good cosmetic satisfaction.[7]

MATERIALS AND METHODS

This study was carried out in the department of general surgery unit III ward 26, Jinnah Post graduate Medical Centre, Karachi, form March 2005 to Feb 2012.
The study included 85 consecutive patients who underwent pilonidal sinus excision by karidakis technique fulfilling the inclusion criteria. We excluded the cases of pilonidal abscess and the cases which came with acute infections. Patients under 12 years were also excluded. A prospective method of data collection was utilizes by filling in the proforma designed for the study. A complete record of the procedure, follow up was done initially on weekly basis for one month and then fortnightly for 6 months and subsequently monthly for 30 months.

RESULTS

Total of 85 patents were included in our study in which 68 (80%) were male and 17 (20%) were female (Chart 1). The mean age of the group was 30.56 years. 60 (70.6%) had external opening with clean margins and no signs of acute inflammation but discharge was positive. 64 (75.3%) presented with tufts and hair at sacrococcygeal area having scarcely present hair.

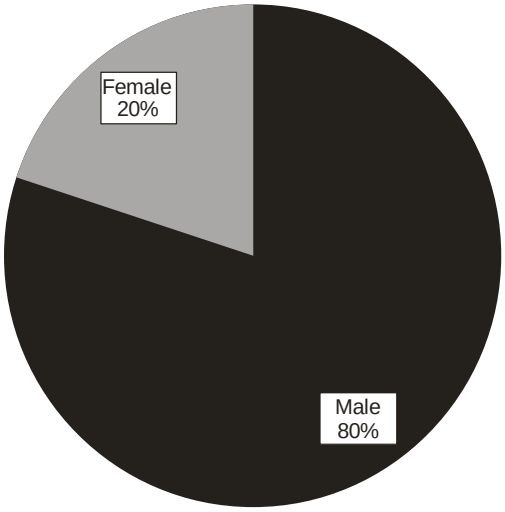

Chart No.1: Gender Distribution

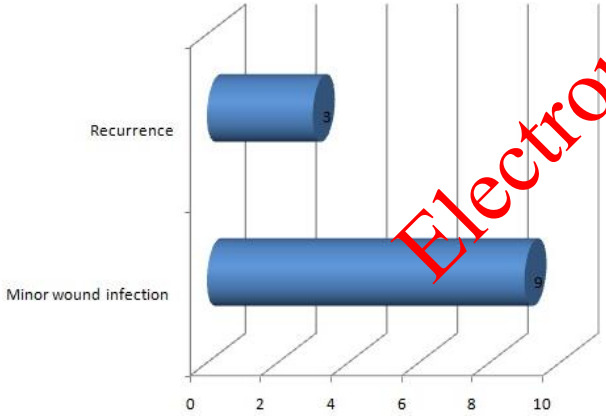

Chart No.2: Complications of Surgery

All patients underwent karydakis technique with primary closure and complete excision of the sinus. Gentian violet was used to outline the tract of the sinus in all the cases. All patients were followed postoperatively for 30 months. Mean hospital stay was 2.5 days. Majority 63(74.1%) of the patients underwent smoothly without major complication. The stitches were removed on 10th postoperative day. In all 85 patients wound closed with prolene 2/0 interrupted sutures. In 9(10.6%) patients developed minor wound infection while 4(4.7%) patients develop wound dehiscence and 3(3.52%) patients develop recurrence. In all 85 patients prophylactic antibiotics amoxicillin + clavulanic acid 1.2 gm was used. In infected patients accounting to a total of 13(15.3%), both major and minor infections were included and appropriate antibiotic was used as indicated in the culture and sensitivity report.

DISCUSSION

Current surgical treatment of pilonidal sinus are based in primary closure with closure away from the midline. Identification of the tract and its internal extensions are key for the successful surgery. Gentian Violet was used for delineation of the tracts. Complete excision of the sinus and primary closure is an effective treatment for chronic pilonidal sinus treatment.[8-12] Younger male preponderance found in our study are same as seen in various other studies.[6,8,13-14]Most frequent symptom was seropurulent discharge, as supported by other studies.[15]The mean operative time was (45.3 ± 10 minutes) as seen in.[7,16] The primary closure using the karydakis technique was done in all the cases.[7,8,10] The mean follow up was 30 months which is compatible with other studies.[8,17] Recurrence in our study is 3.52% which is same as in various other studies, except the Sozen S etal study in which the recurrence is zero because they have used fibrin sealent and use of drains with Karydakis flap procedure.[7,12,18] wound dehiscence occur in 3.35% patients in our study which is similar in other studies.[12,15,16,19] with the exception in saylamB study in which obese patients had 8folds more wound dehiscence.[20] Hospital stay in our study was 2-5 days mean 3.6day.[12,21]As revealed from our study many other studies also revealed feeling of complete healing good cosmesis and higher rate of patients satisfaction and decrease post-operative off work duration, also suggested that Karydakis procedure superior to midline excision surgery in patients with pilonidal disease.[22-24]

CONCLUSION

Karydakis technique is superior to midline excision surgery. It is associated with significantly shorter complication rate, shorter hospital length of duration, rapid healing, cost effective, good cosmetic satisfaction, a high patient satisfaction rate and low rate of recurrence.

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Original Article

The Complex Regional Pain Syndrome after Fractures of Distal Radius

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ABSTRACT

Objectives: The present study aims to determine frequency of Complex regional pain syndrome (CRPS) after distal radius fractures on the basis of clinical examination findings and classify into stages and to find out association of CPRS with age, genders, and risk factors.

Study Design: Prospective cross sectional study

Place and Duration of Study: This research work was conducted at the Department of Orthopaedics, Creek General Hospital Korangi Karachi, Pakistan from January 2013 to April 2014.

Materials and Methods: This is a prospective cross sectional study of 150 cases. Follow up of patients is undertaken in out- patient department for a minimum 4 months period following injury. The percentage of patients with CRPS was identified according to IASP Diagnostic Criteria based on history and physical examination.[1,2,3,4] Patients were studied prospectively to ascertain the incidence, natural history and the degree of morbidity induced by CRPS.

Results: Mean± SD age was 45.6± 14.2 years *(Range = 18 – 75 years)*. There were 88 (58.7%) males and 62 (41.3%) females with Male: Female = 1: 0.7. CPRS was found in 20 (13.3%) cases. Out of 20 CRPS patients 12 (60%) were female, out of 20 CRPS patients 12 (60%) had age 40 – 59 years and 8 (40%) had age >59 years. Out of 20 CRPS patients 14 (70%) were diagnosed in stage 1.

Conclusion: The incidence of CRPS after distal radius fracture in this study is 13.3%.Proportion of CRPS was high in females and in old patients. Most of the patients of CRPS were diagnosed in stage 1. Diabetes mellitus, hypertension, stroke, carpal tunnel syndrome and myocardial infarction were the risk factors found in patients diagnosed with CRPS. CRPS is an under diagnosed entity. More work needs to be done on CRPS as many areas of research remains.

Key Words: Complex regional pain syndrome; Sudeck's dystrophy; Reflex sympathetic dystrophy; IASP.

INTRODUCTION

Complex regional pain syndrome (CRPS), formerly known as Sudeck's dystrophy or reflex sympathetic dystrophy, is a painful disorder with clinical features that include pain, sensory and vasomotor disturbances, trophic changes and impaired motor function.[1] The disease course varies from relatively mild and self-limiting to chronic disease with a high impact on daily functioning and quality of life.[2] Usually, symptoms appear in one extremity after even a relatively mild trauma, for example a fracture, contusion or surgery.[3]

Complex regional pain syndrome (CRPS) is a perplexing condition characterized by local neurogenic inflammation out of proportion to injury affecting the limbs, without nerve injury (CRPS I or reflex sympathetic dystrophy [RSD]) or with obvious nerve lesions (CRPS II or causalgia).[4-9] It consists of pain and related sensory abnormalities, abnormal blood flow and sweating, abnormalities in the motor system and changes in the structure of both superficial and deep tissues (trophic changes).[7–12] Psychological and social problems such as anxiety, depression, fear avoidance (of painful movements) and loss of employment may develop. Both the affected body part and the patient as a whole may become "dysfunctional" in CRPS. Other terms commonly used to describe CRPS are algodystrophy, shoulder-hand syndrome and sudeck's atrophy. [5,6,8,10] The inciting injury may be a sprain, dislocation, fracture or post-surgery. [4,7,13,14] The syndrome may also be associated with medical conditions such as diabetic neuropathy, multiple sclerosis, stroke, myocardial infarction and cancerous infiltration of a nerve plexus.[7,9] The reported incidence of CRPS after wrist fractures is 7-35%.[4,7,15,16] CRPS appeared equally distributed in every age group, except in children under 10 as widely reported in literature. It is not a diagnosis of exclusion, because International Association for the Study of Pain (IASP) has formulated a Diagnostic Criteria for CRPS.[4,5,6] The diagnosis of CRPS is possible as soon as one week after fracture by history and physical exam.

Treatment is crucial within the first three to six months when the disease responds best. Otherwise the syndrome may progress producing a lifetime chronic pain, permanent functional impairment, resistance to treatment and resultant emotional distress.[8] Management of CRPS is based on the bio-psycho-social model of pain and should involve a multidisciplinary team. Keystones include the provision

of effective analgesia, allowing the affected region to be mobilized (physical therapy) and returned to normal function as soon as possible, the "use it or lose it principle". Psychological, social and occupational rehabilitation should also be provided. The study will be helpful in identifying early screening of CRPS patients to avoid delayed complications involving no risk and benefit to patient.

MATERIALS AND METHODS

This research work was conducted at the department of Orthopaedic surgery, Creek General Hospital Korangi, Karachi from January 2013 to April 2014. This is a cross sectional done on 150 patients sustained close distal radius fractures. All patients with fractures of distal radius were clerked at Orthopedics clinic and Accident & Emergency, a full history and physical examination was done. Patients were recruited after taking the informed consent. The patients who were excluded from the study included presentation after one week of fracture, multiple fractures, disability of affected limb prior to fracture, pathological fracture and patient suffering from psychiatric illness. Pre-reduction and post-reduction roentgenograms of affected wrist were taken. Fracture patterns were categorized according to Fernandez classification. [17] All relevant features including patient's bio data, clinical and radiological findings at presentation and follow up visits were recorded on proforma. Follow up of patients was undertaken in out patient department for a minimum of 4 months period following injury. The percentage of patients with CRPS was identified according to IASP Diagnostic Criteria based on history and physical examination.[1,2,3,4] Patients were studied prospectively to ascertain the incidence, natural history and the degree of morbidity induced by CRPS.

The data was entered and analyzed by SPSS 12. Frequencies and percentages were calculated for all qualitative/categorical data including sex, age groups, mechanism of injury, risk factors, types of fracture, history of surgery, sign and symptoms of CPRS, pain visual analog scale (PVAS) and the ratio of CRPS among the total screened patients was presented by their frequency and percentage. Chi-square test for proportions was used for compare the proportion of sign and symptoms (between day-1 and 16 weeks). Mean± SD was computed for age and PVAS. Student's t-test was used to compare the mean of PVAS (between day-1 and 16 weeks). The results were considered statistically significant at $p < 0.05$.

RESULTS

This study was conducted on 150 patients with fractures of distal radius. Mean± SD age was 45.6± 14.2 years (Range = 18 – 75 years), age of 68(48) cases was 40 – 59 years, 48 (33.3%) cases had age 20 - 39 years while 30 (16%) cases had age > 59 years.

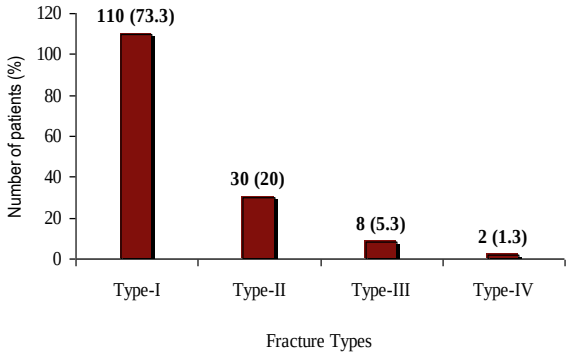

Figure No.1: Types of Fracture n = 150

Keys:
Type-I = Metaphyseal bending fracture
Type-II = Shearing fracture
Type-III = Compression of the articular surface without fragmentation
Type-IV = Avulsion fracture or radiocarpal fracture dislocation
Type-V= Combined injury with significant soft tissue involvement

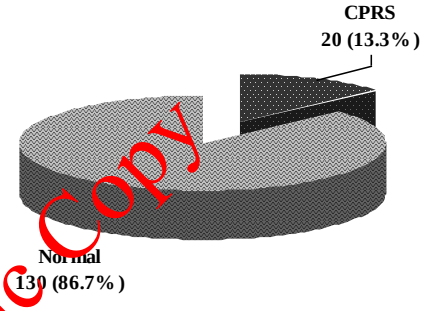

Figure No.2: Proportion of Patients with Complex Regional Pain Syndrome (CRPS) n = 150

Key: CRPS = Complex Regional Pain Syndrome

Among these 150 patients, 88 (58.7%) were males and 62 (41.3%) were females with Male: Female = 1: 0.7

According to the presenting complaint, all patients came with Pain and swelling.

Out of 150 patients, 88 (58.7%) patients had history of fall in different modes while 62 (41.3%) came with history of road traffic accident.

According to Fernandez classification of fracture patterns, there were 110 (73.3%) patients of type-I fracture, followed by 30 (20%) patients of type-II, 8 (5.3%) patients of type-III and 2 (1.3%) patients of type IV. (Figure-1)

Out of 150 patients, only 12 (8%) patients had a history of previous surgery.

The percentage of patients with Complex Regional Pain Syndrome (CRPS) was identified according to IASP diagnostic criteria based on history and physical examination. CPRS was found in 20 (13.3%) cases. (Figure-2)

Swelling was the most common finding in all 150 (100%) patients at day-one, followed by altered temperature of limb skin in 136 (90.7%) patients, color changes of limb in 132 (88%) patients. All these symptoms were decreased significantly after sixteen weeks, found in only 18 (12%) patients (P-value <

0.0001). While sweating changes was seen in 24 (16%) patients at day-one and after sixteen week found in 20 (13.3%) patients (P-value = 0.546). Table-1

Mean± SD of score on Pain Visual Analog Scale (PVAS) was 5.89± 0.61 at day one and after sixteen weeks the score was significantly decreased up to 1.2± 2.26. (P-Value < 0.0001). Score greater than 6 was seen in 40 (26.7%) cases at day-1, after sixteen weeks this proportion of patients was reduced to 20 (13.3%). Table-2

Out of 20 CPRS patients, stage one was seen in 14 (70%) and stage two was seen in 6 (30%) patients. Table-3.

Table No.1: Sign and Symptoms of Complex Regional Pain Syndrome n = 150

Signs & Symptoms	Day one	16 Weeks	P-Values*
Swelling	150 (100%)	18 (12%)	< 0.0001
Altered Temperature of Limb Skin	136 (90.7%)	18 (12%)	< 0.0001
Color Changes of Limb	132 (88%)	18 (12%)	< 0.0001
Sweating Changes	24 (16%)	20 (13.3%)	0.546
Motor	146 (97.3%)	18 (12%)	< 0.0001
Dystrophic	18 (12%)	18 (12%)	1

* By Chi-Square test for proportions

Table No.2: Pain Visual Analog Scale n = 150

PVAS	At Day One	At 16 weeks
≤ 6	110	130
> 6	40	20
Mean± SD	5.89± 0.61	1.2± 2.26
P-Value	< 0.0001	

Table No.3: Stages of Complex Regional Pain Syndrome (CRPS) n = 20

Stages	Number of Patients	Percentages
First	14	70%
Second	6	30%
Third	0	0

Hypertension (HTN) with Diabetes mellitus (DM) was the most common risk factor of CPRS. They were present in 4 (20%) patients, HTN was present in 3 (15%) and DM was present in 2 (10%) patients, HTN with previous history of myocardial infarction (MI) was seen in 2 (10%) patients, HTN with DM and stroke combined was seen in 1 (5%) and Carpal tunnel syndrome (CTS) proved by electromyography and nerve conduction study was seen in 1 (5%) patient.

Proportion of CRPS was high in females, out of 20 CRPS patients 12 (60%) were female and 8 (40%) were male patients.

Proportion of CRPS was high in old patients, out of 20 CRPS patients 12 (60%) had age 40 – 59 years and 8 (40%) had age >59 years.

DISCUSSION

Complex regional pain syndrome is a severe complication in orthopedic surgery. Trauma patients; undergoing conservative management or orthopedic procedures frequently develop complex regional pain syndrome, particularly the hand or forearm. It is characterized by the presence of regional pain and sensory changes followed predominantly by traumatic noxious event. Pain is associated with edema abnormal skin color, skin temperature alteration, and abnormal sudomotor activity. In post-traumatic patients, the clinical examination still is preferred to establish the diagnosis of complex regional pain syndrome. First, possible differential diagnosis must be excluded. Next the clinical criteria of definition should be checked and documented, if possible with the help of verifying procedures. Like most medical conditions, early diagnosis and treatment of CRPS increase the likelihood of a successful outcome.

The incidence of CRPS after fractures of the distal radius found in this study is 13.3%. This incidence of CRPS agrees with the incidences of 16.4% in 140 patients at the Mayo Clinic[8] during a span of 2 yr. This is in disagreement with other studies,0.9%- 7%, found in previous studies, and in disagreement with higher incidences,15–37% (Atkins et al. Bickerstaff and Kanis, Cooney et al.,de Bruijn, Field and Atkins, Hove) [18,19]. The incidence of CRPS seems to be dependent on the criteria used in different studies. However, the diagnostic criteria used in those studies differ considerably from the studies with the lower incidences.

The proportion of signs and symptoms after day one was very high; swelling was seen in 100%, followed by altered temperature of limb skin in 90.7%, color changes of limb in 88%. All these symptoms were decreased significantly after sixteen weeks, the proportion of patients complaining of swelling, altered temperature of limb skin, and color changes of limb had fallen to 88%. While sweating changes was seen in 16% at day-one and after sixteen week found in 13.3%. Bickerstaff DR, and Kanis JA reported the same results.[20]

The highest incidence rate of 60% in our study was observed in the age group of > 59 years with mean age at diagnosis was 66.5± 5.3 years. The similar results were seen in an international study. This age peak is higher than is generally expected and observed in some non-population-based investigations (Veldman et al., 1993). However, other clinical studies showed high average ages of patients, in line with our observation (Atkins et al., 1990; Field and Atkins, 1997; Zollinger et al., 1999). It could be suggested that the increasing

incidence of CRPS with age is due to a higher occurrence of fractures at older age. However, the same age distribution pattern was observed in the group of patients with another precipitating event other than a fracture.

Out of 20 CRPS patients 14 were diagnosed in stage 1 and 6 were diagnosed in stage 2. Most of the cases were picked early.

Hypertension, diabetes mellitus, stroke, history of myocardial infarction and carpal tunnel syndrome were the risk factors found in patients diagnosed with CRPS. Many of these have been associated with CRPS in previous studies.

From our findings, it can be concluded that the majority of the CRPS cases in females occur in the postmenopausal stage of life. This was noted before by Zollinger and colleagues (Zollinger et al., 1999).

The age and sex distribution pattern suggests that hormonal etiological factors may be involved in the pathogenesis of CRPS.

CONCLUSION

Incidence of CRPS after distal radius fracture found in this study is13.3%.At day one swelling was the most common symptom followed by altered temperature of limb skin and color changes. After 16 weeks sweating changes was in 13.3% patients followed by swelling, altered temperature of limb skin, motor changes and dystrophic changes at 12%.Hypertension, stroke, previous history of myocardial infarction, diabetes mellitus and carpal tunnel syndrome were the risk factors found in patients diagnosed with CRPS. Proportion of CRPS was high in females and in old patients. Most of the cases diagnosed with CRPS were in stage 1. CRPS is a neglected disorder and is far more common than appreciated. The problem may be an under recognized one. We observed that persons with persistent post traumatic pain and swelling eventually diagnosed with CRPS undergo unnecessary test resulting in inappropriate or delayed treatment. Early diagnosis of CRPS is essential as treatment in early stage is beneficial whereas, if the disease progresses to an advanced stage treatment is mainly ineffective. Awareness about the condition is the only way it can be diagnosed early. Diagnosis of CRPS raises many questions regarding its etiology, underlying mechanisms, contributing and perpetuating factors. More studies should be done on CRPS as several areas of research remain the risk factors, the clinical management of CRPS, the difference in patient's susceptibility to develop CRPS, the criteria themselves, etc.

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Original Article

Eclampsia

Eclampsia and its Association with Seasonal Variations and other External Factors

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ABSTRACT

Objectives: This study was carried out to evaluated the epidemiological aspects of patients presenting with eclampsia in the Shaikh Zaid Women Hospital, Larkana.

Study Design: Descriptive retrospective observational study

Place and Duration of Study: This study was carried out in the Department of Obstetric & Gynaecology SZWH, CMC & SMBBMU, Larkana from Jan 2012 to Dec 2013.

Materials and Methods: All the patient admitted in eclmpasia were included in the study. All the patients were managing according to basic protocol for eclampsia. The data were compiled for frequency distribution of eclmapsia according to gage, parity, socioeconomic status of the patients and seasonal variation. Pregnant patient with other convulsive disorder and more than 7 days post-partum were excluded.

Results: In the duration of study of 24 months 50.8% cases of Eclampsia occur in Summer, 25% in Autumn, 12.9% in Winter and 11.2% in Spring Season. During this period of 24 months > 10977 patients were admitted in SZWH, Larkana out of them 108(0.98%)were cases of eclampsia.

Conclusion: Pre eclampsia and eclampsia are major obstructed complication with unclear etiologies. Understanding the exist association with different weather patterns may help us in understanding what factors may be involved in triggering these events.

Key Words: Eclampsia, Pregnancy, Primigravdia, Seasonal variations.

INTRODUCTION

Eclampsia is pregnancy specific disease characterized by convulsions associated with preeclmapsia some times progressing into a multiorgan cluster of varying clinical features conversion way occur antepartum (34%), intrapartum(18%) and postpartum(2%). Primigravida is at highest risk.

Eclampsia remains a leading cause of maternal morbidity and mortality as well as perinatal mortality. Eclmapsia can be diagnosis very easily on the basis of history and typical clinical features that is proteinurea, Oedema, High Blood Pressure with fits it can be very well prevented by proper antenatal checkup, and manage if the cases are refer to tertiary care hospital at an early state hence reducing the maternal and fetal mortality and morbidity[1,2]. The purpose of study was to report the frequency associated disorders in terms of age, parity, socioeconomic status and seasonal versions in interior of Sindh.

MATERIALS AND METHODS

This was a descriptive and non interventional study conducted in the Department of Obstetrics & Gynaecology SZWH, CMC & SMBBMU, Larkana during the period 24 months from Jan2012 Dec 2013. All the patients admitted with eclampsia were included in the study. Inclusion criteria were patients > 20 weeks gestation with history of preeclmpaisa & convulsions patients of all reproductive age group and parity ranging from teenagers, primigravida to multigravida were included.

Pregnant patient with convulsive disorder and > 7 days postpartum were excluded All the patients were managed according to basic protocol for eclmapsia. The data were compiled for frequency distribution of eclmapsia according to age, parity, socioeconomic status of the patients and seasonal variations.

RESULTS

In the duration of study of 24 months 50.8% cases of Eclampsia occur in Summer, 25% in Autumn, 12.9% in Winter and 11.2% in Spring Season.

During this period of 24 months > 10977 patients were admitted in SZWH, Larkana out of them 108(0.98%)were cases of eclampsia.

Patients within age group 14 to 19 years were having maximum incidence (48%) incidence of the disease (Table No.1).

Table No.1: Age and year wise Number of Eclampsia Patient

Age (years)	Years		No. of Patients	% of Total
	2012	2013		
14-19	30	30	60	48%
20-30	12	35	47	37%
>30	10	7	17	13.7%
Total	52	72	124	100%

Incidences of cases seem to increase with decreasing gestation (Table No.2). Cases of eclampsia were

maximum (50.8%) in summer season (Table No.3). Majority (71.7%) of the patients belong to poor socioeconomic class living in rural areas and never seeking proper antenatal advise even if living in the areas near Larkana City (Table No.4) (40%) of multigravida had previous history of hypertension and non of the primigravida had such history.

Table No.2: Year wise No. of Primi and Multigravida

Year	Primi patients	Multi patients
2012	40	12
2013	35	37
Total	75	49
%	60%	39.51%

Table No.3: Seasonal Variation

Seasonal	Year		No. of patients	% of Total
	2012	2013		
Summer	26	37	63	50.8%
Autumn	12	19	31	25%
Winter	10	6	16	12.9%
Spring	4	10	14	11.2%
Total	52	72	124	100%

Table No.4: Socio-ecnomic status of eclmpasia patients

Year	Primigravida		Multigravida	
	Middle	Poor	Middle	Poor
2012	12	20	6	14
2013	15	35	2	20
Total	27	55	8	34

DISCUSSION

Studies coming from different parts of the world frequently give opposing results. There are two studies which demonstrate no relationship of meteorological factors on the incidence of eclampsia[3,4].Most data however tends to suggest that eclampsia is associated with cooler temperatures or winter or with increased humidity or rainfall[5-6]. On the other hand, Griswold et al in their study from Florida, USA suggest higher incidence of eclampsia in the hurricane weather, which is characterized by higher temperatures rather than lower, increased humidity and reduced barometric pressures[7]. Available studies on the association of preeclampsia with various weather patterns are also divided in their conclusions. Majority of published studies conclude that preeclampsia occurs more frequently in winter[8-10]. Conversely, Tan et al have suggested that preeclampsia is common in summer[11].

A number of hypotheses for the aetiology of pre-eclampsia and eclampsia have been put forward[13-14]. Our observations and the seasonal trends reported from other countries[15–18.] point towards environmental and socioecnomic factors. Could cold weather lead to the kind of vasospasm that is a part of the pathogenesis of preeclampsia? An analogy between ischaemic heart disease and eclampsia could be postulated like Rose[18]. Who assumed that the effect of cold weather on ischemia is the basis of the relatively strong association between outdoor temperature and the occurrence of myocardial infarction. Like myocardial infarction, pre-eclampsia can be thought of as having predisposing (the feto-maternal genes), contributing (infections, diet, and smoking) and precipitating causes (cold weather) [12].

In our study we included the patient over 20 week's gestation with history of pre-eclmpasia and convulsions patients of all reproductive age group and party, ranging from teenagers primigravida to multigravida.
In our study patient frequency of eclmpasia was heights during summer than in winter, but on the other studies done over seasonal variations showed increased frequency during winter as in one of the study done in Abbotabad frequency of cases was seen to be increasing during Winter (34-25%), compared to Spring (26.85%), Summer (21.29%) and Autumn (17.59%) [1].

CONCLUSION

Pre-eclampsia and eclampsia are major obstructed complications with unclear etiologies. Understanding the exist association with different weather patterns may help us in understanding what factors may be involved in triggering these events.

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Original Article

Effects of Drugs on CSOM

Comparison of Efficacy of Topical Ofloxacin and Gentamycin in Tubotympanic Type of Chronic Suppurative Otitis Media

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ABSTRACT

Objectives: To compare the efficacy of 0.3% topical ofloxacin 4 drops thrice daily with topical gentamycin 0.3%, 4 drops thrice daily in patients with active tubotympanic type of CSOM.

Study Design: Randomized controlled trial study.

Place and Duration of Study: This study was carried out in the Department of ENT and Head and Neck Surgery, HMC, Peshawar from Jan 2012 to July 2012.

Materials and Methods: This Randomized controlled trial was conducted, consisting of 134 patients with ear discharge for more than three months which were randomly allocated to two groups each consisting of 67 patients. Patients in group A received gentamycin 0.3% in a dosage of four drops thrice daily, while patients in group B received 0.3 % ofloxacin four drops thrice daily for ten days. Patients were followed for two weeks after therapy for ear symptoms assessment, otoscopy and examination under microscopy.

Results: A total of 134 patients of chronic suppurative otitis media were included in the study. Results showed that the rate of resolution of ear discharge (otorrhea) is significantly higher in patients treated with topical Ofloxacin than gentamycin (98.5% vs 89.6%). (P<0.05)

Conclusion: Topical Ofloxocin is a better choice in management of CSOM than topical Gentamycin in terms of resolution of ear discharge.

Key Words: CSOM, Tubotypmanic otitis media, Topical Ofloxocin, Topical Gentamycin

INTRODUCTION

Chronic suppurative otitis media (CSOM) is a persistent infection of middle ear cavity presenting as purulent ear discharge extending over a period of 3 months. Chronic Suppurative otitis media is one of the most common ear diseases in South East Asia having a prevalence of approximately 5.2 % in the general population.[1] The disease is slow and insidious that often leads to destructive changes in the middle ear mucosa, ossicles and underlying bone. This local destruction sometimes leads to serious extracranial and intracranial complications.[2] In CSOM the most common bacterial isolates are Pseudomonas aeruginosa followed by S. aureus, Proteus, Klebsiella pneumoniae, diphtheroides, fungal isolates such as Aspergillus species and Candida albicans as well as Mycobecterium tuberculosis.[3] A variety of treatment modalities, both medical and surgical have been tried for the management of CSOM. More recently there is growing trend in using topical aural therapy as an isolated modality or in conjunction with systemic therapy due its documented advantages. Topical medications are delivered directly to the infected area bypassing the untoward side effects of systemic therapy. The topical antibiotics are less likely to cause microbial resistance than systemic ones.[4] The antibiotic should have an appropriate spectrum of activity that includes gram –ve organisms especially pseudomonas and gram positive organisms especially Staph aureus. The antibiotics that meet this criterion are aminoglycosides and flouroquinolones and both are available for topical use.[5] Considering the significant advantages and the popular use of available antibiotic ear drops, it is worth mentioning that the quinolones have been proved to be superior to aminoglycosides in terms of overall cure rate, relief of otalgia and otorrhea.[6,7] There is an intense need to have a modality of treatment which is not only cheaper, easily administrable but also effective in all age groups.[1,7]The success rate of Ofloxacin in reducing ear discharge has been found to be 90% and that of gentamycin 70%.[6] While another study shows that Ofloxacin application resulted in dry ear in 80% of cases as compared to 50% in gentamycin group.[7]

MATERIALS AND METHODS

This randomized control study was conducted at the ENT Department, Hayatabad Medical complex (HMC) Peshawar from Jan 2012 to July 2012. All patients who presented to OPD meeting the inclusion criteria were included in the study. The inclusion criteria were patients above 16 years of any gender having active tubotympanic type of chronic suppurative otitis media. Patients who had taken antibiotics in last 2 weeks and

those having marginal perforation, cholesteatoma, aural polyps and history of mastoid surgery were excluded from the study. The diagnosis of tubotympanic chronic suppurative otitis media was made on the basis of detailed history and otoscopic examination. The purpose and benefits of the study were explained to all patients and a written informed consent was obtained. All patients were allocated into two groups by randomization done by lottery method. Patients in group A received gentamycin 0.3%(only preparation available) in a dosage of four drops thrice daily while patients in group B received 0.3% ofloxacin four drops thrice daily. Data were collected at first visit prior to medication and 2nd visit, two weeks after medication. Medication history review, ear symptom assessment and otoscopy was done at each visit. Patients were evaluated for decreased ear discharge. Approval from hospital ethical board was obtained. The data were stored and analyzed in SPSS version 16.

RESULTS

A total of One hundred and thirty four patients were included in this study from Jan to July 2012. Patients in group A received gentamycin while patients in group B received 0.3% ofloxacin four drops thrice daily for ten days. The results were compared and analyzed regarding age, gender, otorrhea before and after treatment and efficacy of drugs. The most common age affected were patients in third decade as shown in Fig 1. In group A, 42 patients were male with the mean age of 27.66 years and 25 were female with mean age of 27.5 years. In group B, 38 patients were male with the mean age of 30.81 years and 29 were female with mean age of 27.67 years as shown in Table 1. The mean ages of group A was 27.52±9.16 years while in group B, mean age was 27.76±7.25 years. In group A, there were 42 patients who presented with severe otorrhea, while 25 patients were having moderate otorrhea while severe and moderated otorrhea were found in 47 and 20 patients in group B respectively before initiating treatment (Table 2). After receiving treatment of ten days both groups were compared by doing otoscopy and rear examination under microscope. Moderate discharge was found only in 16.4% (n-11) patients in group A who received gentamycin eardrops while no patient was having moderate discharge in group B who received Ofloxacin 0.3% eardrops. This means that ofloxacin was more efficacious than gentamycin eardrops. Regarding mild discharge in group A 49.3% (n-33) patients having mild discharge as compared to 34.3% (n-23) patients in group B, favoring efficacy of ofloxacin. Similarly patients having no discharge were compared in both groups after treatment. In group A 34.3% (n-23) patients were having no discharge as compared to 65% (n-44) patients in group B which means that patients in group B were more symptoms free than group A suggestive of better efficacy of ofloxacin than gentamycin eardrops (Table 3). No severe discharge was found in either group. The p-value was found significant (p value 0.000). Topical Ofloxacin is more efficacious (98.5%) than gentamycin (89.6%) as shown in Table 4.

Fig.1: Age distribution of patients

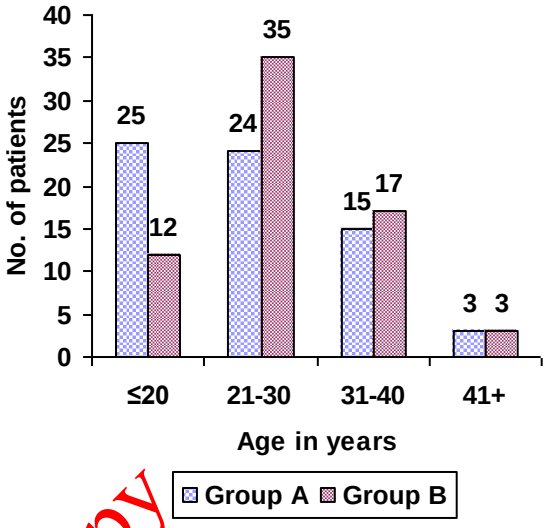

Figure No.1: Age distribution of patients.

Table No.1: Gender distribution between the two groups

Gender	Group A		Group B		Total	
	No.	%	No.	%	No.	%
Male	42	31.3	38	28.4	80	59.7
Female	25	18.7	29	21.6	54	40.3

Table No.2: Status of otorrhea before treatment

Otorrhea	Group A		Group	
	No.	%	No.	%
Severe	42	62.7	47	70.2
Moderate	25	37.3	20	29.8
Mild	-	-	-	-
No Discharge	-	-	-	-

Table No.3: Status of Otorrhea after treatment

Status of treatment	Group A	Group B	Total
Moderate	11	-	11
Mild	33	23	56
No Discharge	23	44	67

P value = 0.000 (<0.05)

Table No.4: Efficacy in both groups

Efficacy	Group A		Group B		Total	
	No.	%	No.	%	No.	%
Yes	60	89.6	66	98.5	126	94.0
No	7	10.4	1	1.5	8	6.0

DISCUSSION

Chronic suppurative otitis media (CSOM) is the result of an initial episode of acute otitis media and is

characterized by a persistent discharge from the middle ear through a tympanic perforation. Among such patients, medical treatment can be aimed at control of infection and elimination of ear discharge as short-term goals and eventual healing of the tympanic perforation and improvement of hearing as ultimate goals. Medical treatment options include aural toilet, use of antibiotics (topical, systemic, parentral), topical antiseptics and combination of these. In our study 134 patients were recruited after informed consent from every patient. Results showed that patients who underwent treatment with ofloxacin (group B) showed better results in terms of resolution of the ear discharge after the treatment as compared to those treated with Gentamycin (group A). Results of this study were quite similar to the study of Kadar et al[6], who recruited 120 patients in a comparative clinical trial and divided into two groups: aminoglycoside group of 60 patients were treated with gentamycin hydrocortisone ear drops and quinolone group of 60 patients were prescribed norfloxacin topical solution with a dose of 6 drops in the affected ear twice daily for two weeks. They concluded that in the medical management of chronic suppurative otitis media, the topical quinolones should be considered first line of treatment as there are no ototoxic effects of quinolones, which can be used safely in the presence of tympanic membrane perforation. Tong et al[8] conducted a double-blind study compared two antibiotics, namely ofloxacin and neomycin-polymyxin B, with similar in vitro sensitivities to Gram positive and Gram negative organisms. Fifty-two patients were selected randomly and the results show that ofloxacin eardrops have marginal benefits in symptomatic improvement (89 per cent versus 79 per cent, p = 0.27) and bacterial eradication (81 per cent versus 75 per cent, p = 0.81) in active chronic suppurative otitis media. Significantly fewer patients (seven per cent versus 29 per cent, p = 0.04) in the ofloxacin group had active disease at the end of the two-week treatment. They recommended the use of ofloxacin eardrops in managing active chronic suppurative otitis media since it has high clinical efficacy, contains no steroid component and has no demonstrated risk of ototoxicity.

Lorente et al[9] conducted a multicentric double-blind randomized study to compare topical ciprofloxacin and topical gentamycin in the treatment of simple non-cholesteatomatous purulent chronic otitis media. Three hundred and eight patients were included in the study, 159 treated with ciprofloxacin and 149 treated with gentamycin. The percentage of clinical success (elimination of otorrhea) was 95% with ciprofloxacin and 94% with gentamycin. Likewise, the percentage of bacteriological eradication was 96% with ciprofloxacin and 93% with Gentamycin.In these patients, topical ciprofloxacin shows the same efficacy as topical Gentamycin without any potential ototoxic effects.

Tutkun et al[10] determined and compared the therapeutic efficiency of ciprofloxacin hydrochloride and Gentamycin sulfate in the treatment of chronic ear disease. They recruited 44 patients with chronic suppurative otitis media randomized into two groups. Ciprofloxacin hydrochloride (200 mg/mL) was administered to the first group (composed of 24 patients), while the second group (composed of 20 patients) received Gentamycin sulfate (5 mg/mL) locally, five drops three times a day for 10 days. In the ciprofloxacin group, 21 (88%) of the 24 patients with suppurative chronic otitis media were cured. On the other hand, only six (30%) of the patients in the Gentamycin group were cured. The rest of the patients showed no clinical or bacteriological improvement. They concluded that topical ciprofloxacin preparation is more efficacious and efficient than topical Gentamycin for the treatment of chronic otitis media in the acute stage. Miro et al.[11] administered otic drops of either ciprofloxacin 0.2% solution or a combination of polymyxin B, neomycin, and hydrocortisone suspension (PNH) for 6 to 12 days to patients (14-71 years old) with chronic suppurative otitis media in a randomized, non-blinded, multicenter clinical trial. Two hundred thirty-two enrolled patients were analyzed for efficacy on a per protocol basis. Clinical success was observed in 91% and 87% of the ciprofloxacin and PNH-treated patients, respectively. In the comparative study of Supiyaphun et al[12] reported that the efficacy and safety of 0.3 per cent Ofloxacin otic solution 6 drops twice daily with those of oral Amoxycillin 500 mg three times daily plus 1 per cent Chloramphenicol ear drop at 3 drops three times daily were compared in a two-week treatment of chronic suppurative otitis media with acute exacerbation. The susceptibility of all the pathogenic isolates to ofloxacin, amoxycillin and chloramphenicol were 96.4, 57.1 and 51.8 per cent respectively.

Cure rate was significantly better in Ofloxacin treated group than in AMOX + CRP-treated groups in terms of painless ($p = 0.05$) and dry ($p < 0.001$) ears. Similarly De Miguel Martínez et al[13] conducted a randomized study of 125 patients with chronic middle ear infection. In order to study the effectiveness of ciprofloxacin in chronic otitis media, they selected four different treatment groups: oral ciprofloxacin (500 mg/12 h); 0.5 and 0.2% topical solutions of ciprofloxacin (3 drops/8 h), and oral ciprofloxacin plus 0.2% topical solution. Topical polymyxin and neomycin were used as controls. They found that topical ciprofloxacin (0.2%) was the most effective regimen of those tested for the treatment of chronic otitis media. In summary, there are different treatment options for the management of chronic suppurative otitis media. Variety of topical antibiotics has been used and results of their efficacy are reported in the literature. Topical Quiolones have also been used in the treatment. In this study, 0.3%

topical ofloxacin, a flouroquinolone, 4 drops thrice daily was compared with 0.3% topical Gentamycin, an aminoglycoside given in a dosage of 4 drops thrice daily in the management of CSOM. It was found that ofloxacin is a better choice than Gentamycin in terms of resolution of ear discharge (otorrhea).

CONCLUSION

0.3% topical ofloxacin is a better choice in medical management of CSOM than 0.3% topical gentamycin in terms of resolution of ear discharge (otorrhea)

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Original Article

Fixation of Fractures

Outcome of Internal Fixation of Fractures in a Tertiary Care Hospital in Peshawar

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ABSTRACT

Objective: This study was aimed at reviewing internal fixation in our hospital and attendant complications with a view to identifying measures necessary to improve outcome.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at orthopedic department of Lady Reading Hospital, Peshawar from March 2012to February 2014.

Materials and Methods: The operation register was used to identify patients who had undergone internal fixation in the main theatre of the hospital over a Three-year period were collected and their case notes were subsequently retrieved from the medical records unit of the hospital. Data pertinent to study interests were extracted using a questionnaire

Results: One hundred and fifteen patients had internal fixation during the study period but case notes of only 100 patients could be retrieved. Most patients were males with male to female ratio of 2.3:1. The mean age of patients was 32.87±15.2 years and the mean duration of surgery was 2±0.56 hours. Plate and screws constituted the most commonly used implants. Interval between surgery and fracture union was increased by long operation time (> 2. 1hrs) and occurrence of post operative complications.

Conclusion: Improvement in operating facilities and choice of implants would reduce operation time and post operative complications thereby impacting positively on fracture union time.

Key Words: infection, internal fixation

INTRODUCTION

Open reduction and internal fixation (ORIF) is a commonly used treatment for fractures throughout the body, including the distal femur. Supracondylar fractures of the femur account for approximately 7% of all femur fractures.[1] They occur just proximal to the knee joint, in the terminal 9 cm of the femur between the metaphyseal-diaphyseal junction and the femoral condyles.[2]

Fractures of the horizontal surface of the distal tibia are known commonly as pilon or plafond fractures. They represent 1–5% of lower extremity fractures and 7–10% of all tibial fractures [3].

Operative fixation of pilon fractures has presented a significant challenge to the orthopaedic surgeon as the extensive soft tissue damage associated with such injuries makes surgical intervention hazardous. The traditional approach advocated by Rüedi and Allgöwer [4, 5] involves an extensive dissection to the distal tibia and has been associated with significant rates of infection and wound dehiscence, ranging from 0–55%. [6, 7]

Minimal disturbance of the soft tissue envelope is key to the prevention of the common wound problems of dehiscence and infection. The vascularity of the soft tissue sleeve surrounding the distal tibia is tenuous [8–12] and aggressive handling with extensive periosteal stripping will disturb the nutrition to the myocutaneous tissue and underlying bone.

Internal fixation is a common method of treatment of skeletal injuries. [13] The choice of internal fixation as a method of fracture treatment is determined by a number of factors including type of injury, facilities available and expertise of the attending surgeon. [14] Internal fixations like any other modality of fracture treatment can be attended by complications such as implant failure, infection, non-union among others. These are often related to certain factors such as the operation time, operating room conditions and availability of appropriate skills and facilities.[14]

This study is aimed at reviewing the internal fixations done in the Lady Reading Hospital, Peshawar with a view to determining the methods of internal fixation used, time taken for fractures to heal, factors influencing this, complications as well as duration of hospital stay post operatively. It is believed that the information so obtained will positively influence the institution of appropriate measures to improve quality of practice with ultimate benefit to the patients.

MATERIALS AND METHODS

This study was conducted at orthopedic department of Lady Reading Hospital, Peshawar from March 2012 to February 2014.The operation register was used to

identify patients who had undergone internal fixation in the main theatre of the hospital over a three-year period were collected and their case notes were subsequently retrieved from the medical records unit of the hospital. Data pertinent to study interests were extracted using a questionnaire. Data obtained from the case notes included patient's demographics, type of injuries, pre-operative prophylactic antibiotics and implants used, rank of surgeon, duration of surgery, type of anaesthesia, post operative complications and treatment, duration of hospital admission post operatively. The data obtained analysis was done using SPSS version 16. Statistical methods such as correlation and regression analyses, and non-parametric test for comparison of means were used to explore relationships between variables. A 0.05 significance level was used. Results are expressed as means, frequencies and tables.

RESULTS

Hundred patients were recorded in the operation register as having had internal fixation over the period of the study. However, case notes of hundred patients could be traced and retrieved for analysis representing a retrieval rate of 77.2%. There were 70 males and 30 females, with a male to female ration of 2.3:1. Most of the patients (98.1%) had some form of formal education to varying levels. The mean age of patient's was 32.87±15.2 years; mean duration of surgery was 2±0.56 hours; mean pre-operative Packed Cell Volume (PCV) was 36.79±5.2%; mean post-operative PCV was 30±5.7%; mean number of units of blood transfused was 1.57±0.8. 0.022).In one hundred and one cases (89.0 %), surgery was done by a Consultant while 11 cases (11.0%) were done by resident doctors. Table No. 1. The main indication for internal fixation was fracture (66.1%).The femur was the most operated bone constituting 53.4% of cases followed by the tibia (23.0%). Plate and Screws (59.1%) and Interlocking intramedullary Nail (31.3%) were the most commonly used implants. Table No. 2. Sub-Arachnoid block was the most common anaesthetic technique used (62.6%).The duration of surgery was found to be a statistically significant predictor of the interval between surgery and union of fracture, accounting for 15% of the interval. The mean interval between surgery and union was 10.81±2.66 weeks for upper limb fractures and 18.11±2.11 weeks for lower limb fractures. Mean duration of post operative admission was 18.91±13.98 days. Table No. 3. Thirty eight patients had one or more complications. These were wound infection – 13, osteomyelitis – 13, implant loosening – 3, implant breakage – 6, knee stiffness – 5, non-union – 4, shoulder stiffness – 2, wound dehiscence – 1, limb shortening – 1, wrist drop – 1, exposed implant – 1, pin track infection – 1, common peroneal nerve injury – 1, faulty screw placement – 1.Twelve of the patients (12.0%) had post-operative infection and 88 patients had not post-operative infection. This constituted the most common complication. Organisms isolated were Staphylococcus aureus 7(58.33%), Pseudomonas aeruginosa 3(25.0%), Coliforms 1(8.3%), Entero-bacteria 1(8.3%). Table No. 4. Mixed infections were found in 6patients (50.0%); 5 (41.66%) of which were mixed Staph. aureus and Pseudomonas infections. The complications were treated by administration of antibiotics in 17 cases (17.0%), wound dressing 13(13.0%), and debridement 1(1.0%).

Table No.1: Percentage Distribution between consultant and resident Doctor in Orthopaedic Department of LRH Peshawar

Operated by	% Cases
Consultant	89%
Resident Doctor	11%

Table No.2: Percentage cases of Surgery in Orthopaedic Department of LRH Peshawar

Surgery	% Cases
Femur	53.1%
Tibia	23%
Plate and screw	59.1%
Intramedullary Nail	31.3%

Table No.3: Mean Interval between Surgery and Union in Orthopaedic Department of LRH Peshawar

Surgery	Mean Duration
Upper Limb Fracture	10.81 ± 2.66 weeks
Lower Limb fracture	18.10 ± 2.11 weeks
Post operative Admission	18.9 ± 13.98 days

Table No.4: Post Operative Infections

Microorganism % Infected		% Non-Infected
12%		88
Staphylococcus aureus	7 (58.3%)	
Pseudomonas aeruginosa	3 (25%)	
Coliforms	1 (8.3%)	
Enterobacteria	1 (8.3%)	

DISCUSSION

Internal fixation is the preferred method of fracture treatment in many cases. Operative fracture treatment results in early mobilization, short hospital stay, and early return to productive economic activities and less social dislocations. [13-15] The cases of non-union and mal-union treated were mostly in patients who had previously received treatment from the traditional bone setters (TBS) which is a rather common practice in our society. [16-18] This study shows that fractures of the long bones of the lower limb are more frequently treated by internally fixation compared to the upper limb fractures - based on absolute numbers (6.4:1). The finding agrees with that of another study. [19] This

may be due to the need to mobilize the patient early and prevent further complications. The more frequent fixation of femoral fractures (53.4%) compared to the tibia (23.0%) in this study is consistent with results of another local study [19] and may be due to the more common occurrence of severe open fractures in the tibia which makes them unsuitable for internal fixation. Furthermore, non operative method such as casting is widely used in treatment of tibial fractures. This practice is encouraged by the aversion of patients to operative treatment in our society.[16]

Even though the trend is changing in recent years, plate and screws was the most common implant used for internal fixation in this study as in many local studies. [19,20] This may be due to easy availability of the implant and instrumentation as well as lower cost. All the interlocking intramedullary nails (IM Nails) inserted in these patients were done open due to the non-availability of intra-operative imaging facilities. This has greatly limited the use of the IM nails even in the treatment of femoral and tibial shaft fractures where it is the preferred method.

Post operative infection was 13%. Even though very high compared to results from developed societies' [21] the figure is consistent with finding of another local study in which a rate of 12% was recorded following internal fixation. [20] This may be partially attributed to extensive soft tissue dissection and periosteal stripping involved in insertion of plate and screws [13, 14] the most common method of internal fixation in our centre. This study shows that the union time of the fractures was directly proportional to the operation time and occurrence of post operative complications. In other words, it would take much longer time for a fracture treated by internal fixation to heal if the operation time is long (>2.1hrs) and there being associated post operative complication. A long operation time may actually reflect difficulty at surgery as a result of the complex nature of the fracture being treated. Even though it would be desirable to drastically reduce operation time without compromising accuracy and safety, it is also expedient that measures to prevent post operative complications are instituted

CONCLUSION

Complications following internal fixation especially infection, as shown by this study, is still unacceptably high and limits the benefits derivable from internal fixation. This may be attributed to many factors including inadequate operating environment and facilities as well as the lack of choice of appropriate implants. It is therefore imperative that measures be taken by relevant authorities to improve on the facilities in our hospitals and ensure access to appropriate implants for more effective and result-oriented treatment of fractures in our society. This calls for a paradigm shift in allocation of health resources

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Corrigendum

Name and designations of the authors in the articles published in Med Forum Vol. 25 No.11 at pages mentioned against each, may be read as follows:

1. Inter-Relationship of Circulating Biochemical Markers of Oxidative Stress and Thyroid Hormones in newly Diagnosed Schizophrenics: Perspective study from Local Population of Punjab Pakistan (Pages 19-22)

1. Waheed Jamil 2. Shumaila Saleem 3. Arif Malik 4. Naveed Shuja 5. Abdul Manan 6. Sumaira Shaheen 7. Mahmood Husain Qazi

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2. Significance of Hepatic Profile and Malondialdehyde as Marker of Lipid Peroxidation in HCV Patients: A Perspective Study from Local Population of Punjab-Pakistan (Pages 31-34)

1. Ghazal Mansur 2. Nusrat Tariq 3. Mahwish Arooj 4. Arif Malik 5. Hafiz Muhammad Arsalan 6. Mahmood Husain Qazi

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3. Response of Antiretroviral Therapy (Ziduvodine, Lamivudine and Niverapine) in Patients Suffering from Acquired Immuno Deficiency Syndrome (Aids) (Pages 56-59)

1. Humaira Shoukat 2. Ghazal Mansur 3. Nusrat Tariq 4. Arif Malik 5. Abdul Manan 6. Mahmood Husain Qazi

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4. Inter-Relationship of Viral Load and CD^{4+} Cells in Patients Suffering from Acquired Immuno Deficiency Syndrome (Aids): Update from Punjab-Pakistan (Pages 80-82)

1. Nusrat Tariq 2. Ghazal Mansur 3. Humaira Shoukat 4. Arif Malik 5. Abdul Manan 6. Mahmood Husain Qazi

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When appropriate, may be included.

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