Vol. 27, No.10, October, 2016

ISSN 1029 - 385 X

MEDICAL FORUM MONTHLY

APNS Member | CPNE Member | ABC Certified

RECOGNISED BY PMDC & HEC

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"Medical Forum" Monthly Recognised and Indexed by

- PMDC with Index Pakistan No. 48 Since 1998
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- PASTIC & PSA Since 2000
- NLP Since 2000
- WHO, Index Medicus (IMEMR) Since 1997
- EXCERPTA MEDICA, Netherlands Since 2000
- EMBASE SCOPUS Database Since 2008
- Registered with International Serials Data System of France bearing ISSN No. 1029-385X Since 1992
- Registered with Press Registrar Govt. of Pak bearing No. 1221-B Copr. Since 2009
- ABC Certification Since 1992
- On Central Media List Since 1995
- Med. Forum Published from Lahore Since 1989
- Peer Review & Online Journal
- Electronic Publication of Journal Now Available on website: www.medforum.pk

MEDICAL FORUM MONTHLY

ISSN 1029 - 385 X

APNS Member | CPNE Member | ABC Certified

Peer Review Journal | Online Journal | Published Since 1989

e-journal available on: www.medforum.pk

Medical Forum Recognized and Indexed by

PMDC-IP-0048 (1998), HEC-Y-Category (2009), Pastic and PSA, Isd (2000), Medlip, Karachi (2000), NLP, Isd (2000), Pakmedinet, Isd (2011), Excerpta Medica, Netherlands (2000), EMBASE Scopus Database (2008), Index Medicus (IMEMR) WHO (1997), ABC Certification, Govt. of Pak. (1992), Central Media list, Govt. of Pak (1995), Press Reg. No.1221-B Copr (2009)

Business Manager Nayyar Zia Ch.

Legal Advisors Jan Muhammad Bhatti, Kh. Ejaz Feroz (Barrister), Kh. Mazhar Hassan & Firdos Ayub Ch. (Advocates)

Published By Dr. Nasreen Azhar
Gohawa Road, Link Defence / New Airport Road,
Opposite Toyota Motors, Lahore Cantt. Lahore.
Mob. 0331-6361436, 0300-4879016, 0345-4221303, 0345-4221323
E-mail: medforum@hotmail.com, medicalforum@gmail.com
Website: www.medforum.pk

Printed By Syed Ajmal Hussain
Naqvi Brothers Printing Press, Darbar Market, Lahore

Rate per Copy Rs.1500.00

Subscription Rates

Annually

Pakistan	Rs.15000.00
USA & Canada	US$ 500.00
China & Japan	US$ 450.00
United Kingdom	US$ 450.00
Middle East	US$ 400.00

Med. Forum, Vol. 27, No.10 October, 2016 **ISSN 1029-385-X**

Recognized by PMDC **Recognized by HEC**

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Editorial

AIDS : On The Rebound

Mohsin Masud Jan
Editor

HIV infection and AIDS related deaths are increasing. If the world does not act to break the epidemic by 2020, it could rebound to levels seen 10 years ago.

The AIDS response has a single priority for the next 15 years: ending the AIDS epidemic by 2030, while it is to be stressed that the next phase of the AIDS response must account for new realities, opportunities and evidence including a rapidly shifting context and a new sustainable development agenda.

To take the AIDS response forward, UNAIDS has developed a Fast-Track approach to reach a set of time-bound targets by 2020. This approach will be instrumental in achieving the 90–90–90 treatment target of ensuring that 90% of people living with HIV know their HIV status, 90% of people who know their HIV-positive status are on treatment and 90% of people on treatment have suppressed viral loads. They also include reducing new HIV infections by 75% and achieving zero discrimination.

Progress in responding to HIV over the past 15 years has been extraordinary. By June 2015, UNAIDS estimates that 15.8 million people were accessing antiretroviral therapy, compared to 7.5 million people in 2010 and 2.2 million people in 2005. At the end of 2014, UNAIDS estimated that new HIV infections had fallen by 35% since the peak in 2000 and AIDS-related deaths have fallen by 42% since the 2004 peak. The life-changing benefits of antiretroviral therapy mean that people living with HIV are living longer, healthier lives, which has contributed to an increase in the global number of people living with HIV. At the end of 2014, UNAIDS estimated that 36.9 million people were living with HIV. Once diagnosed, immediate access to antiretroviral therapy is required. Countries are gearing up to double the number of people accessing HIV treatment by 2020.

To end AIDS as a public health threat, an accelerated response is needed using better data to map and reach people in the places where the most new HIV infections occur. To support countries with this approach, UNAIDS has released a new report, 'Focus on location and population: on the Fast-Track to end AIDS by 2030,' which gives examples of more than 50 communities, cities and countries that are using innovative approaches to reach more people with comprehensive HIV prevention and treatment services. Through the responsible use of detailed national data sets, countries are able to focus on mapping where new HIV infections occur and where people need services most. The report demonstrates how countries can redistribute resources to improve access to HIV prevention and treatment services. With the Fast-Track approach and front-loaded investments, gaps are closed faster and resources go further and from 2020 annual resource needs will begin to fall.

The report highlights how high-impact HIV prevention and treatment programmes, such as pre-exposure prophylaxis, voluntary medical male circumcision and sexual and reproductive health services, are being successfully implemented in various locations and for different populations, including adolescent girls and young women and their partners, pregnant women living with HIV, sex workers, transgender people, gay men and other men who have sex with men and people who inject drugs.

In the report, UNAIDS identifies 35 Fast-Track countries that account for 90% of new HIV infections. Focusing on location and population and programmes that deliver the greatest impact will reap huge benefits by 2030: 21 million AIDS-related deaths averted; 28 million new HIV infections averted; and 5.9 million new infections among children averted.

The report shows that areas with fewer numbers of people living with HIV and lower HIV prevalence are more likely to have discriminatory attitudes than areas that have more cases of HIV. This seemingly contradictory result is explained by education and understanding about HIV usually being higher in countries where HIV is more prevalent and where more people are receiving treatment. However, these discriminatory attitudes make it more difficult for people in low-prevalence areas to come forward to seek HIV services for fear of stigma and reprisals.

The Fast-Track approach may be guided at the national level, but it is realized at the local level. According to the report, Fast-Track requires cities, towns and communities to take charge of their HIV responses by analyzing the nature of their epidemic and then using a location–population approach to focus their resources on evidence-informed high-impact progammes in the geographical areas and among the populations.

Original Article

Comparative Study of Effects of Azadirachtaindica (Neem) Leaf Aqueous Extract and N-Acetylcysteine on Paracetamol Induced Liver Damage in Rats

Farheen Hameed[1], Ijaz Hussain Zaidi[4], Qadir Bux Memon[2], Mazhar Ul Haque[2], Anila Qureshi[3] and Amin Fahim[3]

ABSTRACT

Objective: To study the comparative effects of aqueous Neem leaf extract with N-Acetylcysteine on the basis of liver enzymes (AST, ALT, ALP) and histopathological changes in paracetamol induced liver damage.

Study Design: Experimental / Interventional comparative study.

Place and Duration of Study: This study was conducted at the Pharmacology Department, Al-Tibri Medical College, Karachi from January 2015 to June 2015.

Materials and Methods: Total sixty (60) albino rats of either gender were equally divided into four (04) respective groups. Each group comprised of 15 animals. Animals of group A were considered as un-treated or control group. In group B animals were treated with a single dose 2mg/kg b/w of paracetamol orally. Group C animals with neem extract 500mg/kg b/w orally for 15 days along with oral administration of 2mg/kg b/w paracetamol. In group D, animals were treated with same dose of paracetamol and 140mg/kg b/w of N-Acetylcysteine intraperitoneal for 06 days.

Results: The results showed that the liver enzymes were markedly increased in paracetamol treated group of animals, but decreased when animals were treated with Neem and N-Acetylcesteine. The mean serum level of enzymes such as AST, ALT and ALP were found to be more i.e. 110.8, 40.00 and 444.33 respectively but the mean level decreased in the animals of group C such as 29.133, 20.00 and 240.33. However, liver enzymes were also reduced in group D but their levels were relatively lesser than animals of group C. Regarding histopathological review, the tissue sections showed necrotic hepatocytes, congestion in blood vessels in paracetamol treated group of animals. However, the changes were found significantly reversed in group C and group D, but marked changes were seen in animals of group C as compared to N-Acetylcysteine treated group of animals.

Conclusion: Paracetamol is a hepatotoxic drug causing histomorphological damage in liver along with alteration in the level of Liver enzymes. Azadirachta indica leaves have given better results compared to N-Acetylcysteine, on the basis of significant differences in biochemical parameters.

Key Words: Azadirachita indica leaf extract, N-Acetylcysteine, Paracetamol, Albino rats

Citation of article: Hameed F, Zaidi II, Memon QB, Haque M, Qureshi A, and Fahim A. Comparative Study of Effects of Azadirachtaindica (Neem) Leaf Aqueous Extract and N-Acetylcysteine on Paracetamol Induced Liver Damage in Rats. Med Forum 2016;27(10):2-6.

INTRODUCTION

Liver is the most important organ which plays a pivotal role in regulating various physiological processes in the body. It is involved in several vital functions such as metabolism, secretions, storage, regulation of serum glucose concentration, lipid metabolism and detoxification of various waste material[1]. The liver is also involved in the metabolism and detoxification of drugs and their unwanted substances which may be hepatotoxic other wise[2,3]

The variety of substances including chemicals, alcohol consumption and viral infections can cause lethal injury to hepatocytes. The probable mechanism involved in the injury to the hepatocytes induced by the chemicals is mainly through lipid per oxidation and other oxidative enzymes. Long term use of alcohol potentially causes liver diseases, hypertriglyceridemia and cirrhosis by changes in oxidant–antioxidant system by generating free radicals. The pathogenesis involved in the drugs induced hepatic damage is usually through production of toxic radicals and other metabolic enzymes, which in turn results in per oxidation of lipid

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Received: July 12, 2016; Accepted: August 18, 2016

bilayer of hepatocytes causing hepatocytes cell death, fatty change and other inflammatory changes[4,5].

An estimated 1000 drugs have been implicated causing liver diseases eg: Halothane and Anticonvulsants drugs etc[6]. Few of the drugs especially, Acetaminophen, if misused either intentionally or accidentally can cause significant liver damage[7,8]. Paracetamol is metabolized in liver via three pathways i-e: Glucoranidation, sulphation (both account 95%) and via cytochrome p-450 (5%). A small amount of Acetaminophen is converted by cytochrome p-450 to a potentially hepatotoxic quinone intermediate compound. In therapeutic doses, this compound is rapidly inactivated by conjugation with glutathione, but in case of hepatic glutathione depletion, this causes accumulation of quinone intermediate compound which results hepatic necrosis[9]. Acute renal toxicity (acute tubular necrosis) has also been seen with acetaminophen over dosage[10,11]. Paracetamol over dosage is also having effect on heart which results abnormalities in ST segment, T-wave flattening, pericarditis and myocardial necrosis[12,13].

N-Acetylcysteine (NAC) has been used as an antioxidant in the patients with acetaminophen over dose[14,15]. It induces the glutathione synthesis and due to this action it enhances the detoxification of free radicals in acetaminophen poisoning[16,17].

The Neem leaves and its other components have been used as traditional medicine, killing of insect and antiseptic activities. Beside this current studies have reported its antitumor, anticancer, antiviral, antimalarial and hypoglycemic activities[18-20]. The effects of neem leaves extract in paracetamol induced hepatic damage in rats have been studied. A significant reduction in the hepatic enzymes to the normal levels was found with the use of neem leaves extract[21].

Reducing the paracetamol induced effects by the use of aqueous neem leaves extract and N-Acetylcholine is yet to be validated. The objective of the present study is to identify the hepatoprotective effect of Aqueous Neem Leaf extract in comparison with N-Acetylcysteine (known Antidote) in paracetamol overdose induced liver toxicity on the basis of liver enzymes including AST, ALT, ALP and histopathological changes in liver.

MATERIALS AND METHODS

This is an experimental interventional comparative study conducted in Pharmacology Department, Al-Tibri Medical College and Hospital Karachi during Jan 2015 to June 2015. In this study a total of sixty adult albino rats of wistar strain of either gender having weight between 150-200 gms were included and were divided into four groups each containing fifteen animals.

Group A Healthy control (n=15) animals were given normal diet and water for 15 days. While in Group B (n=15) animals were treated with paracetamol 2gm/kg body weight orally single dose[21] and observed for 24 hours and then were sacrificed. Liver was exposed to see any macroscopic hemorrhage on it and sample was taken to confirm the hepatotoxicity through microscopic examination and blood sample was taken for biochemical parameters i-e Liver enzymes (AST, ALT, ALP).

Rats in Group C (n=15) were given aqueous neem extract extract 500mg/kg/day orally for 15 days and same group also received paracetamol 2gm/kg body weight orally (21). The hepatoprotective effects were seen by histopathology of liver and biochemical parameters through blood sample drawn from heart of the rats. In Group D (n=15) rats were given Paracetamol and N-Acetylcysteine at a dose 140mg/kg intraperitoneal for 06 days (22) and hepatic effect was seen by histopathology of liver and biochemical parameters through blood sample drawn from heart of the Rat.

RESULTS

In the present study the effects of paracetamol, neem compound and N-acetylcysteine were observed. The results revealed that the toxic effects of paracetamol were reversed by the use of neem extract and N-acetylcysteine and results further analyzed statistically.

Blood Serum (AST) Levels of Rats: Mean serum (AST) level of animals in group A, was 22.8U/L whereas in group B was 110.86U/L. The results showed loss of liver function in Group B when compared with Group A with significant p value of less than 0.001. Mean serum (AST) level of animals in group C was 20.133U/L. A non significant loss of liver function in Group C when compared with Group A with p value of less than 0.15 was observed. Mean serum (AST) level of animals in group D was 31.26U/L. While comparing the serum AST levels in Group A with Group D, the p value was found to be <0.03 as shown in the Table No-1.

Table No.1: Serum AST level in different group of animals

	Mean	Standard Deviation	Standard Error of Mean
Group A	22.80	7.55	1.94
Group B	110.86	12.17	3.14
Group C	29.13	5.06	1.30
Group D	31.26	5.95	1.53

Blood Serum (ALT) Levels of Rats: Mean serum (ALT) level of animals in group A was 33.86U/L whereas in group B was 110.20U/L. The serum ALT levels were elevated showing significant loss of liver function in Group B when compared with Group A. The p value was found to be <0.001. Mean serum (ALT) level of animals in group C was 35.33U/L. A non significant loss of liver function in Group C when compared with Group A with p value of less <0.08 was

observed. Mean serum (ALT) level of animals in group D was 37.73U/L. While comparing the serum ALT levels in Group A with Group D, the p value was found to be <0.01 as shown in the Table No-2.

Table No. 2: Serum ALT levels in different group of animals

	Mean	Standard Deviation	Standard Error of Mean
Group A	25.00	7.11	1.83
Group B	40.00	13.00	3.35
Group C	20.00	6.26	1.61
Group D	15.00	4.77	1.23

Blood Serum (ALP) Levels of Rats: Mean serum (ALP) level of animals in group A was 220U/L whereas in group B was 444.33U/L. The serum ALP levels were elevated showing significant loss of liver function in Group B when compared with Group A with p value of <0.001. Mean serum (ALP) level of animals in group C was 240.33U/L. A non significant loss of liver function in Group C when compared with Group A with p value of <0.06 was observed. Mean serum (ALP) level of animals in group D was 244.33U/L. While comparing the serum ALP levels in Group D with Group A, the p value was found to be <0.01 as shown in the Table No-3.

Table No.3: Serum ALP level in different group of animals

	Mean	Standard Deviation	Standard Error of Mean
Group A	220.00	17.92	4.62
Group B	444.33	32.23	8.32
Group C	240.33	18.36	4.74
Group D	244.66	16.08	4.15

Histo-Pathological Observations in Group A (control): The biopsy specimen of liver from control Albino rats were observed for morphological and histological structure following the staining with routine Hemotoxyline and Eosin (H&E) stain.

Histopathological Observations of Group B:

- Normal parenchyma distorted.
- Dilated and engorged central vein.
- Congestion in hepatic sinusoids.
- Marked necrotic hepatocytes seen.

Histopathological Observations of Group C: Regenerating hepatocytes with reduced necrotic cells and retrained hepatic architecture seen. Few inflammatory cells and dilated sinusoids indicate recovery and resolution.

Histopathological Observations of Group D:

- Mild congestion in central vein.
- Mild to moderate inflammation near hepatic cords.
- Few necrotic hepatocytes.

DISCUSSION

Liver plays an important role in metabolism of drugs and detoxification in the body. Liver injury caused by toxic chemicals and certain drugs has been recognized as one of the toxicological problems[23]. Acetaminophen has antipyretic, analgesic and weak anti-inflammatory effects because of weak ability to inhibit COX on inflammatory site due to the presence of peroxides[24]. Hepatic necrosis is a severe adverse effect of paracetamol over dosage. The process by which it causes the hepatocellular injury and then death is by the conversion into intermediate quinone compound which is not excreted by kidney, and due to depletion of glutathione which causes oxidative stress that lead to apoptosis of highly susceptible hepatocytes[25].

N-Acetylcysteine has shown its hepatoprotective effect by increasing the synthesis of glutathione with marked improvement in Liver enzymes (ALT, AST, ALP) as well as on histopathology of the organ. In various studies it has been proved that synthetic drugs being used in the treatment of hepatotoxicity are having serious adverse effects[26]. In view of this, it is prudent to look for an alternative like medicinal plants since few or no side effects have been reported for neem extract and also to evaluate on scientific basis for their efficacy which has been claimed to possess or having hepatoprotective effects.

Many herbal plants like Parkia Biglobosa stem bark have hepatoprotective effect on paracetamol induced Liver damage[27]. In present this study alkaline phosphotase level was not significantly reduced as compared to Parkia Biglobosa plant. Omega-3 has three essential fatty acids which protect the liver from the paracetamol induced liver damage among the swiss albino rats. This effect occurs only because of antioxidant action and it markedly decreased the level of liver enzymes like ALT, AST and ALP[28]. Another study also showed the hepatoprotective effect of neem leaf in diabetic albino rats induced by the Alloxon. Leaf extract of neem was also used for the hepatoprotective activity against the administration of CCL4 (75mg/k s/c) in albino rats[29].

In another study hepatoprotective effect was compared between Neem leaves and Silymarin in Albino rats which concluded that both herbal medicine is having same hepatoprotective effect, and having no significant difference in biochemical parameters[21]. In the present study effects of aqueous neem extract on paracetamol induced liver toxicity was compared with N-Acetylcysteine, which is known antidote widely used to prevent hepatic toxicity since very long time. This was confirmed from our study on the basis of significance difference of biochemical parameters and histological

slides. Neem leaves extract is having better hepatoprotective effect with least side effects.

Neem leaves extract has anti-lipoprotective property because it is rich in flavonoid content, which is well known antioxidant and similar findings was also confirmed by another study[30]. Decreased glutathione levels influenced by paracetamol over dose results in oxidant antioxidant imbalance and programmed cell death of hepatocytes. In this study neem leaves aqueous extract has reversed the hepatic injury. The possible suggested mechanism is through anti-oxidant and anti-apoptotic activity of Neem leaves extract, similar findings were also confirmed in another study[31].

CONCLUSION

Paracetamol is a hepatotoxic drug causing histomorphological damage in liver along with alteration in the level of Liver enzymes. Azadirachta indica leaves have given better results compared to N-Acetylcysteine, on the basis of significant differences in biochemical parameters.

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

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Original Article

Studies on Metabolic Evaluation of Urinary Risk Factors in Southern Punjab, Pakistan

Shafiq Ahmad[1], Muhammad Aslam Shad[2] and Tariq Mahmood Ansari[2]

ABSTRACT

Objective: The aim of the present study was to assess the metabolic abnormalities such as hypercalciuria, low urine volume , hypocitraturia, hyperoxaluria and hyperuicosuria in recurrent stone formers of southern Punjab as these abnormalities vary in different populations.

Study Design. Prospective study.

Place and Duration of Study: This study was conducted at the Department of Biochemisty, Bahauddin Zakarya University Multan and Nisthar Medical College Multan from December 2010 to January 2012.

Materials and Methods: One hundred adult patients who were known idiopathic recurrent calcium oxalate renal stone formers ($RCSF_S$) were selected from the various districts of the Southern Punjab, Pakistan. Twenty four hour urine collections were made while the subjects were on their usual diet. Samples were collected in clean polyethylene containers. Volume was measured using a graduated cylinder. Hydrochloric acid N/10 HCl (1 ml/100 ml of urine) was added to stop auto-conversion of ascorbic acid to oxalate during storage. Thymol was added as a preservative.

Results: Common metabolic change found in the present work was hypercalciuria. It was found in 38 patients (38%) it was isolated in 25 cases and associated with other changes in 13 patients.

Conclusion: Most of the patients were noted to have metabolic abnormalities. Hypercalciuria, low urine volume, and hypocitraturia were common metabolic defects. Hypercalciuria was the most frequent risk factor.

Key Words: Renal calculi, risk factors, hypercalciuria, low urine volume, hyperoxaluria, hypocitraturia, hyperuricosuria, Southern Punjab, Pakistan

Citation of article: Ahmad S, Shad MA, Ansari TM. Studies on Metabolic Evaluation of Urinary Risk Factors in Southern Punjab, Pakistan. Med Forum 2016;27(10):7-11.

INTRODUCTION

Renal calculus formation is a common medical problem. It has been estimated that its prevalence is 15% once in life. Age, gender, race and geographical location are the factors which chiefly affect this disorder. That is why its incidence rate is different in different countries[1]. In a particular population the incidence rate fluctuate between 68 to 72 per 1000 000. This variation may be due to difference of the region under study[2]. Pakistan lies in stone belt. Renal calculus disease is endemic in this country as whole and in particular Punjab[3]. McCarrison[4] was the first person to carry study of this illness in various parts of Pakistan. He reported that the incidence of this disorder was quite high in Dera Ghazi Khan, Sukkur, Hyderabad and Dera Ismail Khan. It was found that as compared to Southern Punjab (33 %) the incidence of this problem was more in Northern Punjab (67 %).

Both extrinsic and intrinsic factors are responsible for this disease in different provinces of Pakistan. Majority of Pakistanis are inhabited in villages where the environment is hot[5].

In Pakistan, very little work has been done on the studies of risk factors for renal stone formation[6].

Metabolic studies on the population of this region show that major risk factors encountered are low urinary volume (20-30%), hyperuricosuria (20-60%), hyperoxaluria (50- 60%), hypomagnesuria (20-30%) and hypocitraturia (30-40%)[7].

It is very necessary to know the risk factors responsible for renal stone formation for efficient medical treatment and prevention of recurrence of this disease [8]

Reliable stone analysis and basic metabolic evaluation are highly recommended in all patients after stone passage. Every patient should be assigned to a low- or high-risk group for stone formation. High-risk stone formers should undergo specific metabolic evaluation with 24-h urine collection.[9]

The aim of the project is to study the metabolic abnormalities such as hypercalciuria, low urine volume, hypocitraturia, hyperoxaluria and hyperuicosuria in recurrent stone formers of southern Punjab as these abnormalities vary in different populations.

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Received: June 24, 2016; Accepted: July 30, 2016

MATERIALS AND METHODS

Selection of patients

Patients' group: One hundred adult patients who were known idiopathic recurrent calcium oxalate renal stone formers ($RCSF_S$) were selected from the various districts of the Southern Punjab. Ages ranged from 18 years to 67 years. The group of patients consisted of 75 male stone-formers (mean age 45 ±9. 97years) with recurrent calcium oxalate renal calculus disease and 25 female stone formers (mean age 33.76±11.15). These patients were referred to the different clinical laboratories by the consultants for further investigations of renal calculus disease after the stone removal. Most of these patients were those who were operated for renal calculi and visiting clinical laboratories for chemical analysis of renal calculi.

A recurrent stone former patient is one who has renal stone in his urinay tract besides evidence of previous renal stone formation. In addition he has history of passing renal stone, proof of renal stone on previous KUB X-ray or history of operation for urinary tract stone.

There were no dietary restrictions per se, but the patients were advised not to take oxalate rich and calcium rich diet. Major source of drinking water was either tap water in cities or hand pump water in the rural areas.

First time stone formers and children less than 18 years were excluded from the study. Patients suffering from any other diseases were also excluded from the study.

Control Group: The control group consisted of 48 healthy subjects, age and sex matched, 32 males and 16 females (mean age of either sex 35.0±7.1 years) .They were attendants of the patients and had no history of stone formation or renal diseases. No additional diagnostic procedure was performed to confirm the absence of renal stones. All subjects gave informed consent to participate in the study.

Collection of samples: Twenty four hour urine collections were made while the subjects were on their usual diet. Samples were collected in clean polyethylene containers. Volume was measured using a graduated cylinder. Hydrochloric acid N/10 HCl (1 ml/100 ml of urine) was added to stop auto-conversion of ascorbic acid to oxalate during storage. Thymol was added as a preservative.

Metabolic diagnosis consisted of five categories: low urine volume, hypercalciuria, hyperoxaluria, hyperuricosuria, and hypocitraturia. The parameters for the group of patients and the group of controls were expressed as mean value ± standard deviation. Volume of the specimen was noted and used for the analysis of biochemical parameters.

Biochemical determination: Urinary calcium and urinary uric acid were determined using Human diagnostic kits (Germany). Urinary oxalate was determined using the trinity biotech diagnostic kit (Ireland). Citrate was determined by using a simple modified Method for urine citrate determination by Sekar et al [10]. A spectrophotometer UV/VIS (Helios, Unicam, UK) was employed to take the measurements.

Analytical work was done at Bahauddin Zakariya University Multan and Nisthatr Medical College, Multan, Pakistan.

RESULTS

In the present study, common metabolic risk factors for renal calculi formation in the idiopathic recurrent calcium oxalate stone formers of Southern Punjab, Pakistan were identified.

The percentage of patients of either gender whose urinary constituents were abnormal is shown in table 1, figure. 1

Table No.1 Overall metabolic abnormalities in patients N=100

Metabolic Abnormality	Number of Cases
Hypercalciuria	25
Hypercalciuria +low urine volume	4
Hypercalciuria+hypocitraturia	9
Low urine volume	11
Low urine volume+ hypocitraturia	20
Hyperoxaluria	10
Hyperuricosuria	3
No abnormality detected	18
Total	100

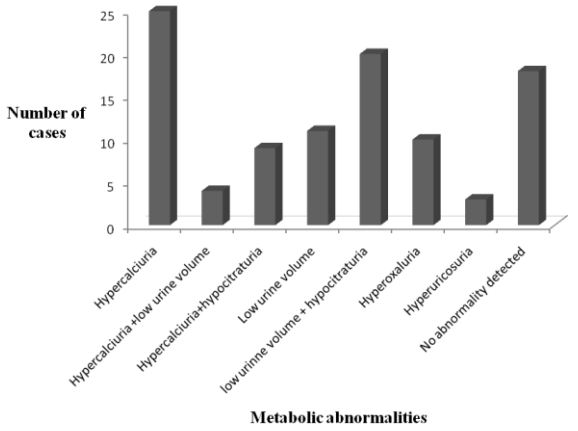

Figure No.1. overall urinary abnormalities in patients

Common metabolic change found in the present work was hypercalciuria. It was found in 38 patients (38%) it was isolated in 25 cases and associated with other changes in 13 patients.

The next most common abnormality was low urine volume noted in 35 patients. It was isolated in 11 patients and associated in remaining patients. Hypocitraturia was the abnormality next in prevalence.

Of the total one hundred patients, 29 were having hypocitraturia and this abnormality was associated. This was followed by hyperoxaluria in 10 patients and hyperuricosuria in three patients. Value of each metabolic abnormality in 24-h urine expressed as mean with standard deviation is shown in Table 2

Table No. 2: Values of metabolic abnormalities in 24- h urine

Parameters hour Urine	Normal limit	Control Mean ± SD	Abnormal Values Mean± SD	P value
Volume (ml/24h)	<1500	1754.29 ±134.4	1160 ±53.05	<0.0001*
Calcium (mg/24h)	>300	235.52 ±13.08	349.6 ±28.36	<0.0001*
Citrate (mg/24h)	<300	262.23 ±6.18	227.59 ±28.52	<0.0001*
Oxalate (mg/24h)	>40	28.58 ±4.61	55.5 ±6.5	<0.0001*
Uric acid (mg/24h)	>750	421.85 ±125.41	840 ±37.42	<0.0001*

*p value< 0.0001= highly significant

DISCUSSION

Even though risk factors for urolithiasis have been recognized but the precise reason of renal stone formation is often not known[11]. When urine is tested, the metabolic or other abnormalities are detected in renal stone formers. Low urinary volume (20-30 %), hypercalciuria (25-40%), hyperoxaluria (10-50%), hyperuricosuria (8-30%) and hypocitraturia (5-30%) are the common abnormalities[12].

In most of idiopathic calcium oxalate stone formers, hypercalciuria, low urine volume, hypocitraturia either alone or in combinations are the main abnormalities. Imbalance between promoters and inhibitors appears to be underlying cause of the abnormalities[13]. In other studies, hypercalciuria was the most common finding in the stone formers[14].

In this study the most common metabolic risk factor was hypercalciuria (38 %) which was isolated in 25 (25 %) cases and associated in 13 cases.

Thirty nine patients in India underwent metabolic evaluation and it was found that metabolic abnormalities were detected in 92.3% of the patients (n = 39) studied. Of them, almost 60% had two or more metabolic abnormalities. The most common metabolic abnormality was hypo-citraturia (82%), followed by hyper-oxaluria (56%) and hyper-calciuria (41%)[15].

A study in Argentina revealed that the abnormalities present, single and associated, in order of frequency, were idiopathic hypercalciuria, (56.88%), hyper-uricosuria (21.08%), unduly acidic urine (10.95%), hypocitraturia (10.55%), hypomagnesuria (7.9%), primary hyperparathyroidism (3.01%), hyperoxaluria (2.6%), and cystinuria (0.32%)[16].

Regarding hypercalciuria, the result of this study is in close proximity to that of Khan and Shahjahan in Pakistan[17], which showed that in the similar study carried by them, 31.7% patients, were hypercalciuric.

Higher excretion of calcium in the urine is found in studies conducted in Pakistan and other countries[18]. Similar results were encountered in western countries. It was found that hypercalciuria was the most frequent risk factor for urinary stone formation. The percentage of this abnormality was 60%. It was higher than in the present study. Hypercalciuria causes more than 50% of metabolic disorders in adults and 53 to 75% in children[19]. The most frequently found metabolic change investigated by Amaro et al[20] was hypercalciuria, present in 117 patients (74%), which was isolated in 62 cases (53%) and was associated with other changes in 55 (47%). Consequently, hypercalciuria is commonly found in the patients with renal stone disease. In studies of metabolic risk factors, hypercalciuria has been reported in up to or more than 50 percent of the patients.

In a study conducted in China, it was found that hypercalciuria, hyperoxaluria, high urine sodium levels, and hyperuricosuria were found to be the common metabolic risk factors of the calcium oxalate stone formation with hyperuricemia[21].

Hypercalciuria and recurrent calcium oxalate stone formers are related to each other. It has been known for a long time but the exact nature of this relation is not known as yet. Research is underway to know this relation.

As a result of Hypercalciuria, renal stone is formed heterogeneously consisting of many entities[22]. As a result of increase in the concentration of urinary calcium the concentration of calcium ion increases. Consequently urine becomes saturated with stone forming salts, i.e., calcium phosphate and calcium oxalate[23]. In addition, urinary inhibitors such as citrate and glycosamin complexes with calcium. This results in reduced urinary inhibitor activity. Consequently risk of renal stone formation is inceased[24].

The main cause of this defect is overproduction of 1, 25-dihydroxy-vitamin D3 [1, 25 (OH) 2 D3]. This is vitamin D in its active form. Its moves calcium ions into intestinal cells. Calcium enters the intestine via lumen of the intestine through the brush border membrane. It also controls transport of calcium from intestinal cells[25].

Vitamin D3 comes from diet. Besides, it is also synthesized in the liver from provitamin. It is synthesized when skin is exposed to ultraviolet light. Body has large store of 25 (OH) D3 and enzyme 1α-hydroxylase converts vitamin D to 1,25 (OH)2 D3[26].

In the present study, low urine volume was the next metabolic abnormalilty encountered. Out ot 100 cases it was found in 35 patients.

Dehydration and inadequate fluid intake are the causes of low urine volume. It may also be caused by malabsorptive bowel disorders which also result in excessive fluid loss.high fluid intake is the most effective means of urinary supersaturation[27]. Among the metabolic abnormalities investigated in 24 hour urine, low urine volume is the most common[28]. Low urine volume increases the supersaturaton of stone forming salts[29]. Chronic diarrhea or hard physical exercise leads to low urine volume and ultimately inceases urinary supersaturation of renal stone forming salts[28]. As a result low urine volume is an important risk factor for renal stone formation. There is evidence to prove that low urine volume is an actual lithogenic risk factor. To support this idea some workers have drawn probability index for formation of calcium oxalate. This index proves that even if non stone fomer has low urine volume e.g., if it drops below 1 litre/day this normal subjects can run high risk of developing renal stone[1].

The prevalence of renal stone tends to be higher in the areas of hot climate. This is well known fact now[30]. Insufficient fluid intake, loss of water from the skin/respiratory tract , diarrhea are the principal causes of low urine volume. These conditions lead to chronic dehydration. In such circumstances risk of stone formation increases. These condition may include high surrounding temperature, high degree of physical activity and insufficient water replacement. The most important factor is insufficient intake of fluid. This factor plays major role in high frequency of renal stone disease in the area of hot climate[31].

Urine dilution prevents stone recurrence and this is achieved by adequate fluid intake. When we take enough fluid risk of renal stone formation is decreased this process lowers the supersaturation of stone forming constituents[32].

Low urine flow rate is the cause of high prevalence of renal stone in this region. In Pakistan river Indus and its branches mainly supply water otherwise it is barren. Composition of water varies throughout the country. At some places it is very hard having more than 300 parts per million calcium but how this relationship increases risk of renal stone formation is unclear[33].

The metabolic abnormality next in abundance was hypocitraturia. Iqbal et al[34] conducted a study and found that the most common risk factor was hypocitraturia. It was present in 81.2% percent patients. Hypocitraturia was found in 57 % renal stone formers in a study conducted in Pakistan on much larger scale.

In a study conducted in Iran, the most common metabolic abnormalities were hypocitraturia (40.5%)[35]. These observations are in contrast to the present study where percentage of hypocitraturia is much less (29 %) than these studies.

Citrate forms complex with calcium and in this way process of renal stone formation is slowed down. It also results in the inhibition of nucleation and growth[36]. When there is low concentration of citrate, calcium is free to combine with oxalate and this is how hypocitraturia inceases the risk of renal stone formation In most of the cases, it is idiopathic. Distal renal tubular acidosis, chronic diarrhea, urinary tract infection and thiazide medication can also induce hypocitraturia.

High prevalence of hypocitraturia has been found in calcium oxalate renal stone patients in many studies. These studies provide convincing evidence that this abnormality is a significant pathogenic risk factor in renal stone formation disease[37].

In the present study, hyperoxaluria is not a common abnormality in the stone formers. It was found only in 10 percent of the patients in the present work. In contrast to this study, Hyperoxaluria (61.4%) was the most common abnormality detected, in a study conducted in Malaysia[38].

CONCLUSION

Most of the patients were noted to have metabolic abnormalities. Hypercalciuria, low urine volume, and hypocitraturia were common metabolic defects. Hypercalciuria was the most frequent. The findings suggest that metabolic derangements play a role in stone formation. Metabolic studies are necessary to treat the underlying cause and prevent further recurrence. More comprehensive metabolic evaluatioin in southern Punjab is required to establish the results.

Acknowledgements: I would like to take this opportunity to express my profound gratitude and deep regard to my teachers for their exemplary guidance, valuable feedback and constant encouragement throughout the duration of the project.

I also thank lab staff for their continuous cooperation and support.

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

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Original Article

Abnormal Uterine Bleeding

Etio-Pathological Profile of Abnormal Uterine Bleeding in Abbottabad

Muhammad Usman Anjum[1], Qamoos Razzaq[2] and Ayesha Babar Kawish[3]

ABSTRACT

Objective: To determine the etiology and clinical profile of patients with abnormal uterine bleeding,
Study Design: Observational / descriptive study,
Place and Duration of Study: This study was conducted at the Shahina Jamil Teaching Hospital, Abbottabad from September 2014 to February 2016,
Materials and Methods: Patients who were not pregnant, among the age of 20-60 years and had history of abnormal menstruation were included. Exclusion criteria included patients who were pregnant, less than 20 years or greater than 60 years, or suffering from cancer. Epidemiological data was noted and detailed history was taken especially about menses, vaginal discharge, use of drugs, hormonal treatment including oral contraceptive pills and any method of contraception used. Physical, ultrasonographic examination and histopathological examination of endometrium was performed in all patients.
Results: There were 200 patients enrolled in this study. Their mean age was 38±5 years. Majority of them were between the age of 31-40 years, (82 patients) and 41-50 years, (66 patients).About 150 patients had menstrual irregularities. Eighty of these patients had menorrhagia while seventy had polymenorrhagia. Fifty patients had history of vaginal bleeding. Contraceptive measures were used by 38 patients. Out of which, OCPs were the preferred mode of contraception used. Twenty two patients had infertility with 16 had primary while 6 had secondary infertility. Sixty two patients had abnormal ultrasound examination. The chief ultrasonographic abnormality was that of uterine fibroid, ovarian cyst and ovarian cancer. On endometrial examination, 168 patients had normal physiological changes. The predominant change in this group was that of proliferative and secretory changes. Twenty patients had abnormal physiological endometrial changes. The chief abnormalities found were that of Pill endometrium, (12 patients) and irregular shedding, (4 patients). Preneoplastic and inflammatory changes were observed in six patients in each group.
Conclusion: AUB is one of the commonest gynecological disorders. The underlying cause can be determined by meticulous work-up in these patients which can help in deciding optimal treatment option for AUB patients. This, in turn, will not only improve health and well-being of these patients but as well as improve their quality of life. Endometrial sampling plays an important role in the diagnostic work-up of AUB. Therefore, it should be offered to all such patients as part of their evaluation.
Key Words: Abnormal uterine bleeding, menorrhagia

Citation of article: Anjum MU, Razzaq Q, Kawish AB. Etio-Pathological Profile of Abnormal Uterine Bleeding in Abbottabad. Med Forum 2016;27(10):12-15.

INTRODUCTION

Abnormal uterine bleeding (AUB) is major cause of gynecological consultation in females of childbearing age.[1] About 19.1 % gynecologist'sconsultation were because of the menstrual disorders and about 30% of sexually active women are affected by menorrhagia.[2, 3]Likewise, AUB was the chief cause of gynecological surgeries in 25% of the patients and AUB was accountable for two-third of all hysterectomies.[4, 5]

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Received: July 27, 2016; Accepted: August 30, 2016

The estimated total costs (both direct and indirect) related to AUB were 01 and 1.2 billion US dollars representing higher economic costs associated with AUB.[5]

AUB is associated with alteration in the normal female menstrual cycle. This alteration would be in frequency or duration of menstrual cycle oralteration in duration and amount of flow.[3] Women of any age group can be affected by AUB and this disease can present in different ways. Etiology of AUBis multi-factorial: physiological, organic, systemic and hormonal causes, e.g. endometrial hyperplasia, endometrial polyp, or endometrial carcinoma, pelvic inflammatory disease, adenomyosis, ovarian cancer, pituitary, adrenal, hepatic,thyroid diseases or inherited coagulopathies like von Willebrand disease, can lead to AUB.[2, 3]Careful work-up of patient can reveal the cause of AUB in upto 60% of cases.[1] Nevertheless, there are many patients in which cause of AUB cannot be found despite meticulous evaluation. A term dysfunctional uterine bleeding (DUB) is used to characterize such patients.[3]

The successful treatment ofsuch patients relyon ascertainingand treating the underlying cause of AUB where possible so that normal rhythm of menstrual cycle can be restored. The management of AUB comprises of both medical or surgical options based on the underlying cause.[3]

AUB has impact on woman's emotional, psychosocial well-being and their quality of life. Too much loss of blood reduces iron from the body and which in turn, causes iron deficiency anemia. It manifests as weakness and fatigue, mood changes and weight loss and impairs the quality of life of the patient.[6] Also, the sexual life of a women is also affected by AUB as well as absenteeism from work leads to loss of productive hours.[5] Therefore, AUB exerts multi-factorial effects on the health and well-being of a patient. This study is performed to determine the etiology and clinical features of patients suffering from AUB in our area.

MATERIALS AND METHODS

This descriptive study was performed at Shahina Jamil Teaching Hospital, Abbottabad from September 2014 to February 2016.

Patients who were not pregnant, among the age of 20-60 years and had history of abnormal menstruation were included. Exclusion criteria included patients who were pregnant, less than 20 years or greater than 60 years, or suffering from cancer. After taking informed consent, epidemiological data was noted. Detailed history was taken especially about menses, vaginal discharge, use of drugs, hormonal treatment including oral contraceptive pills (OCPs) and any method of contraception used. Physical, ultrasonographic (USG) examination and histopathological examination of endometrium was performed in all patients. SPSS (version 17) was used to perform statistical analysis.

RESULTS

There were 200 patients enrolled in this study. Their mean age was 38±5 years. Majority of themwere between the age of 31-40 years, (82 patients) and 41-50 years, (66 patients),(Figure 1).

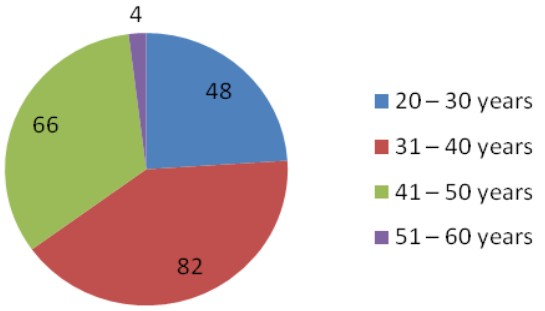

Figure No.1. Age-wise distribution of patients, (n=200)

About 150 patients had menstrual irregularities. Eighty of these patients had menorrhagia while seventy had polymenorrhagia. Fifty patients had history of vaginal bleeding, (Table 1).Contraceptive measures were used by 38 patients. Out of which, OCPs were the preferred modeof contraception used. Twenty two patients had infertility. Among these, 16 had primary while 6 had secondary infertility, (Table 1).

Table No.1: Clinical profile of AUB patients, (n=200)

Variable	No, (%age)
Chief presenting complaints	
Menorrhagia	80, 40%
Polymenorrhagia	70, 35%
Vaginal bleeding	50, 25%
Total	200, 100%
Contraception use	38, 19%
1. Oral contraceptive pills	22, 11%
2. Intra uterine contraceptive device	8, 4%
3. Bilateral tubal ligation	8, 4%
Infertility	22, 11%
1. Primary infertility	16, 8%
2. Secondary infertility	6, 3%
Non-significant	140, 70%
Total	200, 100%

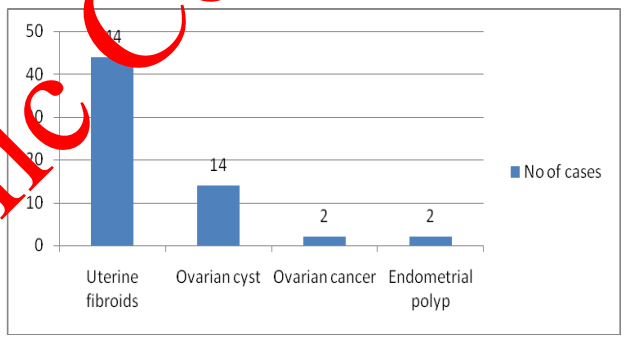

Figure No.2. Ultrasonographic abnormalities in AUB patients, (n=62)

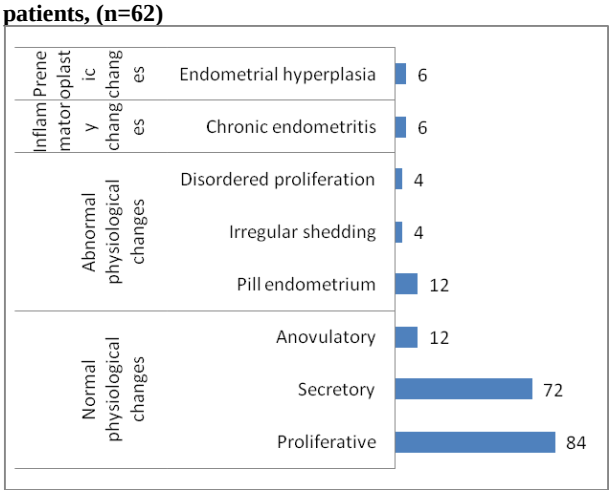

Figure No.3: Endometrial changes onhisto-pathological examination in AUB patients, (n=200)

Sixty two patients had abnormal ultrasound examination. The chief ultrasonographic abnormality

was: uterine fibroid, ovarian cyst, ovarian cancer and endometrial polyps, (Figure 2).

On endometrial examination, 168 patients had normal physiological changes. The predominant change in this group was that of proliferative changes observed in 84 patients while secretory changes in 72 patients. Twenty patients had abnormal physiological endometrial changes. The chief abnormalities found were that of Pill endometrium, (12 patients) and irregular shedding, (4 patients). Preneoplastic and inflammatory changes were observed in six patients in each group, (Figure 3).

DISCUSSION

AUB is one of the most prevalent disease affecting women. It is characterized by alteration in the flow and the frequency of menstrual cycle. Underlying cause can be determined in most of patients by detailed assessment. But, there are certain cases in which cause cannot be found. Such patients were said to have DUB. Management strategies for AUB comprise of medical (including hormones) and surgical choices but medical management is the number one mode of treatment. Surgical management is generally used for those patients who do not intend to procreate or in whom other management strategies have failed.[2, 5]

In this study, the majority of cases, (41%), were between the age of 31 to 40 years and their mean age was 38±5. This finding corroborate with findings of other studies. A study done on Indian patients by Mahapatra and Mishra stated that the majority of their cases, (45.7%), were between the age of 31-40 years.[3] Likewise, Rehana et al have demonstrated that the majority of their Indian patients, (32.5%), were between 30-39 years of age which means that this age group is preferentially affected.[7]

Most of our patients presented with complaints of menorrhagia, (40%), and polymenorrhagia (35%). Nargis et alhave stated that the chief presenting complaint of Bangladeshi women were menorrhagia (52.6%) and polymenorrhagia (24.6%) in their study.[8] Similarly, Mahapatra and Mishra have stated that the occurrence of menorrhagia and polymenorrhagiaamong their patients were 48.60% and 17.10% respectively while their incidence was 55.8% and 6.6% respectively according to Rehana et al.[3,7] This discrepancy in the frequency of these symptoms could be due to the fact that they were assessed subjectively by asking questions from the patient. Objective or rather semi-objective assessment methods should be employed to preciselymeasure the amount of blood loss as objective methods are unpractical and expensive.[5]

Our study has shown a very interesting finding that 19% of our patients used contraception. Majority of the cases, 11%, preferred OCPs. In patients with AUB, they would be preferred as a method of contraception if they need contraception. It is because, they provide an added advantage in AUB patients if used as contraception as they benefit their disease and serve as contraceptivecon currently.[5, 9]

The predominant endometrial change found on histopathological examination in our study was that of proliferative endometrium in 42% cases and secretory endometrium in 36% cases. These results are comparable to other studies. According to Mahapatra and Mishra, the frequency of proliferative, secretory and hyperplastic endometrial changes were 45.7%,30% and 12.1% respectively in their Indian subjects.[3] Similarly, Nargis et al have reported that the rate of proliferative, secretory and hyperplastic endometrium was 62.03%,20.32% and 14.43% respectively in their study which was conducted in Bangladesh.[8]The inflammatory andhyperplastic changes were observed in the endometrium of 3% of patients, in each group. Comparable to our study, in their study conducted in Nepal, Baral et al stated that the occurrence of inflammatory lesions were 2.7%.[10] This indicates that proliferative and secretory endometrial changes are the principal change observed in our study.

CONCLUSION

AUB is one of the commonest gynecological disorders. The underlying cause can be determined by meticulous work-up in these patients which can help in deciding optimal treatment option for AUB patients. This, in turn, will not only improve health and well-being of these patients but as well as improve their quality of life. Endometrial sampling plays an important role in the diagnostic work-up of AUB. Therefore, it should be offered to all such patients as part of their evaluation.

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

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Original Article

Is Ultrasound Detect Renal Infections?

Detection of Renal Infection on Ultrasound

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ABSTRACT

Objective: To asses culture and sensitivity of renal infection patients detected on ultrasound
Study Design: Prospective cohort study
Place and Duration of Study: This study was conducted at the Rimsha Medical Center Dadu from January 2012 to June 2015.
Materials and Methods: Hundred patients suffering for renal infection detected on ultrasound were included in the study. Diabetic and urolithiasis patients excluded from the study. Urine culture and sensitivity of renal infection patients detected on ultrasound carried from collection point of diagnostic and research laboratory liaqaut university of medical & health sciences Jamshoro/Hyderabad in Dadu.
Results: Out of 100 patients 65 (65%) were female and 35(35%) male. The age of the patients ranged from 15 to 45 years with mean age 28.9 SD±8.8 The presenting features were lumbar pain with on and off fever in 60(60%) cases, dysuria in 15(15%), and in 35(35%) cases was asymptomatic. The renal infection detected in ultrasound bilaterally in 30(30%), Right sided in 35(35%), left sided in 25(25%) and chronic pyelonephritis (change of small size kidney with increase echogenicity and small size kidney with irregular border) in 10(10%) cases. culture and sensitivity seen positive in 27(27%) cases. Pyuria and haematuria seen in 17(17%). The commonest micro-organism detected E.coli in 60(60%), Klebsiella 15(15%), Proteus 5(5%),Enterococcus 5(5%), staphylococcus saprophyticus 5(5%), streptococcus 7(7%), Pseudomonas 3(3%) and insignificant mixed bacterial growth seen in 7 cases. Drug senstivity seen in 100% with meronam, pipracilllin/tazobactam, aztreonam, Nitrofurantoin and amikacin 90% Amoxi-clavulanic acid in fusidic acid, ceftrixone, cotirmoxazole, ofloxin, cefuroxime, cefixime 75% and resistance pattern seen more in ceftazidime, gentamycin, ciprofloxacin and ampcillin.
Conclusion: Renal infection detected on ultrasound even with insignificant pyuria and haematuria should not be neglected because having significant positive culture and sensitivity report findings.
Key Words: Renal infection, ultrasound, culture and sensitivity

Citation of article: Shaikh NA, Bozdar HR, Soomro AA, Jalbani MH. Is Ultrasound Detect Renal Infections? Med Forum 2016;27(10):16-18.

INTRODUCTION

Renal infection (bacterial pyelonephritis) refers to any inflammation affecting the renal interstitium. Patients most often affected are females from 15- to 40-years-old. Predisposing conditions include neuropathic bladder, prolonged catheter drainage, urine reflux, bladder malignancy, urinary bladder outlet obstruction, clinical Benign prostatic enlargement, calculus disease, altered host resistance, congenital anomalies, analgesic abuse, diabetes, sexual activity and pregnancy.[1,8] Renal infection is presenting fairly specific and classical in most cases, consisting of rapid onset of high fevers and flank pain and tenderness.

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Received: July 27, 2016; Accepted: August 30, 2016

In many instances less specific or non-urinary symptoms and signs may also be present which may lead to clinical confusion.[2.4] A renal infection requires prompt medical attention. If not treated properly, a renal infection can permanently damage kidneys by renal abscess, renal infarction, necrosis, scarring, chronic renal impairment and hypertension. The most commonly implicated micro organisms are E. coli (most common), Klebsiella , Proteus, Enterobacter and Pseudomonas.[8,14]

Ultrasound is insensitive to the changes of acute pyelonephritis, with most patients having normal' scan, and abnormalities only identified in 25% of cases. Possible features like particulate matter in the collecting system, gas bubbles (emphysematous pyelonephritis), abnormal echogenicity of the renal parenchyma and focal/segmental hypoechoic regions, increase diameter> 50 millimeter in transverse section with prominent pyramids seen in kidney. However ultrasound also useful in assessing for local complications such as hydronephrosis, renal abscess formation, renal infarction, perinephric collections, and thus guiding

management.[1,7] Still some radiologist use term renal infection when above finding is noted in ultrasound but still that's debatable. So our aim of study to asses culture and sensitivity of renal infection patients detected on ultrasound

MATERIALS AND METHODS

A Prospective cohort study of 100 cases of renal infection carried out at Rimsha medical center Dadu from Jan. 2012 to June 2015. The study was approved by the ethical review committee and informed consent was personally obtained from the patients. Hundred patients suffering for renal infection detected on ultrasound were included in the study. Neuropathic bladder, prolonged catheter drainage, urine reflux, bladder malignancy, urinary bladder outlet obstruction, clinical Benign prostatic enlargement and calculus disease patients excluded from the study. Urine culture and sensitivity of renal infection patients detected on ultrasound carried from collection point of diagnostic and research laboratory liaqaut university of medical & health sciences Jamshoro/Hyderabad in Dadu, in all cases to asses pattern of urine culture and sensitivity.

RESULTS

Out of 100 patients, 75(75%) were female and 25(25%) male. The age of the patients ranged from 15 to 45 year with mean age 28.9SD=8.8 The presenting features were lumbar pain with on & off fever in 60(60%) cases, dysuria in 15(15%), and in 35(35%) cases were asymptomatic. The acute renal infection /acute pyelonephritis suspected from increased echotexture of kidney, increase diameter> 50 millimeter in transverse section with prominent pyramids seen in bilaterally in 30(30%),Right sided in35(35%), left sided in 25(25%) and chronic pyelonephritis in 10(10%) cases. culture and sensitivity seen positive in 27(27%) cases. Pyuria and haematuria seen in 17(17%). Urine culture and sensitivity showed commonest micro-organism detected E.coli in 60(60%), Klebsiella 15(15%), Proteus 5(5%), Enterococcus 5(5%), staphylococcus saprophyticus 5(5%), streptococcus 7(7%), Pseudomonas 3(3%) and insignificant mixed bacterial growth seen in 7(7%). Drug sensitivity seen in 100% with meronam, pipracillin/tazobactam. Nitrofurantoin and amikacin in 90%. Amoxi- clavulanic acid and fusidic acid, ceftrixone, cotrimoxazole, ofloxacin, cefixime 75% and resistance pattern seen more in ciprofloxacin, pencillin and ampcillin.

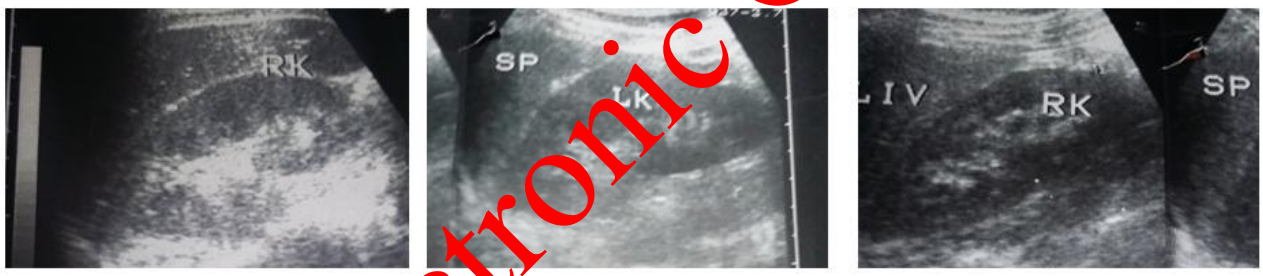

Figure No.1. Various ultrasounds show renal infection

DISCUSSION

The aim of imaging in renal infection is to detect conditions that must be treated in order to avoid immediate deterioration or recurrences, and long-term kidney damage.[4,9] In our study of 100 patients of renal infection suspected on ultrasonography 75(75%) were female and 25(25%) male. The age of the patients ranged from 15 to 45 years with mean age28.9 SD±8.8 which is comparable to Bjerklund TE study.7 The presenting features were lumbar pain with on and off fever in 60(60%) cases, dysurea in 15(15%), and in 35(35%) cases was asymptomatic. The renal infection seen in bilaterally in 30(30%),right sided 35(35%), left sided 25(25%) and chronic pyelonephritis increased echogenicity, small size kidney with irregular border) 10(10%) cases. Pyuria and haematuria seen in 17(17%) which is also comparable to secondary data.[5,10] Our study hypothesis was that there is co-relation of renal infection detected on ultrasound with UTI, is some thing true but verbal communication with various radiologists are in favour of null hypothesis that there is no co-relation among renal infection detected on ultrasound with UTI so we collect 100 sample of urine for culture and sensitivity of renal infection detected by ultrasound and found culture and sensitivity positive in 27(27%) cases with P-value 0.02 which is statistically significant hence adequate evidence against the null hypothesis.The commonest micro-organism detected E.coli in 60(60%), Klebsiella 15(15%), Proteus 5(5%), Enterococcus 5(5%), staphylococcus saprothyticus 5(5%) , streptococcus 7(7%), Pseudomonas 3(3%) and insignificant mixed bacterial growth seen in 7(7%). Drug senstivity seen in 100% with meronam, tazobactam. Nitrofurantoin and amikacin seen in 90%. Cavulanic acid and fusidic acid, ceftrixone, cotrimaxole, ofloxin, cefixime seen in 75% and resistance pattern seen more in ciprofloxacin, pencillin and ampcillin which is comparable to Rossleigh MA study.[11-13] So we recommended that renal infection

detected on ultrasound even with insignificant pyuria and haematuria should not neglected because our study showed 27(27%) positive cases of culture and sensitivity cases with p.value 0.02 which is statistically significant . How ever further studies needed to confirm that renal infection detected on ultrasound have co-relation with positive cases of culture and sensitivity.

CONCLUSION

Renal infection detected on ultrasound even with insignificant pyuria and haematuria should not be neglected because having significant positive culture and sensitivity report findings.

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

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Original Article

The Attitude and Knowledge of Mothers Regarding Use of Colostrum in Newborn Feeding

Importance of Colostrum in Newborn

Usman Ali Faisal, Alia Rubab and Shahzadi Asma Tahseen

ABSTRACT

Objective: To assess awareness about the knowledge, attitude and behaviour of mothers about the use of colostrum for the newborn feeding.

Study Design: Observational / descriptive /cross-sectional study

Place and Duration of Study: This study was conducted at Pediatric Outpatient Department, Civil Hospital Bahawalpur from July 10, 2015 to August 8, 2015.

Materials and Methods: This study was conducted on mothers who attended Pediatric Outpatient Department, Civil Hospital Bahawalpur for the medical checkup of their children less than one year of age. The mothers were interviewed by the one of the researchers using a structured questionnaire about colostrum including the demographic data.

Results: There were 100 mothers included in this study. There were 4% mothers younger than 20 years, 63% in the age group 21-30 years, 20% age group 31-40 years while 3% were older than 40 years. 17% mothers were having at least matriculation, 59% were having education less than that while 34% were uneducated. 84% mothers were house wives. There were 79% mothers who had heard about colostrum; among which 51% heard from either family members or from friends, 21% from medical personnels, 7% from media while 21% never heard of it. There were only 25% mothers who believed that colostrum was the best first feed of newborn, while 61% mothers believed it is GHUTTI that was best. There were 22% mothers who believed that it was beneficial for the health, 13% were in the opinion that it is injurious for the health while 65% replied 'do not know'. There were 41% mothers who told colostrum as yellow and thick, 11% replied it was milk like. There were 32% mothers who believed that colostrum is sufficient for initial newborn feeding, 25% believed it is insufficient. There were only 19% mothers who believed that baby must be put on breast for feeding within half an hour.

Conclusion: The awareness of mothers about the use of colostrum is poor to moderate.

Key Words: Colostrum, Newborn feeding, Awareness, Mothers.

Citation of article: Faisal UA, Rubab A, Tahseen SA. The Attitude and Knowledge of Mothers Regarding Use of Colostrum in Newborn Feeding. Med Forum 2016;27(10):19-21.

INTRODUCTION

The colostrum is milk secreted for a few days after childbirth. Colostrum, produced in low quantities in the first few days after delivery, is rich in immunologic factors such as secretory IgA, lactoferrin, leukocytes, as well as growth factors like epidermal growth factor. Colostrum also contains relatively low concentrations of lactose, indicating its primary functions to be immunologic and trophic rather than nutritional. The sodium, chloride and magnesium contents are higher and levels of potassium and calcium are lower in colostrum than in later milk. So it is an important source of protective, nutritional and growth factors for the newborn[1,2].

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Received: July 24, 2016; Accepted: August 29, 2016

The laxative effect of colostrum encourages passage of baby's first stool, meconium. This helps to clear excess bilirubin which is produced in large quantities at birth and helps to prevent jaundice. It, ordinarily, has a distinct yellow color due to carotenoids of its fat globules[3].

If prelacteals are given as first feed instead of colostrum there are chances of insufficient mother milk yield for rest of the lactation period. The various studied done in Pakistan showed that 34.6% -72% (4,5,6,7) babies were given colostrum as first feed. The studies (8,9) done abroad also showed variable results.

Keeping in mind above facts about colostrum, it was planned to conduct this study. The objective of this study was to assess awareness about the knowledge, attitude and behaviour of mothers about the use of colostrum for the newborn feeding. This study will help us in future planning about the promotion of use of colostrum as initial newborn feeding in the community.

MATERIALS AND METHODS

This cross-sectional study was conducted on mothers who attended Pediatric Outpatient Department, Civil

Hospital Bahawalpur for the medical checkup of their children less than one year of age from July 10, 2015 to August 8, 2015. After explaining the study purpose and details, thereof, those who agreed to participate in the study were interviewed by the one of the researchers using a structured questionnaire about colostrum including the demographic data. The interview was conducted in English, Urdu or in local languages according to the understanding of mother. The Performa was filled by the same researcher who conducted interview. The mothers who refused for the interview, or whose child was serious enough needing urgent admission or carrying child one year or older were excluded from the study.

The data collected were entered and analyzed by using SPSS version 10. Data were expressed as percentages or proportions.

RESULTS

There were 100 mothers included in this study. There were 14(14%) mothers younger than 20 years, 63 (63%) in the age group 21-30 years, 20 (20%) in the age group 31-40 years while 3 (3%) were older than 40 years. Among the studied mothers 17 (17%) were at least matriculate, 59 (59%) were having education less than matriculation while 34 (34%) did not go to school in their lives. The 94 (94%) mothers were house wives, 3 (3%) teachers, 2(2%) housemaid and I (1%) was lady health worker.

There were 79 (79%) mothers who heard about colostrum among which 51 (51%) heard from either family members or from friends, 21 (21%) from medical personnels, 7 (7%) from media while 21(21%) never heard of it.

There were only 25 (25%) mothers who believed that colostrum was the best first feed of newborn, while 61(61%) mothers believed it was GHUTTI that was best while 14 (14%) mothers gave no opinion.

There were 22 (22%) mothers who believed that it was beneficial for the health, 13 (13%) were in the opinion that it was injurious for the health while 65(65%) replied 'do not know '.

There were 41(41%) mothers who replied to the question 'what is the character of colostrum?' as thick yellow, 11(11%) replied it was milk like while rest 49(49%) answered ' do not know'.

There were 32(32%) mothers who believed that colostrum was sufficient for initial newborn feeding, 25 (25%) believed it was insufficient while 43 (43%) replied 'do not know'.

There were only 19(19%) mothers who believed that baby must be put on breast for feeding within half an hour.

DISCUSSION

The colostrum is the best first feed of the baby. This study was conducted to assess the awareness regarding colostrum among mothers. There were 4% mothers younger than 20 years, 63% in the age group 21-30 years, 20% in the age group 31-40 years while 3% were older than 40 years. The mean age of mothers was 26.7% in the study by Aisha et al[10].

Among the studied mothers 17% were having, at least, matriculation, 59% were having education less than that while 34% did not go to school in their lives. There were 57%-63% uneducated mothers in the other studies[7,10] conducted in Pakistan. The study done in Nepal by Joshi et al[11] showed that 66% mothers were matriculate.

The 94% mothers were house wives, 3% teachers, 2% housemaid and 1% was lady health worker in this study. Aisha et al[10] showed that 77% were housewives. The study done by Joshi et al[11] showed 27% women were employed.

There were 79% mothers who heard about colostrum among which 51% heard from either family members or from friends, 21% from medical personnels, 7% from media while 21% never heard of it. Aisha et al[10] showed 90% women heard about colostrum among which 15% received information through media, 30% got to know about it from family and friends, 35% from health personnels while 10% from other sources. Khan et al[12] showed that 57% mothers were unaware of its use in newborn feeding. Baloch et al 2009[7] showed that main source of information was family members and health personnels. The study done by Joshi et al[11] showed that 74 % women knew about colostrum through media, followed by family and friends and via doctors and health workers.

There were only 25% mothers who believed that colostrum is the first feed of newborn, while 61% mothers believed it was GHUTTI that was best while 14% mothers gave no opinion.

There were 22% mothers who believed that it was beneficial for the health, 13% were in the opinion that it is injurious for the health while 65% replied 'do not know'. Aisha et al[10] showed that 35% women perceived it as harmful while only 15% women took it as beneficial.

The study by Baloch et al[7] showed that 12% mothers were aware of the fact that it is beneficial while 11% considered it unhealthy. Khan et al[12] showed that 43% mothers took it unhealthy. The study done by Joshi et al[11] showed that 69% of the women were aware that colostrum was nutritious.

There were 41% mothers who described colostrum as yellow and thick, 11% described it was milk like while rest 49% answered ' do not know'.

There were 19% mothers who believed that baby must be put on breast for feeding within half an hour. Aisha et al[10] showed that only 14% percent while Asim et al[13] showed that 28% mothers said the baby must immediately be put on breast. The study[14] done among medical students showed that 69% students knew that

breastfeeding should be initiated immediately after birth.

In brief, the awareness about colostrum is poor to moderate and needs to be improved.

CONCLUSION

The awareness about colostrum is poor to moderate

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

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Original Article

Breast Lump

Outcome of Breast Lump in Females attending Surgical Outpatient Department, Jinnah Hospital Lahore

Tahira Iftikhar Kanju[1], Aaqib Javed[2], Amna Siddique[3] and Somia Khan[4]

ABSTRACT

Objective: Main focus of this research was to identify the consequence of breast lump in females attending surgical outpatient department, Jinnah Hospital Lahore.
Study Design: Observational / descriptive / cross sectional study.
Place and Duration of Study: that was conducted at the Outdoor of Surgical Units of Jinnah hospital, Lahore dated 15 April 2016 to 15 May 2016.
Materials and Methods: All data was collected by patients through a feedback form that was prepared according to the knowledge of patients about breast diseases. Collected data analyses was made by SPSS version 13 and results was presented in different forms like tables, frequencies and percentages of variables
Results: Total sample of 95 patients affected from breast lump taken. All the patients were divided into different age groups. 58 (61.05%) were age group between 16-35 years of age, 31 (32.63%) were between 36-55 years of age and 6(6.31%) patients were between the age group 56 years and above. In our study, 41.1% patients had malignant carcinoma of the breast followed by fibroadenoma in 36% and breast accessible 15%.
Most common age group suffering from carcinoma was 26-35 years of the age where it was found to be 13 (31.1%) Fibro adenoma was the most common disease of younger age group age 15-25 years of age.
Conclusion: Conclusion of this study is the incidence of breast malignancy, fibro adenoma and inflammatory diseases is greater in our setup. However, there should be breast clinics screening programs so that breast cancer diagnosed at early stage. It is recommended now the surgeons managing patient's age 30 years and above with breast lump should be vigillant and cautious so that early diagnosed and management of malignant breast lump should be carried out.
Key Words: Fine needle aspiration cytology: Breast Lump

Citation of article: Kanju TI, Javed A, Siddique A, Khan S. Outcome of Breast Lump in Females attending Surgical Outpatient Department, Jinnah Hospital Lahore. Med Forum 2016;27(10):22-25.

INTRODUCTION

Breast lumps are the supreme presenting complaints in Surgical Outdoor Department of hospitals in Pakistan.[1] About 90% of Breast lump are Benign causing no lethal affects but malignant breast lumps are also in a significant percentage. A strong and affective awareness campaign in general population especially discussion on breast pathologies and their affects and stress on that point to seek medical advice when having any breast lump and breast disease.[2]

Breast is the organ which is associated with femininity and fertility and is a source of nurturing the infants; therefore, any disease in the breast is a very sensitive issue for a female. Studies shows that one from every fourth female after puberty suffer with breast disease.[3]

Breast disease may present with nipple discharge, breast pain, asymmetry, nodularity, nipple inversion or as inflammatory lesion but a lump in breast is usual presenting complaints of breast disease.[4] Presentation of breast disease may be delayed due to socioeconomic cultural and religious factors, lack of awareness and knowledge.[5]Breast lump may be either benign or malignant.

Malignancy or breast cancer is a dangerous consequences of any woman with a breast lump, however, most of the reports indicate that majority of the breast lumps show non-proliferative epithelial and benign lesions.[6] In the USA, certain studies have shown that round about 60% of patients having benign breast disease while 10% patients have cancer. Benign breast lumps are caused by two main conditions, fibroadenoma in young women and cyst in pre & post-menopausal women. It is now being increasingly realized that cancer may develop from benign premalignant lesions. Diagnosis of breast cancer at early stage is important for patient survival [7]. Diagnosis is based on complete history, past family history of cancer and physical examination of lump .Ultrasonography for younger women under 35 years of

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Received: July 10, 2016; Accepted: August 24, 2016

age and Mammogram (MMG) for women more than 35 years are employed. Invasive procedures like FNAC and biopsy are the most common diagnostic procedures that must be used to rule out any malignancy and to save the patient from any unnecessary mutilation in a case of a benign disease. Deaths of females above 30 years of age in USA and Worldwide is high due to breast cancer and breast cancer is the 2nd leading cause of death.[8]

In Europe, breast cancer is about 27% of all cancers in females and 1 out of 14th female expected to have breast cancer in her life. 26.6% females in Pakistan also suffering from Breast cancer.[9-10] This is why we have conducted this research to further expand our knowledge about outcomes of breast lump in this region.

MATERIALS AND METHODS

The data was collected during one month from 15 April 2016 to 15 May 2016 in surgical outdoor Jinnah Hospital Lahore. After verbal consent interview was done. Only females of all age group attending surgical OPD were included while Unwilling patients excluded from this study.

All data was collected by patients through a feedback form that was prepared according to the knowledge of patients about breast diseases. Collected data analyses was made by SPSS version 13 and results was presented in different forms like tables, frequencies and percentages of variables

RESULTS

95 females were included in our study. The most common age group 58 (61%) came in surgical outdoor with the complaints of breast lump was 16-25 years of age Table -1.

Out of 95 females, 24 (26%) were unmarried, 71 (74%) married. From all the married population 45(63%) were multiparous while the rest 26(32%) were nulliparous.

Menstrual history revealed that 73(77%) of the females had a regular cycle of 28-30 days. 13 (19%) females were using oral contraceptives and 19(21 %) of the females show family history positive for breast cancer.

In our study 30(41%) patients had malignant carcinoma of the breast Followed by fibroadenoma in 27(36%) and breast accessible 11 (15%), table.

Most common age group suffering from carcinoma was 26-35years of age where it was found to be 13 (31.1%)

Fibroadenoma was the most common disease of younger age group age 15-25 years of age.

Females with the positive family history of breast lump were 19(21%) While 76(79%) had no family history of a breast lump. 16(80%) females having positive family history had carcinoma of breast and 5(20%) had fibroadenoma. Out of 76(79%) females having no family history of breast lump 26(34%) had carcinoma of the breast, 32(42%) had the fibroadenoma, 15(20%) had abscess/cyst, 3(2%) had fibrocystic changes and lipoma. (Table no. 2)

73(76.8%) subjects had regular menstrual history out of which 30(41%) have carcinoma of breast and fibroadenoma, 10(13.6%) have abscess/cyst,2(2.7%) have fibrocystic changes and 1(1.3%) have a lipoma. 21(23%) subjects reported with irregular menstrual history out of which 11(50%) were diagnosed as carcinoma of the breast, 5(22.7%) cases were of fibroadenoma, 5(22%) cases were of abscess/cyst and1(4%) cases were of lipoma. (Table no. 3)

Subjects who had used oral contraceptives are 11(13.68%) out of which 5(46.15%) were used by females having carcinoma of the breast, 4(38.46%) were used by females having a fibroadenoma, 2(15.38%) were used by females having abscess/cyst. 60(86.31%) females did not use oral contraceptives out of which 26(42.68%) were diagnosed as carcinoma of breast,23(36.58%) were diagnosed as fibroadenoma, 9(15.85%) were cases of abscess/cyst, and 2(2.43%) were cases of fibrocystic changes and lipoma. (Table no. 4).

Table No.1: Age Distribution of Patients

Sr. no.	Age group	N	Percentage
1	16-35	58	61.
2	36-55	31	33.
3	56-75	6	6.

Table No.2: Menstrual History

Menstrual history	CA		Fibro adenoma		Abscess/ cyst		Fibro cystic change		Lipoma	
		N%	N	%	N	%	N	%	N	%
Regular	30	41	30	41	10	14.	2	3	1	1
Irregular	11	50	5	23.	5	23.			1	5

Table No.3: Distribution According to Marital Status

Marital Status	CA		Fibro adenoma		Abscess/ cyst		Fibro cystic change		Lipoma	
		N%	N	%	N	%	N	%	N	%
Married	41	58.	12	16.90	14	20.	2	3.	2	3.
Un - Married			23	96.	1	4.				

Table No.4: Distribution According to Educational Status

Educational Status	CA		Fibro adenoma		Abscess/ cyst		Fibro cystic change		Lipoma	
		N%	N	%	N	%	N	%	N	%
Un-educated	25	62.5	8	20	4	10.	2	5	1	2.5
Educated	16	29.09	27	49.9	11	20.			1	1.81

DISCUSSION

A palpable lump in breast is a frequent problem for the diagnosis for the surgeons and practitioner .It is said that all breast lumps are malignant until diagnosis made on investigations and pathological examinations. In our

scrutiny, most common were malignant lesions (43.7%), followed by benign lesions including fibroadenoma (36.8%), abscess and cyst (15.7%), fibrocystic change (2.1%), lipoma (2.%). Most common breast disease found in our study was Breast cancer. Similar result was obtained by Isaac and colleagues in research held in tertiary hospitals of Karachi.[11] At Fatima Jinnah Medical College, Lahore A retrospective record review of 4575 breast lump cases were made which consisted of eight years duration showed that frequency of breast cancer was 30%.[12]Another study of 500 breast biopsies in one year at Aga Khan University Hospital, Karachi showed breast cancer incidence was 40%.Talpur et al reported that 36% of patients lump in breaston investigation having malignant lesions.[13] Which is close to our study. These figures are higher as compared to a study Fleming et at observed at Australia that were 19.6% in the western and developed countries.[14] Incidence in the study is more compared to the Europe recommends a greater incidence of breast cancer in the patients presenting to our surgical outdoor. A significant patient's population is non-educated has a little bit awareness of breast disease and breast cancer. In UK and USA the mean age of carcinoma breast is more as compared to our region this is due to differences in our customs, demographic variations and religious influences. Most frequent Histopathological diagnosis in our study was fibroadenoma that was 36.8%. This is higher as compared to USA (18.5%) and England (7.7%) and, but it is lower as compared to the Caribbean Islands of Trinidad (39.3%).[15]

Talpur and associates described that fibroadenoma was common benign breast lump among the patients at Karachi. A study by Rashid et al that conducted at PIMS Islamabad revealed42.1% patients were having fibroadenoma. Cysts were encountered in 15 patients only, the youngest being 15 years. Breast cysts are generally benign and usually form as a result of the growth of milk glands. Some large cysts feel like lumps. They are most common in premenopausal women in their 30s and 40s. They usually disappear after menopause, but can be found at any age.[16]in our study, the fibrocystic disease was found in 2.1% of all cases. Comparedwith international studies fibrocystic breast diseases which were most common benign breast lesion in United State (33.9%) and England (37%).

In our scrutiny variables age, marital status, contraceptive use, and parity and family history n menstrual history were studied. A woman whose first-degree relative developed disease before age of 50 years and a younger relative when she developed breast cancer are at high risk (Faheem, 2007).

Even though cancer of the breast is strongly age related, mostly patients in this study were young with age below 40 years. In western countries where the majority of carcinoma is seen in the postmenopausal woman and the mean age is 54 years greater than ourregion. Mostly patients were younger age and premenopausal. Breast cancer is found more among the uneducated women, however, fibroadenoma and breast abscess/cyst are more common among educated women. No case of fibrocystic change is found among educated women. In the research by Isaac and colleagues held in tertiary hospitals of Karachi, it was found that inflammatory diseases are more common in Pakistan due to unhygienic conditions and poverty.

Among the women using oral contraceptive pills, 46.15% developed breast cancer, 38.46% had fibroadenoma and 15.38% had breast abscess. However, among women who never used contraceptive pills 42.7% had breast cancer, 36.6% had a fibroadenoma, 5.9% had breast abscess/cyst, and less than 5% had fibrocystic change and lipoma. In the researchers held by American Cancer society as well various researchers in Pakistan, it was found that the use of oral contraceptives increased the chances of breast malignancy. However, the risk of developing breast cancer decreased by stopping the oral contraceptive use. All of the breast cancers are found in married women. This was in accordance with the research of Safina Naheed held by Jinnah University for women in Karachi that 92.1% cases of breast cancer were married women. One reason will be that the age group in which breast cancer is common; women are mostly married by that age. In married women, followed by cancer, 19.71% women had breast abscess/cyst, 16.9% had a fibroadenoma, and less than 3% had fibrocystic change and lipoma. In 96% of unmarried women, fibroadenoma was found. Fibroadenoma is most common in the 15-25 year of age so, in that age group, mostly women are unmarried. Conclusion of this study is the incidence of breast malignancy, fibro adenoma and inflammatory diseases is greater in our setup. However, there should be breast clinics screening programs so that breast cancer diagnosed at early stage. It is recommended now the surgeons managing patient's age 30 years and above with breast lump should be vigilant and cautious so that early diagnosed and management of malignant breast lump should be carried out.

CONCLUSION

Conclusion of this study is the incidence of breast malignancy, fibro adenoma and inflammatory diseases is greater in our setup. However, there should be breast clinics screening programs so that breast cancer diagnosed at early stage. It is recommended now the surgeons managing patient's age 30 years and above with breast lump should be vigilant and cautious so that early diagnosed and management of malignant breast lump should be carried out.

Recommendations: There should be breast clinics screening programs so that breast cancer diagnosed at early stage. It is recommended now the surgeons managing patient's age 30 years and above with breast lump should be vigilant and cautious so that early diagnosed and management of malignant breast lump should be carried out.

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

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Original Article

Low Levels of Vitamin D_3 in People of Karachi – Needs to be Readdressed

Rakhshinda Jabeen[1], Shagufta Shafi[2], Hussain Haroon[1], Sehrish Khan[1], Adil Faraz[1] and Ahsan Mobin[1]

ABSTRACT

Objective: The aim of this study is to see the frequency of vitamin D and its impact on the sample population.
Study Design: Descriptive / cross sectional study
Place and Duration of Study: This study was conducted at Trauma and General Hospital, Karachi from January 2014 to June 2015.
Materials and Methods: 205 patients were included in the study. Participants were assessed according to predesigned questionnaire. All patients were subjected to have complete blood count, serum calcium, phosphorous, albumin, alkaline phosphatase, SGPT, vitamin D and parathyroid hormone levels along with X-rays of hip joint and femur.
Results: Out of total 205 patients, 12.7% were males and 87.3% were females. Mean age was 41.32±15.225 years. 5.9% had normal levels of Vitamin D_3, while 60.5%, 27% and 6.5% showed mild, moderate and severe deficiency. Serum calcium and phosphorous were deficient in 20.4% and 31.9% respectively. Serum alkaline phosphatase and parathyroid hormone were normal in most of the participants. The deficiency of Vitamin D_3 was mostly due to reduced sun exposure and excessive clothing (86.8%) while 8.3% showed malabsorption. This deficiency caused bone pains, and muscle pains in 55.6%, and 17.6% respectively. But none of the patient had any fracture.
Conclusion: Levels of Vitamin D_3 are low in most of the people of Karachi but without any gross deformity. It is advisable to readdress the daily requirement of vitamin D bring the awareness among people regarding sun exposure and daily use of vitamin D supplements.
Key Words: vitamin D, Parathyroid hormone, vitamin D deficiency, Karachi

Citation of article: Jabeen R, Shafi S, Haroon H, Khan S, Faraz A, Mobin A. Low Levels of Vitamin D_3 In People of Karachi – Needs to be Readdressed. Med Forum 2016;27(10):26-29.

INTRODUCTION

Vitamin D (cholecalciferol) is normally synthesized in the skin under the influence of sunlight in a non-enzymatic manner. It is ingested by certain foods including fish and plant sources then hydroxylated in the liver to 25-hydroxyvitamin D (clacidiol) which is the major circulating form and best index of vitamin D sufficiency. There are several reasons for vitamin D deficiency including impaired availability that is deficient diet, malabsorption or decreased coetaneous synthesis. There may be impaired hydroxylation or catabolism of 25 hydroxyvitamin D and either impaired renal production or increased loss of vitamin D or vitamin D binding proteins. There may be hereditary end organ insensitivity to vitamin D, although rare.

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Received: July 24, 2016; Accepted: August 29, 2016

Vitamin D sufficiency is estimated by measuring 25 hydroxyvitamin D, although the optimal requirement is still controversial. Based on trials of vitamin D supplementation, most of the authors favor maintaining it between 30-40 ng/dl. (75-100 nmol/L).[1] Almost every author agrees that level lower than 20 ng/ml are suboptimal for skeletal health.[2] The upper limit of vitamin D is also inconclusive, and there is not enough data regarding safe upper limit of vitamin D.[3]Certain expert foundation recommended a minimum level of 30 ng/dl in older adults to minimize the risks of fall and fracture.[4,5]However there are some concerns at concentration above 50 ng/ml (125 nmol/l) as well. It has been seen that there is increased risk for fractures, and certain cancers including pancreatic or prostate in patients treated with higher dosage of vitamin D.[6]There are several criteria by which one can define the optimal requirement of vitamin D including low calcium, increased parathyroid hormone and increased chances of spontaneous fractures.

The aim of this study is to see the impact of vitamin D deficiency in people of Karachi. Majority of people of Pakistan are dark skinned or have multiple shades of brown. Despite the extensive sun exposure, people of Karachi are deficient in vitamin D_3. [7]Recently various studies were done in different parts of country and

almost all studies emphasized decreased vitamin D in different populations of country, but none of the study elaborated different complications associated with low vitamin D level. This study is done to see the impact of decreased vitamin D, and its associated complications especially spontaneous fracture and bone pains. It may also help in treating patients with much lesser dose of vitamin D.

MATERIALS AND METHODS

It was a cross sectional descriptive study, conducted in Trauma and General Hospital, Karachi. The study was approved by the administration of Trauma and General Hospital. Sample technique was non-probability and purposive sampling. Sample size was calculated by Open Epi to be 203, with 95% confidence interval and 5% margin of error.

205 patients were included in the study who presented in outpatient department of the Hospital, with general illness from January 2014 to June 2015. All adults above the age of 13 years either male or females were included in the study. Informed consent was taken from the patients or their attendants orally. The subjects were interviewed according to a pre-designed questionnaire.

The questionnaire contained questions regarding the general demographic features of the patients, e.g. age, gender, ethnic origin and income. History about the marital status, number of children and duration of breastfeeding were also asked. There were also questions regarding diet, vitamin D3 boosters, causes and effects of vitamin D, smoking and alcohol.

Investigations were done which included complete blood count, serum calcium, phosphorous, albumin, alkaline phosphatase, SGPT, vitamin D and parathyroid hormone levels. X-rays of hip joint and femur were also done to exclude any deformity due to the deficiency of this vitamin.

Data was analyzed using SPSS software (version 16.0).

RESULTS

Two hundred and five patients were included in the study. There were 87.3% females and 12.7% males Mean age was 41.32±15.225 years. Out of 205 patients 60.5 % had mild deficiency of vitamin D, i.e. level of vitamin D between 21-30 ng/dl, while severe deficiency i.e. level <10ng/dl was seen in 6.5% of the participants. (table 1).

Table No.1: Vitamin D_3 Levels

Vitamin D3 Levels	Percentage
Mild Deficiency	60.5%
Moderate Deficiency	27%
Severe Deficiency	6.5%
Normal	5.9%

In relation to vitamin D serum calcium, phosphorous, alkaline phosphatase and parathyroid hormone were checked. Among these patients only 20.4% had marginal deficiency of calcium, and phosphorous was deficient in 31.9%. (table. 2) Alkaline phosphatase and parathyroid hormone were normal in most of the patients. (table 3)

Table No.2: Levels of calcium, phosphorous, alkaline phosphatase and parathyroid hormone

Investigations	Low	Normal	High
Calcium	20.4%	77.4%	2.2%
Phosphorous	31.9%	57.1%	10.9%
Alkaline phosphatase	0%	92.19%	7.8%
Parathyroid Hormone	0%	94.1%%	5.9%

Vitamin D_3 deficiency may be due to chronic liver disease (CLD), chronic kidney disease (CKD), malabsorption, reduced sun exposure or excessive clothing which secondarily causes decreased exposure to the sun. The percentage of these variables is given in Table 3and their correlation with Vitamin D_3 is shown in Table 4.

Table No.3: Percentage of Causes of Deficiency of Vitamin D_3

Causes of Deficiency	Percentage in Sample Population
CKD	2%
CLD	2%
Malabsorption	8.3%
Reduced Sun exposure	86.8%
Excessive Clothing	86.8%

Table No.4: Correlation between Deficiency of Vitamin D_3 and its Effects

Effects of Deficiency	Percentage in Mild Deficiency	%age in Moderate Deficiency	Percentage in Severe Deficiency
Bone Pains	2.92%	14.63%	30.73%
Muscle Weakness	0.48%	5.85%	9.26%
Infections	1.46%	3.41%	8.78%
CVD	0.97%	2.43%	3.90%
GIT Disorders	2.43%	5.85%	12.19%
Lung Disorders	0.97%	2.43%	3.41%
Diabetes	0.48%	4.87%	8.29%
Hypertension	1.95%	8.29%	11.70%

DISCUSSION

The prevalence of vitamin D is increasing globally.[8,9] Although low levels of vitamin D is common in every part of the world but more significant in South Asia and Middle East.[10] The analysis done by NHANES in 1988-

2004, showing vitamin D level from 24-30 ng/dl, reducing to 19.9-24 ng/dl in analysis done between 2004-2006.[11] It is more common in people without sun exposure that is people living in cold climates or who follows strict religious constraints. There is a multivariate study done in USA showing much decreased level of vitamin D in non-white race, obese individuals, not college educated, decreased HDL, poor health and no daily consumption of milk.[12] Pakistan is an Asian country and majority of its people are dark skinned or have multiple shades of brown. Despite the extensive sun exposure, it is seen that deficiency of vitamin Dis commonly seen in the people of Karachi regardless of the healthy diet and nutritional supplements they take. There is a study conducted in Karachi showing 83.4% people to be deficient but still remained asymptomatic.[13] Vitamin D deficiency can occur without symptomatology, although if symptomatic then it's usually associated with severe deficiency.[14] In our study out of 194 patients 55.6% had bone pain while muscle weakness was present only in 17.6%. Among 194 patients included in the study, 60.5% had mild deficiency of vitamin D, but only 2.92% of these patients had bone pain. While in patients with severe deficiency, it was present in 30.73%. The same pattern is seen in a study conducted in Faisalabad, Pakistan, which has further proving the insignificant relationship between vitamin D deficiency and bone pains.[15]The same pattern was seen in another complication like muscle weakness, which was present in only 9.26% of severely deficient patients, hence the concept that musculoskeletal symptoms are associated with vitamin D deficiency is negating in our study.[16] The more serious complications like osteopenia or spontaneous fracture was not seen in any patients included in our study. Although osteopenia was only radiologically assessed. There is a study done in USA showing Black Americans have lower fracture risks, higher bone density and lower vitamin D level than other races [17]and it has been attributed to genetic factors. This genetic polymorphism might be one of the reasons of low vitamin D in our population as well.

There are certain factors by which effects of vitamin D can be assessed and it includes low calcium and phosphorous, and high alkaline phosphatase and parathyroid hormone. In the study we conducted showed decreased calcium and phosphorous in 20.4% and 31.9% respectively. While alkaline phosphatase and parathyroid hormone were increased in 16 and 12 patients respectively. The level of PTH was marginally raised in all patients. Literature is also emphasizing the fact that vitamin D deficiency has no relation to the calcium, phosphorous or alkaline phosphatase levels[14] and our study is further proving it. But vitamin D deficiency remains a frequent cause of secondary hyperparathyroidism, and there are about 200 genes whose expression has been altered with vitamin D level.[18] Serum Parathyroid hormone, have been reported to be elevated in as many as 40-51% of patients with vitamin D <20 ng/ml and 10 ng/ml, respectively. [19] This higher level of parathyroid hormone also accelerated bone loss and fracture. [20]Although it is not seen in our study.

Over 200 of human genes have receptors for vitamin D, making vitamin D deficiency a contributory factor in a wide variety of illnesses including diabetes mellitus, metabolic syndrome, hypertension, cancers, autoimmune illnesses and multiple sclerosis.[21] In our study hypertension was present in 26.3% of the patients while diabetes and metabolic syndrome was seen in 17.6%. But it is difficult to ascertain whether hypertension or Diabetes are due to vitamin D deficiency or it is just aggravating tem.

Karachi is the city of hot climate but women of this city especially of middle and lower socioeconomic group either stays at home or draped pardah religiously. In our study there were 179 females and most of them were either from lower or middle class. Among these females 86.6% either had decreased sun exposure or they follow strict pardah. It has been suggested that approximately 30 min of sun exposure without sun screen daily is enough for the daily requirement of vitamin D.[22]Although there is a study done in Hawaiian population in whom even 11.1 hour of sun exposure per week was not enough to prevent the low vitamin D status.[23] This shows that vitamin D synthesis by skin is affected by certain factors yet unknown. Thus oral supplementation is mandatory to correct the hypovitaminosis D. The recommended dietary allowance of vitamin D by IOM for children between 1-18 years, pregnant woman and non-pregnant adults till the age of 70 years is 600 IU, while above age 70 years it has increased to 800 IU. [24] Unrecognized vitamin D deficiency is also seen in post menopausal osteoporotic females who were taking vitamin D < 400 IU as compared to those who were taking ≥ 400 IU. [25]

It is advisable to achieve optimal vitamin D concentrations levels of 28 to 40 ng/dl to decrease risk fracture.[26] However in another trial, there was a highest risk of fracture in patients treated with a single high dose of vitamin D, yearly causing chronic serum level of >40 ng/dl.[1]

CONCLUSION

Vitamin D deficiency in South Asia has acquired epidemic proportion. It is surprising that 80% of the healthy population of South Asia is deficient in vitamin D, which is further contributing to the burden of disease in this region. It is suggested that Government should implement a mandatory vitamin D supplement programme along with awareness of sun exposure. It will not only decrease the burden on the health care but also reduce the anxiousness in the population regarding vitamin D deficiency.

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

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Original Article

Zinc Level in Pregnancy

Serum Concentration of Zinc in Healthy Pregnant Women Versus Pre-Eclamptic Pregnant Women: A case Control Study in Lahore, Pakistan

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ABSTRACT

Objective: To find out serum zinc level in healthy pregnant women and pre-eclemptic pregnant women.
Study Design: Ramdomized controlled trial study
Place and Duration of Study: This study was conducted at Department of Pathology, Lady Willingdon Hospital, Lahore and at Lahore College for Women University, Lahore from March 2015 to September 2015.
Materials and Methods: Size of sample was determined statistically by using table and119 (102 experimental group(51 pre-eclamptic pregnant women and 51 normal pregnant women) and 17 control group) blood samples were collected randomly.
Results: The average zinc concentration in healthy pregnant group was found 1.24 ± 0.14 mg/l as compared to pre-eclamptic pregnant group 0.25 ± 0.02 mg/l. In pregnant women average zinc concentration was found to be decreasing with trimester. The average systolic blood pressure in healthy pregnant women was 113.83±1.74 mm/Hg as compared to the pre-eclamptic pregnant women was 145.34±1.68 mm/Hg. Average diastolic blood pressure in healthy pregnant women, was found 75.23±1.46 mm/Hg as compared to pre-eclamptic pregnant women, which was 92.76±1.80 mm/Hg.
Conclusion: Zinc level in the blood serum of pre-eclamptic pregnant women was found lower as compared to healthy pregnant women. Low blood serum zinc level is associated with the elevated systolic and diastolic blood pressure also.
Key Words: Zinc, pre-eclampsia, pregnant women, Lahore.

Citation of article: Latif AA, Manzoor F, Mushtaq S, Noureen T, Fatima S, Nisar N, Ashfaq F, Fazal S, Mansha M, Rana MS. Serum Concentration of Zinc in Healthy Pregnant Women Versus Pre-Eclamptic Pregnant Women: A case Control Study in Lahore, Pakistan. Med Forum 2016;27(10):30-34.

INTRODUCTION

Although, pregnancy is a normal physiological state in the maternal environment, but its complications are the cause of about 600,000 women death every year in the word.[1] Pre-eclampsia (PE), as a risky pregnancy, is a systemic disease characterized by hypertension, proteinuria and edema, which are thought to be the result of diffuse endothelial activation and dysfunction.[2-5]

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Received: July 23, 2016; Accepted: August 12, 2016

Pre-eclampsia affects 5-7% of pregnancies. It is responsible for greater number of fetal and maternal mortality and morbidity because it is a multisystem disease.[6] According to world health organization (WHO) 10% maternal mortality is due to pre-eclampsia. Pre-eclampsia in Asian women causes bad pregnancy outcomes.[7] Prevalence of pre-eclampsia varies in different regions.[8] In states there is 3.4% prevalence of pre-eclampsia.[9] Whereas in Australia and Brazil prevalence is 3.3% and 8.9% respectively.[10-11]
Minerals have important influence on the health of pregnant women and growing fetus. Among them, serum or placental zinc (Zn) concentrations have been reported to be low or unchanged in Pre-eclamptic women.[12] Zinc plays a role of communicator between the cells and converts intra-cellular stimuli into intercellular stimuli.[13-14] More than 300 enzymes require zinc for their proper functioning, thus zincplays significant role in reproductive health [15-16]. Zinc deficiency causes many pregnancy related problems such as growth restriction of fetus, bleeding after delivery and preeclampsia [17-18].82% of pregnant women in the world are bearing insufficient intake of dietary

zinc, which is associated with pre-eclampsia [19-20]. In developing countries intake of minerals is low due to which prevalence of pre-eclampsia is high in these counties[17].

MATERIALS AND METHODS

A case control study was designed and 119 blood samples (102 experimental subjects and 17 control) were collected from the department of pathology, Lady Willingdon hospital Lahore from March 2015 to September 2015. From experimental group 102 blood samples of pregnant females (51 pre-eclamptic pregnant women and 51 normal pregnant women) were collected. From control group only 17 blood samples of non-pregnant females were collected. All demographic data was entered in questionnaire by researcher personally.

Inclusion criteria:

- Normal Pregnant women
- Pre-eclemptic pregnant women
- Non pregnant women

Exclusion criteria:

- Any kind of pathological infection
- HIV +ve
- HCV +ve
- HBC +ve
- Anemia +ve
- Insufficient information
- Genetic disorder e.g. thalassemia +ve

All samples were analyzed on the polarized Zeeman atomic absorption spectrophotometer (Z 5000) in following steps.[21]

Dilution of serum sample:

For the dilution of serum sample 500µl of serum sample was mixed with 2.5ml of de-ionized sample.

Deproteinization of serum:

Diluted serum sample was than deproteinized by the addition of 5 drops of 5% TCA (Tricarboxylic acid) and centrifuged for 2-3 minutes. Supernatant fluid was separated from the sedimented layer.

Acid digestion:

4 drops of HNO_3 was added to each sample after filtration for acid digestion.

Filtration of serum:

All the serum samples were filtered thorough SS filtration assembly (Whatman filter paper).

Analysis:

Preparation of the standard solutions and stock:

Standard solutions and stock solutions were freshly prepared every time for the analysis. Thus different concentrations of standard solution were made from the stock solution of 1000 ppm provided by the ISO certified company. Standard of salt of 1000 mg/l concentration was used for the preparation of stock solution. Few drops of concentrated HCl were added.

RESULTS

Serum zinc concentration (mg/l) in subject groups (S1, S2 and S3):

The average zinc concentration in experimental group1 (1st trimester), 2 (2nd trimester) and3 (3rd trimester)was found 0.78 ± 0.25 mg/l, 0.53±0.09 mg/l, 0.56 ± 0.08 mg/l respectively. Whereas average serum zinc concentration in control group (non-pregnant) was found 0.61 ± 0.12 mg/l (table no. 1). ANOVA test indicated a non- significant ($p>0.05$) decrease in blood zinc level in blood serum of pre-eclamptic pregnant women.

Measurement and comparison of zinc (mg/l) among healthy pregnant and pre-eclamptic pregnant women:

The average zinc concentration in healthy pregnant group, which was 1.44 ± 0.14 mg/l as compared to pre-eclamptic pregnant group, which was 0.25 ± 0.02 mg/l. ANOVA test showed significant ($p<0.05$) decrease in blood zinc level in blood serum of pre-eclamptic pregnant women.

Systolic and diastolic blood pressure (mm/Hg) among control group and experimental groups:

The average systolic blood pressure in subject group 1, 2 and 3 was found 123.5 ± 3.80 mm/ Hg, 123.3 ± 2.83 mm/ Hg and 125.9 ± 1.90 mm/ Hg respectively as compared to the control group (non-pregnant), which was 118.9 ± 2.75 mm/Hg. The average diastolic blood pressure in subject group 1, 2 and 3 was found 82.16 ± 2.88 mm/Hg, 85.96 ± 2.86 mm/Hg and 89.78±2.12 mm/Hg respectively as compared to the control group (non-pregnant), which was 97.16 ± 1.70 mm/Hg (table no. 1).

The average systolic blood pressure in subject group of healthy women, was found 113.83±1.74 mm/Hg as compared to the subject group of pre-eclamptic pregnant women, which was 129.34±1.68 mm/Hg. ANOVA test which showed significant ($p<0.05$) increase in blood pressure.The average diastolic blood pressure in subject group of healthy women, was found 75.23±1.46 mm/Hg as compared to the subject group of pre-eclamptic pregnant women, which was 92.76±1.80 mm/Hg. ANOVA test which showed significant ($p<0.05$) increase in blood pressure.

Figures-1 showing comparison of No. of cases in Pre-eclamptic pregnant and Healthy pregnant, figure-2 showing serum zinc level (mg/l) Zinc conc. (mg/l) in Pre-eclamptic pregnant and Healthy pregnant, figure-3 showing Systolic BP (mm/Hg) in Pre-eclamptic pregnant and Healthy pregnant and figure-4 showing the Diastolic BP (mm/Hg) in Pre-eclamptic pregnant and Healthy pregnant.

Table No.1: Comparison of serum zinc level (mg/l) among healthy pregnant groups and control group

Groups	No. of cases	Zinc conc. (mg/l)	Systolic BP (mm/Hg)	Diastolic BP (mm/Hg)
S1 group	17	0.78 ± 0.25	123.5 ± 3.80	90.16 ± 2.88
S2 group	17	0.53±0.09	123.3 ± 2.83	95.96 ± 2.86
S3 group	17	0.56 ± 0.08	125.9 ± 1.90	97.78±2.12
Control group	17	0.61 ± 0.12	118.9 ± 2.75	82.16 ± 1.70

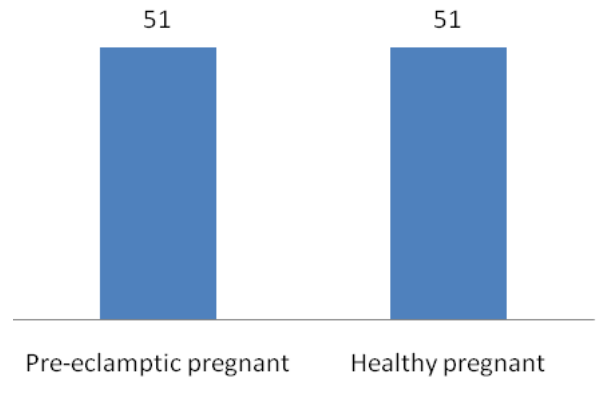

Figure No. 1 : No. of cases in Pre-eclamptic pregnant and Healthy pregnant

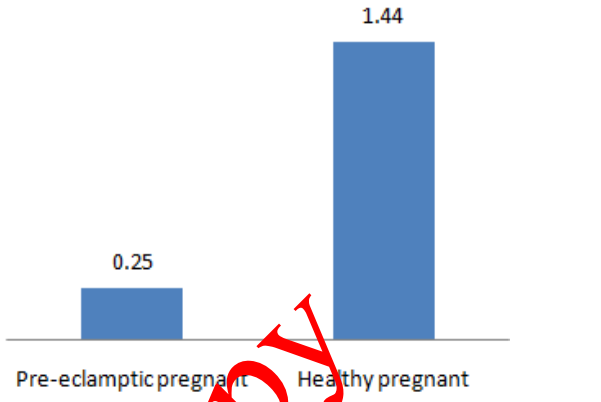

Figure No. 2: Zinc conc. (mg/l) in Pre-eclamptic pregnant and Healthy pregnant

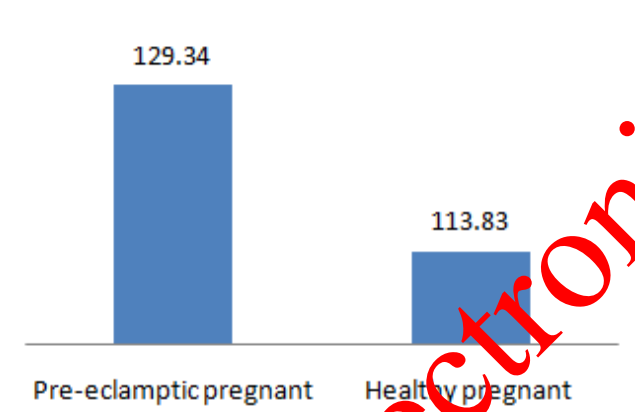

Figure No. 3: Systolic BP (mm/Hg) in Pre-eclamptic pregnant and Healthy pregnant

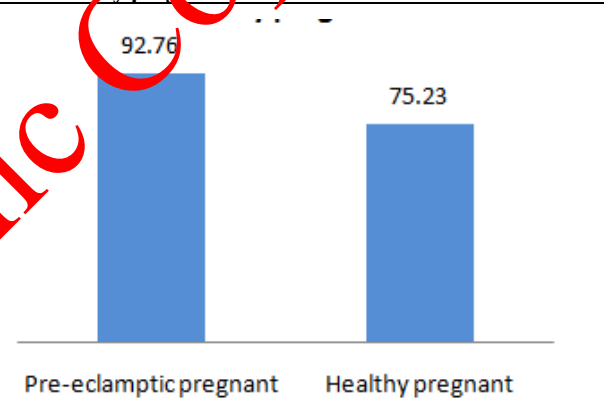

Figure No. 4: Diastolic BP (mm/Hg) in Pre-eclamptic pregnant and Healthy pregnant

DISCUSSION

It was observed from the results, that the serum zinc level was gradually decreased with the increasing trimester. At the end of the 2nd trimester and in 3rd trimester there was basically a decrease in the serum concentration of zinc. This result was according to the findings of Ilhan *et al*. (2002),who showed that pre-eclampsia occur in the late second or third trimesters and gestational product is hardly affected.[21]

In this study it was found that the serum zinc level of pre-eclamptic pregnant woman was 0.25 mg/L was lower as compared to the healthy pregnant women, which had concentration of 1.10 mg/L. This result was compared with the Ahsan *et al.* (2010) which had higher serum zinc concentration among the pre-eclamptic pregnant and control healthy pregnant women. [22]

Serum zinc concentration in pre-eclampsia 0.25 ± 0.02 mg/l and it was 0.61 ± 0.12 mg/l in non-pregnant controls. These results show that zinc deficiency is not bounded to the only pregnant women. It can be occurred in the non-pregnant control group, due to the inadequate intake of zinc dietary components. It is little bit different from the results of Ahsan *et al.* (2010). Serum zinc level of pregnant women is lower as compared to non-pregnant women. This is attributed to the fact that during pregnancy need of zinc increases because of crucial requirements of zinc. That is why a pregnant woman need to take more amount of zinc as compare to non- pregnant woman.

In this study the prevalence of systolic and diastolic blood pressure among the pre-eclamptic pregnant women was found 129.34 mm/Hg and 92.76 mm/Hg respectively. Our observed value was lower than the study of the Gifford *et al*. (2000) who reported a systolic blood pressure of 140 mmHg. The slight difference in Gifford *et al.* (2000) result and ours may be due to ethnic differences. [23]

CONCLUSION

In developing countries like Pakistan health of women is badly neglected, which affectsthe health of both mother as well as child. In the present study zinc level in the blood serum of pre-eclamptic pregnant women were found lower as compared to the control, which is effect of poor consumption of zinc containing dietary substances. Low blood serum zinc level is associated with the elevated systolic and diastolic blood pressure and proves that pre-eclamptic pregnant women is highly prone to hypertension which is seriously hazardous to the health of women and also for his offspring.

Recommendation:

- Health education and public awareness is necessary to prevent the zinc deficiency in pre-eclamptic pregnant women
- Medical community should continue research regarding to the pre-eclampsia especially in Pakistan

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

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Original Article

Complications of Tracheostomy

Tracheostomy Complications in admitted IDPs Patients in a Teaching Hospital of Bannu

Mohammad Iqbal[1], Sahibzada Fawad Ahmad[2], Kamran Iqbal[3] and Wasim Ahmad[4]

ABSTRACT

Objectives: The main objectives of this study were to evaluate the complications of tracheostomy in IDPs patients who were admitted in DHQ teaching hospital Bannu and further the study of complications in relation with tracheostomy types, age and tracheostomy tubes types.
Study Design: Observational / analytic / cross sectional study.
Place and Duration of Study: The study was conducted at the ENT Unit, DHQ Teaching Hospital, Bannu from April 2015 to December 2015.
Materials and Methods: 60 patients undergoing tracheostomy, having an age group of 3 to 65 and fulfilling inclusion and exclusion criteria were selected. Elective and emergency tracheostomy was included in the study period. "Open surgical technique" was done. Metallic and portex cuffed rubber tubes ware used. To record any possible complication, a pre-designed proforma was used.
Results: The study comprised 42 males and 18 females. The mean age of the patients was 30 years(SD+18.20). Elective tracheostomy was done in 10% while emergency tracheostomy was done in rest of the 90% patients. Metallic tubes were used in 20% and portex cuffed rubber tubes in 80% of the patients. The recorded complication rate was 40% overall. There was an 18% immediate, 11% intermediate and 11% late complications. Complication rate was somewhat elevated in early age. Bleeding was commonest complication (20%) among all followed by emphysema, dysphagia and aspiration (4% each). Complication rate of emergency tracheostomy was higher than elective one. Similarly, complication rate with portex cuffed rubber tubes was greater than metallic tubes.
Conclusion: Rate of complication in emergency tracheostomy was higher than elective tracheostomy where as in elder patients; it was lower than in younger patients. Similarly, complication rate was greater with portex cuffed rubber tubes. From the study, it is concluded that post op care can minimize the chances of post tracheostomy complications.

Key Words: Elective tracheostomy, Emergency tracheostomy, Portex cuffed rubber tubes

Citation of article: Iqbal M, Ahmad SF, Iqbal K, Ahmad W. Tracheostomy Complications in admitted IDPs Patients in a Teaching Hospital of Bannu. Med Forum 2016;27(10):35-37.

INTRODUCTION

Tracheostomy is an operational technique that generates a surgical airroute in the cervical trachea. It is most frequently performed in patients who have had difficulty weaning off a ventilator, followed by those who have suffered trauma or a catastrophic neurologic insult

The traditional semantic difference between tracheostomy and tracheotomy is now blurred because the hole is variably permanent. If a cannula is in place, an unsutured opening heals into a patent stoma within a week. If decanulation is performed (ie, the tracheostomy cannula is removed), the hole usually closes in a similar amount of time.

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Received: July 12, 2016; Accepted: August 12, 2016

The cut edges of the tracheal opening can be sutured to the skin with a few absorbable sutures to facilitate cannulation and, if necessary, decanulation can be performed. Instead, a permanent stoma can be created with circumferential sutures. The term tracheostomy is used, by convention, for all these procedures and is considered to be synonymous with tracheotomy.

Literature review shows that Alexander the great saved one of his soldier's life from suffocation with the help of his sword in his trachea. Early tracheostomy generated worst results due to lack of techniques. In earlier 13th century, tracheostomy was described as "Semi Slaughter" but with the passage of time, revolutionary changes were made in its instrumentation and methodology[1].

Earlier tracheostomy was meant for pulmonary blockage/obstruction but later on, it was used to treat other respiratory tract problems as well[2]. Majority of tracheostomies are performed as an emergency procedure but some are performed electively. The technique which has got popularity among ENT

surgeons is "Open Surgical Technique through Dilatational".

Complications of tracheostomy can be classified as immediate, intermediate and late phase complications. In Pakistan, a very few studies are conducted on the same as compared to the rest of the world where abundant studies are reported on tracheostomy's complications.

The objective of this study was to see the complications of tracheostomy in "Internally Displaced People" of North Waziristan during military operation in their area and to compare the results with other studies. Another objective was to study the complication's rate in relation to the patient's age, tracheostomy type and type of tubes used in the procedures.

MATERIALS AND METHODS

Our study included 60 patients undergoing tracheostomy in ENT department of DHQ teaching hospital Bannu from April 2015 to December 2015.

Inclusion criteria: Patients having an age of 3-65 years, undergoing tracheostomy for any indication.

Exclusion criteria: Critically ill patients with any medical or surgical problem and the patients where follow-up was not possible were not included in the study.

Procedure: Patients were admitted through routine OPD or were referred from other units/hospitals or casualty department of the same hospital. Patients were examined thoroughly who came to opd. CBC, Bleeding time, Clotting time, neck & chest x-rays were advised and checked their results.

Tracheostomies were done through open surgical technique on the proposed dates. Anesthesia was given and tracheostomies were performed. After the procedure, metallic/portex tubes were inserted. After tracheostomies, patients were shifted to ENT ward and in first 24 hrs, chest and neck x-rays were done. Post-operative care was also done in all the patients including humidification using wet gauze and suctioning. Regular examination was done by the doctor for any possible complication. The already designed proforma was used for entering their data. Standard way was acquired for decanulation. Proper follow-up was given to patients who discharged with tracheostomy tubes.

Data collected was analyzed using SPSS statistical software

RESULTS

The study comprised 42 (70%) males and 18 (30%) females. The mean age of the patients was 30 years (SD+18.20). Elective tracheostomy was done in 10% (n=6) while emergency tracheostomy was done in rest of the 90% (n=54) patients. General anesthesia was given to 10 (16.66%) while local anesthesia was given to 50 (83.33%) patients. Metallic tubes were used in 20% (n=12) and portex cuffed rubber tubes in 80% (n=48) of the patients. The recorded complication rate was 40% overall. There was an 18% immediate, 11% intermediate and 11% late complications (Table 2). Complication rate was somewhat elevated in early age. Bleeding was commonest complication (20%) among all followed by emphysema, dysphagia and aspiration (4% each) (Table 1). Complication rate of emergency tracheostomy was higher (30%) than elective one (20%) and in children as compared to elders. Similarly, complication rate with portex cuffed rubber tubes was greater than metallic tubes. Complications in contrast to tube type is shown in table 3.

Table No.1: General complications of tracheostomy

Complications	Frequency	%age
Bleeding	12	20
Dysphagia	2	4
Emphysema	2	4
Tube obstruction	3	5
Aspiration	3	5
Tracheal stenosis	1	1.6
Difficult decanulation	1	1.6

Table No.2: Frequency of immediate, intermediate and late infections

Complication	Frequency	%age
Immediate	11	18
Intermediate	7	11
Late	7.5	11

Table No.3: Complications in contrast to tube type

Complication	Metallic	Portex	P value
Tube obstruction	0	1	<0.05
Difficult decanulation	1	0	<0.05
Bleeding	7	5	<0.05
Emphysema	2	1	<0.05
Dysphagia	1	2	<0.05
Aspiration	1	1	<0.05
Immediate hemorrhage	3	3	<0.05
Tracheal stenosis	1	0	<0.05
Aerophagia	0	2	<0.05
Tube displacement	1	2	<0.05

DISCUSSION

Our results are closer to the results obtained by some researchers (48.4%)[3]. However, the results are higher than the results of Manzoor (27.2%) [4] and Zaidi (24%)[5]. The lower rate of complications shown by the above researchers is their own clinical experience. Other reasons may be difference in sample size, surgical technique and sample selection criteria. Post-operative care contributes another important factor towards complications more specifically in children.

Immediate complications are more influenced by surgical skills, facilities in the OT, tracheostomy type and the patient's condition. In children, higher complication rate was recorded. The same results are also shown by Dubey[6] and Oliver [7] work.

Our results closely resemble to the results of Manzoor et al[8] that shows lower infection rate and it might be due to better post-operative techniques. The research work of Mehta showed higher infection ratio [9].

It is noted that the presence of tube results in dysphagia and Aspiration. Another main reason for the occurrence of these complications is faulty kinetics of vocal cord closure during deglutition.

Similarly, Emphysema occurs mainly due to extensive dissection process. Intermediate hemorrhage occurs due to infection.

Tube obstruction was present to some degree but it was not significant. Plugging of tracheostomy tube by crusts and thick secretions are the reasons behind tube obstruction. Humidification and irrigation of the tube prevents crusting and tube obstruction [10].

Another uncommon complication is aerophagia that can be prevented by deflation. Tracheal stenosis was found only in one patient and it was might be due to cicatrisation followed by surgery. Difficult decanulation is more specific in children than in adults. Cardiac arrhythmias are reported by Chaudhry et al[11].

CONCLUSION

Tracheostomy is a comparatively easy surgery that can be carried out in all ages using local anesthesia in majority of the cases. Most of the complications are minor and can be treated by post op care. Complication rate is higher in emergency than in elective and in children than in adults. The following steps can be a helping hand in minimizing the complications.

1. Meticulous operative techniques
2. Proper post-operative care
3. Controlled operating conditions
4. Proper selection of the patients for tracheostomy

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

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Original Article

Hypertension

Frequency of Hypertension among the Patients Attending Medical Outdoor at B.V.H, Bahawalpur

Aaqib Javed[1], Tahira Iftikhar Kanju[2], Amna Siddique[3] and Somia Khan[4]

ABSTRACT

Objective: The purpose of the research was to find the incidence of hypertension in the patients visiting Medical OPD at B.V.H, Bahawalpur.
Study Design: Observational / descriptive / cross sectional study.
Place and Duration of Study: This study was conducted at Medical OPD, B.V.H, and Bahawalpur from 05 January 2016 to 05 April 2016.
Materials and Methods: The data was collected through a pre-formed questionnaire about knowledge of patients regarding hypertension. Data was entered and analyzed using SPSS 17. All result was presented in percentages, frequencies, and tables.
Results: Three hundred and thirty-two patients were examined during the study period with the age of 20 to 60 and above years. Among the study sample, 147(44%) were males and 185(56%) females. Maximum hypertensive patients 54(16.3%) were found among the age group of 41-50 years.
Hypertension was found to be present in 57.6% males and 47.6% female having normal BMI. Most common factors associated with the presence of hypertension in our study population were "smoking", "use of ghee "and " lack of exercise". 22.5 percent of our male population smoke regularly and 39.5% female were in habit of using ghee daily. 95 (26.7%) hypertensive females and 61(21%) hypertensive males among our study population were having a family history of hypertension. Out of total type A population, 70(49.3%) were found to be hypertensive.
Conclusion: In the present study, the frequency of hypertension in medical OPD patients was very high, (as 47 % of our study population was suffering from it). Most of the patients were in 41-50 years age group.
Key Words: Frequency; Hypertension; BMI.

Citation of article: Javed A, Kanju TI, Siddique A, Khan S. Frequency of Hypertension Among the Patients Attending Medical Outdoor at B.V.H, Bahawalpur. Med Forum 2016;27(10):38-40.

INTRODUCTION

Hypertension is most important cause of vascularillnesses and avital cause of morbidity and mortality and associated with many heart diseases.[1]It is one of the non-communicable diseases putting a large of burden in evolving Countries that already facing a lot of infectious disease.[2-4]
According to National Health Survey one in three Individual above 45 years of age facing hypertension.[5]National Health Survey (NHS) revealed 17% prevalence of risk factors for cardiac diseases in Pakistan.[6] This dangerous and alarming condition emphasizing us, we must shift from curative to preventive approach.

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Received: July 10, 2016; Accepted: August 23, 2016

Therefore early finding of disease, proper medication and Limitation of Blood pressure in normal range are the important constituents of the cohesive management of coronary heart diseases.
Hypertension can affect organs like heart, brain, kidneys and blood vessels resulting in vascular diseases.[7] Increase in Blood Pressure causes CVA and Heart diseases approximately 2/3rd of CVA and ½ of ischemic heart diseases. All measures of B.P are directly associated with the risk of CAD and CVA, only systolic blood pressure is important interpreter of circulatory events.[8]
According to the data from WHO and others, hypertension is an evolving health crises in the emergent countries.[9] It was expected that from 1990-2020, due to increased incidence of hypertension, CVA mortality will be more in the evolving countries as paralleled to the industrialized countries.[10]Worldwide, Indo-Asian people are at highest threat for cardiovascular disease.[11] About 80% of the overall cardiovascular disease is in the evolving countries.
Hypertension is the major cause of cardiovascular disease and CVA in Pakistan determine the frequency of hypertension in patients in this study.

MATERIALS AND METHODS

The data was collected from 05 January 2016 - 05 April 2016 in Medical OPD, B.V.H Bahawalpur. After vocal permission conversation made with the patients. All the willing patients attending OPD included and Debilitated and unwilling patients excluded from our study. The conversation made with the patients by one of the researchers and predesigned questionnaire was used to collect data. The conversation made with the patients in different languages like English, Urdu and with local language of the patients area. Data analyses was done by using SPSS 17.

RESULTS

Three hundred and thirty-two patients were examined during the study period with the age of 20 to 60 and above years. Among the study sample, 147(44%) were males and 185(56%) females. Maximum hypertensive patients 54(16.3%) were found among the age group of 41-50 years. (Table 1).

Hypertension was found to be present in 57.6% males and 47.6% female having normal BMI. Most common factors associated with the presence of hypertension in our study population were "smoking", "use of ghee "and "lack of exercise". (Table 2,3,4) 22.5 percent of our male population smoke regularly and 39.5% female were in habit of using ghee daily.{Table 4).

95 (26.7%) hypertensive females and 61(21%) hypertensive males among our study population were having a positive family history for hypertension.51% hypertensive males were having income in the range of 10,000 — 20,000 Rupees. On the basis of occupation study, 83% hypertensive females were housewives and 34% hypertensive males were the businessman. Out of total type A population, 70(49.3%) were found to be hypertensive.

Table No. 1: Distribution of Hypertension in Different Age Groups

Sr. No.	Age	Hypertensive		Non- hypertensive		Total	
		Frequency	Percentage	Frequency	percentage	frequency	percentage
1	20-30	24	7.	75	23.	99	30.
2	31-40	38	11.	48	15.	86	26.
	41-50	54	16.	32	10.	86	26.
4	51-60	20	6.	10	3.	30	9.
5	Above 60	20	6.	11	3.	31	9.
	Total	156	47	176	53	332	100

Table No.2: Relationship of Hypertension with Smoking

Sr. No.	History of smoking	Hypertensive		Non-hypertensive		Total	
		Frequency	Percentage	frequency	percentage	frequency	percentage
1	positive	35	11.	32	9.60	67	20.10
2	negative	121	36.	144	43.	265	80.
	Total	156	47	176	53	332	100

Table No.3: Relationship of Hypertension with Exercise

Sr. No.	History of exercise	Hypertensive		Non-hypertensive		Total	
		Frequency	percentage	frequency	percentage	Frequency	percentage
1	Yes	45	14.	84	25.30	129	38.80
2	No	111	33.	92	27.70	203	61.
	Total	156	47	176	53	332	100

Table No.4: Relationship of Hypertension with the use of Ghee

Sr. No.	History of use of Ghee	Hypertensive		Non-hypertensive		Total	
		Frequency	Percentage	frequency	percentage	frequency	percentage
1	Yes	88	27.	92	28.	180	54.
2	No	68	21.	84	25.	152	46.
	Total	156	47	176	53	332	100

DISCUSSION

In this comprehensive study of frequency of hypertension among Medical OPD patients, low-risk combinations are to change lifestyle factors such as keep of a normal Body Mass index, diet rich in fruits, vegetables, low-fat dairy products and low in sodium, regular physical exercise on a daily basis were associated with reductions in the frequency of hypertension during follow up evaluation. In this

study, we check recent NHS of Pakistan that reported (21%) of the metropolitan population suffer from hypertension. According to our study, the frequency among medical OPD patients is nearly 47% which coincides with the research conducted in OPDs of hospitals of Karachi.[13]This result shows that hypertension frequency is very high among OPD patients, the reason could be disease-related stress and burden.

Of all the factors causing hypertension, the major factors which came into the spotlight by our research are age above 40, excessive usage of ghee and oil and over-weight.

We found that 51% hypertensive males were having income in the range of 10,000 — 20,000 Rupees. This could be due to the financial burden on the shoulder of a man. These middle-class people try to compete for a better lifestyle. The economic shortfall of our country multiplies the stress and burden and proves to be an important factor causing hypertension.

According to a research paper published in American journal named "Diet and lifestyle risk factors associated with the incidence of hypertension" by John P. Forman; Meir J. Stampfer; Gary C. Curhan 37% patients having hypertension in the USA having Blood pressure in control within normal range.[12] This could be due to a sedentary lifestyle and excessive intake of alcohol in contrast to our country.

It is duly noted in our study that the frequency of hypertension is fairly high among housewives, i.e. 83% as compared to other professions. The reason could be domestic stress and tension as well as a sedentary lifestyle in our society.

People with type a personality are more vulnerable to hypertension as it can be noticed in our study. It is a cross sectional study. The data was scrutinized by SPSS 17.

CONCLUSION

The frequency of hypertension in high in medical OPD patients.

Recommendations: The frequency of hypertension can be reduced by creating awareness about the factors causing it among people, like smoking, usage of ghee and lack of physical activity etc. Different programs should be conducted to improve the health of individuals and populations. Health programs should be conducted and more health surveys should be carried out.

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

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Original Article

Psychiatric Services in Sialkot

Satisfaction of Outpatients and Inpatients with Psychiatric Services at Allama Iqbal Memorial Hospital, Sialkot

Rana Mozammil Shamsher Khan[1], Tauqeer Ahmad[2], Ansar Latif[3] and Kalsoom Nawaz[4]

ABSTRACT

Objective: The objective of the current study was to assess satisfaction of outpatients and inpatients with psychiatric services and to compare the satisfaction level of both groups of patients to understand areas to be improved in delivery of psychiatric care.

Study Design: Observational / descriptive / cross sectional study.

Place & duration of study: This study was conducted at the Department of Psychiatry & Behavioural Sciences, Government Allama Iqbal Memorial Teaching Hospital affiliated to Khawaja Muhammad Safdar Medical College Sialkot, Pakistan from August 2015 to July 2016.

Material and methods: Sample size was 600 patients; including 300 outpatients and 300 inpatients. Patients aged 18 years or above, from both genders, who gave written informed consent, were consecutively included in the study. Excluded from the study were the patients with mental retardation, delirium, impairment of cognition, severe medical illness and severe psychotic symptoms. Demographic information of the patients was taken on a pre-designed proforma. Urdu version of the Client Satisfaction Questionnaire 8 (CSQ-8) was administered to assess patient satisfaction. The results were analyzed using SPSS version 21.

Results: Among the outpatients there were 67.7% patients mostly satisfied, 22% mildly satisfied and 10.3% dissatisfied. While in the inpatients there were 68% mostly satisfied, 22.3% mildly satisfied and 9.7% dissatisfied with the psychiatric services. Only age was significantly associated with satisfaction.

Conclusion: Most of the outpatients and inpatients were satisfied with the psychiatric services. The outpatients and inpatients were almost equally satisfied. Older patients were more satisfied than the younger patients. Other demographic variables like gender, marital status, education and economic status did not influence the satisfaction.

Key Words: Quality of health care, Patient satisfaction, Patient compliance, Psychiatric Services

Citation of article: Khan RMS, Ahmad T, Latif A, Nawaz K. Satisfaction of Outpatients and Inpatients with Psychiatric Services at Allama Iqbal Memorial Hospital, Sialkot. Med Forum 2016;27(10):41-45.

INTRODUCTION

For many years now, opinions of the patients about the services they are getting from hospitals are becoming more important. Satisfaction of patients plays a pivotal role in improving the delivery of care by the health services and to bring new reforms in the system.[1-4] Many studies have been done in various parts of the world about this subject. These studies have identified challenges in this area of research. There is lack of definitions which have universal acceptance and a focus which is dual.

Satisfaction of patients with the quality of care they receive from health services is focused in many studies. Other studies look into satisfaction of people as a whole with the system of health care. Both views are significant and importance has been highlighted in research.[5]

Patients who are satisfied tend to be cooperative, show adherence to treatment and complete their treatment schedules. [5,6] Input from studies on satisfaction with health system have shown methods for improvement of health, reform implementation and reducing the costs.[7] There is association of satisfaction of patients with adherence to treatment and better outcomes of health but its assessment may be ignored by health providers which may result in raising issues in care. For many diseases in different samples of populations, many studies have been conducted to assess the effect of non-adherence to outcome of treatment.[6] A compliance of 40 to 50% was observed in patients receiving treatments for longer duration and 70 to 80% in patients receiving treatment for shorter duration. Compliance to changes in life-style was very low at 20 to 30%. [8]

There is some research carried out in Pakistan on this subject. 18% of the patients with psychiatric illnesses did not comply with treatment during follow up as out-

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Received: July 10, 2016; Accepted: August 23, 2016

patients in a study in Karachi. The researchers found lack of insight along with cost of medicines as reason for non-compliance. [9] Literature from Pakistan is scares in identifying and addressing issues of patients having psychiatric diseases, their needs, non-compliance and satisfaction. Understanding and then addressing these issues can improve the relationship between patients and doctors. A study found that listening to patients by their psychiatrist, explaining causation of illness and offering symptomatic treatment were the three main issues in psychiatric patients.[10]

No such data collection and its analysis has been done in our hospital, so we wanted to study and assess satisfaction of outpatients and inpatients with psychiatric services and to compare the satisfaction level of both groups of patients to understand areas to be improved in delivery of psychiatric care, and better satisfaction of patients.

MATERIALS AND METHODS

The study was conducted in outpatients and inpatient units of the department of Psychiatry & Behavioural Sciences, Government Allama Iqbal Memorial Teaching Hospital Sialkot Pakistan from August 2015 to July 2016. It was a cross sectional study. Formal approval was taken from head of the institution and guidelines in the declaration of Helsinki were followed. Written informed consent was taken. Title and purpose of the study were explained to patients. A total of 600 patients of both genders and aged 18 years or above were included. They were divided into two groups. "Group 1" included outpatients while "Group 2" included inpatients. 300 patients were included in each group respectively. Patients not giving written informed consent were not included. Excluded from the study were the patients with mental retardation, delirium, impairment of cognition, severe medical illness and severe psychotic symptoms.

Demographic information of the patients was taken on a pre-designed proforma. Urdu version of the Client Satisfaction Questionnaire 8 (CSQ-8) was administered.[11] For illiterate patients, the researchers read out each statement and its possible responses to individual patients and marked the responses according to patient's will. CSQ-8 is an 8 item questionnaire with 4 responses to each question. Range of score is from 1 to 4 for each item. Its total minimum score is 8 and maximum score is 32. Its median score is 20. A total score of 8 was taken as dissatisfied, 9 to 20 as mildly satisfied and more than 20 as mostly satisfied.

Collected data was analyzed by SPSS version 21 calculating Mean+SD for continuous variables while frequencies and percentages for categorical variables. Pearson correlation was applied to analyze satisfaction with demographic variables like economic status, gender, age, marital status and education. A p value of less than 0.05 was taken as significant.

RESULTS

There were a total of 600 patients. 300 outpatients in group 1 and 300 inpatients in group 2. The mean age of group 1 was 33.18±11.32 years with range from 18-70 years. The mean age of group 2 was 32.89+11.14 years with age range of 18-67 years. There were 133 (44.3%) males and 167 (55.7%) females in group 1 while 124 (41.3%) males and 176 (58.7%) females in group 2. Most of the patients earned 10000-20000 Pakistani Rupees per month had an education till matric i.e. 10 years of education and married.

Demographic variables of both patient groups are shown in table 1.

Table No.1: Demographic details of the patients

	Group 1 (Outpatients)	Group 2 (Inpatients)
Variable	**Frequency (percentage)**	**Frequency (percentage)**
Gender		
Male	133 (44.3%)	124 (41.3%)
Female	167 (55.7%)	176 (58.7%)
Age in years		
18-29	98 (32.7%)	103 (34.3%)
30-45	92 (30.7%)	97 (32.3%)
46-60	70 (23.3%)	65 (21.7%)
> 60	40 (13.3%)	35 (11.7%)
Marital status		
Single	107 (35.7%)	101 (33.7%)
Married	157 (52.3%)	167 (55.7%)
Widowed	22 (7.3%)	19 (6.3%)
Divorced	14 (4.7%)	13 (4.3%)
Monthly income in Pak Rupees		
<10000	61 (20.3%)	67 (22.3%)
10000-20000	142 (47.3%)	157 (52.3%)
>20000	97 (32.3%)	76 (25.3%
Years of Education		
Illiterate	56 (18.7%)	63 (21%)
Upto 10 years	116 (38.3%	112 (37.3%)
11-14 years	106 (35.7%)	109 (36.3%)
>14 years	22 (7.3%)	16 (5.3%)

Table No.2: Patient satisfaction of both groups (n=600)

	Outpatients (Group 1) (n=300) (100%)	Inpatients (Group 2) (n=300) (100%)
Level of satisfaction	n (%)	n (%)
Dissatisfied	31 (10.3%)	29 (9.7%)
Mildly satisfied	64 (22%)	67 (22.3%)
Mostly satisfied	205 (67.7%)	204 (68%)

Administration of client satisfaction questionnaire (CSQ-8) revealed that in group 1 out-patients 31 (10.3 %) were dissatisfied, 64 (22%) as mildly satisfied and 205 (67.7%) mostly satisfied. In group 2 in-patients 29 (9.7%) dissatisfied, 67 (22.3%) mildly satisfied while 204 (68%) mostly satisfied. Results of the client satisfaction questionnaire (CSQ-8) in both groups are shown in table 2.

Pearson correlation was applied that showed a significant association of age ($p<0.05$) with satisfaction of patients. There was no significant association of gender ($p>0.05$) marital status ($p>0.05$) economic status ($p>0.05$) and education ($p>0.05$) with satisfaction of patients, table 3.

Table No.3: Variables associated with patient satisfaction

Sr. No.	Demo-graphics	1	2	3	4	5	6
1	Gender	-	.06	-.07	.09	.06	-.23
2	Age		-	.29	.20	.07	.03**
3	Marital Status			-	-.37	-.15	.19
4	Education				-	-.22	.19
5	Economic status					-	.29
6	Patient Satis-faction						-

**significant

DISCUSSION

Our study shows a high level of satisfaction among out-patients and in-patients with psychiatric services. Both outpatients and inpatients were almost equally satisfied. (Table 2) Findings of this study are important and can have practical applications.

Literature from developed and developing countries can be compared with our findings. A German study reported 91% of the patients as mostly satisfied with care they received from mental health care, especially communication of doctor with patient and treatment.[3] Berghofer G et al. reported better perception of psychiatric services by patients coming for longer time than patients coming for first time to psychiatric outpatients and inpatients.[12] In a meta-analysis, chronic patients were found to be less satisfied than non-chronic patients with their treatment. There were no differences in rates of satisfaction between outpatients and inpatients. This meta-analysis corroborates with the findings from our research.[13] 97% of the outpatients were satisfied with the doctor explaining their disease and 81% rated doctor communication as good in Mangalore, India.[14] In a satisfaction study of a drug-dependence center in India, 90% of the patients along with their attendants gave positive feedback about the treatment provided. Cleanliness, clinical care and supply of medicine were appreciated by 90-94% of the respondents.[15] A study showed that patients who were elderly and depressed and with lower income, 72% out of them were satisfied.[16]

Some studies also show that patients are not satisfied with services. In a study in emergency department in Turkey 56.7% of the patients was dissatisfied.[17] While a Finish study reported dissatisfaction rate of 34%. [18] The main reasons for dissatisfaction were very long waiting time and attitude of the staff.

In a study in a university hospital in Tehran, 83% of the patients reported as quite satisfied while only 1% as dissatisfied.[4] The study also reported that the demographic variables like gender, age, formal education and economic status had no relationship with satisfaction as also reported in other studies. Our study reports older patients to be more satisfied. There are mixed results in literature about the association of age with satisfaction. In a study by Japipal et al. the impact of age on satisfaction was not significant, only showing that 15 to 24 years old patients were more satisfied than other age groups.[19] Ozani N et al. also reported younger patients to be more satisfied.[11]

A study from Finland found that psychiatric inpatients were mostly satisfied. Relationship between staff and patients was viewed by patients as very satisfying. However patients were dissatisfied with lack of information, restrictions being imposed, compulsory detention and atmosphere of the ward. Patients with younger age and female gender were more dissatisfied with staff than patients with older age and male gender.[20] Bojrngaard et al. in study of association of treatment outcomes with patient satisfaction found that better health on HoNOS scale, female gender, older age and having lesser severity of psychiatric illness assessed by GAF score were associated with better satisfaction. Higher satisfaction was observed in patients having schizophrenia spectrum disorders who were inpatients or day patients rather than outpatients. The authors noted that patients having other disorders were not satisfied in day care treatment.[21] Finding from our study also show no significant relationship between education level and satisfaction. The same was reported by Hajifathali A et. al.[4] On the contrary a study by Ayatollahi SMT found inverse correlation of education level with satisfaction.[22] A study from Qatar revealed most of the psychiatric patients were satisfied from the services they received. Younger male and female patients were more satisfied. Patients from lower socio-economic status and having less education were less satisfied.[23]

In a meta-analysis by Crow et al. it was found that in 70.7% of the studies respondents with older age were more satisfied while in 6.9% of the studies respondents with younger age were more satisfied. 22.4% of the

studies showed insignificant relationship. There were different explanations in the studies for higher satisfaction rate in older people and it was suggested further research using rigorous methodology may be conducted in this area to elaborate the observed differences. Younger patients may be less accepting than the older patients. Lower expectations, getting more respect from health care providers and past experience of care when standards were not high may be factors in higher satisfaction of older patients.[24]

The study has its strengths and limitations. It was first study in our department to measure and compare satisfaction of outpatients and inpatients. The CSQ-8 was a simple instrument, being brief and easy to understand and respond by the patients. Cross sectional rather than longitudinal data was presented in the study, which is a limitation. Another limitation was that size of the sample. It was small so results could not be generalized to whole population. It did not cover specific psychiatric disorders and their comparison. Different diagnostic categories might have different needs and satisfaction scores. Patients had to respond to a Likert scale with only 4 options to choose from. Data collectors were doctors working in the same department so patients were familiar with them and might have responded in affirmative even when they might have to criticize the services. Some the data collectors might have better communication skills so they elicited more positive responses.

CONCLUSION

Most of the outpatients and inpatients were satisfied with the psychiatric services in our teaching hospital. The outpatients and inpatients were almost equally satisfied. Older patients were more satisfied than the younger patients. Other demographic variables like gender, marital status, education and economic status did not influence the satisfaction of the patients. Future research using rigorous methodology to address the specific areas of satisfaction of patients and their relatives is needed to improve the delivery of psychiatric services.

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

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Original Article

Measles in Bannu

Surveillance Report on Endemic Measles in District Bannu

Syed Shahzaib Shah[1], Aamer Khan[2], Wasim Ahmed[2], Abdullah Khan[1], Sana Ullah Khan[2], Zeeshan Ali Shah[2] and Arif Nawaz[2]

ABSTRACT

Objective: The objective of the current study was to report the surveillance of endemic measles in district Bannu and its peripheries.

Study Design: Observational / descriptive study,

Place and Duration of Study: The study was conducted in Women and Children Teaching Hospital Bannu and various BHUs and dispensaries of countryside's of the district from Jan, 2016 to March, 2016.

Materials and Methods: Patients up to 16 years old were screened for febrile rash illnesses at women and children teaching hospital district Bannu and BHUs/dispensaries. Active measles cases were classified as measles, measles with eye and mouth complications, or severe complicated measles using IMCI criteria.16 most critical patient's blood samples were sent to CMH hospital laboratory Peshawar, KPK for further confirmation where test was done by ELISA technique utilizing IgM antibodies.

Results: Results showed that male children were highly infected than female. Children from 1-3 years were most affected, followed by children with 1 to 12 months. Least no of cases were reported in children from 4-8 years. Bannu city surrounded areas like mammashkhel, shiekhan, surrani were more affected from measles outbreak while nearby areas are at constant threat.

Conclusion: It is concluded that the peripheries were more affected from measles outbreak while nearby areas are at constant threat. In light of our findings, it can be stated that proper steps should be taken by government and non-government organization to control the situation in affected areas and to prevent the nearby areas specially the city from the current outbreak.

Key Words: Measles, Red rash, IMCI

Citation of article: Shah SS, Khan A, Ahmed W, Khan A, Khan SU, Shah ZAm Nawaz A, Surveillance Report on Endemic Measles in District Bannu. Med Forum 2016;27(10):46-48.

INTRODUCTION

Between 1999 and 2005, measles mortality was decreased globally but still, it is accounted for more than 300,000 deaths in year 2005[1]. According to WHO and UNICEF targeted countries for enhanced measles mortality reduction activities, Pakistan stands at 47[2-5]. According to WHO estimation, more or less 10 lakh children under the age of 5 suffer from measles virus infection in Pakistan including 20,000 deaths. Pakistan, in 2007-2008, conducted a vaccination campaign nationwide. In Pakistan, vaccination is programmed at an age of nine months as it is 85% effective if given at this age. Out of four provinces, KPK has received approximately 20% coverage due to which various cities of KPK observed an outbreak times to time.

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Received: July 07, 2016; Accepted: August 29, 2016

Bannu is located North of D.I.Khan and South-West of Kohat. It has a population of about 7 lakh people. Most of the people of Bannu belong to lower class family and are not literate. So they are unaware of most of the epidemic diseases. In January 2016, an out broke of measles in Bannu was observed. Measles is a respiratory disease which is caused by the measles virus and is the most deadly of all childhood rash/fever illnesses. Measles is childhood disease which occurs in early stages of life and rarely occurs in adults [6,7]. Measles virus normally grows in the cells that line the back of the throat and lungs. Measles is a major contagious disease which spreads rapidly in susceptible population mostly the transmission occurs by coughing and sneezing [8].

Measles is one of the major diseases that cause death among young children even though anti-measles vaccine is available which is safe and cost-effective. In the 2008, 164 000 measles related deaths were reported globally – and approximately nearly 450 deaths per day or 18 deaths per hour. Most deaths occurs in undeveloped countries and in developing countries as more than 95% of measles deaths occur in these countries which has weak health infrastructure. No case of measles is yet recorded in other animals, as measles is human disease[9].

Motivation for Research (Problem Statement): Measles is a serious problem which annually causes major number of death among young children although a safe and cost-effective vaccine is available. It is so serious that in the developing world, mothers say, "never count your children until after the measles" [10].Measles can cause miscarriage in pregnant woman, give birth prematurely and low birth-weight babies. One of the most debatable major problems that measles causes is that it weakens the immune system and opens the door to secondary health problems, such as pneumonia, blindness, diarrhea, encephalitis etc.

MATERIALS AND METHODS

Patients up to 16 years old were screened for febrile rash illnesses at women and children teaching hospital district Bannu and BHUs/dispensaries. Active measles cases were classified as measles, measles with eye and mouth complications, or severe complicated measles using IMCI criteria.

16 mostcritical patient's blood samples were sent to laboratory in Peshawar for further confirmation where test was done by ELISA technique utilizing IgM antibodies.

RESULTS

In District Bannu, 194children were identified who had illness that falls within the WHO case description of suspected measles. Of the 194overall patients having suspicion of the disease, 132 (68.04%) testified with immunization of the disease previously. Blood specimens of 16 patients were collected for pathology lab having an age group varies between 2-16 years. Five samples of the victims were excluded either not meeting the case definition or who received immunization within a month time. The remaining eleven patients possessed measles with infections.

In the 3 months preceding outbreak investigation, 66 patients with rash and fever from the five areas of Bannu were admitted to the hospital for assessment. These encompassed tasters from the outburst study in MamashKhel and Amandi. The results of investigation are given below.

Table No.1: Gender vise results in No and % of Measles cases in district Bannu

		Gender		
Sr. No	**Age**	**Male (N and %)**	**Female (N and %)**	**Total (N and %)**
1	0-30 Days	20(10.3%)	3(1.5%)	23(11.8%)
2	1 -12 months	29(14.9%)	7(3.6%)	36(18.5%)
3	13-36 months	46(23.7%)	53(27.3%)	99(51.03%)
4	37-48 months	8(4.1%)	16(8.2%)	24(12.4%)
5	49-98 months	8(4.1%)	4(2.06%)	12(6.2%)

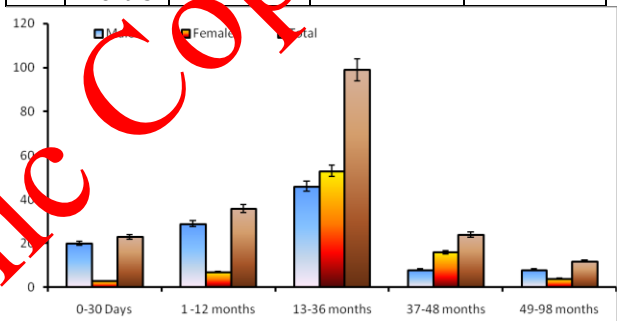

Figure No.1:Gender vise results of Measles cases in district Bannu

Table No.2: Results in No and % of area vise cases in district Bannu.

		Area (No and %)					
Sr. No	**Age**	**Sokari**	**Shiekhan**	**Amandi**	**MamashKhel**	**Surrani**	**Total**
1	0-30 Days	7 (3.6%)	3 (1.5%)	10 (5.1%)	3 (1.5%)	0 (4.1%)	23 (11.8%)
2	1 -12 months	5 (2.5%)	10 (5.1%)	12 (6.1%)	2 (1.03%)	7 (3.6%)	36 (18.5%)
3	13-36months	15 (7.8%)	15 (7.8%)	4 (2.06%)	32 (16.5%)	33(17.1%)	99 (51.1%)
4	37-48 months	0 (0%)	8 (4.1%)	0 (0%)	16 (8.2%)	0 (0%)	24 (12.3%)
5	49-98 months	4 (2.06%)	2 (1.03%)	0 (0%)	4 (2.06%)	2 (1.03%)	12 (6.1%)

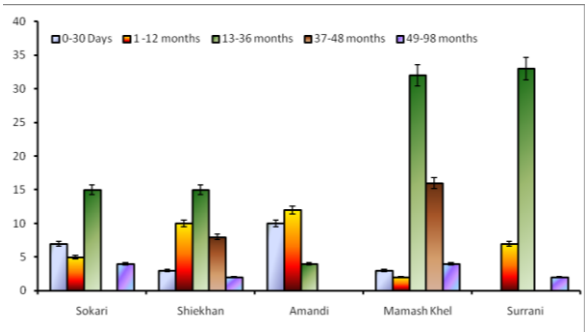

Figure No. 2: Results of Measles cases in district Bannu

DISCUSSION

An outbreak of measles in District Bannu is reported in our study. This study shows/highlights the outbreak of measles in Bannu, depending only on a scientific validation of measles case definition in vast areas of Bannu. In Egypt, where measles immunization is covered almost in all of country, measles and rubella still remain endemic[11,12]and laboratory-based surveillance in different time periods had recognized recurrent assorted eruptions of measles with highest disease occurrence from March to May. Similarly,

in-depth surveys of measles and rubella outbreaks in Bangladesh identified a mixed outbreak of the diseases which suggests that mixed outbreak scan be comparatively communal in the sub-continent area. A more recent investigation that was carried out in capital of Sindh, Pakistan and which was supported by WHO Integrated Management of Childhood Illness, reveals that case definition for measles had only 75% of the time and that many suspected measles cases had Dengue fever[13,14] There are some limitations to this investigation which must be mentioned. A few children were tried for measles so these results cannot be generalized to other nearby districts. Based on these findings, it is needed that lab-based surveillance for measles should be carried out throughout the country. Due to case similarity of measles with some other illnesses, lab validation testing for suspected measles and rubella cases should be done to confirm measles outbreaks. There is often a desire to obtain specimens on all cases in an outbreak, despite the fact that this may not be necessary in every case.

CONCLUSION

Based on our findings, it is concluded that there is a huge outbreak of Measles in District Bannu. Such as areas like MamashKhel, Surrani, and Shiekhan are highly affected by this virus. So there is need of advance treatment and adequate action to control the disease on time before the scenario get worst. For this purpose public awareness program should be started to inform people about adequate pre immunization with anti-measles vaccine and first aid against measles. In order to save other areas from possible outbreaks, vaccination campaigns against measles should be started as soon as possible, because nearby areas as Nurar, Fatima Khel, Daud Shah, and Bannu City are in huge and continuous threat.

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

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Original Article

Oral Carcinoma

Histological Pattern of Oral Carcinoma and its Association with Different addictive Risk Factors

Munawar Ali Baloch[1], Zainab Khatoon[2] and Mushtaque Ali Memon[3]

ABSTRACT

Objective: Objective of this study was to find out association between histopathology of oral carcinomas and addictive risk factors.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at Dental OPD, Liaquat University Medical Hospital and department of Pathology LUMHS Jamshoro/ Hyderabad from 2015 to 2016.

Materials and Methods: Total60 patients were included in the study having oral carcinomas. Careful clinical assessment following by complete medical history along with clinical examination was carried out. All the addictive cases were selected. All the information of various parameters like age, gender of patient, relevant clinical history, tobacco habit, other addictive associated risk factor, and microscopic histopathological findings of tissue specimen were carried out. All the addictive risk factor's association was noted with types of oral carcinoma.

Results: Out of these 60 patients, maximum number of patients i.e. 29 (48.33%) were from > 50 years of age group. Majority of patients 35(58.33%) were illiterate while only 6(10%) were graduate. Majority of patients 21(35%) had carcinoma in buccal mucosa. Majority of the cases 46.66% multiple addictive habits while only tobacco chewing, betal nut/manpuri, gutka, naswar and tobacco smoking habits were found with percentage of 8.34%, 10%, 8.34%, 6.66% and 20% respectively. According to histopathological findings squamous cell carcinoma was the most common in 85% of the cases, following by verrucous carcinoma in 6.67%, Micro-invasive SCC was only in 1 patient and other non-squamous cell carcinomas were found in 6.67% of the cases.On the association between histological findings and addictive risk factors no significant difference was found between squamous cell carcinoma and addictive risk factors p value 0.112, while VC, MISCC and other non-squamous cell carcinoma were significantly associated with patients having multiple addictive habits p value 0.02.

Conclusion: We concluded that multiple mix addictions of tobacco chewing and smoking, gutka, naswar andbetal nuts are significantly associated with oral carcinogenesis potentially increases the chances of oral malignancy in certain pre malignant conditions.

Key Words: Oral carcinoma, histopathology, addictive risk factors

Citation of article: Baloch MA, Khatoon Z, Memon MA. Histological Pattern of Oral Carcinoma and its Association with Different addictive Risk Factors. Med Forum 2016;27(10):49-52.

INTRODUCTION

Oral cancer is the 6th most important cancer throughout the world. [1] It is a much common malignancy among Indian, Srilankan as well as certain Eastern nations. It is most likely correlated with practice of chewing of tobacco & Areca-nut in addition to revered smoking.[2] Chewing habit of the Areca nut is extensively practiced in several regions of Asia and its migratory populations worldwide. Customary in addition to industrially marketed products are at present accessible among European & North American nations as well it is projected that worldwide, a number of hundreds of millions of individuals contribute in this addiction.[3] Actually, betel-nut is the 4th commonest consumed psychoactive element worldwide, after nicotine, alcohol and caffeine.[3] Betel-nut is being consumed since the distant past in addition it has assumed most important cultural, social and even religious contributions. [4] Consumers frequently believe it a risk-free entity and account as a perception of euphoria, health, a warm feeling of body, a sensitive attentiveness as well as an escalated ability for performance.[5] It is a factor of vast anxiety globally as well as a leading risk to community health in Pakistani nation, however an extensive geographical difference in prevalence & death rate is seen. It is the 8th commonest disease worldwide however among Pakistani population it is the 2nd most common according to current data of a proven as well as well-retained cancer records of Shaukat Khanum Memorial Hospital.[6] It

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Received: July 07, 2016; Accepted: August 29, 2016

constitute to 15% of every fresh cancer patients in this area in contrast to 3% found globally.[7] In case the present inclinations are not examined, a projected 500,000,000 individuals alive nowadays might be slayed due to the tobacco-associated factors.[8] The development of fresher, chewable spiced tobacco forms accompanied by numerous additional ingredients, termed as gutka has altered the tendencies in the tobacco marketplace.[9] Gutka comprises condiments, betel-nut, catechu, slaked lime, and fine tobacco. Betel-nut consumption is common among some region worldwide including Sri Lanka, Pakistan, Papua New Guinea, Malaysia, Thailand, India, China, Cambodia, Indonesia, and Bangladesh.[3] The betel-nut is a product of Areca catechu. Cases can possibly call it "betel nut", however this expression is not correct, as it is not obtained via betel plant. Paan, as well termed as Betel quid (BQ), comprises betel leaf obtained from Piper betel, enfolded around a blend of areca catechu, and (calcium hydroxide) slaked lime. The tobacco is frequently supplemented, and a range of flavoring ingredients, to age spices (cardamom, peppermint and cloves) accompanied by sweeteners that vary as per local inclinations and routines.[10,11]These chewing routines are correlated with numerous oral manifestations for example leukoplakia, submucous fibrosis, erythroleukoplakia, erythroplakia, SCC and chewer's mucosa. Early diagnosis of oral cancer is rather unproblematic for a clinical professional as orifice has direct contact for clinical as well as visual investigation. Though, because of neglecting the oral lesions as well as ignorance of malignancy, cases seek protracted therapy. Oral cancer is a leading factor of mortality & morbidity with invasive ability and metastasis. [12] Also it is found that oral cancer has a high risk of producing 2nd primary malignancies. In many studies different addictive risk factors were concluded as frequencyin patients having oral cancer but no such research available in literature regarding association between addictive risk factors and histopathology of oral cancer. Therefore the aim of our study to find out histopathological correlation with addictive risk factors of oral cancer.

MATERIALS AND METHODS

This descriptive, prospective study was conducted at the Pathology department of Liaquat University of Medical and Health science Hospital Hyderabad from 2015 up to 2016, and mostly cases were referred from dental and ENT department. Total60 patients were included in the study having oral carcinomas. Both genders with the age more than 18 years were selected. Careful clinical assessment following by complete medical history along with clinical examination was carried out. All the addictive cases were selected. All the information of various parameters like age, gender, clinical history, tobacco habit, other addictive associated risk factors were carried out. After clinical examination and provisional diagnosis all patients were underwent biopsy: taken from the lesions and tissues and microscopic histopathological findings of tissue specimen were carried out at pathology department of Liaquat University of Medical and Health science for histological confirmation. All the addictive risk factor's associations were noted with types of oral carcinoma. All the information was documented in the Performa and data was entered and analyzed in SPSS program version 16.0.

RESULTS

Total number of patients in this study was 60. Out of these 60 patients, maximum number of patients i.e. 29 (48.33%) were from > 50 years of age group. While 14(23.33%) belonged to age group of 41-50 years. Majority of patients i.e. 35(58.33%) were illiterate while only 6(10%) were graduate.29(48.33%) belonged to lower class socioeconomically, while 18(30%) belonged to middle class and 11(18.33%) belonged to upper class. Table 1

In this study 50(83.33%) males had oral carcinoma as compare to10(16.66%) of females.Table 1

Majority of patients 21(35%) had carcinoma in buccal mucosa, while19 (31.66%) patients had carcinoma on lateral surface of tongue and 08(13.33%) patients had carcinoma of gingiva. Table 3

In this study majority of the cases 46.66%multiple addictive habits, while only tobacco chewing, betalnut/ manpuri, gutka, naswar and tobacco smoking habits were found with percentage of 8.34%, 10%, 8.34%, 6.66% and 20% respectively. Table 2

Table No.1: Basic characteristics of patients (N= 60)

Characteristics	Frequency	Percentages
Age		
20-30 year	08	13.34%
31-40 year	09	15.00%
41-50 ear	14	23.33%
<50 year	29	48.33%
Educational status		
Illiterate	35	58.34%
Primary	10	16.66%
Secondary	09	15.00%
Graduation	06	10.00%
Gender		
Male	50	83.34%
Female	10	16.66%
Socioeconomic		
status	29	48.34%
low class	18	30.00%
Middle class	13	21.66%
Upper class		

According to histopathological findings squamous cell carcinoma was commonest in 85% of the cases,

following by verrucous carcinoma in 6.67%, Micro-invasive SCC was only in 1 patient and other non-squamous cell carcinomas were found in 6.67% of the cases.Table 3

On the association between histological findings and addictive risk factors no significant difference was found between squamous cell carcinoma and addictive risk factors p value 0.112, while VC, MISCC and other non-squamous cell carcinoma were significantly associated with patients having multiple addictive habits p value 0.02. Table 4.

Table No. 2: Risk factors of oral carcinoma n=60

Risk factors	frequency	percentages
Tobacco chewing	05	08.34%
Betal nuts	06	10.0%
Gutka	05	08.34%
Naswar	04	06.66%
Tobacco smoking	12	20.00%
Multiple addiction	28	46.66%

Table No.3: Histological types of oral carcinomas n=60

Types of carcinoma	Frequency	Percentages
Squamous cell carcinoma	51	85.0%
Verrucous Carcinoma	04	6.67%
Micro-invasive SCC	01	1.66%
Others	04	6.67%

Table No.4: Association between histopathology and addictiveRisk factors of oral carcinoma n=60

Risk factors	Types of carcinoma			
	SCC	VC	MISCC	Others
Tobacco-chewingn=05	03	01	00	01
Betal nutsn=06	06	00	00	00
Gutkan=05	05	00	00	00
Naswarn=04	03	00	00	01
Tobacco smokingn=12	11	01	00	00
Multiple addictionn=28	23	02	01	02
P= value	0.112	0.002		

DISCUSSION

In this study the maximum number of patients 48.33% was from > 50 years of age group. Similar results were mentioned by Jagtap SV et al[14]. The study by Mehrotraet al[15] in 2006 showed that the maximum number of patients were in sixth decade. In this study 83.33% males had oral carcinoma as compare to 16.66% of females. Similar is seen in the study conducted by JagtapSVet al[14]in which male to female ratio was 2.6:1. The study by Khandekar SP et al[16] showed majority of the patients were male.[16]

In this study, 48.33% patients belonged to lower classsocioeconomically; similar results are seen in the study conducted by AkramSetal[17]in which majority of patients belonged to lower class.

In present study, majority of patients I.e. 35% had carcinoma in buccal mucosa, while 31.66% patients had carcinoma on lateral surface of tongue and 13.33% patients had carcinoma of gingiva. Same is seen in the study by jagtapsvet al[14] whose results also showed that majority of patients had carcinoma of buccal mucosa followed by lateral aspect of tongue and gingiva. A study done by Ahluwalia et al in 2001 showed buccal mucosa was the commonest site in 55.26% of cases. 21 While study done by Shankarnarayana R et al[18] in 2005 also mentioned that commonest site was buccal mucosa in 50.4% of cases. A study done by Bhattacharjeeet al[19] in 2006 showed 32.67% of cases involved tongue.

In this study tobacco smoking was found in 12(20%) patients and betal nut/manpuri habits were in 8(10%) of the cases. Similarlyakram Set al[17]reported that 10 patients had habit of tobacco smoking, 27 patients had habit of eating betal nuts while 5 patients were not addictive of anything.

In present study 8.33% of patients had habit of tobacco chewing and majority of the cases 46.66%multiple addictive habits like tobacco chewing+ smoking+alchohol+betal-quid+betal-nut and naswar.In the study of Mathur PT et al,[20] where he reported that majority of the patients were multiple addictive habits. Tobacco chewing has emerged as a stronger risk factor of oral carcinoma than smoking, since there is direct exposure of tobacco chewing on the mucosa for longer period, while smoking has more contact with pharynx, larynx and lungs. Smoking, tobacco chewing along with alcohol is thought to serve as promoter which causes synergistic effect for development of oral cancer.[21]In a study done by Khandekar SP et al,[16] 71.3% of patients were habituated to tobacco. Another study done by Iypeet al[22] showed 56.4% were habituated to tobacco chewingandalcohol. Smokeless tobacco consumption used in different ways, as well as placement of tobacco quid in the gingival buccal sulcus region is the dangerous risk fororal carcinoma development.

In this study on histopathological findings squamous cell carcinoma was the most common in 85% of the cases, following by verrucous carcinoma in 6.67%, Micro-invasive SCC was only in 1 patient and other non-squamous cell carcinomas were found in 6.67% of the cases. Similar results are seen in the study by jagtap SV et al,[14]whose results show that majority of the cases had squamous cell carcinoma while 8 cases had verrucous carcinoma. As well as Bhattacharya et al[19]also found most common oral malignant lesion was squamous cell carcinoma (85.12%). In other studies of Dias et al[23]2007 and Brandizzi et al[24]mentioned similar findings as the squamous cell carcinoma is commonest oral malignant lesion in 93.9% and 91% patients respectively.

On the association between histological findings and addictive risk factors no significant difference was found between squamous cell carcinoma and addictive risk factors p value 0.112, while VC, MISCC and other non-squamous cell carcinoma were significantly associated with patients having multiple addictive habits p value 0.02. On other hand Mathur PT et al,[20]reported that the no significant difference between squamous cell carcinoma and risk factors. No such studies available regarding association of the histopathology of oral carcinoma and addictive risk factors. Further much research is required to evaluate the association between histopathological pattern of oral carcinoma and addictive risk factors.

CONCLUSION

We concluded that multiple mix addictions of tobacco chewing and smoking, gutka, naswar andbetal nuts are very dangerous risk factors of oral carcinoma. Male gender, un-education and low socioeconomic status also strongly associated with these habits. Biggersample size studies are needed to assess the association between different histological findings and addictive risk factors.

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

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Original Article

Effects of Aloe Vera & Rosiglitazone on Diabetics

To Measure the Synergistic Effects of Aloe Vera and Rosiglitazone on Blood Glucose, Insulin and Insulin Resistance in Stretozotocin Induced Diabetic Rats

Meena Gul[1], Aysha Babar[2], Mir Attaullah Khan[3], Hoor Fawad Khan[4] and Ziad Hamayun[4]

ABSTRACT

Objective: To measure the synergistic effects of Aloe vera and Rosiglitazone on blood glucose, insulin and insulin insensitivity in non-insulin dependent diabetes mellitus.
Study Design: Randomized control trail study
Place and Duration of Study: This study was conducted at Army Medical College, Rawalpindi in the Physiology Department from January 2009 to September, 2010 in alliance with National Institute of Health (NIH) Islamabad
Materials and Methods: Thirty healthy rats were made diabetic according to Srinivasan model. After confirming type 2 diabetes in them they were randomly segregated into two equal groups. The groups named diabetic were injected with normal saline and other combined group were given 150mg/kg body weight of Aloe vera extract and 2.5mg/kg body weight of rosiglitazone diabetic group. It was half their effective dose as their effective dose was calculated through pilot study.
Results: Plasma glucose, insulin, and TG/HDL ratio were significantly reduced ($p<0.0000001$) in combined group then diabetic control group
Conclusion: The significant result was obtained in combined group in lowering plasma glucose, insulin and insulin resistance though half their effective doses were used. It will also help in reducing side effects associated with use of rosiglitazone.
Key Words: Aloe vera, rosiglitazone, T2DM, insulin

Citation of article: Gul M, Babar A, Khan MA, Khan HF, Hamayun Z. To Measure the Synergistic Effects of Aloe Vera and Rosiglitazone on Blood Glucose, Insulin and Insulin Resistance in Stretozotocin Induced Diabetic Rats. Med Forum 2016;27(10):53-56.

INTRODUCTION

World is facing the epidemic of Type 2 diabetes mellitus especially in developing countries. A large number of population in Pakistan is affected by diabetes mellitus and it is estimated that if increased by same rate, by the year 2030, it will touch the figures of 13.9 million.[2] Diabetes is a. chronic disease associated with number of complications. Changing life style is the first option for treating diabetes whereas appropriate medication is required if one fails to achieve the acceptable glycemic control by conservative means[3]. However these medications in their long term use are associated with list of complication. The use of herbs and other form treatments is becoming popular[4]. Herbal medicines are used in both types of diabetes[5]

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Received: July 17, 2016; Accepted: August 29, 2016

Aloe vera is a short stemmed succulent herb with fleshy leaves which consist of gel, latex and outer green rind. The Aloe vera and diabetes link can probably first be traced to Arabian Peninsula[6].A study based on the use of traditional phytotherapy conclude this formula is very old and 100% effective[7]. However no study was available to use Aloe vera whole leaf extract with rosiglitazone for synergistic action.

Rosiglitazone is from thiazolidiones group.. Though the drug is very effective in reducing triglycerides however is associated with cardiac problems in long term[8]

The present study was designed to use of Aloe vera and rosiglitazone in half there effective doses as anti diabetic and this may help in reducing complication associated with rosiglitazone.

MATERIALS AND METHODS

Aloe vera plant, approximately three to four years old, was purchased from a commercial nursery at Lahore. By department of plant sciences, Quaid-e-Azam University Islamabad, plant identification was done. Accession number 46624 and voucher specimen number 157 was obtained. The whole leaf was processed to make Aloe vera juice according to published procedure with slight modification.[9]

We purchased thirty healthy Sprague Dawley rats, which were 90 days old, from National Institute of Health (NIH), Islamabad. They were kept at animal house of NIH throughout treatment period. Each rats weigh about 220±50 grams approximately. For preparation of High fat diet (HFD) large amount of animal fat and casein were added to normal pallet diet to prepare high fat diet.[10]

All healthy rats were made diabetic type 2 by feeding them animal fats for 3 weeks and then an intra-peritoneal injection of 35mg/kg body weight of streptozotocin.[10] To confirm diabetes and insulin resistance cut off value of glucose and TG :HDL ratio was greater then11.11mmol/l and 1.8 respectively.[11]

After confirmation of T2DM, thirty Sprague Dawley rats were indiscriminately segregated into two groups. For next 21 days both groups were given different treatments. Normal saline 0.01 centiliter was injected in Diabetic control group and combined group were given 50% of their effective dose combinely, that is, Aloe vera extract (150mg/kg body weight) with intra gastric tubing and rosiglitazone (2.5mg/kg body weight) I/P (three weeks of treatment). For analysis intra cardiac sampling was done.Samples were analysed at Army Medical College, Rawalpindi, Pakistan in its research center (CREAM).Glucose was measured by Trinder'smethod[12]An enzymatic colorimetric method GPO-PAP (Glycerol phosphate oxidase) was used for serum triglycerides estimation.[13]The HDL were measured by Hiroshi method and inslin resistance was measured by taking the proportion between TG and HDL.[14]Estimation of **I**nsulin is a solid phase two-site enzyme immunoassay.

Analysis of data was done on SPSS version 16.0. Values were analyzed by taking their mean and standard deviation. Two sample T- Test was used for analysis of data. The "p value" <0.05 was considered statistically significant.

RESULTS

After treating the groups for 21 days the plasma glucose in diabetic control group was 18.15 ± 1.70mmol/l which drop to4.41±0.52mmol/l (76%) in combined group. The evaluation showed a significant reduction (p<0.0000001) in combined group as compared to the diabetic group. In diabetic control group the ratio between triglycerides and HDL was 5.4±0.40 which reduced to 1.3 ± 0.22 in combined group There was a statistical difference (p<0.0000) between the means of two groups .The means TG in diabetic control group was2.70 ± 0.14which drop to 0.82 ± 0.14 mmol/l and the mean HDL levels in diabetic group was 0.50 ± 0.08mmol/l which raised to 0.60± 0.07

When statistically analyzed by sample T test the difference between two groups was significant as (p<0.0000001) for TG and (0.0005) for HDL (table 1).

Table 1: Plasma glucose, insulin and TG: HDL ratio in between groups by using two Sample T-Test

Variables	Diabetic control group	Combined group	t.test	p value
Plasma glucose (mmol/l)	18.15 ± 1.70	4.41 ± 0.52	29.9338	<0.0000001
Triglyceride (mmol/l)	2.70 ± 0.14	0.82 ± 0.14	36.7757	<0.0000001
HDL (mmol/l)	0.50 ± 0.08	0.60 ± 0.07	-3.912	0.0005
TG:HDL ratio	5.4 ± 0.40	1.3 ± 0.22	23.755	<0.0000
Insulin (µU/ml)	18.30 ± 2.2	11.03± 0.71	12.1799	<0.0000001

Table No.2: Percent reduction in blood glucose, insulin and TG: HDL ratio in treated group in comparison to the diabetics

Group	Blood Glucose mmol/l	TG/HDL ratio	Insulin	TG	HDL
Control	18.15	2.70	18.30	2.70	0.50
Combined	76% ↓	76% ↓	74% ↓	70% ↓	20% ↑

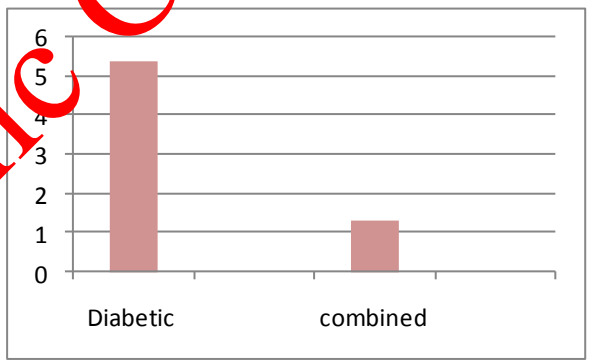

Figure No.1: Comparison between TG: HDL ratio in combined and diabetic groups

Similarly the level of insulin was 18.30 ±2.2 µIU/ml in diabetic group which dropped in combined group upto11.03± 0.71µU/ml. The evaluation between the two group assessed by sample T test showed a statistically significant (p<0.0000001) difference in diabetic and combined group.

DISCUSSION

The usage of Sprague Dawley rats as experimental model for testing antidiabetic drugs is very appropriate as it resemble humans in sequence of diabetes mellitus. our study Sprague Dawley rats were used as experimental animal model resemblance with human metabolic characteristics of diabetes mellitus.[15]

By giving animal fats for two weeks followed by a single dose of 35mg/kg streptozotocin causes hyperglycemia (18.85± 1.70mmol/l), in rats. In the study by Srinivasan plasma glucose levels increased

upto 23 mmol/l after the induction of T2DM which are comparable with our results.

We used the proportion between triglycerides and high density lipoprotein as indicator for insulin resistance which was above 1.8. However in other study hyper-insulinemia was taken as indicator for insulin resistance[10].

At the end of our study all the variables in the diabetic control group have progressively increased to manifest severe hyperglycemia (18.15 ± 1.70mmol/l) hyper-insulinemia and insulin resistance which could be the manifestation of the course of the disease with intake of high fat diet and advancing age. These findings were also observed in previous studies..[10,15,16]

In the present study combined group supplementation has considerably reduced($p<0.0000001$) plasma glucose levels despite that half of their effective dose was used, in comparison to diabetic group. The finding of another study supported our results).[17].They used treated Aloe vera gel for eight weeks which reduced the fasting plasma glucose level significantly ($p<0.01$. The reduction in terms of percentage was 52% and dose dependent in diabetic mice in comparison to the untreated diabetic mice. Despite longer duration of treatment (8 weeks) with Aloe vera in their study the results of our study on plasma glucose level was much better as resulted in 76 % reduction which could be due to synergistic effects of Aloe vera and rsiglitazone rather using it Aloe vera alone

Ghannam et al., used aloes (latex) in five T2DM patient and alloxon induced.[18]Our study results showed far better reduction in fasting plasma glucose level. This could be due to the fact that we used whole leaf of Aloe vera instead of only the latex part.

This beneficial result of whole leaf may be attributed to its high fiber content. It delays the absorption of glucose in the small intestine.[19]

In combined group the insulin resistance was greatly reduced that is by 76%. The effect of combined therapy on glucose and lipid may play its role in reducing insulin resistance. In another study the reduction in insulin resistance was attributed to antioxidants present in Aloe vera.[20]. In another study in which Aloe vera was used in lower dose but for longer period of time than our study showed statistically significantly results. However our study results were much better than Kim's study. The difference (150mg/kg) in dose Aloe vera used in our study can be one of the reason[17]

Like other studies insulin level in our study was raised in diabetic control group.

In study conducted, on fructose fed insulin resistant type 2 diabetic rats. The obtained data showed that serum insulin level in Aloe vera group significantly decreased ($p<0.05$) by 49% than in diabetic group. They contributed this outcome of Aloe vera extract on activation of insulin receptor in membrane of skeletal muscles and fat cells to increased glucose upake[21]. However in our study 74 % decrease was observed in insulin level after three weeks of treatment with combined extract. This can attributed to the alteration in type of trial model used in both studies as well as the synergistic effects

Rosiglitazone has been used for the treatment of type 2 DM since 1991.It works by binding to peroxisome proliferators activated receptor (PPAR- gamma) and reduces insulin resistance. [22]We achieved 76% and 74%reduction in glucose and insulin levels respectively with 20% rise in HDL level in combined group at end of our study. Our results are comparable with studies on rosiglitazone as antidiabetic

In one of the study in which rosiglitazone was given for 3 weeks in dose of 3mg/kg. This caused an obvious reduction in plasma glucose TG and insulin. But increase in body weight of rats was observed in this study.[23] A different animal model and mode of giving drug may be responsible for variance in results. In our study it was I/P while in Elena's study it was administered orally.

The positive results of combination therapy on glucose, insulin and insulin resistance in type 2 diabetics specially when half the effective dose of Rosiglitazone was used. This will also help in minimizing the side effects associated with this drug reported through various studies.[23,24]

The results of this study are much better than our previous study in which Aloe vera whole leaf extract was used alone to determine its effects on plasma glucose, insulin and insulin resistance[25]

Our study had disclosed boosting results to develop new approach for treatment of T2DM particularly for developing countries. Keeping the financial status of public in mind the use of natural herb with synthetic drug may help to reduce monetary load. Using half the effective dose will reduce the side effects associated with oral hypoglycemic drugs.

The result of our study demands for a study on human T2DM patients by using it with rosiglitazone half the effective dose of rosiglitazone to explore a new combination of treatment.

CONCLUSION

The significant result was obtained in combined group in lowering plasma glucose, insulin and insulin resistance though half their effective doses were used.It will also help in reducing side effects associated with use of rosiglitazone.

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

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Original Article

BMI

Association of Body Mass Index with Risk Factors of Coronary Artery Disease

Haroon Aziz Khan Babar, Saima Dastgeer and Abubakr Ali Saad

ABSTRACT

Objective: To evaluate the association of BMI and risk factors of coronary artery disease in patients presenting with chest pain in outdoor cardiology department.

Study Design: Descriptive / comparative study

Place and Duration of Study: This study was conducted at the Outdoor Cardiology Department of Nishter Hospital Multan from May 2016 to August 2016.

Materials and Methods: All patients who presented with complain of chest pain in outdoor cardiology department were included. Patients were divided into three groups on the basis of BMI. SPSS V23 was used for data computation. Chi-square test and ANOVA test were used for comparison of variables between different BMI groups respectively.

Results: There were 42.0% females patients in obese group as compared to only 12.0% and 20.0% in normal weight and overweight groups (p-value 0.002 Mean age of patients at the time of presentation was significantly less in obese group 49.38±6.56 years, whereas in normal and overweight patients mean age was 56.60±9.29 years and 54.84±9.94 years respectively (p-value <0.001). There was no patient with age more than 60 years in obese group, 47.5% in overweight group and 52.5% in normal weight group (p-value <0.001).There were higher number of hypertensive patients in overweight (56%) and obese group patients (58%) as compared to normal weight patients (p-value 0.03). Coronary artery disease was diagnosed in only 20.0% patients in normal weight patients, 24.0% in overweight patients and in 48.0% obese patients (p-value 0.005).

Conclusion: Obesity is an independent risk factor for the early development of coronary artery disease (CAD) and increased risk of hypertension in early age.

Key Words: Obesity, Coronary artery disease, Body mass index.

Citation of article: Babar HZK, Dastgeer S, Saad AA, Association of Body Mass Index with Risk Factors of Coronary Artery Disease. Med Forum 2016;27(10):57-60.

INTRODUCTION

Obesity epidemic is a rapidly growing major public health issue worldwide. Obesity is also responsible for increased risk of many other health issues e.g. hypertension, diabetes mellitus, metabolic abnormalities and breathing disorders.[1,2] The prevalence of obesity is on the rise, there are 32% overweight and 34% obese in US.[3] In Pakistan, the reported prevalence of obesity is 52.2%.[4]

Obesity not only increases the risk of cardiovascular risk factors but also adverse cardiovascular events.[5-7] On the other hand, according to some studies an obesity paradox exists and obesity is responsible for better prognostic outcomes obese CAD patients as compared to lower BMI patients.[8,9]

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Received: July 17, 2016; Accepted: August 25, 2016

Asian countries have a very higher prevalence of CAD.[10-13]CAD has been reported to be a major contributor of mortality in Pakistan as well as in the modern world.[14-16] Very few studies have focused on the association of BMI and cardiovascular risk factors. This study was done to evaluate the relationship of BMI with risk factors of CAD in patients presenting in outdoor patient cardiology department.

MATERIALS AND METHODS

This descriptive comparative study was conducted in Nishter Hospital Multan. All patients who present with complain of chest pain from May 2016 to August 2016in outdoor cardiology department with suspicion of coronary artery disease having age > 30 years were included. Patients already diagnosed of having CAD were excluded. Ethical approval from institutional review board was taken. An informed consent were signed by all participants. Patients were divided into three groups on the basis of BMI. Patients with BMI<25 kg/m^2 were categorized as normal weight, BMI 25-29.9 kg/m^2 overweight and ≥30 kg/m^2 as obese. Continuous consecutive sampling was used for data collection. Equal number of patients were selected for each group to make results of our study more reliable.

History of risk factors of CAD was taken and further confirmed by diagnostic tests in the hospital. Electrocardiography and exercise tolerance test was used to confirm the presence of coronary artery disease. SPSS V23 was used for data computation. Chi-square test and ANOVA test were used to compare discrete and continuous variables between different BMI groups respectively.

RESULTS

Out of one hundred and fifty patients, there were 50 patients in each group. There were higher number of female patients in obese group. There were 42.0% females patients in obese group as compared to only 12.0% and 20.0% in normal weight and overweight groups (p-value 0.002). Mean age of patients at the time of presentation was significantly less in obese group 49.38±6.56 years, whereas in normal and overweight patients mean age was 56.60±9.29 years and 54.84±9.94 years respectively (p-value <0.001). There was no patient with age more than 60 years in obese group, 47.5% in overweight group and52.5% in normal weight group (p-value <0.001).

There was no statistically significant in CAD risk factors between the groups except hypertension disease. There were higher number of hypertensive patients in overweight (56%) and obese group patients (58%) as compared to normal weight patients (p-value 0.03). In all patients who presented with chest discomfort, coronary artery disease was diagnosed in only 20.0% patients in normal weight patients, 24.0% in overweight patients and in 48.0% obese patients (p-value 0.005).

Table No.1: Demographic Variables.

Variable		Normal Weight	Overweight	Obese	P-value
Number of Patients		**50**	**50**	**50**	
BMI of Patients		23.36±1.56	27.64±1.46	33.27±1.83	-------
Gender	Male	44 (88.0%)	40 (80.0%)	29 (58.0%)	0.002
	Female	6 (12.0%)	10 (20.0%)	21 (42.0%)	
Age		56.60±9.29	54.84±9.94	49.38±6.56	<0.001
Distribution of Age Groups					
Age Group 30-49 Years		13 (25.0%)	16 (30.8%)	23 (44.2%	<0.001
Age Group 50-60 Years		17 (29.3%)	14 (24.1%)	27 (46.6%)	
Age Group > 60 Years		21 (52.5%)	19 (47.5%)	0 (0.0%)	

Table No.2: Comparison of CAD risk factors.

Variable	Normal Weight	Overweight	Obese	P-value
Diabetes	12 (24.0%)	16 (32.0%)	19 (38.0%)	0.32
Hypertension	17 (34.0%)	28 (56.0%)	29 (58.0%)	0.03
Smoking	18 (36.0%)	19 (38.0%)	15 (30.0%)	0.68
Family History	13 (26.0%)	11 (22.0%)	12 (24.0%)	0.89
Hypercholesterolemia	2 (4.0%)	1 (2.0)	5 (10.0%)	0.18
CAD Diagnosed	10 (20.0%)	12 (24.0%)	24 (48.0%)	0.005

DISCUSSION

Obesity has now become a well-known risk factor of CAD in general population and is linked with poor prognosis.[17] Modernization and sedentary life style are thought to be the major contributor of increased BMI. Due to which obesity is not becoming more prevalent in adults but also in children. The prevalence of CAD is also high in obese patients including adults and children. The management strategies to control obesity are still inadequate with unsatisfied results.[18] There is also a controversy regarding the relationship between CAD and obesity. Some studies have revealed a direct relationship between obesity and the risk of coronary artery disease and adverse events associated with it.[5-7] On the other hands, some studies have documented that severity of CAD is less severe in obese patients because body fat provide benefit of survival and hence against adverse effects of CAD.[19-22]

In this study, we examined the risk factors of CAD in patients who presented with chest discomfort in outpatient cardiology department with different body mass. We found higher proportion of hypertensive patients in obese and overweight patients. Husain et al. also found similar trend of hypertension in obese patients and normal weight patients.[23] These authors also found higher prevalence of diabetes in obese patients. In our study, there was no statistically difference of diabetes mellitus in groups, but the prevalence of diabetes was slightly higher in overweight and obese groupsin comparison with normal weight subjects. In our study, there was higher proportion of females in obese (42.0%) and overweight patients (20.0%) as compared to normal weight patients (12.0%). Other studies have also found a significantly higher number of female with CAD in obese group of patients.[3,23] In our study, mean age was significantly less in overweight and obese patients as compared to

the normal weight patients. Hussain el at. found no significant difference in age between the obese and normal weight patients.[23] In some other studies, mean age was significantly less overweight and obese patients as compared to the normal weight patients.[3,17] Our study supported the results of these studies.

In our study, CAD was diagnosed in higher number of obese patients 48.0% patients as compared to 24.0% and 20.0% patients in overweight and normal weight patients. Hussain et al. found no significant difference in diagnosis of CAD between the obese and non-obese patients. In their study, 58.0% patients were diagnosed of having CAD in obese group and 42.0% in non-obese patients.[23]

In this study, we found that obese patients were presented in early age for chest complaints and most of these were suffering from coronary artery disease, hypertension history was also common in these patients.

CONCLUSION

Obesity is an independent risk factor for the early development of coronary artery disease (CAD) and increased risk of hypertension in early age.

Acknowledgement: We highly appreciate the efforts of Dr. Ayesha Ijaz and Dr. Sadeem Lodhi, House Officers, Cardiology Department, Nishtar Hospital, Multan who worked consistently with us for accomplishment of this research project.

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

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Original Article

Level of Depression in Patients Admitted with Chronic Heart Failure

Saima Dastgeer, Haroon Aziz Khan Babar and Abubakr Ali Saad

ABSTRACT

Objective: Heart failure (HF) is a chronic disease usually associated with psychological issues especially anxiety/depression despite of medical treatments. Aim of our research data study was the estimation of level of depression among admitted CHF patients in Nishtar Hospital and to find an association of various clinical parameters with depression

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the Cardiology Department of Nishtar Medical College and Hospital Multan from March 2016 to August 2016

Materials and Methods: 400 patients with systolic HF were divide according to the NYHA heart failure classification system. The level of depression was assessed by using Beck's Depression Inventory questionnaire. The patients with a previous history of major depressive disease, psychological diseases, or chronic other severe ailments were excluded. To assess the relationship between variables the chi square test was applied to data.

Results: 76 patients in group B of depression were hypertensive and in group A of depression 85 were hypertensive with p=0.04 that is significant i.e. p<0.05. The high depression of group B was much more common in heart failure group B with 53 people having severe depression and 96 group A CHF patients had mild depression with p=0.05 that is statistically significant. Similarly, 94 mildly depressed people were in joint family system of group J and 56 severely depressed patients were in group S with p=0.03 that is highly significant.

Conclusion: Depression is very common among CHF patients who are living alone or with spouse only. And severe depression level is more common than mild/moderate depression at higher NYHA classes of CHF.

Key Words: Depression, heart failure, CHF, NYHA

Citation of article: Dastgeer S, Babar HAK, Saad AA. Level of Depression in Patients Admitted with Chronic Heart Failure. Med Forum 2016;27(10):61-64.

INTRODUCTION

The holistic approach of medicine considers all three aspects human being i.e. body, mind and spirit[1]. Nearly every medical illness follow bio-psycho-social model. The influence of age, sex and ethnicity on the depression in patients with heart failure is well understood in the past[2]. The cardiac diseases, taking the form of pandemic, are continuously on the rise in Pakistan region[3]. The increasing incidence of cardiac diseases is due to modernization of lifestyle which primarily involve the near to complete absence of physical activity and therefore the number of cardiac patients and, hence, CHF patients are increasing rapidly. Medical advancements has led us to effective management options for Congestive cardiac failure and the associated complications for minimum admissions in the hospital[4].

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Received: July 14, 2016; Accepted: August 25, 2016

However, the psychological issues are not addressed properly especially in cardiology departments. CHF, as with other debilitating diseases, is the number 1 cause of elderly admissions in the USA and is almost same in other parts of the world. It is accompanied by psycho-social stress whether at home or in hospital settings[5]. Among CHF patients admitted to hospital, depression may be a considered as a contributing factor to repeated hospital visits, associated complications and worsening of cardiac failure symptoms[6]. This assessment is from western countries and limited data is available in Pakistan especially Punjab. Considering the large population and the increasing prevalence of cardiovascular diseases in Pakistan. Therefore, estimating the depression in CHF patients is of great significance. The main focus of this study was to asses level of depression in HF patients .

MATERIALS AND METHODS

Data was collected at the Cardiology Department of Nishtar Hospital Multan, Punjab, Pakistan over a period of 6 months from March 2016 to August 2016. A total of 400 adult patients were studied in this study. All the participants were aged between 18 and 80 years both male and female. Patients with age less than 40 were classed into group A and those with age greater than 40 were classed in group B. The patients with systolic CHF were recruited. Systolic HF was defined as

ejection fraction (EF) <35% on echocardiogram and for minimum duration of 6 months. Patients were clinically examined and divided according to NYHA heart failure Classification (Classes I to IV). The classes I and II were grouped into a larger group A and classes III and IV were grouped into larger group B.

Family status of single and joint family also considered for this study. The patients living alone or with spouse only (without children) are considered alone and grouped into S while those living with children or relatives were considered to be in joint family system and grouped into J. Patients with a previous history of major depressive disease, chronic diseases including cancer, acute or chronic kidney failure, end-stage hepatic disease (cirrhosis) and CCF secondary to thyroid disease or a history of myocardial infarction in the past 6 months were excluded from the study.

A standardized questionnaire was designed with the collaboration of cardiologists and psychologist and the research was conducted at Nishtar Hospital Multan. Informed consent was taken verbally from the patients and the questionnaire was given at the time of discharge. On questionnaire details of demographics, (BDI) scale, symptoms, family support system, living status, personal routine habits and any remarkable past medical, psychological or significant surgical issues. BDI is one of the widely used tool calculator for the measurement of depression comprising of 21 special questions. The standard URDU version of BDI was used.

The illiterate people were helped by their attendants or staff nurses. The BDI scoring can classify the patients into many degrees of depression[7]. A BDI score ≥10 but ≤16 indicate mild mood disturbance and ≥17 but ≤20 indicates borderline clinical depression and both of them are classed into group A i.e. from 10 to 20. Similarly the following three 21-30 was considered as moderate depression, and 31-40 as severe depression and patients with score more than 40 was considered extreme depression and classed into major group B. The people having no depression are those with less than 10 BDI score are psychologically normal[8]. Social factors like family relationing bonds were considered during this research. Various personal habits like tobacco intake in the form of smoking, naswaar, beera or huqqa were also entered. Tobacco intake was defined as history of half pack-year or more cigarette smoke or tobacco intake equivalent to that in previous five years.

Data analysis was done by using SPSS version 20. The frequencies values and central tendency measures were calculated. Chi-squared test were usedfor comparison of the data. The P-value of <0.05 was considered as statistically significant as per standard.

RESULTS

There were 310 male and 90 female in this study who fulfilled the inclusion criteria (Table 1). Those included in age group A were 18.5% (n=74) and in group B were 81.5% (n=326). Hypertension was in 61% (n=244) of all patients and absent in 39% (n=156). Diabetes mellitus was present in 45.5% (n=182 out of 400). Regarding smoking status, males were predominantly smokers and total 53.5% (n=213) smokers were entered in this study. The people included in age group A were 18.5% (n=74) and remaining 81.5% (n=326) were classed into group B.

Table No.1; Demographic variables of total population.

Demographics of Patient		TOTAL (n=400)	Total Percentage (%)
Gender	Male	310	22.5
	Female	90	77.5
Hypertension	Yes	244	61
	No	156	39
Diabetes Mellitus	Yes	182	45.5
	No	218	54.5
Smoking	Yes	213	53.3
	No	187	46.7
*Age group	Group A	74	18.5
	Group B	326	81.5

***Patients with age less than 40 were classed into group A and those with age greater than 40 were classed in group B.**

There were n=259 patients with depression class A and B out of 400 total patients. There were 114 male and 36 female patients in class A of depression and 85 male and 24 female patients in class B of depression (p=0.76) which is statistically insignificant. The mild depression of group A was much more common in elderly people of group B(p=0.25) which is greater than 0.05 and is statistically insignificant. Similarly, 84 smokers were included in group A of depression and those included in group B depression were 52. There were 66 non-smokers in group A of depression and 57 non-smokers in group B depression (p=0.20) which is statistically insignificant. The mild depression of group A was more common in 64 people with diabetes and group B depression was present in 55 diabetics (p=0.25) which is insignificant.

On the other hand, the 76 patients in group B of depression were hypertensive and in group A of depression 85 were hypertensive with p=0.04 that is significant i.e. p<0.05. The high depression of group B was much more common in heart failure group B with 53 people having severe depression and 96 group A CHF patients had mild depression with p=0.05 that is statistically significant.

Similarly, 94 mildly depressed people were in joint family system of group J and 56 severely depressed patients were in group S with p=0.03 that is highly significant.

Table No.2; Clinical assessment and risk factors profile of Depressive patients.

Factors		Depre-ssion Group A	Depre-ssion Group B	P-Value
Diabetes mellitus	Yes	64	55	0.25
	No	86	54	
Hypertension	Yes	85	76	*0.04
	No	65	33	
Smoking	Yes	84	52	0.20
	No	66	57	
Gender	Male	114	85	0.76
	Female	36	24	
Age group	Group A	23	23	0.25
	Group B	127	86	
NYHA	Group A	96	56	*0.05
	Group B	54	53	
Family status	Single S	56	56	*0.03
	Joint J	94	53	

Mild mood disturbance and borderline clinical depression are classed into group A with 10 to 20 BDI. Similarly, 21-30 = Moderate depression, 31-40 = Severe depression and over 40 = Extreme depression, are classed into depression group B.

NYHA Classification (Classes I to IV). The classes I and II were grouped into A and classes III and IV were grouped into B.

The patients living alone or with spouse only (without children) are considered single and grouped into S while those living with parents, siblings or children are considered to be in joint family system and grouped into J.

DISCUSSION

Most of the hospital admitted HF patients were suffering from both mild and severe depression. There was intricate relationship between the depression and heart failure with respect to their epidemiology, optimal approach and patho physiological aspects[9]. Severity of depression was more associated with low Left Ventricular Ejection Fraction i.e. <35%. The higher degree of CHF as indicated by the NYHA. There was a study in China in 2001 in which Jiang et al worked on 374 hospital admitted patients with CCF using the BDI score and observed that 35% of admitted pts. Had BDI score of 10 or more which indicates of at least mild level of depression[10]. And the depressive patients with CHF were much more hospitalized than normal CHF patients[11].

As we know that emotional issues and disturbance is not usually dealt as a disease by majority of patients, therefore, individuals with depression may not usually present to psychiatric helping services and they prefer eastern treatments like hakeem, spiritual tx, dumdaroodetc in this regard. So apparent difference in rate of prevalence in our research and the other studies may show variations in health care provdance patterns other than the intrinsic symptom and their pattern.

There are many studies stating that increased degree of depression is directly proportional to the degree of illness. Our study also strengthened this point in accordance with a study by Fulop G published in 2003 on the topic of Congestive heart failure and depression in older adults[12].

Recognition of level of depression in patients with CCF is also vital from various aspects. In a study, Rutledge et al observed that the presence of level of depression in heart failure patients predicts poor results in repeated hospitalization. They also anticipated the functional status and walk times of the patients[13,14]. Similarly, Gottlieb et al concluded that scoring of quality-of-life worsens statistically significant in pts. with heart failure if they were diagnosed depressive on BDI scale system[8]. Rate of mortality is increased for patients having CCF and depression both as compared to the patients with heart failure only[15,16].

In another study, Tabish Hussain et al found that depression among CHF patients was more common in patients living alone as compared to patients living in joint family system and it was statistically significant with p<0.034[17]. Almost ¼th of heart patients with major depression were diagnosed to be depressed. Half of them get management of depression.[18] Level of depression usually can't be diagnosed or treated in heart patients and depression may be diagnosed as symptomatic only of CHF.[19,20]

This research data has many limitations. Important one is small sample size. Due to our study design, generalization of our observations was limited to only in hospital admitted patients with CCF. There is a possibility that medically better managed patients with heart failure in community may have variable level of prevalence of depression. This was one time study and, therefore, we could not address apply the affects of depression on the outcomes of patients. Outcome of study shows higher frequency of depression in heart failure patients ,more commonly in singles and provides a base for further future researches and to find impact of depression on various factors which were not considered in our research.

CONCLUSION

Depression is more among heart failure patients with specific predilection to people living single and severity is related directly to the degree of chronic heart failure patients. Severe depression is more common than mild in patients with higher NYHA Class.

Acknowledgement: We highly appreciate the efforts of Dr. Ayesha Ijaz and Dr. Sadeem Lodhi, House Officers, Cardiology Department, Nishtar Hospital, Multan who worked consistently with us for accomplishment of this research project.

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

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Original Article

Pattern of Maxilofacial Trauma in Patients Reporting at Liaquat University Hospital Hyderabad

Maxilofacial Trauma in Patients

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ABSTRACT

Objective: The aim of present study was to evaluate the pattern of maxillofacial trauma in patients reporting at Liaquat University Hospital Hyderabad.

Study Design: Observational / descriptive / cross sectional study

Place and Duration of Study: This study was conducted at the Oral and Maxillofacial Surgery Outpatient Department of Liaquat University Hospital from 01-01-2014 to 31-12-2015.

Materials and Methods: This study was to analyze the age, gender and site of facial fracture of patients due to road traffic accidents, assault, falls, gunshot and sports injuries . Data relating to 136 patients was collected. The diagnosis of the maxillofacial trauma was done on the basis of history, clinical features and appropriate radiographs. All the relevant information was recorded on proforma.

Results: Most prevalent age of trauma was 21-30 years teenagers, male 104 (76%) outnumbered the female 32 (24%) with ratio of 4:1. The most common fractured bone of midface was zygomatic bone n=52 (38.3%) and the most common region of mandibular fracture was parasymphysis n=34(25.0%).

Conclusion: Trauma is a main cause of fracture of facial bones especially in the young male population of Pakistan. Zygomatic bone fracture and parasymphseal regions are most common fracture site.

Key Words: Trauma, Injury, Maxillofacial injury, Maxillofacial trauma

Citation of article: Rizwan M, Memon P, Habib G, Channarh KA. Pattern of Maxilofacial Trauma in Patients Reporting at Liaquat University Hospital Hyderabad. Med Forum 2016;27(10):65-67.

INTRODUCTION

Maxillofacial trauma is major cause of facial injuries worldwide[1]. Patients with maxillofacial injuries are commonly presenting in medical emergencies. Mostly the leading cause these injuries are associated with multi system trauma that requires coordination with other specialties.

Pattern of maxillofacial fractures varies with geographic locations, physical activity, social, cultural, environmental factors, awareness of traffic rules and regulations and alcohol consumption[2].

According to previous studies done internationally assault and interpersonal violence is the main cause of facial bone fractures in developed countries followed by road traffic accidents while road traffic accidents are leading cause of maxillofacial injuries in developing countries of the world [3-9].

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Received: July 30, 2016; Accepted: September 12, 2016

Most frequent age group encountering maxillofacial trauma is young adults[2]. Various studies conducted regarding pattern of maxillofacial fractures[2-5], these studies shows mandible and zygomatic bone most commonly fractured.

MATERIALS AND METHODS

Present study was carried out at outpatient department of oral and maxillofacial surgery Laiquat University Hospital Hyderabad. The patients were directly admitted or referred from primary to tertiary base hospitals. This study was conducted from 01-01-2014 to 31-12-2015. This study was done on 136 patients presenting with maxillofacial injuries to analyze the age, sex, anatomical location of facial injuries. The male and female patients of any age with clinically evident sign and symptoms of facial bones fractures and with radiographic evidence were included in the study. Medically compromised patients, previously maltreated patients and patients reporting after one mouth of injury and patients with associated other facial skeletal fractures were excluded. The diagnosis of the maxillofacial trauma was done on the basis of history, clinical findings and appropriate radiographs. Age, gender and site of trauma was recorded on proforma. Data analysis was done in statistical program for social sciences (SPSS) version 15.0 on computer. The frequency and percentage was computed for qualitative variables, like gender. Mean± standard deviation was

computed for qualitative variables, like age. No inferential test applied due to descriptive statistics.

RESULTS

The results of our study are described in sequence of the objective. Description of separate result is shown in tables.

Gender And Age: Table-1 shows gender distribution male predominance with female, male n=104 (76%) and female n=32 (24%). Mostly young group affected in road traffic accident (20%). The ratio over all 4:1 is male and female.

Mid Face of Fracture: Table-2: The fracture of midface mostly zygomatic bone complex bone effected n=52 (38.3%), Lefort-I n=14(10.3%), Lefort-II n=24 (17.6%) Lefort-III n=24 (17.6%), Zygomatic arch n=10(7.3%), others n=12(8.9%).

Table No.1: Age and gender distribution (n=136)

Age group (years)	No. of Male	No, of Female	Total (No)	%
1-10	7	01	8	6%
11-20	13	05	18	13%
21-30	21	07	28	20%
31-40	20	07	27	19%
41-50	16	04	20	15%
51-60	13	04	17	13%
61-70	07	02	09	7%
70-80	07	02	09	7%
TOTAL	**104**	**32**	**136**	**100%**

Table No.2: Mid face fracture (n=136)

Location	No. of mid face #	Percentage
Le fort-I #	14	10.3
Le fort-II #	24	17.6
Le fort-III #	24	17.6
Zygomatic complex #	52	38.3
Zygomatic arch	10	7.3
Other	12	8.9
TOTAL	**136**	**100%**

Table No.3: Mandibular fracture (N=136)

Location	No. of Mandibular	Percentage
Symphyseal #	26	19
Para symphyseal #	34	25.0
Body of mandibule	14	10.2
Angle of mandibular	24	17.6
Condylar # & sub condylar	30	22.0
Coronoid #	5	3.6
Ramus #	5	3.6
TOTAL	**136**	100%

Mandibular Fracture: Table-3: The mandibular fracture more common than maxilla symphaseal n=26 (19%). The parasymphseal n=34(25.0%), Body of mandible n=14(10.2%), angle of mandible n=24 (17.6%), Condylar and sub region n=30(22.0%), coronoid n=5(3.6%), Ramus of mandible 5(3.6%), the parasymphseal region is more common fracture than other sites of mandible.

DISCUSSION

This study is depending on subject utilizing the population of Hyderabad city. The gender distribution of the reported cases describes that male n=104 (76%) representing the facial fracture and female n=36 (32%). This 4:1 ratio of male preponderance can be explained by the fact that the majority of such fractures result from road traffic accident, assault, falls, sports injury etc where men are more commonly involved. We have study the low ratio of female also because of Islamic culture and relative inactivity of females in the socio economic life. This ratio is comparable to those reported by Abbas[10], Adebeyo EO[11], Zakai MA[12] and Hitchison[13], However it is different from reported by Anwar[14], Zubair Khan[15], Zia-ul-Haq[16] et al male more prone to facial fractures, which may be due to their participation in outdoor activities.

The predominant age group in our study is teenagers 21 to 30 years. This result is almost same as a previous studies done by Cheemaand Abbas.[17-18]The young adult is more actively involved in outdoor activity during this period of life e.g. social activities, sports, high speed transportation. Which make them more vulnerable due to this dominant role in outdoor activity especially in our society, where males play dominant role in all socioeconomics activities. In rural areas where illiteracy is more assault and Karokari revenge more effected to female.

The fracture of midface was mostly zygomatic bone n=52 (38.3%) especially Lefort-II n=24 (17.6%) and Lefort-III n=24 (17.6%) was commonly found in our study. While in mandibular fractures the parasymphseal n=34(25.0%), region was found more common site of fracture than other sites of mandible in our study. While another study done by Bart Van Den Berg[5] et al found, the main fracture site of the mandible was the combination of body with condyle of mandible (26.8%), followed by the combination of bilateral condylar along with fracture of the symphysis of mandible (17.5%). In fractures of the middle 1/3 of the face, zygomatic bone fractures were most common[5]. Another study done by Muhammad HoseinKalantar Motamedi[19] regarding distribution of site of mandibular fractures, 32% occored in the condyle, 29.3% in the symphyseal-parasymphyseal area, 20% in the angle of mandible, 12.5% in the body, 3.1% in the ramus, 1.9% in the dentoalveolar, and 1.2% in the coronoid region. The distribution of maxillary fractures

was Le Fort II in 18 (54.6%), Le Fort I in 8 (24.2%), Le Fort III in 4 (12.1%), and alveolar in 3 (9.1%). here were 150 (51%) mandibular, 102 (34%) maxillary, and 22 (7.4%) zygomatic fractures. Ahmed et al20 found regarding distribution of mandibular fractures, the majority (25%) occurred in the condyle, 23% in the angle, and 20% in the body. The distribution of maxillary fractures were 49.0% dentoalveolar, 29.4% Le Fort I, and 10.7% were Le Fort II fractures.

CONCLUSION

Trauma is main cause of facial injuries especially in the young male population of Pakistan. In midface Zygomatic bone fracture and in mandible parasymphseal regions are most common fracture sites.

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

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Original Article

Comparison between Captopril and Imidapril in Relation to Their in Vitro Effects on Tracheal Tissue

Effect of Captopril and Imidapril on Tracheal Tissue

Javaria Arshad Malik, Waqar Ahmed Siddiqui and Sehrish Zafar

ABSTRACT

Objective: To observe two drugs (captopril and imidapril) action on smooth muscle tone of trachea and to facilitate safe and rational use of ACE inhibitors, particularly in patients with chronic obstructive airway disease.
Study Design: Comparative controlled in-vitro experimental Study.
Place and Duration of Study: This study was conducted at the Pharmacology Department, Army Medical College, Rawalpindi from December 2012 to May 2013.
Materials and Method: First the effect of bradykinin acetate on the smooth muscle of trachea has been observed. Cumulative concentration-effect relationship was studied with different concentrations of bradykinin on the smooth muscle starting with 22µg to 132 µg/dl. The method was done again with captopril 10^{-5} M concentration and imidapril 10^{-5}M respectively. In second set of experiments cumulative concentration-response curves were prepared by increasing concentrations of captopril and imidapril separately with fixed concentration of bradykinin 66 µg/dl.
Results: Dose related vacillating contraction of smooth muscle of trachea is produced by bradykinin. The average value of effect received with 132 µg/dl of bradykinin in the presence of captopril was 21.33 ± 2.79 and in the presence of imidapril was 25 ± 7.26. All these ACE inhibitors displaced the concentration effect curves of bradykinin to left and upward. On comparison among themselves it was observed that imidapril produced least enhancement of tracheal contraction. Similar results were produced by second set of experiments.
Conclusion: Imidapril is found to cause least enhancement of contraction caused by bradykinin on tracheal muscle. Further clinical trials may be conducted to establish the differential effects of various clinically used ACE inhibitors on the respiratory passages in hypertensive patients concomitantly suffering from COAD.
Key Words: ACE inhibitors, Adverse effects, Bradykinin, ACEI, Guinea pig trachea, Oscillograph

Citation of article: Malik JA, Siddiqui WA, Zafar S. Comparison between Captopril and Imidapril in Relation to Their in Vitro Effects on Tracheal Tissue. Med Forum 2016;27(10):68-71.

INTRODUCTION

Hypertension has multipart causes, affecting 972 million persons over the world[1]. It has been shown that by lowering blood pressure by drugs blood vessel damage is prevented and subsequently there is reduction in ailment and death rate. Various treatment options are available but among them Angiotensin-converting enzyme inhibitors (ACEI) has certain advantages. ACEI are useful for renal protection in hypertensive patients with diabetes. ACE is also called Kininase II and is Dipeptidyl Carboxypeptidase. ACE is an ectoenzyme and glycoprotein with a molecular weight of 170,000.[2] ACE enzyme inactivate bradykinin. in addition to transforming Angiotensin I to II.

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Received: July 29, 2016; Accepted: September 10, 2016

Captopril and enalapril, heightens the bronchial contraction and microvascular leakage caused by bradykinin.[3],[4], indicating a process of ACE inhibitor-related cough. In guinea pigs, long term intake of captopril causes impulsive coughing, which is antagonised by icatibant (bradykinin antagonist)[5] Bradykinin produces broncho constriction either directly or indirectly by releasing mediators such as prostaglandins and tachykinins.

This fact has been now proved in many aspects that all ACE Inhibitors are not tantamount [6] their chemical structure is different .[7] It has been seen that ACE inhibitors are responsible for production of cough and wheeze as their adverse effects. The exact mechanism of production of these adverse effects is not clear. This point is well known that this effect is due to inhibition of metabolism of bradykinin, which leads to its accumulation in airways. Bradykinin causes cough by irritation of vagal C-fibers in bronchial walls.

. Findings of one large scale study suggest that few individuals can suffer from dyspnea and wheezing but no causative relationship was sorted out.

In this study we aim to compare the effects of Imidapril and Captopril on tracheal muscle contraction induced by bradykinin in vitro.

MATERIALS AND METHODS

Bradykinin acetate and Phentolamine Hydrochloride from Sigma Chemical Co, USA. Captoril Disulfide and Imidapril Hydrochloride was kindly provided by Chemo S.A.Lugano Brach, Hetero Drug Limited and Tanabe/Seiyaku Japan respectively. Indomethacin Acetate by Shanghai-Chang-Hua industry limited China, and Propranalol Hydrochloride by Changzhou Yabang Pharmaceutical Company All other chemicals used were purchased from local commercial sources. Solutions and dilutions of all drugs were prepared in the distilled water.

Guinea pigs (500 to 600g) were housed at comfortable environment at room temperature. The tracheal tissue was taken out and rings of this tissue two to three mm wide are prepared, each having approximately 2 cartilages. A longitudinal cut was made on the ring to open it forming a preparation with smooth muscle in the centre and cartilaginous part on sides.. The tissue was mounted to an isolated tissue bath of 50 ml, capacity comprising of Kreb's Henseleit solution at 37º C and was having un interrupted oxygen supply. The smooth muscle contraction was recorded with an Isometric transducer (Harvard model no 72-4494) and was recorded on Oscillograph (Harvard model no 50-9307).

In group I, Cumulative dose-effect curves of bradykinin was observed with concentrations 22, 44, 66, 88, 110 and 132 µg/dl. Next dose is added after the peak has been achieved with first dose. In group II, cumulative concentration-effect curve of bradykinin was observed with similar concentrations of bradykinin but with the presence of captopril 10^{-5} concentration. In group III, same procedure repeated but in the presence of imidapril 10^{-5} concentration. In group IV, cumulative dose effect curve of captopril was obtained using concentrations 1, 1.5, 2, 2.5 and 3 µM of captopril in the presence of set amount of bradykinin 66 µg/dl. This concentration of bradykinin has been chosen which causes consistent and submaximal effects, enabling us to observe potentiation or inhibition of contraction.[8] Maximum response of smooth muscle contraction with captopril 3 µM concentration was taken as hundred percent and effects with imidapril was compared to that.In group V, cumulative dose-response curve of imidapril was acquired using same concentrations the presence of fixed concentration of bradykinin 66 µg/dl. Experimentation was performed six times in the same way to get 6 observations in all the five groups.

Statistical analysis: The values were expressed as Means ± Standard deviation. The average of amplitudes of contractions and S.D were calculated using SPSS version 15. In order to find the significance of the difference between two observations 'student t test' was used. P value <0.05 was considered significant.

RESULTS

Captopril enhances the amplitude of tracheal contraction from mean value of 7.7 mm to 35.6mm Semi logarithm dose-effect curve of bradykinin with Captopril displaced to the left and upwards.

Imidapril at 10^{-5} M concentration also enhances tracheal smooth muscle contraction from mean value of 7.7mm to 17.1mm. Semi logarithm concentration response curve was shifted to left and upward.

In comparison of Control Group I (Bradykinin) and Group II (Captopril +Bradykinin) The mean values of response with each concentration of bradykinin, compared between Group I and II were found statistically significant showing P values of 0.003, 0.049, 0.05, 0.005, 0.019 and 0.00 as they are P<0.05.

In comparison of Control Group I (Bradykinin) and Group III (Imidapril + Bradykinin)

The mean values of response produced by each concentration of bradykinin used compared between Group I and Group III were found statistically significant (P <0.05) showing P values of 0.035, 0.021, 0.049, 0.035, 0.01 and 0.042. Comparison of concentration response curves of two drugs are shown in figure I.

In comparison of Group II (Captopril + Bradykinin) and Group III (Imidapril + Bradykinin**)** The mean values of responses produced by each concentration of bradykinin used compared between Group II and Group III were found statistically significant (P <0.05) showing P values of 0.012, 0.00, 0.001, 0.002, 0.002 and 0.007. Table 1

In the second set of experiments, bradykinin in a fixed concentration of 66µg/dl was added in the organ bath and then concentration-response curve was obtained by increasing concentration of Captopril. Same procedure was repeated with imidapril. This was done to determine the concentration-dependent response of two ACE inhibitors on contraction caused by bradykinin. The concentration of bradykinin (66µg/dl) was chosen because it produced consistent and submaximal effects enabling us to observe potentiation or inhibition of contraction. Results were similar to first set of experiments in which imidapril had produced less bradykinin-induced contraction than captopril. Imidapril produced least enhancement of the effect. Cumulative concentration-response curve with Captopril has been taken as the control and curve with Imidapril were compared to that. The shift of the curve is statistically significant (P<0.05) (figure II) Dusser et al, 1987, has reported similar effect with Captopril.

Table No.I: Comparison of responses to bradykinin between group II (bradykinin+ captopril 10^{-5} M) and group III (bradykinin + imidapril 10^{-5} M)

	Group II	Group III	Group II	Group III	Group II	Group III	Group II	Group III	Group II	Group III	Group II	Group III
Tissues	22 µg/dl	22 µg/dl	44 µg/dl	44 µg/dl	66 µg/dl	66 µg/dl	88 µg/dl	88 µg/dl	110 µg/dl	110 µg/dl	132 µg/dl	132 µg/dl
1	0	0	28	10	37	16	39	15	42	15	43	14
2	25	2	30	4	33	10	38	13	43	14	46	15
3	26	0	32	15	34	16	39	16	44	14	47	10
4	6	3	25	5	40	11	45	14	50	16	55	16
5	9	3	20	15	31	25	45	37	51	40	59	43
6	12	6	24	13	35	28	44	42	49	48	58	52
Mean	13 mm	2.33 mm	26.5 mm	10.33 mm	35 mm	17.67 mm	41.67 mm	22.83 mm	46.5 mm	24.50 mm	51.33 mm	25.00 mm
S.D	10.47	2.25	4.37	4.89	3.16	7.34	3.33	13.04	3.94	15.33	6.83	17.78
P value	0.012		0.00		0.001		0.002		0.002		0.007	

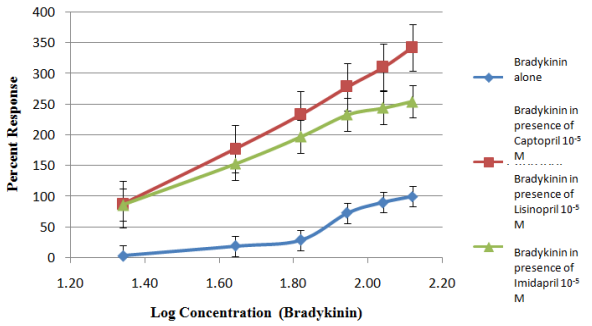

Figure No.I: Cumulative log dose-effect curves of bradykinin with fixed concentrations of captopril (10^{-5} M) and imidapril (10^{-5} M) separately.

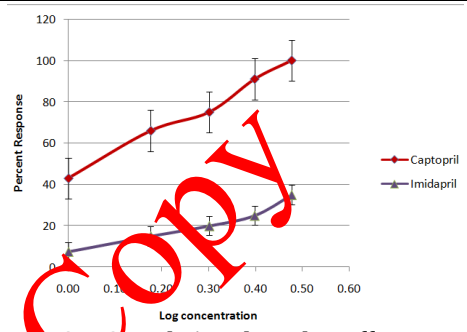

Figure No.2: Cumulative log dose-effect curves of Captopril and Imidapril with fixed concentration of bradykinin (66 µg/dl).

DISCUSSION

In this comparative study we had found that Imidapril produced significantly ($P<0.05$) less enhancement of bradykinin induced tracheal smooth muscle contraction than captopril. This was consistent with the results of previous studies.[8,9]

The mechanism by which ACE inhibitors potentiate kinin induced contraction is most likely by preventing the degradation of bradykinin. The enhancement of bradykinin-induced contraction by Angiotensin Converting enzyme inhibitors was also observed after having removed the tracheal epithelium. Therefore, this suggests that ACE is present in other tracheal tissues besides epithelium and these tissues may participate in the degradation of kinins in the airways. We can speculate that in a physiological situation, inactivation of kinins may occur at various sites within the airway, depending on the presence of the enzymes and on the sites from which kinins originate e.g diffusion of circulating kinin from plasma or local production within the airways.[8] Bradykinin causes tracheal smooth muscle contraction directly by stimulating distinct receptors, such as bradykinin acting on B_1 and B_2 receptors and indirectly by releasing mediator tachykinins (substance P and neurokinin A) and prostaglandins (PGs). B_1 receptors are mostly involved in inflammatory reaction.[9, 10]

ACE inhibitors differ chemically and based on that they have slightly different mechanism of actions. The enzyme is a zinc-metallopeptidase that have action on angiotensin II release and bradykinin degradation. ACE has 2 homologus domains categorized as C-part and N-part in relation to their propinquity to carboxylic or to amine terminal. Each part possesses a functionally active locus.[11] Both parts can cleave angiotensin I and bradykinin but it has been seen in experimental studies in mice that selective inhibition of either end domain of ACE can inhibit the transformation of Angiotensin I to Angiotensin II by the divergent selective blockers, whereas for blockade of bradykinin degradation, binding to both active ACE terminal sites is required[12]. Binding ability of ACE inhibitors to every part is not same in all inhibitors. It is to be found that difference in the degree of enhancement of bradykinin-induced vascular leakage is due to difference in binding abilities of drugs with angiotensin converting enzyme. The tendency of dry-cough with ACE Inhibitors is also variable due to same reason. Imidapril has nether role in these two effects than enalapril and captopril.[13] Activity of ACE inhibitors regarding substrate specificity were studied by Okamura et al. in 1993.[14] using mesenteric artery and vein of dog. They showed that imidaprilat, metabolite of imidapril has comparatively less inhibitory action on bradykinin degradation than enalaprilat.

Among ACE inhibitors used in the study captopril is active drugs while imidapril is a prodrug. It is an ester prodrug which is converted into active form imidaprilat by enzyme esterase.[15] Imidapril is converted to imidaprilat metabolically by carboxylesterase.[16] In vitro study conducted by Per Wetal et al in 1992 has shown carboxylesterase activity in respiratory system of guinea pig.[17] These studies show evidence that

imidapril was converted into imidaprilat in the tracheal tissue. However the reason of lesser augmentation of bradykinin response by imidapril may be related to its incomplete activation in tracheal tissue.

Angiotensin converting enzyme (ACE) inhibitors are frequently used drugs for hypertension and heart failure.[18] They are safe and effective drugs for hypertension. After grand and well organized clinical studies (Consensus, Save, Trace, Aire, Hope and Europa studies) ACEI have become staple treatment for effective secondary prevention in patients with cardiovascular diseases and diabetic complications, unless contraindicated. However their use in some hypertensive individuals who concomitantly suffer from COAD, is restricted due to the production of cough and bronchoconstriction. The most important effect of bradykinin on the respiratory tract is the activation of C fibers in bronchial and pulmonary tissue, which is the cause of cough and chest tightness, an distinctive character of asthma.[19] In clinical trials it has been seen in patients that ACE inhibitors produce bronchospasm 2.39 times more then lipid lowering drugs.[20]

On the basis of different actions of ACE inhibitors we have performed the study to see the in vitro response of some commonly used ACE inhibitors on guinea pig's trachea. This in vitro study can provide us the basis for rational selection of an ACE inhibitor for patients with chronic obstructive airway disease.

CONCLUSION

Imidapril is found to cause least enhancement of contraction caused by bradykinin on tracheal muscle. Further clinical trials may be conducted to establish the differential effects of various clinically used ACE inhibitors on the respiratory passages in hypertensive patients concomitantly suffering from COAD.

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

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Original Article

Developmental Dysplasia of Hip

Management of Developmental Dysplasia of Hip in Older Children by Triple Procedure

Muhammad Ramzan Khan[1], Habibullah Khajak[2], Amanullah Khan Kakar[1] and Muhammad Saleeh Tareen[1]

ABSTRACT

Objective: To review the presentation and evaluate the radiographic and functional outcome of developmental dysplasia of hip (DDH) in older children treated by triple procedure surgery, consisted of open reduction, Salter Innominate Osteotomy (SIO), femoral shortening and derotation Osteotomy.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the BMC Hospital Quetta from January 2013 to December 2015.

Materials and Methods: We assess the efficacy and safety of underwent triple procedure treatment of DDH in older children. The study series comprising 22 patients (25 hips).Patients were classified pre-operatively according to the Tonnis Classification, and post-operative functional evaluation was performed using modified Mackay's scoring system, while radiographic assessment considered Severin scoring method.

Results: The average age at presentation was 5.60 years and the male to female ratio was 2:46 months. While the average follow-up were 16.4 months. The final outcome was successful in 19 hips (76%) in 16 patients. Patients younger than 5-6 years of age had a better radiological and clinical outcome as compared to older children. Although in the outcome of clinical and radiological assessment there were no significant different between group-I and group-II.

Conclusions: Late presentation of DDH is still common in Quetta, Balochistan, which necessitates Triple procedure operative management given frequent occurrences of best result in younger children. Early diagnosis and surgical interventions is therefore imperative in the successful treatment of patients suffering from DDH.

Key Words: Developmental Dysplasia of Hip, (DDH), open reduction, pelvic osteotomy, older children

Citation of article: Khan MR, Khajak H, Kakar AK, Tareen MS. Management of Developmental Dysplasia of Hip in Older Children by Triple Procedure. Med Forum 2016;27(10):72-75.

INTRODUCTION

The developmental Dysplasia of hip is relatively unusual in the developed world due to their well-functioning neonatal screening procedures[3]. However it is not uncommon to see an older child who has neglected and untreated DDH in our society as well as clinical practice. The Tertiary level Care and proper screening programmes are lacking in many parts of province and along the adjoining war-torn country of Afghanistan. Most of the patients from these areas are older children whose parents spend a lot of time and effort in gathering necessary resources to travel to any big hospital.

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Received: July 29, 2016; Accepted: September 08, 2016

The management of DDH varies with the age of patients. But principles of management of dislocated hip joint for an older child are quite different from that of a neonate. Whenever the patient enters walking age and beyond, treatment becomes problematic and controversial. This is because contractures of the capsule and musculotendinous structure surrounding the hip joint prevent reduction of the femoral head into the acetabulam, and may produce pressure on the femoral and head during or after reduction leading to Ischaemia. Those left untreated dysplastic changes lead to osteoarthritis in early adulthood. Many authors have reported success with a single surgical procedure consisting of open reduction, capsulorraphy, femoral shortening and pelvic osteotomy. The aim of study to evaluate the radiographic and functional achievement of triple procedure of open reduction, femoral shortening and Salter Innominate Osteotomy in 22 patient (25 hips) with delayed diagnosis of DDH who were managed at BMC Hospital Quetta.

MATERIALS AND METHODS

The study was carried out on Series of 25 Cases who underwent triple surgical procedure management for

DDH in older children between January 2013 and December 2015. The patient who were initially improper treated in another hospital also included. The study designed was retrospectively reviewed a total of 22 patient (25 hips) patients 13 (59%) were male 9 patients (40%) were female. 3 (13%) patients were bilateral dislocation.

The patients were distributed in to two groups according to the age at which they were operated: Group-I included 11 (44%) patients with aged between 4 years and 5 years, and group II, 14(56%) patients with aged between 5 years and 6 years.

The triple operative procedure consisted of open reduction Salter Innominate Osteotomy (SIO), femoral shortening and derotation osteotomy.

Clinical data assessment regarding pain symptoms, gait pattern (limping), range of hip joint motion, Limb Length Discrepancy (LLD) and status of Trendelenburg sign were recorded for each patient pre-operatively and on the latest follow-up using the modified McKay's Criteria. While the Tonnis classification system was used to assess the degree of dislocation of the femoral head. Radiographic evaluation included examination of pre-operative and follow-up plain radiographs to classify patients according to the Severin's grading system.

Avascular necrosis was assessed using the criteria of Kalamchi and Mac Even[9] and ace tabular index (AI13) and center-edge angle (CEA 17) based on most recent radiological system.

Surgical Technique: Patients were placed in supine position. The whole limb was included in the surgical field. The one stage triple procedure consisted of open reduction, Salter innominate osteotomy, femoral derotation, and shortening osteotomy. One of them was Smith-Peterson incision and the other was a lateral proximal femoral incision. We performed the soft tissue procedure according to the technique described by Salter in his first report[13]. Extending from the inferior to the posterosuperior aspect of the acetabulum, the capsule was incised in a T-shape, and a transverse incision along the femoral neck. He transverse acetabular ligament was divided. The anterior part of the capsule down to the femoral neck was excised togher with the hypertrophied ligamentum teres. The psoas tendon was detached near its incsertion. Pelvic osteotomy, psoas tendon was detached near its insertion. Pelvic osteotomy, psoas tendon release, femoral derotation, and shortening osteotomy were performed. In order to achieve a force-free reduction, femoral osteotomy was performed at the level of the subtrochanteric femur and the femur was shortened by 1 cm to 2 cm. in association with the shortening, the derotation of the femur was performed. The amount of correction of derotation or femoral shortening was decided intraoperatively under direct visualization. Varus position was not added to decrease the neck shaft angle. None of the femoral heads were fixed to the acetabulum by a Kirschner wire for maintenance of reduction.

Post-operatively, the hips were immobilized in a 1 ½ his spica for 6-8 weeks. This was changed to an abduction splint for a further 4 weeks during which time the hips were mobilized progressively under the guidance of a physiotherapist. Progressive walking and gradual range of motion exercises were advised. Krichner wires were removed after consolidation of the osteotomy site. Patients with bilateral dysplasia had the procedures on both hips at a mean interval of 5.3 months (range 5 to 8 months).

RESULTS

There were a total of 22 patients and a total of 25 hips reconstruct, 13 (52%) patients were female. The mean age of the patients at the time of operation was 6.84± 4.5 years, the mean follow up was 29.6±10 months. According to the modified Mckay Criteria, functional results were excellent at last follow up in 15 hips 60% good in 6 hips (24%) fair in 2 hips (8.0%) and poor in ships (8.0%).

In Group-I clinical results were excellent in 11 hips (44%) and good in 4 hips (16%) in Group-II clinical results were excellent in 6 (24%) good in 4 hips (16%). However in group I and II yielded satisfactory results clinically, there was no significant difference between Group-I and Group-II according to Mckay's clinical criteria at final follow-up (P>0.06).

Radiological results were excellent in 14 hips (56%), good in 7 hips (28%) fair in 3 (12%) poor in 1 (4%).

AVN was detected in 2 cases (8%) during follow-up in Group-I, no AVN was detected, in Group-II AVN detected in two hips (8%), one of them had grade-I and one Grade-II. No patient with AVN had subsequent surgery. Limb length discrepancy of less than 1.5cm was found in 3 cases, without need for further surgical intervention till the last follow up.

There was no significant difference between group-I and group-II according to the evaluation Scheme of Trevor et al[16] at final follow up (P>0.05).

There were no other complications such as infection or graft displacement.

At the end of the study there were 17 hips (68%) in excellent condition, 5 hips (20%) in good conditions, and 3 hips (12%) in poor condition.

Table No.1: Clinical assessment results

Grade	Group-1 11 hips	Group-II 14 Hips	Total 25 hips	%
Excellent	7	9	16	64%
Good	2	3	5	20%
Fair	1	2	3	12%
Poor	1	0	1	4%

Table No.2: Radiological assessment results

Grade	Group-1 16 hips	Group-II 9 Hips	Total 25 hips	%
Excellent	9	5	14	56%
Good	5	2	7	28%
Fair	2	1	3	12%
Poor	0	1	1	4%

Table No.3: AVN Results

Grade	AVN Cases		Incidence of AVN (%)
	Grade – I	Grade – II	
Group-I(16 hips)	0	0	0%
Group-II (9 hips)	1	1	22.3%

DISCUSSION

The aim of treatment of DDH in older children is to obtain concentric and stable reduction without complications such as AVN[5]. Reduction must be obtained, redislocation must be prevented, and optimum relationship between acetabulam and femoral head must be protected[1]. If concentric reduction is obtained, acetabular dysplasia can improve in time[5].

The triple procedure surgery has advantages that include reducing the risk of AVN of the femoral head while correcting associated femoral and acetabular deformities. The Saltar Osteotomy provides anterolateral coverage of femoral head that allows the acetabulam to develop and the hip joint to stabilize. The best-time to perform an osteotomy of the acetabulam for DDH is older children is however still a concern[11,12]. Several authors suggested a triple procedure consisting of open reduction, pelvic osteotomy and femoral osteotomy[1,2,7,10,11], particularly in children older than three years of age. Ganger R, Radler et al[5] reported a series of 33 DDH in patients older than two years of age who were treated with a one-stage open reduction, femoral shortening, and pelvic ostestomy. The found satisfactory results clinically in 85% of hips and radiographically in 75%. Salter and Dubos[13] showed 93.6% good to excellent results in children younger age group. Karakas et al[7] operated on 47 patients (55 hips) who were 4 years and more with 67% good or excellent clinical results and 65% good or excellent radiological results.

Saleh et al demonstrated that the acetabulum remodels quickly after the Salter innominate osteotomy in a range of age groups. The lower limit of surgical timing is still under debate.

The advantages of immediate acetabular alignment include the probability that stability will be enhanced if a careful capsulorrhaphy is carried out after the open reduction, and that later surgery will be avoided.

Ehan Ahmed et al[3] reported that open reduction combined with Salter osteotomy does no impede the acetabular remodeling of the hip in older children.

AVN is the most important complication seen during treatment of DDH, Particularly in a higher grade of dislocation combined with an inverted limbus, hypertrophic soft tissue in the acetabulum and older age of the patient at treatment onset, AVN of the femoral head is more often occur[6] Kalamachietal reported a rate of AVN of 9.0%, El-Sayed[6] reported 4.2%.

Some studies show that femoral shortening can facilitate reduction and reduce the risk of AVN[8,9].

Demirhan et al[2] operated 33 hips in 24 patients. AVN was observed in 10 patients (30%) and 4 (12%) cases underwent secondary interventions. They found a significantly lower incidence of AVN in patients whose treatment was started by Triple procedure treated at a relatively older age. Ehan et al[3] reported that in patients with DDH who underwent an operation in older children, the risk of developing AVN was relatively low. In our study, AVN was detected in 2 cases.

Our study support that complications are limited and could be avoided if care is given to the technical details. This entails a generous clear exposure of the hip and upper femur. Performing adequate femoral shortening, with correctly estimated derotation allowing the femoral head to be easily reduced into the well-reconstructed acetabulum, preventing undue pressure exerted over the head.

The authors found no method to determine the specific reason for the fact that clinical results were statistically different between the age groups, but that the radiological findings showed no significant difference.

The mean period of follow up in this study ranged from 3-6.8 years, which is not a long enough period for evolving osteoarthritic changes to show up in young patients. Prospective randomized controlled trials with larger sample sizes are needed to support our findings.

Our clinical results were not as good as those noted by other authors, especially the variation in the clinical outcome in older children.

There was a significant difference between the group less than 4 years and the group older than 4 years of age according to the evaluation scheme of Trevor at final follow-up.

Therefore, we believe that a one stage Triple procedure reduction, femoral shortening, capsulorrhaphy, and pelvic osteotomy corrects associated femoral and acetabular deformities is convenient and effective in children older. This operation improves the cover of the femoral head and provide stability in the weight-bearing position. This procedure can be done safety, with reliable results and without an increase in the risk of avascular necrosis.

CONCLUSION

Late presentation of DDH is still common in developing countries. This problem necessitates more complicated management and a larger economic burden on the community. So in our experience in BMCH Quetta we recommend the triple procedure surgery, a combination of open reduction with femoral pelvic

osteotomy for treatment of DDH in older children gives good results and the qualitative merits of this methods with become evident with its more application in future. The triple procedure methods for DDH in older children have undergone historical evolution remaining the treatment of choice worldwide.

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

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contact number and email address

Original Article

Team Characteristics on its Performance in Hospitals

"Impact of Team Characteristics on Team Performance" (Hospitals of Lahore Pakistan)

Muhammad Usman Siddqiue[1], Fariha Naqvi[2], Mehwish Jamil[3], Bina Nazir[3], Muhammad Aftab[3] and Attique-urRehman[4]

ABSTRACT

Objective: The main objective of the study to find out the relationship between team behaviors characteristics and team performance. This article is helpful to explore the relationship between team behavior, characteristics and performance of the in terms of role clarity, openness to change, goal motivation and cohesion.

Study Design: Observational / descriptive / cross sectional study

Place and Duration of Study: This study was conducted in Global Institute (CFE Campus) Lahore from January 2015 to July 2015.

Materials and Methods: Samples were collected from the medical directors of public and private hospitals of Lahore. Questionnaire was conducted in the form of closed ended question. Survey was conducted from June. During the survey, overall 35 questionnaires were distributed. Participant responded the questionnaire on scale of 1 to 5.

Results: The overall adjusted R-square is (0.739) its mean that the team performance is 73.9% depends upon these factor in this research we also analysis the factor individually. Cohesion is only variable that contributes only (0.100) 10%, Role Clarity (0.421) 42.1%, Goal Motivation (0.403) 40.3% and openness to change is (0.264)26.4% respectively. All the variables are highly significant other than cohesion.

Conclusion: Medical Directors of Public & Private Hospitals are agreed with the statement regarding team performance, role clarity, goal motivation, openness to change.

Key Words: Team Performance, role clarity, openness to change, goal motivation and cohesion

Citation of article: Siddqiue MU, Naqvi F, Jamil M, Nazir B, Aftab M, Rehman A. "Impact of Team Characteristics on Team Performance" (Hospitals of Lahore Pakistan). Med Forum 2016;27(10):76-80.

INTRODUCTION

Strategies are the backbone to operate the organization because it clearly create the road map how to work. Organization function work together to achieve its goals and these functions are operated by the group of people who work together to get things going. These people work in group to achieve its goals that is why a good team will last you a good result. Both the factor are responsible for the success of a team one is internal factor and other is external factor.[1] Every team have some characteristics which are responsible for their success some times its norms and sometime its cultural implication which lead them not to perform their work but if a person need to grow they should know that the effectiveness will come when they work as a team.[1, 2]

A decade ago it was consider that the individual can work more efficiently and effectively because of their capabilities, but now a days the team approach were more effective in working environment than a single man approach. Now a days the world is becoming globalized and due to technologya team can be perform regardless of country specification. According to Beckman (1972) there are four areas which make the team more effective in today's world these four characteristics are consider to be the main roles in the team.[1, 2, 4]

In this study we are exploring the relationship between team characteristics (behavioral perspective) impact on hospital performance. Team out comes will be achieve by the help of every team member. Team work increase the synergy effect which helps the team to complete its work.[4, 5] In Pakistan the team characteristics in a behavioral perspective were not investigated that is why this paper will help the research empirically that how team will performance will affect the hospital outcomes. The RBV (Resource Base View) also support the theoretical model because it deals with the internal resources of the organization. The main

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Received: April 30, 2016; Accepted: August 30, 2016

features are role clarity, goal motivation, cohesion and openness to change.[2, 3, 4]

According to Hackman (1990) they investigated that the group decision makes a positive impact on hospital performance they also empirically investigate that leadership style , cohesiveness and coordination were play a part in the hospital overall performance.[5,6]

According to Levine & Moreland (1990) they gave us the model which shows group effectiveness and group structure useful for performance evalution.[5] another author Cohen & Ledford (1994) empirically test the twelve features which comprises of some behavioral characteristics which included that all the group or team member clearly know what's their role in this group , they know they have to contribute , two way of communication will increase the effectiveness , Leadership role should be clear, motivation level must be high, synergy effect reduces the workloads[7].

According to Anderson &Sleap(2004) empirically drive that the responsibilities and authorities clearly define in a team otherwise the desire goals can't be achieved[8].

MATERIALS AND METHODS

Many researcher empirically work on these variables which includes the team characteristics (behavioral perspective) which shows the director relationship between them but in the context of healthcare sector it was not investigated. Peoples are different from each other they have different thoughts and have different style of doing work that is why conflict arise. In organization different people came from different background and they all have to work for their organization because the common goal of all the employee is the growth of that organization where they work but due to different personality characteristics it's very difficult to manage all the people at one place. If all the works are correlated with each other and they have some common characteristics that they work with more motivation and the task will be completed before time.[10, 11]

It is understood that if you hire a right person for a right job than the individual performance will increase and if the performance of an individual increase it increase the team performance in which this person is working. It's very difficult to build a team which have all the characteristics because of the behavior of individual some person carries the dominant behavior some carries compromising behavior.[12]

Time resolve all the matters, when developing the team it is necessary to give them a little time to know each other if there is a conflict between them it is only resolve by passage of time and the collective approach by each member of the team. If they resolve the problem with in the team then they show you the most achieving targets as by the time passing by[13].

Previous researcher investigated that behaviors characteristics are very critical and different organization have different behavioral features. In developed countries team characteristics are the basic factor discuss while making the team because its outcomes will affect the hospital performance[17] we may call cohesiveness as a positive group member who work positively and it is linked with the hospital performance. It is empirically prove that the performance and cohesion have a relationship.[16, 17.] Group cohesion and group performance is also investigated in pervious studies[19,21].

Theoretical Framework:

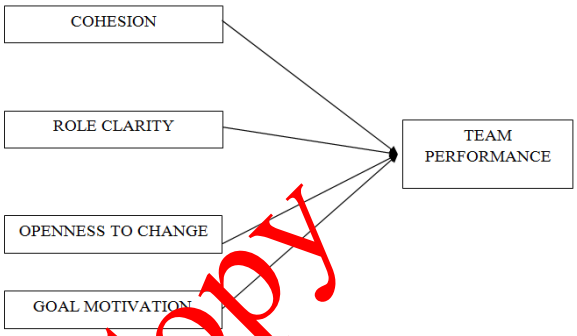

Figure No.1: Dependent & Independent Variables

Hypothesis: H0=Evaluation of team performance on the basis of team characteristics is possible.

H1=Evaluation of team performance on the basis of team characteristics is not possible

In this paper the dependent and independent variables relationship will be checked the dependent variables is team performance and the independent variables are openness to change, role clarity, cohesiveness and goal motivation in the hospital sector of Lahore Pakistan. Questionnaire as a data instrument and cross sectional method is used for this study.

RESULTS

Table No.1: List of the Hospitals - Hospitals Details

		Frequency	%age	Valid %age	Cumulative %age
Valid	Services Hospital	10	28.6	29.4	29.4
	Jinnah Hospital	2	5.7	5.9	35.3
	Sheikh Zaid Hospital	2	5.7	5.9	41.2
	Hijaz Hospital	6	17.1	17.6	58.8
	Farooq Hospital	6	17.1	17.6	76.5
	Sadan Hospital	8	22.9	23.5	100.0
	Total	34	97.1	100.0	
Missing	System	1	2.9		
Total		35	100.0		

Before analyzing the data the normality of data is checked. The reliability value is 0.746 which is almost equal to 75% that shows the data is highly reliable. The questionnaire consist of 26 items adapted from the article siok sim agatha heng"[20]

In this study the questionnaire were distributed to different medical directors through convenient sampling. Total six hospitals were contacted and questionnaire was given to 34 medical directors. The above table summarizes the number of medical directors contacted in each hospital. The highest frequency of the medical director is from Services Hospital as seen in the table.

Table No.2: Summary of correlation of variables

Correlations (n=34)					
Details	Cohesion	Role Clarity	Goal Motivation	Openness to Change	Team Performance
Cohesion	1 34				
Role Clarity	-0.1723 Sig= 0.3321	1 34			
Goal Motivation	0.4573** Sig= .0071	0.1897 Sig= .2845	1 34		
Openness to Change	0.1544 Sig= .3842	0.3591* Sig= .037	0.4612** Sig= .0061	1 34	
Team Performance	0.3165 Sig= .697	0.6491** Sig= 0.0	0.6357** Sig= 0.0	0.514** Sig= 0.0	1 34

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table No. 3: Model Summary

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.859a	0.739	0.7032	0.27965		
a. predictor: (constant), Openness to change ,Cohesion, Role Clarity , Goal Motivation						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.316a	0.1	0.0723	0.4941		
a. predictor: (constant),Cohesion						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.649a	0.421	0.403	0.39621		
a. predictor: (constant),Role Clarity						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.635a	0.403	0.3845	0.40236		
a. predictor: (constant),Goal Motivation						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.514a	0.264	`.2416	0.44665		
a. predictor: (constant),Openness to change						
Anova[b]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.866	1	0.866	3.548	.0691a
	Residual	7.813	32	0.244		
	Total	8.679	33			
a. Predictor : Constant Cohesion						
b. Dependent Variable : Team Performance						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.655	1	3.655	23.29	.0000b
	Residual	5.023	32	0.157		
	Total	8.679	33			
a. Predictor : Constant :Role Clarity						
b. Dependent Variable : Team Performance						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.498	1	3.498	21.61	.0000a
	Residual	50181	32	0.162		
	Total	8.679	33			
a. Predictor : Constant : Goal Motivation						
b. Dependent Variable : Team Performance						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.295	1	2.295	11.5	0.0021a

	Residual	6.384	32	0.199	
	Total	8.679	33		
a. Predictor : Constant : Openness to change					
b. Dependent Variable : Team Performance					

Table No.4: Coefficient

			Coefficients[a]			
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	2.6341	0.7331		3.594	0.001
	Cohesion	0.3801	0.2021	0.316	1.884	0.069
a. Dependent Variable : Team Performance						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
2	(Constant)	1.0672	0.6132		1.74	0.091
	Role Clarity	0.7322	0.1522	0.649	4.826	.000
a. Dependent Variable : Team Performance						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
3	(Constant)	1.7433	0.4923		3.546	0.001
	Goal Motivation	0.6133	0.1323	0.635	4.648	.000
a. Dependent Variable : Team Performance						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
4	(Constant)	1.7584	0.6674		2.636	0.013
	Openness to Change	0.5914	0.1744	0.514	3.392	0.02
a. Dependent Variable : Team Performance						

The Table 4 analyses are given below:

All the models show the constant variable in regression line are 2.6341, 1.0672, 1.7433 and 1.7584 respectively and the change variables values are cohesion (0.3801), role clarity (0.7322), goal motivation (0.6133) and openness to change (0.5914).

Table 2 shows the relationship between the dependent and independent variables, Team performance is significant with openness to change, goal motivation & role clarity and the cohesion value is more than 0.05 its mean that it is not correlated with the team performance.

Adjusted R square tells us the strength of the model over all the value is 0.702 which means a strong relation exist between the variables in other words we can say 70% of the dependence is due to these variables "goal motivation, role clarity, openness to change and cohesion".

If we divide these variables one by one we found that cohesion (7%), role clarity (40%), goal motivation (38%) and openness to change (24%) of the change in team performance is attributed by these variables individually. Anova value show the significant values which shows us the correlation of variables. If the value is less than 0.05 its mean it's correlated with each other if greater than this its mean that correlation not exist between the variables. In this study the significant value of role clarity, goal motivation and openness to change are 0.00, 0.00, and 0.0021 respectively these values are less than 0-05 its mean they all are significant to team performance. Only cohesion value is 0.0692 which is greater than 0.05 which mean they are not significant to team performance.

DISCUSSION

Previous research support the relationship between the independent and dependent variables used in this study. After the empirically test we came to know that our three variables (role clarity, openness to change and goal motivation) got support from the analysis perform in this study only the cohesion is not found significant and we may suggest that this variables can't support the team performance. Other than these variables there are many other variables that support the firm performance due to lack of resources and time constrains we can't take the more variables but as the result support us the future direction should be more on other variables to check the team characteristics.

CONCLUSION

After the finding of this empirical paper we came to know that the team behavioral characteristics play a

vital role in the team performance but it also depends upon the leadership style of the leader. It is understood that time will creates the harmony with the team members and they know about the capabilities of the group members so they adjust them self in such a way that there exist a relationship between we can't measure that relationship because of the integration of work between the team members. Pakistan is a developing country so we need to support each other to gain a competitive edge in terms of empirical research this research is a baby step towards the development of research atmosphere in the country.

In any country the healthcare sector of Pakistan is one of the most important area to be develop so that research help the future researcher to explore more option in terms of cognitive development of team characteristics and the impact of these behavioral approach and cognitive approach which lead us towards the healthcare development or firm performance.

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

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Original Article

Anemia in Rheumatoid Arthritis Patients

Frequency of Anemia in Rheumatoid Arthritis Patients Presenting in Various Hospitals of Peshawar, Khyber Pakhtunkhwa

Nizamuddin[1], Soheb Rehman[2], Muhammad Aslam Qamar[3], Muhammad Riaz[1] and Fazal Reheem[1]

ABSTRACT

Objective: Anemia is a chronic complication of rheumatoid arthritis that is produced by a number of causes.Very little interest in research is shown in this field by researchers both nationally and internationally. The main objective of the study was to determine the frequency of anemia in rheumatoid arthritis patients.

Study Design: Descriptive, cross sectional study.

Place and Duration of study: This study was conducted at the Hayatabad Medical Complex (HMC), Rehman Medical Institute (RMI) and Khushal Medical Center, Peshawar, from April 2015 to March 2016.

Materials and Methods: Two hundred and thirty patients with rheumatoid arthritis visiting medical outdoor clinics in different hospitals of Peshawar were enrolled from April 2015 to March 2016. Detailed history was taken and clinical examination was performed. After taking consent, diagnosis of anemia was made by performing peripheral smear tests using digital sysmex XT-4000i hematology analyzer. The identity of patients was kept confidential. The demographic informations such as name, age and gender were recorded.

Results: Among 230 patients, with mean age of 50 years, male-female ratio was 30%(n=70) and70%(n=160) respectively. Anemia was diagnosed in 26%(n=60) patients, while 74%(n=170) patients had no anemia among the study group. Out of 60 patients with anemia, 30%(n=18) patients were male and 70%(n=42) patients were female. Anemia association with the duration of rheumatoid arthritis was analyzed, which shows that anemia increases as duration of rheumatoid arthritis increases

Conclusion: It is concluded from the study that rheumatoid arthritis is a chronic disorder affecting multiple organs of the body and anemia is a well-known significant complication of rheumatoid arthritis as shown by the results of this study.

Key Words: Rheumatoid arthritis, anemia, hematology analyzer

Citation of article: Nizamuddin, Rehman S, Qamar MA, Riaz M, Reheem F. Frequency of Anemia in Rheumatoid Arthritis patients Presenting in Various Hospitals of Peshawar, Khyber Pakhtunkhwa. Med Forum 2016;27(10):81-84.

INTRODUCTION

Rheumatoid arthritis is a chronic autoimmune disorder, affecting almost every organ system of the body and need lifelong treatment. Both the disease and its treatment have got significant hematological complications, "including anemia, leukopenia and thrombocytopenia". There are multiple causes of anemia in patients with rheumatoid arthritis including "anemia due to inflammatory mediators, anemia of chronic disorder, macrocytic anemia due to methotrexate and other anti-rheumatic drugs, anemia due to gastro-intestinal bleeding as adverse effect of painkiller and steroids, anemia due to renal involvement and anemia due to poor appetite"[1,2]. There are a number of inflammatory cytokines including interleukin-10, ilterleukin-1B and interleukin-6 (IL-6), which have profound effect on iron metabolism and development of anemia in rheumatoid arthritis"[3,4,5].They facilitate "production of hepcidine, which is a peptide produced by liver leading to disturbed metabolism of iron via ferroportin and anemia of chronic inflammatory disease". That is why "treatment of rheumatoid arthritis by targeting cytokines improves hematological picture of the patients"[3,4].It has been observed that anemia is a significant hematological complication of rheumatoid arthritis. However, no research data are available in Pakistan regarding this association. Keeping in mind this important association, this study was conducted to determine the association of anemia with rheumatoid arthritis, so that physicians can anticipate anemia earlyand enhance patient care by supplementing iron

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Received: June 26, 2016; Accepted: July 30, 2016

and targeting the possible cause. Considering "anemia as important complication of rheumatoid arthritis can reduce morbidity, functional disability and disease related other complications"[6].

MATERIALS AND METHODS

This study was conducted in Hayatabad Medical Complex (HMC), Rehman Medical Institute (RMI) and Khushal Medical Center, Peshawar, from April 2015 to March 2016. Two hundred and thirty patients were selected by non-probability consecutive sampling, having rheumatoid arthritis for a minimum of 5 years with age of ≥20 years, comprising 30% male and 70% female patients. All those patients who had bleeding disorder, history of major gut and stomach surgery, concomitant other major chronic disease like diabetes mellitus and chronic renal failure were excluded from the study. The patients with hematological and solid organ malignancy were excluded from the study. The descriptive- cross sectional design was used in the study.

Data Collection: The patients with rheumatoid arthritis, visiting outdoor clinics of different public and private hospitals of Peshawar fulfilling the inclusion criteria were enrolled in the study in a consecutive manner. Ethical committee approval was obtained. Informed consent was taken from the subjects for undergoing peripheral smear test. Patient's identity was kept confidential and risk and benefits of the study were explained to the subjects. The demographic information of the subjects such as name, age and gender were recorded. Peripheral smear tests were performed using digital sysmex XT-4000i hematology analyzer. All patients with hemoglobin (Hb) recorded as <12gm/dL in case of males and< 11gm/dL in case of females were labeled as having anemia. All collected information was recorded on pre-designed performa.

Data Analysis: Data were entered and analyzed by using SPSS version 17.0 statistical program. The data were expressed as mean and presented in a tabulated form.

RESULTS

Out of 230 studied patients, 30 %(n=70) were males and 70 %(n=160) were females, with mean age of 50±1.26 years. Age distribution among 230 patients was analyzed as n=18(8%) patients were in age group of20-30 years, n=35(15%) patients were in age group of 31-40 years, n=92(40%) patients were in age group of 41-50 years, n=69(30%) patients were in age group of 51-60 years and n=16(7%) patients were above 61 years of age as shown in Table No. 1.

Status of anemia among 230 patients was analyzed as n=170(74%) patients with normal Hb, while in n=60 (26%) patients, Hb was below normal level, as<12gm/dL(in case of males) and <11gm/dL(in case of females) as shown in Table No. 2.

Mean duration of rheumatoid arthritis among the study populationwas 11 years with standard deviation of ± 2.14.

Age groups of rheumatoid arthritis patient having confirmed anemia were further analyzed as shown in Table No. 3. Among 60 patients with anemia, n=01 patient was in age range of 20-30 years, n=03 patients were in age range of 31-40 years, n=28 patients were in age range of 41-50 years, n=20 patients were in age range of 51-60 years, and n= 08 patients were in age range of >61 years.

Table No.1: Age distribution of study population

Age	Frequency	Percentage
20-30 Years	18	8%
31-40 Years	35	15%
41-50 Years	92	40%
51-60 Years	69	30%
> 61 Years	16	7%
Total	**230**	**100%**

Table No.2: Anemia distribution in study population

Hemoglobin ratio	Frequency	Percentage
Normal range	170	74%
Anemia range	60	26%
Total	**230**	**100%**

Table No.3: Association of anemia with different age groups

Anemia presence	20-30 Years	31-40 Years	41-50 Years	51-60 Years	>61 years	Total
Yes	01	03	28	20	08	60
No	17	32	64	49	08	170
Total	18	35	92	69	16	230
p-value						**0.002**

Table No.4: Association of anemia with duration of rheumatoid arthritis

Presence of Anemia	Duration of rheumatoid arthritis			Total
	5-15 Years	16-25 Years	>25 Years	
Yes	25	23	12	60
No	115	53	02	170
Total	**140**	**76**	**14**	230
p-value				**0.003**

Table No.5: Anemia Distribution in different sex groups

Sex groups	Frequency	Percentage
Male (i.e. Hb<12 mg/dL)	18	30%
Female (i.e. Hb<11 mg/dL)	42	70%
Total	**60**	**100%**

Anemia association with the duration of rheumatoid arthritis was analyzed, which shows that anemia

increases as duration of rheumatoid arthritis increases (Table No. 4).

Among 60 patients with anemia and rheumatoid arthritis, n=18(30%) patients observed were males and n= 42(70%) were females (Table No. 5).

DISCUSSION

Anemia in rheumatoid arthritis has attracted growing interest as a potential complication of this chronic inflammatory disease. Many cross sectional studies, conducted on this topic have consistently shown that "all adults especially female with rheumatoid arthritis have some level of iron deficiency than their normal counterparts and significant number of these patients develop frank anemia of sometype"[7].

In our present study, 26% patients had frank anemia, while the rest 74% had Hb levels less than normal individuals, but was not falling in the defined range for anemiawhichwasclose to the study results of Wolfe and Santen, who found that anemia was present in31.5% and 37.7% patients respectively[8,9]. There is another community- based study conducted on adultpatients with rheumatoid arthritis by Agrawal S. et al,2006, and it was found that rheumatoid arthritis caused anemia up to some level in more than 70% of patients. Iron replacement and treatment of the underlying disease can prevent this complication of rheumatoid arthritis[10].In another study conducted by Yildirim K et al.2004, showing that "severity of anemia is also related with the disease activity which can be measured by Disease Activity Score 28 (DAS 28). The more is the DAS 28score and raised level of ESR and CRP, the more severe is the anemia and thus showing very good response to the treatment of underlying disease"[11].There is another study conducted by Han et al., which shows "that more severe anemia at baseline was associated with more severe physical disability and thus increase of Hb with treatment was an independent predictor of improvement in physical function of the patient" [12]. Going into detailed research revive and advanced study, it was found that although the underlying mechanism relatedto pathogenesis of anemia in rheumatoid arthritis is multi factorial and still needs confirmation, but it also became clear"that each patient with rheumatoid arthritis has different single or multiple mechanisms for the development of anemia"[13].Various studies suggest several possible mechanisms for the development of anemia in rheumatoid arthritis. The causative mechanism include;

1. Disturbed iron metabolism due to IL-6, IL10 and other cytokines.
2. Anemia of chronic disease.
3. Poor intake of iron and diet due to loss of appetite, chronic disease and depressed mood in these patients.
4. Loss of iron due to bleeding peptic ulcer as a complication of steroids, NSAIDs and anti-rheumatic drugs[14].
5. Anemia due to renal involvement in rheumatoid arthritis and deficiency of erythropoietin.
6. Megaloblastic anemia as a complication of direct anti-rheumatic drugs like methotrexate.

There are some limitations of present study including, hospital-based population, cross-sectional study design, lack of data on potential confounders and poor addressing of different inflammatory markers that can potentially decrease precision of our estimates. Finally, the prevalence of anemia in rheumatoid arthritis especially in female patients leaves concern about the possibility of confounding, as number of parity and socioeconomic background may have impact on the development of iron deficiency in these patients. The strength of our study can be improved by using "multivariate study analysis, taking into account the potential confounders by using logistic regression and using a case control study design for comparing type of anemia nature in rheumatoid patientswith anemia in normal population". All these findings make it clear that "anemia should be considered as a potential complication of rheumatoid arthritis and every patient with rheumatoid arthritis must be treated for anemia to improve this/her physical functionality". However, the clinical relevance of these findings, in terms of the development of anemia has yet to be precisely ascertained.

CONCLUSION

Rheumatoid arthritis is a chronic inflammatory disorder affecting almost every organ of the body and anemia is a known significant complication of this disease. Further study is suggested, both at national and international levels to explore this problem, designtools for early diagnosis and proper treatment to decrease the suffering of the patients.

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

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Original Article

A Study of Hygienic Practices in Secondary Level Students of the Quetta City

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ABSTRACT

Objective: To investigate the standards of personal hygiene in secondary level students.
Study Design: Observational / descriptive / cross sectional study
Place and duration of study: This study was conducted at Government Sardar Essa Khan Girls High School, Quetta from July 2014 to December 2014.
Materials and Methods: The study was conducted on grade 7th & 8th students of Government Girls High School Quetta with the help of questionnaire. Health status of students was also examined by performing physical examination.
Results: Amongst the target population 40.31% students were 11 to 13 years old, 57.65% were 13-16 years old while 2.04% students belonged to the 16.1 to 19 age group. Parents of the majority of the participants were literate. Family income of 52.65% students was above Rs. 15000/month. All the students had closed sewage system and community water supply in their houses. More than 80% of students were found neat, clean and healthy according to the criteria of health score designed for this study.
Conclusion: This study indicates satisfactory personal hygienic conditions among target students but still there was a room for improvement. However, awareness campaigns should be conducted in schools to increase understanding about good hygiene practices.

Key Words: Hygiene Practices, Personal Hygiene, Hand Washing, Oral Hygiene, Sanitation

Citation of article: Vehra S, Qureshi EMA, Hussain R. A Study of Hygienic Practices in Secondary Level Students of the Quetta City. Med Forum 2016;27(10):85-88.

INTRODUCTION

Personal Hygiene is taking care of one's own self in terms of cleanliness and is related to an individual's adjustment to the physiological needs of the body and helps in attainment of the maximum level of health. Personal hygiene involves practices that promote mental, emotional, and physical health as well as the social well-being of the individual[1].
Sanitation is hygienic means of promoting health through prevention of human contact with wastes. Motivations for personal hygiene practice include reduction of personal illness, healing from personal illness, optimal health and sense of well-being, social acceptance and prevention of spread of illness to others. Good Hygiene practices (such as hand washing and oral hygiene) need to be followed to get best results. Good personal hygiene can make individuals less likely to become sick. Self-care is the first step to personal hygiene and maintains sound health while proper personal hygiene can be culture-specific and may change over time. Other practices which are generally considered in acquiring proper hygiene include bathing and washing hands regularly especially before handling food. Washing scalp hair, wearing clean clothing, brushing one's teeth, trimming finger nails regularly, are some other practices which are considered necessary for promoting health. These practices can be more effective if they are followed in daily life routine. Maintenance of hygienic conditions in home and everyday life settings plays an important part in preventing spread of infectious diseases[2]. Main sources of contamination in homes are hands, as germs are transmitted through handling of food and contaminated surfaces like dirty cloths and utensils [3]. Safe disposal of human waste is a fundamental need as poor sanitation is a primary cause of diarrheal diseases, especially in low income communities.

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Received: June 26, 2016; Accepted: July 30, 2016

MATERIALS AND METHODS

An observational / descriptive / cross-sectional study was conducted in Government Sardar Essa Khan Girls High School, Quetta from July 2014 to December 2014. This school is situated in Hazara Housing Society on an area of 31,625 sq. feet. The total number of students

was 1056 out of which 521 were enrolled in primary level whereas 535 were in secondary and high level. There were 4 toilets for students, 2 for teachers and 1 for peon. There were 3 electric water purifiers. In addition there were also large sized water storage coolers in every class which were filled with water every morning by peons of the school.

Sample size: All students (196), enrolled in class 7 & 8 were included in the study.

Data collection Tool: Semi structured Questionnaire was used to collect data from students. It was distributed among the students after the salient features were explained to them. After completion of the questionnaires, all the students were examined physically by the interviewer.

Statistical analysis: Data was entered in EPI-INFO 6 program and was analyzed with same statistical package. Chi square test was used to find out the p value.

RESULTS

A total of 196 students of class 7th & 8th were included in this study. 79 students (40.31%) of students were 11-13 years old whereas 113 (57.65%) students were 13.1-16 years and 4 students (2.04%) were 16.1-19 years of age. More mothers were illiterate than fathers and is evident from the finding that a total of 51 (26.02%) fathers were illiterate as compared to mothers (85 in number) whoes illiteracy rate was 43.37%. The literacy rate in fathers ranging from matric to graduation was more as compared to mothers. About 119 students (60.71%) were living in nuclear type family; whereas 77 (39.29%) students lived in joint family system.

Table No.1: Frequency Distribution of living conditions of student's houses

Variables		Frequency	%age
Water Supply	Tube Well	196	100%
	Others	0	0%
Toilet	Closed Sewage	196	100%
	Conservancy	0	0%
	Others	0	0%
House Type	Bricks	124	73.26%
	Mixed- bricks and mud	72	36.74%
Crowding Index	2-4	115	58.67%
	5-7	62	31.63%
	8-10	19	9.70%

As far as family size of students was concerned, 66 (33.67%) had family size of 3-6 people, 105 (53.57%) had 7-10 people, 12(6.12%) had 8-14 people, 6(3.07%) had 15-17 and 7(3.57%) had 18-22 people. Regarding family income, 21(10.71%) had a monthly family earning of more than Rs 8000, 72(36.73%) students had family income of Rs 8001-15000/month, 45(22.96%) students had Rs 15001-22000 family income whereas 58 (29.60%) students had Rs 22001-50000 family income per month. All the students had closed sewage toilets and tube well water supply in their homes (Table 1).

Table 2: Frequency Distribution of student's personal hygiene practices

Sr. No.	Variables	Description	Frequency	%age
1.	Clothing	Clean	171	87.24%
		Dirty	25	12.76%
2.	Hands	Clean	150	76.53%
		Dirty	46	23.47%
3.	Nails	Cut & Trimmed	134	68.37%
		Uncut & Untrimmed	62	31.63%
4.	Face	Clean	164	83.67%
		Dirty	32	16.33%
5.	Hair	Clean	164	83.67%
		Dirty	32	16.33%
		Combed	168	85.71%
		Uncombed	28	14.29%
6.	Teeth	No Caries	141	71.90%
		Caries	55	28.10%
	Gums	Healthy	147	75%
		Unhealthy	49	25%
	Breath Smell	No	153	78.10%
		Yes	43	21.90%

Table No.3: Relationship between Socio Demographic Characteristics of students with habits of Brushing Teeth

Characteristics	Daily brushing teeth Once (88)	Twice (108)	Total	Chi square χ^2	P value
Age					
11-13	29	50	79	3.59	0.05
14 and above	59	58	117		
Family Size					
3-6	19	47	66	16.0	<0.001
7-10	61	44	105		
>10	08	17	25		
Family Type					
Nuclear	67	52	119	15.92	<0.001
Extended	21	56	77		
Mother's Education					
Illiterate	39	36	75	4.18	0.12
Under Matric	35	43	78		
Matric and above	14	29	43		
Family Income (Rs)					
Less than 8000	11	10	21	29.15	<0.001
8000-15000	49	23	72		
>15000	28	75	103		
Crowding Index					
2-4	23	83	106	53.21	<0.001
5-7	41	21	62		
8-10	24	04	28		

Most of the students bathed daily, brushed their teeth twice a day and had sleep of an approximately 8 hours/day as shown in Table 2. Relationship between Socio Demographic Characteristics with Brushing Teeth is shown Table 3.

DISCUSSION

Teaching the basics of proper personal hygiene is important for keeping children healthy and clean. It is especially important for school children to practice good hygiene, particularly hand washing because they spend lot of their time being in close contact with each other in the classroom, sharing everything from food, drinks to desks and chairs, so the chances of germ transmission from one person to other is also high. Education of parents plays a significant role in grooming of their children. It was observed that children of literate parents were well aware of personal hygienic practices. Moreover, family income had an important impact on living standards.

On the basis of physical examination of children, score was assigned to each category of hygiene practice, being followed by students. Following rating for health status was given to students:

- 1---3 Poor
- 4---6 Average
- 7---9 Good

Cleanliness of clothing is not only of aesthetic importance, but also provides a hygienic barrier, limiting transmission of germs and harmful radiations. In this study students (87.24%) were observed to be wearing clean and tidy uniforms and this habit is included in good category practice.

Physical examination of gums, caries of teeth and smell of breath revealed that 70-78% students in this study had normal gums, no caries of teeth and no smell in their breath. Similarly nails were clean and cut (trimmed) in more than 70% of students. In comparison, about 78 % of Americans have at least one cavity by age 17 [4] and about 80% of the U.S. population has some form of periodontal gum disease[5].

Hand washing plays a pivotal role in disease prevention. The present study showed that more than 70% students had a habit of washing hands with soap and water after using toilet while only small number (23.74%) washed their hands with water only. In comparison, a study conducted by UNICEF in 2012 reported that globally 34 % of the people wash their hands with soap[6]. Similarly, a study conducted by the Global Public–Private Partnership for Hand Washing (PPPHW) which included several sub-Saharan African countries (Kenya, Senegal, Tanzania, and Uganda) reported that 17% of participants washed their hands with soap after using the toilet, while 45% used only water[7]. The main reason for not using soap for hand washing is due to financial constraints and inadequate sanitation facilities[8,9].

The community in the neighborhood of the school observed a culture of hygiene and cleanliness. In addition to having proper resources and facilities, hygiene practices were influenced by students' knowledge and attitudes towards hygiene. In a study conducted in Senegal, reasons given for not washing hands included stubbornness (reluctance to follow what adults say), laziness and hastiness to go for play in breaks along with dirt and smell of the toilets[10].

CONCLUSION

Home and school environment plays an important role in creating awareness amongst children regarding their health and personal hygiene. Usually there is a perception that children in Government schools belong to a low socio-economic class and are not clean and healthy. It is generally observed that their parents are illiterate, but results of this study revealed that this is a rather false impression. Majority of students were well aware of hand washing with soap and knew its importance in prevention of diseases. One of the major reasons for this good behavior might be that majority of students the school included in this study belonged to a special community where level of education and living was much higher than other areas.

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

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