Med. Forum, Vol. 23, No.6 June, 2012 **ISSN 1029-385-X**

Recognized by PMDC **Recognized by HEC**

CONTENTS

Editorial

Original Articles

Editorial

Morgellons Disease may be Psychiatric Disorder

Dr. Azhar Masud Bhatti
Editor in Chief

Morgellons symptoms are as creepy as the name implies. Patients report slow-to-heal sores that often feel like bugs are crawling under their skin. They often scratch themselves raw. And they also report that mysterious colored fibers, granules, worms, eggs, fuzzballs, or other stuff comes out of their skin. The CDC study was launched in 2008 at the request of California Sen. Dianne Feinstein because of a rash of Morgellons reports in that state.

The findings do not rule out the possibility that Morgellons is a newly recognized disease, note CDC researcher Michele L. Pearson, MD, and colleagues in the online journal PLoS One. But after performing detailed examinations of patients, running blood and urine tests, analyzing skin biopsies and "fiber" particles, conducting psychological examinations, and looking for disease clusters, the researchers could not find any common cause of illness among Morgellons patients.

They suggest that the patients' symptoms and histories are similar to those of patients with a psychiatric condition called delusional infestation — the delusional belief that one is infested with parasites. More broadly, the findings suggest that Morgellons disease may result from the downward mind/body spiral known as somatization or somatoform disorder. In these conditions, physical symptoms worsen underlying anxiety or mood disorders, which then worsens the physical symptoms.

Morgellons disease is not an official medical diagnosis. The term was coined in 2002 by Mary Leitao, who in 2008 told WebMD she'd noticed "balls of fiber" coming out of her 2-year-old's skin, just before sores developed. Leitao got the word "Morgellons" from a 17th century text describing an illness in which black hairs were said to appear on the backs of children in France.

The name stuck, even though there's no evidence the disease is linked to the modern condition. The CDC study looked for patients treated from 2006 to 2008 for any Morgellons symptoms by Kaiser Permanente Northern California. Out of the 3.2 million people enrolled in the program, they identified 115 patients. Another 11 patients who heard of the study offered to participate. In the end, 41 patients had full physical examinations.

As in previous studies of Morgellons, the patients tended to be female (77%) and white (77%).

Three-fourths of the examined patients had sores on their skin. Half of the lesions were merely sun damage, but 40% showed signs of scratching or irritation, and 16% looked like bug bites or allergic reactions to drugs. Sixteen of the lesions had materials stuck in them. Most turned out to be cotton fibers, probably from clothing; some were skin fragments likely caused by scratching.

Importantly, normal areas of the patients' skin had nothing wrong with them, suggesting that there was no systemic skin disease. Psychiatric evaluations showed that the patients' average intelligence was somewhat higher than normal. But 60% of the patients showed signs of cognitive impairment, and 63% had "somatic complaints," often "incapacitating fatigue."

The patients' level of "functional impairment and disability" was "comparable to that detected among persons who have serious medical illnesses and concurrent psychiatric disorders," Pearson and colleagues note. People with somatic disorders tend to by hyper-aware of normal body sensations — and they tend to interpret these sensations as medical illness.

This stress has real physical effects on the body and leads to a spiral of worsening physical symptoms and psychological health. Psychotherapy is far more likely to be successful than medication in breaking this cycle.

Pearson and colleagues suggest that since they cannot find a common cause of Morgellons disease, patients should get "standard therapies for co-existing medical conditions and/or those recommended for similar conditions such as delusional infestation." Patients who are convinced they are infested with parasites often respond to treatment with antidepressant or antipsychotic medication.

Original Article

Prevalence and Correlation of Osteoporosis with different Risk Factors

1. Arsala Mansoor, 2. Abdul Samad Khan 3. Saba Jawed 4. Rukhsana Majeed

1. Asstt. Prof. of Biochemistry 2. Prof. of Biochemistry, BMC, Quetta 3. MS Student, Balochistan University of ITE&MS 4. Prof. of Preventive Medicine, Bolan Medical College, Quetta

ABSTRACT

Objectives: To determine the prevalence and severity of low bone density and its correlation with different risk factors for osteoporosis in Quetta.

Study Design: Descriptive cross sectional study.

Place and Duration of Study: This study was conducted in the suburbs and urban setup of Quetta from February, 2009 to March, 2009.

Materials and Methods: A total of 212 females ranging from 18-72 years of age were selected. The subjects were interviewed regarding dietary calcium, socio-economic conditions and the associated diseases, and risk factors for osteoporosis. The calcaneal bone density of the subjects was measured using Bone Sonometer. Data was employed to differentiate between osteopenic and osteoporotic women and to analyze the results statistically.

Results: Risk factors for osteoporosis were highly prevalent. Many rural area subjects were current or former smokers (45%), and were negatively correlated (-.234) with low bone density. Total dietary calcium intake from both the localities was much lower than recommended. Subject with normal bone mineral density (57%) were prevalent, with 56 % in rural area residents and 58 % in urban area. Amongst all the subjects, 24 % were osteopenic, (18% in rural area and 30 % in urban area; 19 % had osteoporosis with 26 % in rural area and 12 % in urban area. T-score of all the subjects was positively correlated with physical acitivities and total calcium intake, ($p<0.01$) and negatively correlated to smoking ($r= -0.234$, $p<0.01$), bone fracture history ($r=-0.311$ $p<0.01$), junk food especially in the young women of urban locality and old age. The mean t-score of Killi natives was -1.3 compared to an average t-score of -0.9 for urban natives.

Conclusion: The risk factors for low bone density and osteoporosis are prevalent in both urban and rural women and are likely to increase during the next decade due to the aging of this population. A comprehensive prevention program to reduce the prevalence of amendable risk factors in this population is necessary.

Key Words: Calcium, Bone Mineral Density, Osteopenia, Osteoporosis, Rosl factors.

INTRODUCTION

Functions, such as blood-clotting and regulating our heart beat. That's why when we don't eat enough calcium-rich food to meet the body's needs, the mineral is drawn from bones to maintain Calcium is an essential building material for our bones. It is also involved in other essential a relatively constant supply in the bloodstream. This, in turn, speeds up the loss of bone mass. Old bone is constantly being broken down and removed, and new bone tissue is built to replace it. In a healthy adult, the bone cells osteoblasts synthesize the organic components of the bone matrix, which later mineralizes. Whereas, osteoclasts, break down or resorb bone. However, rate of bone-building changes as we age[1]. Up to about age 35, new bone is added to the skeleton more rapidly than old bone is removed. After that, bone is lost more quickly than it is built and, as a result, the skeleton becomes less dense[2]. In Osteoporosis the normal architecture of bone is disrupted and the matrix of bone is demineralized. The balance is disturbed and osteoclasts resorb bone faster than osteoblasts can replace it, reducing the bone strength[3].

Women are at highest risk for osteoporosis because they have lighter frames than men do. Moreover, decreasing levels of the hormone estrogen at menopause accelerate bone loss and make women more susceptible to fractures. In old age especially after 50 years of age bone becomes incredibly fragile[4.] Lack of physical activity or weight bearing exercises is an important risk factor for osteoporosis[5]. But osteoporosis isn't a normal part of aging. It is preventable, and new insights into the disease are making it more detectable and treatable than ever before.

In this study the prevalence and severity of low bone density an d associated risk factors for Osteoporosis were accessed in females ranging from 18-72 years of age from suburb villages of Quetta and compared it with the women of higher income of same ethnic group in urban localities of Quetta city. The results of the study can be used to formulate and design health education programs which will address different risk factors in urban and rural population of Quetta.

MATERIALS AND METHODS

A descriptive cross sectional study was conducted from February, 2009 to March, 2009, to find the bone mineral density of the local females living in the suburbs (village or killi) of Quetta and was compared with the urban population of Quetta. A total of 228 healthy females, 116 from killi and 112 from urban

population (in a college) ranging from 18-72 years of age were selected by inclusion criteria**.** Persons with fractures due to major trauma, with metabolic bone-related diseases or any treatment (bisphosphonate, calcium, and vitamin D3) known to influence calcium metabolism and women taking Hormone Replacement Therapy (HRT) were excluded from the study.

All subjects were interviewed after obtaining consent, by using a closed ended questionnaire[6]. These questionnaires were entered into the database software (Epi Info 6.04b, CDC, Atlanta, GA) personal computer. Questionnaire data was used to estimate dietary calcium, socio-economic conditions, physical activities, smoking habits, associated diseases, and risk factors for osteoporosis. During the interview, each subject was asked for how many servings per week in the last year on average they ate in a given food item. Estimating a serving size for each food the amount of calcium per serving from tables of nutrient values was determined. These values were used to calculate calcium intake. Junk food consumption was calculated by estimating the serving size of the specific food. The right calcaneus bone density was measured using a Clinical Bone Sonometer (Hologic, Inc., Waltham, MA). Measurement was repeated three times. Mean of the multiple measurements was used as that subject's bone density for the statistical analysis. The record included the subject's t-score, estimated bone density, and appropriate notations to aid the interpretation of the results[7].

Calculations were performed using the method described by Fleiss (1981) using Epi Info.

SPSS 13 was used to for data entry and statistical analysis[8]. Groups were compared by using Student's t test in parametric values which is significant at *=significant (P< 0.05) and **=highly significant (P<0.01). Any correlations between parameters were evaluated by using Spearman's Correlation Test. Correlation Statistics is significant at the 0.01 and 0.05 level (2-tailed). The p-value for these tests was calculated to show relationship with osteoporosis. These potential variables are shown in Table 2.

RESULTS

A total of 228 potential subjects interviewed and measured, of those 212 (93%) met all inclusion criteria and provided complete data for the purposes of statistical analysis. Sixteen persons were excluded from the study, because of some family restrictions faced by ten subjects, while the other three were taking some unknown traditional medicine. Three subjects were taking steroid hormones.

The primary study analysis considered risk factors for low bone mass in the natives. The results for the natives are shown in Table 1.

Table No.1: Selected Characteristics of Study Participants

Characteristic	Correlation with normal BMD	All Subjects N=212	Killi females N=108	Hali females N=104	P-value
Income rupees/month/family	.040	18,500	6 ,000	34,000	0.05*
Current and Former Smokers	-.234**	26 %	45 %	11 %	0.01**
History of fracture	-.287**	11 %	15 %	9 %	0.029*
Hormone Replacement Therapy	0.00	0 %	0 %	0 %	0-00
Physical activity 5x/week>=40min	.286**	32 %	48 %	16.0 %	0.015*
Diabetic/Cardiac problem	.018	11 %	16 %	7 %	0.128
Calcium Use	.427**	53 %	42 %	74 %	0.01*
Junk Food Use	-.152**	42 %	16 %	73 %	0.01*

*=Significant (p<0.05), **= Highly significant (p<0.01)

All of the variables were tested for interactions with bone mineral density to find correlation by Pearson-Correlation (2_tailed) test. A composite variable created by combining, history of hip, ankle, or foot fracture, and history of osteoporosis diagnosis, was significantly associated with low bone density. Variables were screened to test a theoretical relationship between the variable and bone density. Analysis revealed that risk factors for osteoporosis were highly prevalent in the study population (Table 1). Nearly one in 10-12 (15 %) mostly elderly Killi subjects reported having fracture of foot or ankle at some time in their lives.

Smokers comprised 45 % of killi, 11% of urban and 26 % of all subjects. The median tobacco consumption history was 13 years. Most of the smokers were from the suburb area and were elderly women. In the analysis of natives, both current smokers and former smokers were more likely to have low bone density compared to never smokers (Table 1). Smoking significantly (P<0.01) effected the bone mineral density with the subjects having an average T-score of <-1.0.

Post menopausal women (21), all from the suburb area had low bone mineral density, amongst them 13 were osteopenic, 5 osteoporotic and 3 woman had normal BMD (Fig 1). Osteoporosis was not observed amongst

any of the premenopausal women. None of them were taking hormone replacement therapy.

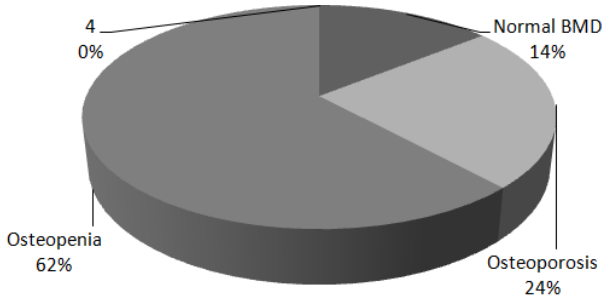


Figure No.1: Bone mineral density of post menopausal women.

Diabetes and cardiac problem were strongly associated with the subject having started menopause, otherwise no association was found between bone mass and diabetes or cardiac problems. The use of hormone replacement therapy was not observed in any subject. No other variables were strongly related with one another.

Some protective factors were also prevalent in the study population. However, 48% of Killi natives and only 16% urban natives exercised (physical activity) at least five times a week for 40 minutes or more per day. Moreover, the Killi diet consisted mainly of vegetables with almost no calcium robbers in their diet. The median total calcium intake of natives was 230 mg/day, and none of the Killi natives reported to take some type of dietary supplement containing calcium. The calcium density of bones of the subjects in high income urban natives was higher (Table 2) than that of Killi natives. This was due to much higher dietary calcium consumption by College native study participants. Low bone density was highly prevalent in the study population, as 40% of Killi natives and 36% of urban natives had a t-score less than -1.0. The mean t-score of Killi natives was -1.3 compared to an average t-score of -0.9 for urban natives (Table 2).

Table No.2: Dietary Calcium Measures (mg/day) for All Subjects and for Killi Natives.

Calcium Measure	Killli subjects Mean n=108	urban subjects Mean n104	p-value
Dairy Calcium	105	234	<0.01**
Calcium from other sources/Supplements	241	248	<0.21 NS
Total Dietary Calcium	346	482	<0.08 NS

NS= non-significant (P>0.05); *= Significant (P<0.05); **= Highly significant (P<0.01)
n = Number of subjects

Junk food consumption was calculated by estimating the serving size as done for assessment of dietary calcium. About 76 (73%) mostly young urban women consumed soft drinks, chocolates and other junk food and was negatively correlated with BMD (r=-1.52), whereas only 18 (16%) females from killi used carbonated soft drinks and junk food (Table 1). Ninety subjects (86%) from killi consumed simple diet with almost no junk food/soft drinks, mostly belonged to low income groups. Since only a small number of the subjects from killi consumed cola/carbonated drinks, with average consumption of 1-2 glass/week. Thus, it co-relation with T-score was not significant (P>0.05). However, college subjects consuming junk food and chocolates were found to be osteopenic having T-score values between -1.24 and-1.96.

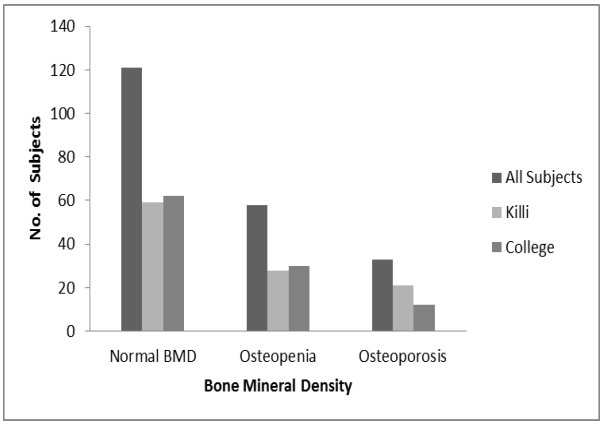


Figure No.2: Bone Mineral density of the studied subjects.

Most of the studied subjects had normal BMD *i.e.* 114 women (57%). However, 69 (34.5%) women had a low BMD and were osteopenic (i.e. T-score ranges from –l to -2.5) and only 17(8.50%) had severely low BMD and were suffering with osteoporosis (T-score less than -2.5). The mean t-score of Killi natives was -1.3 compared to an average t-score of -0.9 for urban natives. Killi natives were almost twice as likely to have osteoporosis as College natives (Fig 1).

DISCUSSION

The study suggests that osteoporosis were more prevalent in low income elderly women who had lower calcium intake (346 mg/d) and mostly used simple diet. A similar low calcium intake of 300 mg/d by Indian women was observed, which is almost 700 mg less than the RDA in the West[9]. Low calcium intake may also be a risk factor in the development of osteoporosis[10,11]

Decrease in bone mineral density (or bone loss) with increasing age and negatively correlation with T-score and age has been observed earlier[12]. Our study showed that the killi women were involved in home chores and had more physical activities then urban women, thus

had significant positive effect on BMD. It has been observed earlier that lack of physical activity is an important risk factor for osteoporosis[13]. Although calcium intake is often cited as the most important factor for healthy bones, our study suggests that physical activity in the killi women is really the predominant lifestyle determinant of bone strength in young women. There was a small positive relationship between calcium intake and bone variables, but a significant association between physical activities or exercises score and bone mass.

The age-smoking and history of fracture interactions with low bone mass also approached significance ($r= -.234$; $p<0.01$), as suggested earlier that smoking accelerates bone loss[14]

Consumption of junk food by killi women was very low, but quite significant by college women natives ($p<0.01$), who belonged to a high income group and had a comfortable life style with all sorts of rich food. The daily use of calcium robbers in their diet has lead to a low bone density in the general population. Although there was no significantly statistical difference in bone density in the average subjects between the two groups of natives, but the T-score of women having junk food was slightly reduced as observed earlier[15].

Many of the risk factors were significantly associated with low bone density of all the studied subjects. Fracture history, menopause, current smoking, former smoking, junk food and age were all negatively associated with bone density for the killi natives, whereas, exercising and calcium intake were positively associated with bone mineral density.

CONCLUSION

The risk factors for low bone density and osteoporosis are prevalent in both urban and rural women and are likely to increase during the next decade due to the aging of this population. A comprehensive prevention program to reduce the prevalence of amendable risk factors in this population is necessary

REFERENCES

1. Bachrach LK. Calcium and Peak Bone Mass: How Much Is Needed and When. BoneKEy 2005;2(4): 11-14.
2. Riggs BL, Melton LJ, editors. Osteoporosis: Etiology, Diagnosis, and Management. 2nd ed. Lippincott-Raven: Philadelphia; 1995.
3. Favus MJ, Christakos S, Goldring SR, et al, editors. Primer of the Metabolic Bone Diseases and Disorders of Mineral Metabolism. 3rd ed. Lippincott-Raven:Philadelphia;1996
4. Gallagher JC, Riggs BL, Deluca HF. Effect of estrogen on calcium absorption and serum vitamin D metabolites in postmenopausal osteoporosis. J Clin Endocrinol Metab 1980; 51:1359-1364.
5. Delaney MF. Stretegies for the prevention and treatment of osteoporosis during early postmenopause. Am J Obst Gynecol 2006;194: 12-23.
6. Njeh CF, Boivin CM, Langton CM. The Role of Ultrasound in the Assessment of Osteoporosis: A Review. Osteoporos Int 1997; 7:7-22.
7. Fliess J. Statistical Methods for Rates and Proportions. 2nd ed. John Wiley and Sons: New York;1981.
8. Faulkner KG, Von SE, Miller P. Discordance in Patient Classification Using t-scores. J Clin Densitomet 1999; 2(3):343-50.
9. Bhatia V. Dietary calcium intake - a critical reappraisal 2008.Ind J Med Res 2008;127:269-273.
10. Kerstetter JE, O'Brien KO, Insogna KL. Dietary protein, calcium metabolism, and skeletal homeostasis revisited. Am J Clin Nutr 2003;78: 584–592.
11. Matkovic V, Goel PK, Badenhop-Stevens NE, Landoll JD, Li B, Ilich JZ, et al. Calcium supplementation and bone mineral density in females from childhood to young. adulthood: a randomized controlled trial. Am J Clin Nutr 2005; 81(1):175-188.
12. Anderson JJB ,Tylavsky FA, Haliona L, Metz JA, Determinants of peak bone mass in young adult women: a review. Osteoporosis Int 1993; 1 (Suppl.):S 32-36.
13. Özdemir F, Kabayeli DD, Ture M, Do Dietary Calcium Intake and Hormone Replacement Therapy Affect Bone Mineral Density in Women? Med J Trakya Univ 2008; 25: 105-109.
14. Krall EA, Dawson-Hughes B. Smoking increases bone loss and decreases intestinal calcium absorption. J Bone Miner Res 1999; 14(2):215-20.
15. Borer KT. Physical activity in the prevention and amelioration of osteoporosis in women: interaction of mechanical, hormonal and dietary factors. Sports Med 2005; 35: 779–830.

Address for Corresponding Author:
Dr. Arsala Mansoor
Asstt. Prof. of Biochemistry,
Bolan Medical College, Quetta

Original Article

An Out Come of Transvaginal Repair in 50 Cases of Vesico-Vaginal Fistula

1. Muhammad Ali Suhail 2. Farida Farooq Wagan 3. Tufail Ahmed Baloach 4. Ubedullah Shaikh

1. Assoc. Prof. & Chairman, of Urology, PUM&HS, Nawabshah 2. Assoc. Prof. of Gynae & Obs., PUM&HS, Nawabshah 3. Consultant Surgeon Layari Hospital Karachi 4. Sen. Medical Officer, Surgical Dept. OJHA Campus Dow University of Medical & Health Sciences Jamshoro

ABSTRACT

Objective: To see the out come of transvaginal repair of vesico-vaginal fistula.

Study Design: A consecutive case series study.

Place and Duration of Study: This study was conducted in the department of Urology and Dialysis Unit Peoples Medical College Nawab Shah, from Jan 2007 to the Dec 2009.

Materials and Methods: Patients were collected from the urology out patient department and the department of gynecology People's Medical College Nawab shah. Total 50 females were operated for the vesico-vaginal fistula trans-vaginally. After the admission care full history and examination were done to demonstrate the incontinence subjectively and objectively. Before surgery all subjects were diagnosed by the cystoscpic examination. All subjects were operated transvaginally.

Results: The total 50 females were operated for the vesico-vaginal fistula trans-vaginally. In 35 cases obstructed & prolonged labour and in 15 cases pelvic surgery was the cause of vesico-vaginal fistula. Cystoscopically all fifty fistulae were divided according to their site in the bladder. Supra trigonal 07, trigonal 35 and Marginal 08. All were repaired transvaginally. After two weeks catheter was removed, the leakage occurs in four (04) cases in supra-trigonal cases. In trigonal variety of vesico-vaginal fistula all thirty five (35) cases only three (03) fistulae were leaked. In third variety of vesico-vaginal fistula was marginal variety. Total eight (08) fistulae were and three (03) out of eight fistulae were leaked.

Conclusion: We conclude that transvaginal is an excellent approach for the vesico-vaginal fistula, especially in trigonal, solitary and smaller i.e. <4cm variety of fistulae. Careful selection of the patient and the time of repair are the important mile stones for the successful out come.

Key Words: Transvaginal approach, Vesico-vaginal fistula.

INTRODUCTION

In the context of Gynecology, a fistula refers to an abnormal communication between genital tract and either the urinary tract vesico-vaginal or GI tract, Recto vaginal fistula.[1] In 1935 while performing a dissection on an Egyptian Mummy (a queen of the 11th Dynasty, Circa 2050 BCE); Derry noted a large vesico-vaginal fistula that was the consequence of obstructed labour, he concluded[2] In 1852 James Marion Sims used sliver wire as a suture material, avoided the use of electrocautry and utilized postoperative drainage with urethral cathatre.[3] The scientific societies should join forces to improve the fate of fistula patients in African and Asian countries that are confronted with a large number of these women.[4]

An incidence of 1-2 per 1000 deliveries have been estimated world wide, with an Annual incidence of up to 50,000 to 1,00,000 in developing countries.[5] Obstetric Fistula reflects the deficiency in the women's general health status occasioned by poor child birth attendance in developing countries.[6] Successful management with prolonged bladder drainage has occasionally reported (1.9%). Mature fistulae requires formal operative repair. The first repair is crucial that should be done properly.[7] The literature reports following modalities like, 1) Conservative, which carries Prolonged bladder drainage with Very rare success rate of 1.9%. 2) Endoscopic Management i.e. tissue bioglues for very small fistulae. 3) Transvaginal Approach. 4) Transabdominal for Supra Trigonal, Multiple, Vesico-uterine and Uretro-vaginal.[8] In Genito-Urinary Fistulae there is persistent Odor unimpeded leakage of urine, which is one of the most distressing complications that occur in women. This causes serious social and psychological problems which leads to social cut off and even divorce in same cases.[9]

A study was conducted in the hospital of Addis Ababa, Ethopia, that most obstetric fistula results from neglected obstructed labour often affecting very poor, young, illiterate, rural women and girls.[10] Regarding the management of vesico-vaginal fistula, the difficult and complicated fistulae need experienced surgeon and establishment of separate fistula surgery units along with appropriate care and expertise accounts for desired results.[11] In order to prevent the recurrence a questionnaire based survey was conducted at Nigeria; Do the Patients Know the Cause? The study concluded that 70% of the patient knew the cause of their fistulae from the health talk while 30% remain unknown.[12] Due

to higher incidence vesico-vaginal fistula in Africa they have establish a separate fistula centre, Barhirdar Hamelin fistula centre. These fistula centers can give better results in repair and also educate the public to prevent this complication to occur rather than to treat.[13] in some cases the fistula involves the continent mechanism, where the urinary diversion is the last resort of the treatment.[14]

MATERIALS AND METHODS

Total fifty (50) patients were initially admitted throughout patient department and were thoroughly evaluated by detailed history, Physical Examination, Laboratory Investigations including intravenous urography. Which was done only in marginal type of verity of fistula to rule out any ureteric involvement. The definite procedures were planned after cystoscpic examination. On examination there was a rent between bladder and vagina during per-vaginal examination.

Any defect which admitted two tips of finger easily during per-vaginal examination was labeled as larger fistula. Other laboratory investigations were done like, Urinalysis and urine culture were used to rule out coexisting urinary tract infection, Serum creatinine was done to evaluate renal function. The site of fistula, size of fistula sphincter mechanism, surrounding fibrosis, and extent of vaginal stenosis was carefully evaluated. All those patients who fulfilled the inclusion criteria, an informed written consent was taken. The patients were prepared with antibiotics, good nutrition and proper hygiene. Outcome was recorded in 14 days after repair. Cystoscopy with concurrent vaginal speculum examination was done to determine the location and size of the fistula in relation to Trigone and ureteric orifices. As shown in Figure.1.

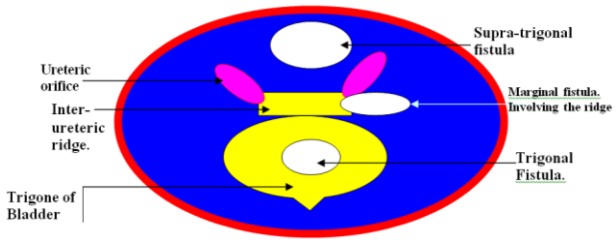


Figure1:Cystoscopic division of vesico-vaginal fisula.

RESULTS

The total 50 females were operated for the vesico-vaginal fistula trans-vaginally. Out of these 50 subjects the cause of vesico-vaginal fistula in 35 cases was obstructed & prolonged labour. While in remaining 15 cases pelvic surgery specially abdominal hysterectomy was the cause of vesico-vaginal fistula. These 35 subjects were below the age of 35 years. Twenty three 23 were prime-Para and 12 were mulitipara. Cystoscopically all fifty fistulae were divided according to their site in the bladder. Supra trigonal 07, trigonal 35 and Marginal 08. As shown in Table-1. All were repaired transvaginally.

Total seven (07) fistulae of supra trigonal variety were repaired three (03) were solitary and four (04) were multiple. Regarding the size of fistula all three solitary were smaller in size i.e. is less than 4cm, while among the four multiple supra-trigonal fistulae three were larger fistulae one remaining one was smaller one. Hence total smaller were four in number while three were larger defects in supra-trigonal variety. After transvaginal repair the bladder drainage were established in all cases for the couple of weeks. After the catheter removal the leakage occurs in four (04) cases in supra-trigonal cases. Out of these four cases of failed repair one was solitary and small while remaining leakage occurs in the three larger and multiple fistulae.

Hence the success rate in supra-trigonal type of fistulae was little bit lower .i.e. less than 50%. Especially larger and multiple fistulae in supra-trigonal variety carries higher failure rate. In thirty five (35) cases of trigonal variety of vesico-vaginal fistula thirty three (33) were solitary and only two (02) were multiple in number. Regarding the size of fistula twenty eight (28) were smaller and seven (07) were smaller in size. All thirty five cases of trigonal variety were operated by the same approach i.e. transvaginally. After putting folly's catheter for two weeks trial for clamping the catheter was given to check the continence. In this group only three (03) fistulae were leaked and showed failure of repair. Out of these three one (01) was larger and multiple variety and two (02) were solitary and smaller in size. So the success rate of transvaginal approach in trigonal variety remained higher. i.e. more than 90%. In third variety of vesico-vaginal fistula was marginal variety. Total eight (08) fistulae were repaired transvaginally.

Table No.I: Break-up of vesico-vaginal fistula according to their site.

Type of fistula	No:	Total
Supra-trigonal	07	
Trigonal	35	
Marginal	08	
	Fifty	**50**

Table No.2: Results of transvaginal repair of V.V.F.

Type of fistula.	No:	Leakage.	Success rate. % age.
Supra-trigonal	07.	04.	36%.
Trigonal.	35.	03.	91%.
Marginal.	08.	03.	70%.
Total leaked.		**10/50 (20%)**	

According to their location five were involving the inter-ureteric ridge, two near left ureteric orifice and one was near the right ureteric orifice. So out of this total eight marginal fistulae six (06) were single and

remaining two (02) were of multiple variety. As shown in table No:02. According to the size of fistulae three were lager and five were of smaller size. In these cases ureteric catheters on both sides remained for the longer period .i.e. 14 days in the comparison of other types of fistulae where we kept only for the period of one week. The success rate of transvaginal approach in these marginal type of fistulae was about 70% .i.e. three (03) out of eight fistulae were leaked. These three were those fistulae which were nearer to ureteric orifice and of larger size. So totally leakage, as shown in table No: 03, occurs in ten (10) cases out of fifty cases. i.e. 20% leakage rate was observed in our study of transvaginal repair of vesico- vaginal fistula.

Table No.3: Break-up of 10 cases of leakage.

Fistula variety	Number	Leakage	Failure rate
Larger >4cm	13	07	52%.
Smaller.	37	03	< 8%.
Multiple.	08	05	62%.
Solitary.	42	05	8.2%.

DISCUSSION

The stage of the disease, obesity, diabetes and postoperative infection acted as predisposing factors for the development of these fistulae.[15] Being a third world country the obstructed labour remained the most commonest cause of vesico-vaginal fistula as in Nigeria and India.[16,17] Hence the world literature and our study have highlighted the obstructed labour as commonest cause of vesico-vaginal fistula. The time of repair decided is the important factor for the successful outcome. We decided the period of 4-6 weeks after the onset of fistula as an ideal time for the repair. Angioli R et al recommended that for the better out come, proper mobilization and reduced scaring the period of 4-6 weeks is mandatory between the onset of fistula and repair.[18]

In our society it carries high social problems. Even the divorce rate remained 25% due to this dreadful and foul smelling problem, a study conducted in Nigeria.[19] The classification system for vesico-vaginal fistula are based on descriptions of size and anatomic location of the defect.[20] Regarding the site of fistula in bladder we divided supra-trigonal, Trigonal and marginal. Regarding their site in relation with vagina mostly they are mid-vaginal fistulae and most affected women were prime-para in our study, which closely matches the international data.[21] The location of the fistula is essential for the optimal management & planning.[22] After the repair of vesico-vaginal bladder drainage with urethral catheter was established for at least 14 days in our series.

In our study regarding the size we recommend the fistula which is greater than 4cm, or roughly during per/vaginal examination can admit two finger tips labeled as larger fistula. When it is 4cm of fistula with scaring, involving continent mechanism and affecting the bladder capacity is labeled as larger & complex fistula.[23] We preferred the vaginal rout for those 50 cases. A Kumar et al in a services of 1558 cases of Genito-urinary fistulae preferred vaginal rout for the repair. the literature reports 3 approaches for fistula repair vaginal, abdominal and combined abdomino-vaginal rout.[24] Another recent approach is laparoscopic repair of fistula which carries least morbidity and improves cosmetics.[25] Our series reflects the higher failure rate in supra-trigonal and marginal variety of fistulae. The cause of failure in these cases was limited mobilization due to little bit higher position of supra-trigonal fistulae. Because of this reason some authors preferred trans-vesical abdominal approach for high supra-trigonal and vault fistulae.

Besides the site of fistula in these 50 cases failure rate was also attributed to the number and size i.e. larger fistula has higher failure rate. The fistulae >3cm to size likely to fail more in this study. If we see the break-up of those four supra-trigonal leaked fistulae, three were of larger in size and multiple in number. While among the marginal variety of fistulae three were leaked out of eight and all three were of larger size and one was the multiple type of fistula. This reveals that why our supra-trigonal and marginal fistulae showed compromised results in comparison of world studies.

CONCLUSION

We conclude that transvaginal is an excellent approach for the vesico-vaginal fistula, especially in trigonal, solitary and smaller i.e. <4cm variety of fistulae. Careful selection of the patient and the time of repair are the important mile stones for the successful outcome.

REFERENCES

1. Amreen H, Khaliah J, Casol A, Glowacki, Oslias J, Clifford R, et al. Surgical management of complex obstetric fistulae in Eritrea. J. Women Health 2005; 14(9); 839-844
2. Kumar S, Kekre NS, Gopala, Vesico Vaghal Fistula: An update. Indian J Urol 2007;23:187-191.
3. De Ridder D. Vesico-Vaginal Fistula: A major health care problem. Curr Opin Urd 2009;19(4): 358-61.
4. Roy KK, Malhotra N, Kumar S, Seth A. Nagar B. Genito-Urinary Fistula. An expreince from a Tertiary Care Hospital. JK Science 2006;8(3):144.
5. Olusegum AK, Akinflorain AC, Olabisi LM. A review of clinical pattern and outcome of vesico-vaginal fistula. J Natl Med Assoc 2009;101(6):593-5.
6. Creange AA, Ganadry RR. Obstetric fistula a clinical review. Int J Gyanecol Obstet 2007;Suppl 1:540-6.

7. Cohen BL, Gousse AE. Current techniques for vesico-vaginal fistula repair; surgical pearls for optimize cure rate. Curr Urol Re 2007;8(5):413-8.
8. Muhammad Shahbaz H, Khalid S, Masood S. Surgical Management of Genitourinary fistula. J Pak Med Assoc 2005;280:(55):7.
9. Mulata M. Obstetric Fistula in developing countries; a review article. J Obstel Gynecol Can 2006;28(11):962-6.
10. Jatoi N, Jatoi NM, Sheikh F, Sirichand P. A key to successful vesico-vaginal fistula repair. An experience in urological fistula surgery and out come at gyanecological surgical camp. J Ayub Med Coll Abbottabad 2008;20(2):125-7.
11. Hassan MA, Ekele BA, Vesico-Vaginal Fistula. Do the patients know the cause? Ann Afr Med 2009;8(2):122-6.
12. Browning A, Menber B. Women with obstetrical fistula in Ethopia; A 6 months follow-up after surgical treatment. BJOG 2008;115(12):1564-9.
13. Arrowsmith SD. Urinary diversion of vesico-vaginla fistula patient: A general consideration regarding feasibility, safety and follow-up. Int J Gynaecol 2007;99(1):65-8.
14. Likic IS, Kadija S, Ladjevic NG, Stefanovic A, Jeremic K, Petkovic S, et al. analysis of urological complication after radical Hysterectomy. Am J Obstet Gynecol 2008;199(6):644.
15. Akporiaye LE, Oguike TC, Evbuomwan I. Genito-urinary reconstructions in southern Nigeria. West Afr J Med 2009;28(2):126-9.
16. Kumar A, Goyal NK, Trividi S, Dwivedi US, Singh PB. Our experience with Genitourinary fistulae. Urol Int 2009;82(4):404-10.
17. Olusegun AK, Akinflorin AC, Olabisi LM. A review of clinical pattern and outcome of vesico-vaginal fistula. J Natl Med Assoc 2009;101(6):593-5.
18. Gharor EP, Agholor KN. Aspects of psychosocial problems of patients with vesico-vaginal fistula. J Obstet Gynaecol 2009;29(7):644-7.
19. Arrowsmith SD. The classification of obstetric vesico-vaginal fistulae: A call for an evidence-based approach. Int J Gynaecol Obstet 2007;99(1): 25-7.
20. Olusegun AK, Akinfolarin AC, Olabsi LM. A review of clinical pattern and outcome of vesico-vaginal fistula. J Netl Med Assoc 2009;101(6): 593-5.
21. Narayanan P, Nobbenhuis M, Reynolds KM, Sahcev A, Reznek RH. Fistula in malignant gynecological disease: Etiology, imaging and management. Radiographics 2009;29(4):1073-83.
22. Genadry RR, Creanga AA, Roenneburg ML, Wheeless CR. Complex obstericla fistula. Int J Gynecol Obstet 2007;99(1):1-6.
23. Creanga AA, Genadry RR. Obstetric Fistulae; a clinical review. Int J Gynecol Obstet 2007;99(1): 40-6.
24. Creanga AA, Genadry RR. Obstetric Fistulae; a clinical review. Int J Gynecol Obstet 2009;23(7): 1135-7.
25. Ockrim JL, Greenwell TJ, Foley CL, Wood DN, Shah PJ. A tertiary experience of vesico-vaginal and uretro-vaginal fistula repair. BJU Int 2009;103(8): 1122-6.

Address for Corresponding Author:
Dr. Muhammad Ali Suhail
Consultant Urologist
Kidney Care Clinic Main Civil Hospital Road
Nawabshah
Cell No.:03003202051

Original Article

Over View of Laparoscopic Cholecystectomy at (SMBBMU) University Hospital Larkana 1920 Cases

1. Ghulam Hyder Rind 2. Muhammad Ayoub Jalbani 3. Atta Hussain Soomro 4. Muhammad Suhail Soomro

1. Assoc. Prof. of Surgery, Surgical Unit-I, GMMMC, Sukkur 2. Asstt. Prof.,Surgical Unit-III, 3. Prof., Surgical Unit-III 4. Senior House Officer, Surgical Unit-III, SMBBMU, Chandka Medical College, Larkana

ABSTRACT

To evaluate the safe technique in patient with cholelithiasis either simple or with acute cholecystitis and to highlight the better method in which patient can be prevented from future complication.

Study Design: Experimental Study.

Place and Duration of Study: This study was conducted at University Hospital of Shaheed Mohtrama Benazir Bhutto Medical University, Larkana with effects from Jan 2005 to Jan 2011.

Materials and Methods: Total number patient 1920 underwent lap chole, while 184 were admitted in acute state from casualty & Out Patient Department of university hospital.

Results: The mean age was 11-75 years, male & female ratio 1:3 with regard the 184 in acute cholecystitis among those patients reach to hospital within 24hours were 85, from 24-48hours were 65 patients while from 48-72 hours were 34 patients. While remaining patient were managed as elective cases.

The operative time taken in elective cases were 30 minutes but in acute cases it was 90 minutes so average time was 60 minutes.

The overall conversion rate is 2.86% but in acute case the conversion rate 8.15%. Post operative average hospital, stay remain's 1 day in elective cases but in acute Cholecystitis where conversion to open were performed the hospitalization minimum 6 maximum 7 days. The wound infection seen in 49 cases (2.8%).

Conclusion: Lap chole is a reliable and safe in management of cholecystitis either with or without cholelithiasis having simple or acute cholecystitis, while certain factors are responsible for conversion include delayed arrival more than 72 hours, empyema and bleeding while contradictory to international literature our study suggest that conversion rate is high in acute rather than elective Cholecystitis. So it is concluded that emergency lap chole is a safe and cost effective due to on time surgery and patient can be prevented from future complication. Therefore early lap chole is safe and can be performed in simple and complicated Cholecystitis while literature have proved that lap chole also safe in pregnant lady with certain limitation of like height of fundus . .

Key Words: Laparoscopic Cholecystectomy, acute cholecystitis.

INTRODUCTION

A dramatic revolution has occurred in management of gall stone disease[1] experience lap chole has gone a long way since introduction in 1987[2] it is widely accepted to be treatment of choice for calculus and acalculus cholecystitis Early lap chole has been proven superior to delayed interval lap chole in most prospect randomized trials while it is recommended to perform surgery within 72 hours of admission to minimize the complication rate and shorter duration of hospital stay[3]. The operation is routinely performed using four or three pots of entry in abdomen but recent development regarding LC have been directed towards reducing the size and number of ports to achieve the goal of minimum access surgery. Two ports lap chole has been reported in the international literature to be safe and feasible[4]. While lap chole offers benefit of less pain reduced disability, cosmetic acceptance, shortened postoperative hospital stay early return to normal activity. Despite the conversion to open Cholecystectomy the common reasons inability to define anatomy of calot's triangle due to sever adhesion, inflamed, contracted gall bladder, empyema of gall bladder and uncontrolled bleeding from cystic artery or gall bladder bed[5].

MATERIALS AND METHODS

Six years study (Jan 2005 to Jan 2011) conducted at Shaheed Mohtrama Benazir Bhutto Medical University Hospital Larkana. 1920 patients all the patient were evaluated on the basis of history physical examination, laboratory investigation and ultrasound of abdomen with special reference of hepatobillary tract and CBD size after a obtaining written consent on a prescribed Performa. Laboratory investigation including routine blood complete picture white blood cell, liver function test. Laparoscopic procedure done using standard approach involving an open technique for trochar insertion. A 10 mm trochar was placed in periumbilical are and epigastric region while two trochar of 5mm placed at right hypochondrium and right iliac region. The cystic duct clamped by yellow clip, depend upon the diameter of duct while cystic artery ligated by green clip. The operation time was calculated from the insertion of first trochar till the closure of periumbilical

wound. The hospital stay time of resumption of soft diet any complication during the surgery, postoperative stay condition of wound, amount of drain weather it contain serum/bile.

RESULTS

During the prescribed period, total 1920 patient were admitted the majority of patient 1835, throughout patient department while remaining 85 patients admitted as acute Cholecystitis with cholelithiasis through casualty department.

Male patient 499 and females were 1421, the ration of male and female 1:3. Incidence of age, small aged boy of 11 years and oldest patient having the age of 75 years admitted and operated. Peak age incidence between 41-50 years (Table-1).

With regard to duration of symptom only the 184 patients presented in acute Cholecystitis including the patients admitted through casualty and OPD. Among there acute cases the number of the patient admitted within 24 hours were 85, from 24-48 hours patient received, were 65 while from 48-72 hours received were 34 numbers of patients while remaining patients were managed as elective cases.

The ultrasound findings were straightforward cholelithiasis in 1736 patient but those admitted in emergency there ultrasound findings were such that edematous gall bladder in 48, mucocele of gall bladder in 52, pylocele of gall bladder in 10 contracted gall bladder in 40, perforated gall bladder in 05 gangren of gall bladder in 07, carcinoma of gall bladder noted 22 cases.

Problems encountered during the laparscopy were adhesion of gall bladder with colon in 26 adhesion with omentum 54, adhesion with CBD in 60 bleeding from cystic artery 54 cases, bleeding from liver bed seen in 87 minor injury to CBD 34, major injury in to CBD 29, cases calots triangle distorted 105 carcinoma of gall bladder noted 22 patient.

Operative time 30 minutes minimum in clear cases but it may go up to 90 minutes in infected case. Average the time was 60 minutes.

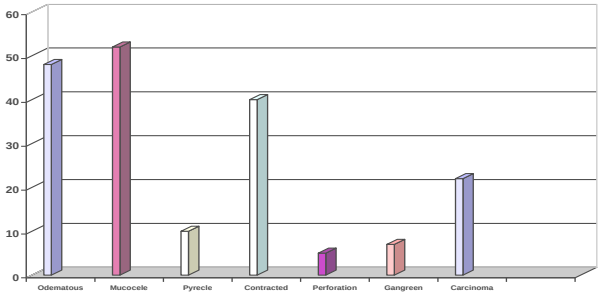
The number of lap converted to open cholecystectomy 40cases out of 1736 in elective 2.17%(40/1736) while in acute cholecystitis associated with cholelithiasis were 15 cases out of 184 cases 8.15% (15/184). Therefore over all conversion rate is 2.86% (55/1920).

Postoperative average hospitalization in elective cases were 1 day but in those cases where lap converted to open, the length of hospitalization was minimum 6 days, maximum 7 days depend on the condition of wound.

The wound infection seen in a infraumbilical port 49 cases 2.8% seen in most of acute cases while other ports remains 100% aseptic.

Table No.1: Showing the Age of Patients

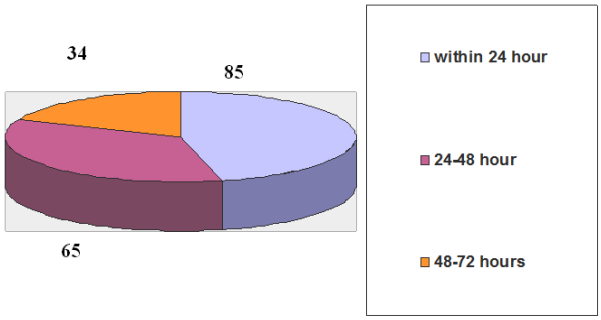
Sr.No.	Age	No of Patient	Percentage
1.	10-20	1	.192%
2.	21-30	432	22.5%
3.	31-40	570	296%
4.	41-50	639	33.2%
5.	51-60	183	9.53%
6.	61-70	60	9.5%
7.	71-75	35	2.8%



Graph Showing the Ultrasonic Findings

Table No.2: The problems encountered during laparoscopic procedure

Sr. No.	Age	No of Patient
1.	Adhesion G.B with Colon	26
2.	Adhesion G.B with Omentum	54
3.	Adhesion G.B with CBD	60
4.	Bleeding from cystic artery	54
5.	Bleeding from liver bed	87
6.	Minor injury of CBD	34
7.	Major Injury of CBD	29
8.	Distorted calots triangle	105
9.	Carcinoma of Gall Bladder	22



Pies Chart Showing Time of Arrival in Hospital in Acute Cases

DISCUSSION

In our study the mean age of patient 43 years and the female & male ratio 3:1, but as compare with world literature the age 42.9 years the female male ratio 4.5:1[3] the age ranges 38-75[3] mean age 45yreas[4-6] female male ration 2:1[7] age ranged from 10-80 years range 45years[8]. male gender and age >60 years are liable for more

complications[9]. Duration of symptom in study of three groups. group A where patient underwent for lap chole within 72 hours in group B where patient underwent for surgery between 72-96 hours in group C where patient underwent for surgery beyond 96 hours of onset of symptoms. The complication rate is highest in group where surgery is performed after 96 hours of onset of symptoms[3]. As study of Tzoravas 28% with acute Cholecystitis had there operation within first 3 days 45% between 4-7 days 27% after week onset of symptoms[11]. Its now considered as safe to do lap chole in acute cholecystitis with in 72 hours "Golden hours"[5.] While in pregnant woman, lap chole can be performed in any trimester but optimal time is operate is early second trimester which is safe[10] In our study with regard the duration of symptoms in acute cases 85/184 hospitalizes with first 24hours.

Problems encountered during surgery as seen by shabir[5] et al inability to define anatomy of clots triangle due to severe adhesion (n=2) inflammed gall bladder (n=1) contracted inflamed severely of (n=2) empyema of gall bladder (n=1) inflamed gall bladder adhesion with stomach (n=1) uncontrolled by bleeding in (n=1)[5]. In study of kitomo[12] that bilary tract injury during lap chole for acute Cholecystitis 0.7to 1.3%. In study Awis[3] 2.4% CBD injury encountered during the laparoscopy cholecystectomy. In stuy of Cheema[13] 3 bile duct injuries have been reported among 482 cases. In study of perviz[1] had the common problem uncounted include empyema of gall bladder 4 (1.18%) Failure to hold thick gall bladder wall in 3 (.88%) hemorrhage in 3 (.88%) injury to CBD in 2 (.59%)[1] while in our study the main problem encountered was the calots trainingle distorted in 105 (21.2%) and bleeding from liver bed was the second common problem 87 (17.4%) while bleeding from cystic artery 54 (10.8%) while adhesion of inflamed gall bladder with CBD was common 60 cases (12.2%) Non of our patient has iatrogenic injury to liver, stomach, except in one case the duodenum get injured. Where as biliary injury reported 7%[14,15] vascular injury to range between 4-8%[15]. While adhesion of gall bladder with omentum seen in 54 cases (10.9%). The adhesion of gall bladder with omentum was separated gently with the help of bund end of nuzzle of suction.

However distorted anatomy of calots triangle and uncontrolled bleeding from the cystic artery were the main cause of conversion. But the conversion rate in study of awis[3] 8.64% in study by Tzovares[11] the conversion rate 4.6%. Shabir the conversion rate 10.5%[5]. Pervis[1] the conversion rate 9.4%. while the conversion rate of has been reported in different studies as ranging from 2-5[16,17]. There was no significant difference found in conversion rate in emergency lap chole 24% elective lap chole 21%[7] in reported series the conversion rate 2.5%[18] and 11%[19]. The conversion rate overall in our study is 2.86% but in emergency cases it is higher than in elective case.

Operative time in study of Shabir[5] time taken 70 minutes Hawasal A[20] 70 minutes Booker[21]110 minutes but in our study operative time taken in emergency case 90 minutes but in elective cases it was 30 minutes, so the overall average was 60 minutes but it depend upon both surgery and patient factors like the experience of surgeon quality of assistance and chances of unwanted surprises wanting for surgeon like adhesion, aberrant anatomy, encountered bleeding are same for laparoscopic cholecystectomy as for as any other surgery.

Hospitalization in lap chole patient study by Awis[3] 2.85 days, study by Shabir[5] 5.2 days in infected cases while 1-3 days elective cases in study of Andrew[22] 3 days in study of atta[7] the majority of cases discharged within 24-48 hours but Serralta[10] suggests 5 days postoperative stay in lap chole. While in our study all elective cases remain stay for 24 hours but lap converted patients from 6 to 7 days.

Wound infection in study by Shabir[5] the rate of wound infected 13% while in our study, the infra umbilical port infected in 2.8% of cases but all other ports found aseptic in 100% of cases. In our study none of our patient suffered through severe morbidity and mortality.

CONCLUSION

Lap chole is a reliable and safe in management of cholecystitis either with or without cholelithiasis having simple or acute cholecystitis, while certain factors are responsible for conversion include delayed arrival more than 72 hours, empyema and bleeding while contradictory to international literature our study suggest that conversion rate is high in acute rather than elective Cholecystectomy. So it is concluded that emergency lap chole is a safe and cost effective due to on time surgery and patient can be prevented from future complication. Therefore early lap chole is safe and can be performed in simple and complicated Cholecystitis while literature have proved that lap chole also safe in pregnant lady with certain limitation of like height of fundus.

REFERENCES

1. Iqbal P, Siyal K, Siyal E. Gall stone disease an experience at Civil Hospital Karachi. Med Channel 2001;17(2): 17-21.
2. Dubois F, Lcard P, Barthelot G. Laparoscopic cholecystectomy, preliminary report of 36 cases. Ann surg 1990; 211(1):60-2.
3. Shuja A, Abid R, Abid B. Lap chole, optional timing for surgery in acute gall stone disease. Professional Med J 2011;18(2): 237-242.
4. Waqar SH, Fahad, Irshad A, et al. Two ports laparoscopic cholecystectomy. A new techanique,

case report. J Ayoub Med:coll Abbottabad 2008;20(8):167-68.
5. Shabir, Sher MB, Rajib YD, et al. Risk factors Resulting in conversion of lap chole to open cholecystectomy. Med Channel 2010;16(2):302-05.
6. Atta S, Kheo R, Saleem M, Sattar A, et al. Experience of first 100 cases of Laparoscopic surgery. JSP (Int) 2002;7(3): 47-49.
7. Atta S, Aijaz A, Khalid M. D-Bhawant Role of lap chole in the management of acute cholecystectomy. JLUMHS 2005;68-71.
8. Atta S. Creative of Pnemopertoneum by a new technique Prior to laparscopic procedure. JLUMHS 2004;3(1):17-20.
9. Bendar JS, Duncan MD, Freesqick PD, et al. Increasal laparoscopic experience does not to lead to improve result with acute cholecystitis. Am J Surg 2002;184(6):591-4 (Discussion 5).
10. Zarkadas S. Laparoscopic opproach in acute abdomin processes during pregnancy. Surg Endosc 14:2008: 80-91.
11. Tzovaras G, Zacharoulis D, Kevil P, Treodoro-poulos, et al. Timing of lap chole for acute cholecystitit, a prospective non-randomized study. World J HI 2006;12(34):552-553.
12. Kitano S, Matsumoto T, Armak M, Kawano K. Lap chole for acute cholecystectomy. J Hepatobilliary Pancreatic Surg 2002;9:534-537.
13. Cheema S, Brannigan AE, Johnson S, et al. Timing of lap chole in acute cholecystitis. Ir Med Sci 2003 172 (3):128-31.
14. Fried G, Barkum J, Sigman H, et al. Factors determine conversion to laparotomy in patients undergoing lap chole. Am J Surg 1994;167:35-41.
15. Memon W, Khanzada TW, Samad A, Leghari MH. Laparscopic cholecystectomy conversion rate and its causes at Isra university hospital Hyderabad. JPMA 2008;33-2.
16. Livingston EH, Reg RV. A nationwide study of conversion from lap chole to open chole. Am J Surg 2004;188:205-11.
17. Rosen M, Brudy F, Ponsky J. Predictive factors for conversion of lap chole.Am J Surg2002;184:254-8.
18. Khan AS, Jan WA. Comparative study of lap chole and open mini chole. JSP Int 2002;5(1).
19. Bhatti Khan AZ, Khan AR ZA. Early lap chole for acute biliray symptom is it work? PJS 2008;16:3-4 19-23.
20. Hawasali A, Lioyl LR. Lap chole learning curve report of 50 cases Am J Surg 1991:57(8):542-4.
21. Booker WM, Z Johnson A. Pnewmoperitoneum Physiological effect of Anaesthesia and analgia. 1994;2:23.
22. Andrew M, Ross Michael G. Sarr management of Major complication of lap chole. Am J Surg 1994;105:655-2.
23. Serralta AS, Bueno JL, Planells MR, et al. Postoperative evaluation of emergency versus delayed lap chole for early cholecystitis. Surg Laparosc endo sc percutan Tech 2003; 13(2):71-75.

Address for Corresponding Author:
Dr. Ghulam Hyder Rind
Associate Professor of Surgery,
Surgical Unit-I,
Ghulam Muhammad Mahar Medical College,
Sukkur.
Mobile: 0300-3299917

Original Article

Evaluation of Recovery Patterns in Post- Operative Patients Using Fast-Track Criteria and Modified Aldrete Scoring System after Surgical Anaesthesia in Patient Management

1. Muhammad Salman Maqbool 2. Arshad Saleem Shahani 3. Muhammad Umer Draz

1. Asstt. Prof. of Anesthesiology & Intensive Care, Islam Medical College, Sialkot

2. Consultant, Dept. of Anesthesia and Intensive Care, Holy Family Hospital, Rawalpindi 3. Medical Officer, Medical Unit-II, Benazir Bhutto Hospital, Rawalpindi.

ABSTRACT

Aim: The post-operative period is the most critical phase for the surgical patients, requiring close observation. A study was conducted to assess and evaluate patients post-operative recovery course following surgical anesthesia using post anesthesia recovery assessment scoring systems for optimal and timely patient management, so as to ensure a safe postoperative recovery course, thus decreasing morbidity as well as mortality.

Study Design: Observational Study

Place and Duration of Study: This study was carried out in the Department of Anesthesia and Intensive Care, Holy Family Hospital, Rawalpindi, from the period 30-01-2010 to 18-2-2010 and in the Department of Anesthesia and Intensive Care Unit, Islam Teaching Hospital, Islam Medical college, Sialkot, from 16-9-2010 to 28-2-2011.

Materials and Methods: In the study, patients undergoing elective surgical procedures in general as well as regional anesthesia were included. The patient's age group was between 15-85 years and belonged to American Society of Anaesthesiologists (ASA) physical status class 1-3 as well as medically optimized ASA-class 4 patients. On discontinuation of general anesthesia patients were assessed for conscious state, cardiovascular stability (pulse and blood pressure) and motor recovery. The Fast-Track criteria were used to assess initial recovery of patient in the operating area. Patients were then shifted to Post Anesthesia Care unit, where recovery assessment was done by continuation of Fast-Track Criteria[1,2,3] and also by employing the Modified Aldrete scoring system[4] immediately, and at five, fifteen, thirty minutes and then at one hr interval depending on clinical physiological status of the patient and the level of score achieved. The patients further management intervention was guided in the light of scores attained, which depicted the physiological alteration. The Post-Anesthesia Discharge scoring system[5,6] and Aldrete recovery score[7] modified for day surgery was used to assess physiological status of patient before shifting them to the surgical ward or for assessment of home readiness.

Data was compared and analyzed by SPSS version 17. Mean ± S.D was calculated for quantitative variables, age etc. Frequencies and percentages were presented for qualitative variables e.g. gender and various scoring systems used in the study. Spearman's Rank correlation was used to check interdependence between the two variables i.e. Fast-Track criteria[1,2,3] and Modified Aldrete scoring system[4]. The P-value of <0.05 was considered statistically significant.

Results: A total of one hundred and ninety nine patients were checked in the study (one hundred and six females and ninety three males) out of which one hundred and fifty seven i.e. 78.89% patients were shifted to respective wards uneventfully. A total of eleven patients i.e. 5.52% needed urgent advanced management care and were shifted to surgical intensive care, while three patients i.e. 1.50% were placed on ventilatory support as guided by the recovery scoring system scores attained and pathological status of the patients. Thirty one patients i.e. 15.57% were discharged to home safely. Thirty patients i.e. 15.07% were 'Fast Tracked' in the study from the operation theatre bypassing the first stage of the traditional two stage recovery process. The value of correlation co-efficient (r) was significant at the 0.01 level.

Conclusion: The Fast-Track scoring criteria[1,2,3] along with Modified Aldrete scoring system[4] offers guidance in evaluating post-operative recovery of patients from surgical anesthesia for optimal patient management, so as to decrease morbidity.

Key Words: Post Anesthesia Care Unit, Recovery Scores, Anesthesia.

INTRODUCTION

The early post-operative period is potentially the most dangerous for the surgical patients requiring watchful and attentive supervision by skilled medical/nursing staff, if serious complications are to be avoided. In the past, the record of the patient progress during this period usually consisted of "vital signs" and accompanying nurse's notes. These often failed to communicate a clear picture of the status of the patient.

In recent years the emphasis in providing anesthetic services has undergone a transitional change. With the busy elective surgery schedule, the need arises of safe recovery of patients from anesthesia. Several methods have been described for assessing objectively the progress of recovery from general as well as regional anesthesia. These include Fast-Track criteria[1,2,3], Modified Aldrete scoring system[4], Post Anesthesia Discharge score[5,6] Aldrete score[7], The Simplified Post-Anesthetic Recovery Score[8] and others. Some of these tests are used for the assessment of early recovery, while others are used in assessing recovery of patient before shifting to surgical ward from Post Anesthesia Care unit or home readiness as in the case of ambulatory surgery.

Assessment and documentation of a scoring system is recommended to facilitate the overall assessment of patient readiness for discharge from Phase I to Phase II and from phase II to Phase III extended observation or home, but does not replace critical thinking and specific physician directives. It is also vital that results be interpreted with medical judgment. The results of scoring systems should be incorporated into recovery room record. The recovery scores provide a uniform and definitive account of the progress of the patient through important stages in his recovery from surgical anesthesia and return of protective functions. It also establishes a routine of repeated re-evaluation which should result in improved patient supervision. The described system used in our study is simple enough that it will neither distract the nurse from patient care nor impose an extra burden. The retrospective analysis of the exact status of a patient at a given time after operation can be utilized and may be valuable as a research tool in comparing recovery following various techniques of general anesthesia.

The aim of this study was to ensure safe, timely and appropriate discharge of patient from Post-Anesthesia Care unit to the respective areas whether home, ward or I.C.U by using scoring systems i.e. Fast-Track criteria[1,2,3], Modified Aldrete scoring system[4], Post Anesthesia Discharge score[5,6] and Aldrete score[7].

We hypothesized that using two stated recovery scoring criteria's i.e. Fast- Track criteria[1,2,3] and Modified Aldrete scoring system[4] will help in appropriate assessment of recovery from anesthesia and provide guidance so as to immediately take appropriate necessary actions for better and optimal patient management. The Post Anesthesia Discharge score[5,6] and the Aldrete score[7] was used in the study to evaluate the patients physiological status before shifting them from the Post Anesthesia Care unit to the surgical ward or for assessment of home readiness.

MATERIAL AND METHODS

After approval from hospital ethical committee and obtaining informed consent, this observational study was carried out in the Department of Anesthesia and Intensive Care, Holy Family Hospital, Rawalpindi, from 30-01-10 to 18-2-10 and in the Department of Anesthesia and Intensive Care Unit, Islam Teaching Hospital, Islam Medical college, Sialkot, from 16-9-10 to 28-2-2011.In the study, patients undergoing elective surgical procedures in general as well as regional anesthesia were included. The patient's age group was between 15-85 years and belonged to American Society of Anaesthesiologists (ASA) physical status class-1-3 as well as medically optimized ASA class- 4 patients. The patients were seen a day before planned surgery for standard pre-operative anesthesia assessment.

All patients received standardized anesthetic technique using Propofol 2mg/kg intravenously. Tracheal intubation was facilitated by use of muscle relaxant with either Inj.Succinyl Choline 1mg/kg or Atracurium 0.5mg/kg intravenously.After tracheal intubation anesthesia was maintained with volatile agent Isoflorane in titrated dose in combination with Nitrous Oxide in 60% Oxygen. Following completion of surgery anesthesia was discontinued and the patients were assessed for conscious state, cardiovascular stability (pulse and blood pressure) and motor recovery.Inj.Noestigmine 2.5mg along with Inj.Glycopyrrolate 0.6mg was given intravenously to reverse any residual effects of muscle relaxant. Patients were extubated on fulfilling standard criteria. The Fast-Track criteria[1,2,3] was used to assess recovery of patient from general anesthesia in the operating room. Patients were then shifted to Post Anesthesia Care unit where immediate oxygen saturation on air was noted before supplemental oxygen was given. The patients further recovery assessment was done by continuation of Fast-Track Criteria[1,2,3] and also by employing the Modified Aldrete scoring system[4] immediately, and at five, fifteen, thirty minutes and then at one hr interval depending on clinical physiological status of the patient and the level of score achieved.

In our study, it was made sure that every patient was seen following their operation by the anesthetist and surgeon involved in their respective case in post anesthesia care unit. The patients further management intervention was guided in the light of scores attained, which depicted the physiological alteration. Meticulous attention was paid to patient's ventilatory pattern, cardiovascular stability, oxygen saturation, and conscious state i.e. physiological stability. The Post Anesthesia Discharge score[5,6] and Aldrete score[7] was used to assess status of patient before shifting to respective wards or for assessment of home readiness.

RESULTS

A total of one hundred and ninety nine patients were checked in the study (one hundred and six females and ninety three males) out of which one hundred and fifty seven i.e. 78.89% were shifted to the respective wards

uneventfully. Thirty one patients i.e. 15.57% were discharged to home safely. The mean age of patients was 34.66 years, range between fourteen and eighty five years with a standard deviation of 16.431.

In the study thirty one patients i.e. 15.57% were discharged to home. Thirty patients i.e. 15.07% were 'Fast Tracked' in the study from the operation theatre bypassing the first stage of the traditional two stage recovery process.

The measures of central tendency for all the scoring systems used in the study are recapitulated in Table-1.

Spearman's Rank correlation was used to check interdependence between the two variables i.e. Fast-Track criteria[1,2,3] and Modified Aldrete scoring system[4]. The value of correlation co-efficient (r) was 0.450. The correlation was significant at 0.01 level depicted in Table-2.

Table No.1: Measures of central tendency of all recovery scoring systems in study.

Statistics					
		Modified Aldrete score	Fast Track criteria	Aldrete scoring	Post Anesthesia Discharge Score
N	Valid	198	198	198	197
	Missing	136	136	136	137
Mean		9.55	12.95	15.83	8.44
Std. Error of Mean		.062	.108	.188	.068
Median		10.00	13.00	14.00	8.00
Mode		10	14	14	8
Std. Deviation		.870	1.526	2.650	.960
Variance		.756	2.328	7.023	.921
Range		7	12	10	5
Minimum		3	2	10	5
Maximum		10	14	20	10

Table No. 2: Spearman's Rank Correlation.

			Modified Aldrete Score	Fast Track Criteria
Spear-man's rho	mod. aldrete score	Correlation Coefficient	1.000	.450**
		Sig.(2-tailed)	.	.000
		N	198	198

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

DISCUSSION

Recovery from anesthesia is a continual process, the early stages of which overlap with the end of operative anesthesia. The attainment of patient's full pre-operative physiological status from general anesthesia extends from minutes to days. It is conveniently divided into various phases[9].The Phase-I, starts from discontinuation of anesthesia and continues into the high dependency atmosphere of the Post Anesthesia Care unit. Phase-II is when the patients are shifted to the respective wards and final full psychological as well as physiological recovery at home i.e. Phase-III. Reiterating, these phases not only entirely depict locations, but also the level of care involved.

The various phases of patients recovery need to be addressed as pre-mature discharge may lead not only to patient's morbidity but also has medico legal concerns as well. The scoring system also helps in identifying patients needing immediate intervention to restore physiological homeostasis. The Aldrete score is a well established scoring system that has been used to determine when the patient can be safely discharged from post anesthesia care unit to phase-II i.e. the surgical ward[9].However; with the introduction of pulse oximetry a modification of Aldrete scoring[4] was introduced, which was used in our study. In this version, the need for room air oxygen saturation is >92%.Chung F[10] in his study by using Post Anesthesia Discharge score[5,6] was able to discharge most patients safely i.e. 82% and 95.6% of cases within two and three hrs respectively after surgery .Only in 4.4% of the cases discharge was delayed due to factors like recurrence of pain, unavailability of immediate escorts etc. Removing the requirement of drinking and voiding and separating the pain, nausea and vomiting scores produced the version of Post Anesthesia Discharge score[5,6] used in our study.

Patients undergoing regional anesthesia should undergo assessment of recovery under the same standards of postoperative care[11].Some authors have shown faster discharges after regional anesthetic techniques[11]. However regional anesthesia does bring unique advantages and problems to the ambulatory settings[12] Spinal anesthesia is a simple and reliable technique that has been used widely for regional anesthesia[13].Suitable criteria to judge recovery after regional anesthesia include perianal sensations, plantar flexion of big toe and proprioception[14] and these tools were used in our study . After epidural or spinal anesthesia patients were permitted to sit up only after return of full sensation to the affected areas and were permitted to ambulate only after complete resolution of motor, sensory and sympathetic blockade in our study.

The use of balanced anesthetic techniques and introduction of newer anesthetic agents, with titration of their doses and guided by clinical observation, hemodynamic data and indirect effects of anesthetic agents on the cardiovascular system during surgical anesthesia, allow rapid awakening from anesthesia and early recovery may be completed in the operating room. Some patients are now being transferred directly from the operating room table to step down unit bypassing the Post Anesthesia care unit. This process is known as "Fast Tracking"[15].It was also implemented in our study

by employing Fast-Track criteria in the operating area, along with ability of the patient to be in fully conscious state and stable hemodynamically state as to move themselves over with minimal assistance from the operating table to the shifting trolley after fifteen to twenty minutes of the end of the surgery.

The discharge process in the study for home was so designed that the patient and the attendants understood their role and responsibilities in the ongoing care and felt confident to go home. The patients were also given written instructions in detail. The patient and the attendants were aware of the signs and symptoms to watch for that would necessitate their return to hospital. The communication was given much importance. The criteria for discharge from the recovery room recommended by the Association of Anesthetists of Great Britain and Ireland were used as guidelines in our study[16].

The anesthesiologist was consulted finally prior to shifting of patient from Post Anesthesia Care unit to the destined areas. The discharge in our study was not time based but varied according to patient's physiological status.

Readmission rate was nil in the population studied. The noteworthy post-operative symptoms noted in our study, were surgical pain in fifty-four patients i.e. in 16.2% patients post operative analgesics was administered. In one hundred and forty-four patients i.e. in 43.1% patients no postoperative analgesia was required during stay in Post Anesthesia care unit. Three patients complained of nausea and vomiting, hypoglycemia noted in one patient, bronchospasm requiring nebulization was required in two patients in Post Anesthesia care unit. A total of eleven patients i.e. 5.52% needed urgent advanced management care and were shifted to surgical intensive care. Out of which five bypassed Post Anesthesia Care unit for advanced surgical intensive care , while three patients i.e. 1.50% were placed on ventilatory support electively due to clinical premorbid states, the recovery scoring system scores attained and the type of surgery e.g. craniotomy, abdominal aortic aneurysm and whipple procedure. The value of correlation co-efficient (r) between the Post Anesthesia Discharge score[5,6] and Aldrete score[7] in our study was 0.389 and the correlation was significant at the 0.01 level.

The Aldrete scoring system[17] first described in 1970 assigned a score of 0,1or2 to activity, respiration, circulation, consciousness and color. The recovery score modified for day case Surgery was published by Aldrete[7] in 1995. This scoring system was utilized in our study.

Dexter et al[18] in their study, while using computer simulations analyzed that by implementing new recovery assessment criteria's the efficient utilization of services can be achieved. Thus overall cost can be reduced as well without compromising patient's safety.

In the study done by Kajyama S and colleagues[19] on post operative recovery of patients using Post Anesthesia Discharge score[5,6] they found it to be useful for safe discharge of patients from Post Anesthesia care unit.Chung F [6] in his study stated that Post Anesthesia Discharge score is a simple, practical scoring system and also provided uniform assessment of patient for safe discharge. They also used Aldrete score for initial evaluation of post-operative recovery from anesthesia in their study. They found Post Anesthesia Discharge score to be having superior measurement scaling and diagnostic properties. In our study the drinking of water i.e. ability to retain orally administered fluids and voiding for those patients who were not at risk of urinary retention was not considered hindrance in safe discharge of patient's to the surgical ward. In study done by Schreiner MS[20] et al drinking might not be a necessary factor for discharging patient's after surgery.Fritiz WJ[21] in their study, noted that patient's not at high risk of urinary retention can be safely discharged before they have voided without urinary retention at home. The risk factors for postoperative urinary retention included a history of postoperative urinary retention, spinal/epidural anesthesia, pelvic or urological surgery, and perioperative catheterization. This regimen was implemented in our study with modification that in our set up voiding within the hospital was applied.

To evaluate psychological performance postoperatively various tests were used in the past. The common ones were Modified Gestalt test - the Trieger dot test[22], driving simulators[23] and reaction time test[24]. Many are complex and time consuming. The major drawbacks of these tests being they only assess recovery of one part of the brain function, rather than complete recovery of patient and they were not utilized in our study.

As patient's length of stay in Post Anesthesia Care unit depends on a number of factors, including pre-operative health status, surgical procedure, and type of anesthesia administered and the stability of vital signs. A study by Riley and colleagues[25] pointed out the methodological problems in developing a valid measurement tool for post-anesthetic recovery assessment discharge scoring. Therefore for this purpose Standards for Post Anesthesia Care were documented to encourage quality of patient care, but they cannot guarantee any specific patient outcome[26].

The scoring system also provides uniform assessments of all patients. These post-anesthesia recovery scores are similar in principle to the Apgar score[27] used to evaluate condition of the newborn.

CONCLUSION

Simple recovery scoring systems are necessary in order to standardize end points of clinical recovery to encompass widely varied co-morbid states of surgical patients during the conduct of clinical research. The

Fast-Track scoring criteria along with Modified Aldrete scoring system can offer reliable guidance in evaluating physical status of patient post-operatively recovering from surgical anesthesia for optimal patient management. Further studies to identify special characteristics of surgical patients with altered/delayed recovery from anesthesia are warranted.

REFERENCES

1. Lubarsky DA. Fast track in the post anaesthesia care unit: unlimited possibilities. J Clin Anesth 1996; 8:70-2.
2. Song D, Joshi GP, White PF. Fast-Tracking Eligibility After Ambulatory Anesthesia: A Comparison of Desflurane, Sevoflurane, and Propofol. Anesth Analg 1998; 86: 267-73.
3. White PF, Song D. New criteria for fast-tracking after outpatient anesthesia : a comparison with the modified Aldrete's scoring system. Anesth Analg 1999;88:1069-72.
4. Aldrete JA. Modifications to the postanesthesia score for use in ambulatory surgery. J Peri Anesthesia Nursing 1998 ;13(3):148-155.
5. Marshall S, Chung F. Assessment of 'home readiness': discharge criteria and postdischarge complications. Curr Opin Anaesthesiol 1997; 10(6): 445-50.
6. Chung F. Are discharge criteria changing? J Clin Anesth 1993; 5: 64-8.
7. Aldrete JA. The post -anesthesia recovery score revisited. J Clin Anesth 1995; 7: 89-91.
8. Steward DJ. A simplified scoring system for the post-operative recovery room. Canad Anaesth Soc J 1975;22:1.
9. Steward DJ, Volgyesi G. Stabilometry: a new tool for measuring recovery following general anaesthesia. Can Anesth Soc J 1978; 25:4-6.
10. Chung F. Recovery pattern and home readiness after ambulatory surgery. Anesth Analg 1995; 80: 896-902.
11. Mulroy MF. Regional anaesthetic techniques. Int Anesthesiol Clin 1994; 32:81-98.
12. Mingus ML. Recovery advantages of regional anaesthesia compared with general Anaesthesia: adult patients. J Clin Anesth 1995; 7; 628-33.
13. Mulroy MF, Wills RP. Spinal anaesthesia for outpatients : appropriate agents and techniques. J Clin Anesth 1995; 7: 622-7.
14. Pflug AE, Aasheim GM, Foster C. Sequence of return of neurological function and criteria for safe ambulation following subarachnoid block. Can Anaesth Soc J 1978; 25:133-9.
15. Tang J, Chen L, White PF, Watcha MF, Wender RH, et al. Recovery Profile,Costs,and Patient Satisfaction for Fast-track Office-based Anesthesia. Anaesthesiology 1999; 91:253-61.
16. Immediate postanaesthetic recovery. London: The Association of Anaesthetists of Great Britain & Ireland;2002. www.aagbi.org/pdf/postanaes 2002. pdf.
17. Aldrete JA, Kroulik D. A Postanesthetic recovery score. Anesth Analg 1970; 49: 924-34.
18. Dexter F, Macario A, Manberg PJ, Lubarsky DA. Computer Simulation to Determine How Rapid Anesthetic Recovery Protocols to Decrease the Time of Emergence or Increase the Phase 1 Postanesthesia Care Unit Bypass Rate Affect Staffing of an Ambulatory Surgery Center. Anesth Analg 1999; 88:1053-63.
19. Kajiyama S, Kobayashi M, Okada Y. Criteria for postoperative discharge of the patients managed by anesthesiologists in an ambulatory surgery unit. Masui 2004 Aug ;53(8):882-7.
20. Schreiner MS, Nicholson SC, Martin T, et al. Should children drink before discharge from day surgery? Anesthesiology1992; 76:528-33.
21. Fritz WT, George L, Krull N, Krug J. Utilization of a home nursing protocol allows ambulatory surgery patients to be discharged prior to voiding [abstract]. Anesth Analg 1997;84:6.
22. Newman MG, Trieger N, Miller JC. Measuring recovery from anesthesia: a simple test. Anesth Analg 1969; 48:136–40.
23. Korttila K, Tammisto T, Ertama P, et al. Recovery, psychomotor skills, and simulated driving after brief inhalational anesthesia with halothane or enflurane combined with nitrous oxide and oxygen. Anesthesiology 1977; 46:20 -7.
24. Craig J, Cooper GM, Sear JW. Recovery from day case anaesthesia. Br J Anaesth 1982; 54:447-51.
25. Riley R, Brotto V, Alexander L. Developing a post-anaesthetic discharge scoring system: methodological and clinical issues. Australian Society of Post anaesthesia and Anaesthesia Nurses Newsletter, 2006;10(4):6 -14.
26. Eichhorn JH, Lock RL. Practice and operating room management. In: Barash PG, Cullen BF, Stoelting RK, editors. Clinical Anesthesia. 5th ed. USA: Lippincott Williams & Wilkins; 2006.p.35.
27. Apgar V, Holaday DA, James LS, Weisbrot IM, Berrien C. Evaluation of the newborn Infant; second report. J am Med Assoc 1958 13; 168(15): 1985- 88.

Address for Corresponding Author:
Dr. Muhammad Salman Maqbool
Assistant Professor, Islam Medical College, Sialkot.
Address: H.No.573, St.No.69, Sector I-8/3, Islamabad
E-mail: salman5732000@yahoo.com
Cell: 0345-5117736

Original Article

Young-Onset Stroke in the Rural Areas of Sindh

1. Shaheen Ahmed Mughal 2. Abdul Qayoom Memon 3. Saleem Faiz

1. Asstt. Prof. of Neurology 2. Prof. of Medicine 3. Assoc. Prof. of Medicine, Peoples University of Medical and Health Sciences for Women (PUMHSW) Nawabshah, Benazirabad

ABSTRACT

Objective: to determine the risk factors and clinical features in the young-onset stroke belonging to the rural areas.
Study Design: Retrospective, Observational.
Place and Duration of Study: This study was conducted at the Department of Neurology, Medical Unit II, Peoples Medical College Hospital, Nawabshah from 1.1.2006 to 31.12.2006.
Materials and Methods: Hospital records of acute stroke cases aged 20-45 years were reviewed. Stroke was defined according to the WHO criteria. Demographic and clinical data including the risk factors were scrutinized. Laboratory investigations and the CT Scan of brain were evaluated in all cases.
Results: Twenty-cases were documented. Male= 12 (60%), Female= 8(40%). Age ranged from 20-45 years. Majority were uneducated and they were residents of small rural communities. Hypertension was the most frequent risk factor in 13 (65%) of cases (Table 1). Only 2 (10%) were previously taking antihypertensive treatment while 18 (90%) were not receiving any treatment prior to stroke. Heart disease was present in 2 (10%). Three (15%) were smokers. One (5%) had Diabetes mellitus, 3 (15%) had previous stroke and 1 (5%) had a family history of stroke. Three (15%) had none of the above risk factors. Hemiplegia was the most common presentation where 8 (40%) had right while 7(35%) had left hemiplegia and in 5 (25%) sidedness could not be ascertained because of deep coma (Table 2). Glasgow Coma Scale (GCS) ranged from 5-12 out of 15. Cerebral infarction was more common 12 (60%) than cerebral haemorrhage 6 (30%) while in 2 (10%) CT findings were unremarkable (Table 3). Of the 20 cases 3 (15%) expired and 17 (85%) survived (Table4). Fatal cases had GCS of below 8 out of 15.
Conclusions: This study indicates that hypertension is the major risk factor for stroke in young adults belonging to the rural areas. Hemiplegia was the most common presenting feature. Cerebral infarction accounts for 60% of the cases and the survival rate was 85%. Unawareness and poor control of hypertension appears to be the main reasons behind the young-onset stroke in our region.
Key Words: Young stroke, Risk factors, Prognosis, Rural.

INTRODUCTION

There were times when stroke was considered as the disease of the old age, but the time is changing and stroke is affecting a growing number of adults below the age of 45 years. This is evident in the recent population[1,2] and hospital-based studies[3,4]. Such evolution of stroke affecting young adults is quite alarming as well as challenging. That is why it has generated a great deal of interest for study of such group of patients may lead to a better understanding of the disease process[5]. Stroke occurring in individuals below 45 years constitutes approximately 5% to 10% of all ischemic strokes[1,2,6]. The annual incidence of stroke in this age group varies from 9-39 cases per 100,000 populations[1,2,5,7]. Since our younger population is increasing the incidence of stroke in this age group is likely to increase if the risks involved are not properly identified. Therefore further studies are required to address this issue.

Stroke may be as a result of infarction due to thrombotic or embolic occlusion of a cerebral vessel or as a result of cerebral hemorrhage. Epidemiological evidence indicate that hypertension is the most important cause of stroke in men and women of all ages[8]. While in some young stroke cases the underlying cause can be identified, in 43%[9] to 45%[3] of cases the cause remain undetermined despite of extensive investigations (cryptogenic strokes). However, with the help of more sophisticated tools like MRI, cerebral angiography, transesophageal echocardiography, the proportion of unexplained stroke may come down to 27%[2]. It is therefore important to thoroughly asses the young stroke patients so that a treatable cause is not missed. Moreover, stroke is a disabling disease[10]. Since young age is the most productive age it is imperative that such cases receives special attention so that long term disability can be minimized. Regional hospital-based studies[3,4] have previously highlighted some clinical aspects of stroke in young adults but those are mostly part from the urban areas. The purpose of this study was to determine the risk factors and other clinical characteristics of young stroke cases belonging to the rural areas.

MATERIALS AND METHODS

We retrospectively reviewed the hospital records of patients aged 20-45 years admitted with the diagnosis of acute stroke at the Department of Neurology,

Medical Unit II, Peoples Medical College Hospital Nawabshah during the period January 2006 to December 2006. Demographic and clinical data was evaluated. Presence of risk factors including hypertension, heart disease, diabetes mellitus, smoking , past history of stroke, family history of stroke were scrutinized. Investigations like complete blood count, blood sugar, urea, urine analysis, Chest x-ray, ECG, Echocardiogram and CT Scan of brain were analyzed. Diagnosis of hypertension, diabetes, heart disease was based on combination of medical history, laboratory results, previous prescriptions or other hospital discharge cards whenever available. Stroke was defined as the rapidly developed clinical signs of focal (or global) disturbance of cerebral functions, lasting for more than 24 hours or leading to death with no apparent cause other than of vascular origin[11]. All cases with intracranial infections, space occupying lesions or other diseases simulating stroke were excluded. The diagnosis of cerebral infarction or cerebral hemorrhage was made on the basis of CT Scan findings.

RESULTS

Twenty-cases were documented. Male= 12 (60%), Female= 8(40%). Age ranged from 20-45 years. Majority were uneducated and they were residents of small rural communities. Hypertension was the most frequent risk factor in 13 (65%) of cases (Table 1). Only 2 (10%) were previously taking antihypertensive treatment while 18 (90%) were not receiving any treatment prior to stroke. Heart disease was present in 2 (10%). Three (15%) were smokers. One (5%) had Diabetes mellitus, 3 (15%) had previous stroke and 1 (5%) had a family history of stroke. Three (15%) had none of the above risk factors. Hemiplegia was the most common presentation where 8 (40%) had right while 7 (35%) had left hemiplegia whereas in 5 (25%) sidedness could not be ascertained because of deep coma (Table 2). Glasgow Coma Scale (GCS) ranged from 5-12 out of 15. Cerebral infarction was more common 12 (60%) than cerebral hemorrhage 6 (30%) while in 2 (10%) CT findings were unremarkable (Table 3). Of the 20 cases 3 (15%) expired and 17 (85%) survived (Table 4). Fatal cases had GCS of below 8 out of 15.

Table No. 1: Risk Factors

Risk Factor	N0. of Patients	%
Hypertension	13	65%
Heart Disease	2	10%
Smoking	3	15%
Diabetes	1	5%
Past Stroke	3	15%
Family History	1	5%
None of Above	3	15%

Table No. 2: Disability

Sidedness	Cases	%
Right Hemiplegia	8	40%
Left Hemiplegia	7	35%
Uncertain	5	25%

Table No.3: CT Scan Findings

Diagnosis	No	%
CI	12	60%
CH	6	30%
Unknown	2	10%

CI = Cerebral Infarction
CH = Cerebral hemorrhage

Table No.4: Mortality

Expired	3	15 %
Survived	17	85%

DISCUSSION

We studied the young cases with acute stroke belonging to the rural areas. Due to small sample size of our study it is difficult to make comparison with large regional[3,4] and International[7,9] studies. None the less, it does shows a glimpse of young stroke patients belonging to various rural communities. Majority of the patients were uneducated. Hypertension was the most frequent risk factor. Ironically 90% of the cases never received treatment for hypertension prior to stroke. Although this figure is quite high but not surprising as similar situation is projected by Jafar et al[12] where 70% of the cases were unaware of their hypertension and only 3% had proper control of hypertension. Other characteristics include male preponderance of 60% similar to 64%[3] and 69.3%[4] as reported by regional urban centres and from other Asian countries India (76.3%)[13], Saudi Arabia (58.9%)[14] and Western countries[2,5]. Hypertension was the most frequent risk factor observed in 65% cases, same as 65% reported by Makki et al[4] but higher (43%) reported by Razzak et al[3] and 15-28% [1,2,15,16] from Western series. Given that the prevalence of hypertension is increasing in the younger individuals in Pakistan[12], the poor control of hypertension may lead to increased incidence of stroke among the young adults[9]. This could well be the reason for a growing number of young stroke cases in our region. It is of note that risk of stroke can be reduced by 38% if the blood pressure is adequately controlled[17].

In our study 15% were smokers which is lower (21%) reported by a regional study[3] and (42.6%) from a US[18] and much lower (69%) from Indian[13] and (81%) from Greenland[19]. The number of smokers in our study (15%) is less than expected. This may be due to small sample size of our study. But in view of (5.2 %)[20] prevalence of smokers aged 15 years and above in Pakistan it is possible that some patients may have concealed their smoking habits. While 43% of young stroke may be due to undetermined cause[9] , in 15% we

could not identify the risk factors or other underlying cause. But since these cases were not extensively investigated due to lack of facilities and financial constraints they were not considered as cryptogenic or of undetermined cause. Likewise, MRI could have been more revealing when the CT scan in 2 of our cases were unremarkable.

In our study cerebral infarction was more common (60%) than cerebral hemorrhage (30%). The same pattern of cerebral infarction greater then cerebral hemorrhage is reported in general population with thromboembolic stroke[21] and in series involving young people[22]. Mortality of 15% and survival of 85% is in line with 12-21% mortality and 79-88% survival projected by Makki et al[4] in previously published reports[5,23,24]. As mortality is higher in cerebral hemorrhage[25,26] and lower in cerebral infarction.[26,27] and that upto 79% of cases with cerebral infarction survive and have better prognosis[5,28], we expect better survival and recovery in patients with cerebral infarction. This is also evident in our data where 85% of our cases with cerebral infarction survived. None of our cases had movement disorder which may be an indicator of bad prognosis[3]. Most of our cases had hemiplegia at onset (75%) similar to 75.4% reported in a larger series[3]. We could not ascertained the degree of functional recovery as no standardized scale was used for this purpose. Other studies however indicate that a significant number of young stroke show good recovery (49%), yet some are left with residual deficits[3].

CONCLUSIONS

This study indicates that hypertension is the major risk factor for stroke in young adults belonging to the rural areas. Hemiplegia was the most common presenting feature. Cerebral infarction accounts for 60% of the cases and the survival rate was 85%. Unawareness and poor control of hypertension appears to be the main reasons behind the young–onset stroke in our region.

Recommendations

Most of the risk factors that have been identified are modifiable. There is a need for increasing awareness regarding stroke and its risk factors particularly in the rural areas where the illiteracy is very high. Public awareness through various sources including electronic media is strongly recommended.

REFERENCES

1. Nencini P, IInzitari D, Baruffi MC, et al. Incidence of stroke in young adults in Florence, Italy. Stroke 1988; 19:977-81.
2. Kristensen, B Malm J, Carlberg B, et al. Epidemiology and etiology of ischemic stroke in young adults aged 18 to 44 years in Northern Sweden. Stroke 1997;28:1702-9.
3. Razzak AA, Khan BA, Baig SM. Ischemic stroke in young adults of South Asia. J Pak Med Assoc 2002;52:417-22.
4. Makki KU, Fazel PA, Haroon H, Soomro IB. Risk Factors and outcome in 114 young stroke patients. Med Chann 2006;12:52-5.
5. Leno C, Berciano J, Combarros O, et al. A prospective study of stroke in young adults in Cantabria, Spain. Stroke 1993;24:792-5.
6. Bevan H, Sherma K, Bradley W, et al. Stroke in young adults. Stroke 1990;21:491-5.
7. Siqueira JI, Santos AC, Fabio SR, et al. Cerebral infarction in patients aged 15-45. Stroke 1996; 27: 2016-19.
8. Sehadri S, Wolf PA, Beiser A. Elevated midlife blood pressure increase stroke risk in elderly. Persons. The Framingham Study. Arch Intern Med 2001;161:2343-50.
9. Leys D, Bandu I, Henon H, et al. Clinical outcome in 872 consecutive young adults [15-45 years] with ischemic stroke. Neurology 2002;59:26-33.
10. American Heart Association. Heart disease and stroke statistics-2009 update. Dallas, Texas.
11. Aho K, Harmsen P, Hatano S, et al. Cerebro-vascular disease in community: Results of a WHO collaborative study. Bull. WHO 1980;58:113-30.
12. Nayak SD, Nair M, Radhakarishnan K. Stroke in the young aults: clinical feature, risk factors and and outcome. Nat Med J India 1997;10107-12.
13. Awada A. Stroke in Saudi Arabian young adults: a study of 120 cases. Acta Neurol Scand 1994;89: 323-28.
14. Nedeltchev K, der Maur TA, Georgiadis D, et al. Ischemic stroke in young adults: predictors of outcome and recurrence. J Neurol Neurosurg Psychiatry 2005;76:191-5.
15. Putaala J, Metso AJ, Metso TM, et al. Analysis of 1008 consecutive patients aged 15-49 with first-ever ischemic stroke: The Helsinki young stroke registry. Stroke 2009;40:1195-203.
16. Jafar TH, Levey As, Jafary FH, et al. Ethnic subgroup differences in hypertension in Pakistan. J Hypertens 2003;21:905-12.
17. Hoshide S, Kario K, Mitsuhashi T, et al. Different patterns of silent cerebral infarcts in patients with coronary heart disease. Am J Hypertens 2001;14: 509-15.
18. Kitner SJ, Stern BJ, Wozniak M, et al. cerebral infarction in young adults: The Baltimor-Washington Cooperative Stroke Registry. Neurology 1998;50:890-4.
19. Kjaergaard JJ, Gelvan A. Risk factors for ischemic stroke in young Greenlanders. Int J Circumpolar Health 2004;63:287-9.
20. Ahmed K, Jafary F, Jehan I, et al. Prevalence and predictors of smoking in Pakistan: results of the

National Health Survey of Pakistan. Eur J Cardiovasc Prev Rehabil 2005;12: 203-8.
21. Brodderick JP, Philips SJ, Whisnant JP, et al. Incidence rates of stroke in eighties: The end of the decline in stroke? Stroke 1989;20:577-82.
22. Radhakarishnan K, Ashok PP, Sridharan R, et al. Stroke in the young: Incidence nd pattern in Benghazi, Libya. Acta Neurol Scand 1986;73: 434-8.
23. Nadeem M, Khan MN, Ayub M, et al. A study of stroke in young, J Rawal Med Coll 1998;2:18-21.
24. Khan JA, Shah MA. Young stroke – Clinical aspects. J Coll Physician Surg Pak 2000;10:461-6.
25. Mettinger KL, Soderstrom CE, Allender E. Epidemiology of acute cerebrovascular disease before the age of 55 in the Stockholm County 1973-77;I, Incidence and mortality rates. Stroke 1984;15:795-801.
26. Lacy JR, Filly CM, Earnest MP, et al. Brain infarction and hemorrhage in young and middle ages adults. West J Med 1984;141:329-34.
27. Adams HP Jr, Butler MJ, Billere J, Toff GJ. Nonhemorrhagic cerebral infarction in young adults. Arch Neurol 1986;43: 793-6.
28. Bogousslvsky J, Regli F. Ischemic stroke in adults younger than 30 years of age, cause and prognosis. Arch Neurol 1987;44:479-82.

Address for Corresponding Author:
Dr. Shaheen Ahmed Mughal
4, Akber House
Hussain D'silva, Garden
Nishtar Road, Karachi.
E.mail: samughal58@yahoo.com
Mobile: 0315-3044138

Original Article

The Hepatoprotective Effect of Ethanolic Extract of Syzygium Aromaticum (Clove) on Alcohol Induced Hepatotoxicity in Rats

1. Soban Sadiq 2.Khursheed Anwer 3. Adnan Bashir

1. Asstt. Prof. of Pharmacology, Azad Jammu & Kashmir Medical College, Muzaffarabad, Azad Kashmir 2. Asstt. Prof. of Pharmacology, University College of Medicine & Dentistry, Lahore 3. Asstt. Prof. of Pharmacology, Fatima Memorial College of Medicine and Dentistry Lahore

ABSTRACT

Objective: The aim of this study was to assess the effect of ethanolic extract of Syzygium aromaticum(clove) buds in alcohol induced hepatotoxicity in rats.

Study Design: Randomized controlled trial

Place and duration of study: Department of Pharmacology, Fatima Memorial College of Medicine and dentistry, Lahore from 1st July 2011 to 31st December 2011.

Materials and Method: The rats were divided into five groups, i.e. control group (A), ethanol positive group (B), experimental groups (C and D) and standard group (E). Group C experimental rats received ethanol (3 g/kg body weight daily intraperitoneal injection) and ethanolic extract of Syzygium aromaticum at 250mg/kg of body weight daily orally for a period of forty five days. Group D experimental rats received ethanol and ethanolic extract of Syzygium aromaticum at 500 mg/kg of body weight. Group E received ethanol and silymarin (100mg/kg orally).Blood samples were taken at 45th day and liver in each was taken out for histopathological examination.

Results: The ethanol group rats showed variable increase in serum ALT (Alanine Transaminase), AST(Aspartate transaminase)), ALP(Alkaline Phosphatase) and total bilirubin levels. In group C and group E rats the levels of these parameters become slightly decreased while in group D rats the levels decreased more towards normal. The morphological examination of experimental groups C and E rats showed slight recovery whereas the rats in experimental group D showed a significant recovery. Syzygium aromaticum constituents, especially flavonoids and polyphenols have strong anti-oxidant activity which provides hepato-protection against alcohol induced hepatotoxicity.

Conclusion: High dose of Syzygium aromaticun ethanolic extract (500 mg/kg body weight) showed better hepatoprotection against alcohol induced hepatotoxicity than low dose Syzygium aromaticum extract and silymarin in rats.

Key Words: Hepato-protection, ethanol, Syzygium aromaticum, Silymarin, oxidative stress

INTRODUCTION

The liver is the largest solid organ, the largest gland, and the main metabolic organ of the human body.[1] The liver performs not only physiological functions but also protects body against adverse effects related with drugs and chemicals.[2] Alcohol is a hepatotoxicant that induces a diffuse type of liver injury closely resembling human viral hepatitis. Oxidative stress plays a major role in pathogenesis of alcohol induced liver injury. The major factor in cytotoxic action of alcohol has shown to be peroxidation of endogenous lipids.[3] The toxicity of alcohol was later on shown to be related to its metabolism by alcohol dehydrogenases(ADHs) and also to the metabolism by CYP2E1(Cytochrome).[4] Free radicals have been implicated in alcoholic liver disease. Mechanisms that are thought to be involved are impairment of antioxidant defenses, as well as production of reactive oxygen species by the mitochondria and the CYP2E1 enzyme, and by activated phagocytic cells.[5] Oxidative compounds are the stimulator of lipid peroxidation which ultimately leads to cell membrane damage. It is reported that administration of alcohol decreases the antiperoxidative enzymes.[6-7] Due to high cost and adverse effects of drugs, peoples are now diverting to certain natural substances. The use of such substances are grown faster over the past few years which is undoubtedly driven by the belief that they are relatively safe, easily available and affordable.[8]

Syzygium aromaticum are the aromatic dried flower buds of a tree in the family Myrtaceae. Syzygium aromaticum is widely cultivated in Indonesia, Sri-Lanka, Madagascar, Tanzania, Brazil, Pakistan, Sri lanka and India. It is used in limited amounts in food products as a fragrant, flavoring agent and condiment. Syzygium aromaticum, usually called as clove, is used as a topical antiseptic and local anaesthetic in dentistry.[9] It is used in the form of a paste or mixture as dental cement.[10] It is also used as antibacterial, antifungal, antimicrobial, antiinflammatory and insecticidal.[11-12] Clove oil mainly constitutes eugenol, isoeugenol and caryophyllene contributing pharmacological role to Syzygium aromaticum.

Eugenol comprises 72-90% of the essential oil extracted from cloves. Other important constituents of clove include polyphenols, beta-caryophyllene, tannins, flavonoids, kaempferol, rhamnetin, terpenoids like oleanolic acid, stigmasterol and campesterol.[13]

The purpose of the present experimental model was to observe the effect of Syzygium aromaticum in alcohol induced hepatotoxicity in wistar rats

MATERIALS AND METHODS

Animals: Fifty adult male Wistar rats weighing 200-250g were procured for this study. They were kept in the experimental research laboratory of Fatima Memorial college of medicine and Dentistry, Lahore under day and night conditions. Prior to the commencement of the experiments, all animals were kept for one week under the same laboratory conditions, at a temperature of 22 ± 2 ^{0}C, relative humidity of 70 ± 4% and 12 hour light/day cycle. They received nutritionally standard diet and tap water. The care and handling of rats were in accordance with the internationally accepted standard guidelines for use of experimental animals. The recommendations of Animal Ethics Committee for the care and use of animals were strictly followed throughout the study.

Chemicals/Instruments: Commercially available kits (Randox) for biochemical analysis of ALT,AST,ALP, bilirubin, 95% ethanol, 10% formalin, paraffin wax, Haematoxylin and eosin stains, pre-coated TLC(Thin Layer Chromatography) plate silica gel GF254 and toluene. The standard compounds used are ellagic acid, gallic acid and protocatechuic acid. The instruments used were soxhlet and rotary evaporator and centrifuge (Germany), TLC scanner III (Camag, Switzerland) with win CATS software.

Plant materials and preparation of the extract: Clove buds were collected from local market of Lahore and were authenticated from a botanist. Clove buds were coarsely powdered using a grinder. 500 g powdered form of clove was dissolved in 2L of 95% ethanol. The extraction was carried out by mixing the powdered clove in ethanol by Soxhlet apparatus for 72 hr. The extract was filtered and the solvent i.e., ethanol was allowed to evaporate using rotary evaporator at temperature 40-45°C. Thus the highly concentrated ethanolic extract was obtained .The yield of extract was 6.2% w/w in terms of dried starting material. The extracts obtained were stored at -20°C till used for experimental purposes.[14`] The clove buds (voucher no. 0282) and extract (voucher no. 0283) were deposited in Pharmacology laboratory, Fatima Memorial College of Medicine and Dentistry, Lahore. This extract got standardized from PCSIR (Pakistan Council for Scientific and Industrial Research) laboratories, Lahore.

Standardization of plant extract: TLC (Thin Layer Chromatography) was used for standardization. TLC was performed on a pre-coated TLC plate silica gel GF_{254}. Sample was applied on the plate as 8 mm wide bands with an automatic TLC sampler. The development was carried out in trough chamber (20 cm × 10 cm),which was pre-saturated with mobile phase(solvent system, toluene-ethyl acetate-formic acid-methanol (30:30:8:2), for 20 min at room temperature (25 ± 2°Cand 40% relative humidity). Subsequent to the development, TLC plates were dried under stream of hot air and then subjected to densitometric scanning using a TLC scanner III (Camag, Switzerland) with win CATS software (version 1.4.1) in the absorbance- reflectance scan mode. Quantitative evaluation of the plate was performed in absorption-reflection mode at 338 nm. The standard compounds used are ellagic acid, gallic acid and protocatechuic acid.

Experimental Procedure: After acclimatization, all rats were divided into five groups each having 10 animals. The control rats (Group A) were fed on standard diet with tap water and received no drug. Group B positive control rats received 3g/kg body weight of ethanol prepared as 35% v/v solution in 0.9% w/v NaCl as I.P(intraperitoneal) injection daily for forty five days. Group C i.e. experimental group rats received 3g/kg body weight of ethanol prepared as 35% v/v solution in 0.9% w/v NaCl I.P injection daily and ethanolic extract of Syzygium aromaticum buds in a daily oral dose of 250 mg/kg for a period of forty five days. Group D i.e. experimental group rats received 3g/kg body weight of ethanol prepared as 35% v/v solution in 0.9% w/v NaCl as I.P injection daily and ethanolic extract of Syzygium aromaticum buds in a dose of 500 mg/kg body weight daily (orally) for a period of forty five days. Group E(standard) group rats received 3g/kg body weight of ethanol prepared as 35% v/v solution in 0.9% w/v NaCl as I.P injection daily and silymarin(100mg/kg) daily orally for forty five days.

Sample collection: Blood sampling through tail vein was performed at 2 intervals (0 day &at 45th day) following same protocol every time. Twenty four hour after administration of the last dose of extract i.e. on 45th day and after overnight fasting, the animals were weighed and anaesthetized under ether vapours. A sample of 2ml blood was drawn from tail vein from all animals. Blood was transferred to the sterile vacuotainers with gel and allowed to clot at room temperature for one hour. It was then centrifuged for ten minutes at a speed of 3000 rpm. Serum was separated and stored in sterile eppendorf tubes at -20°C for analysis of biochemical parameters.[15]

Biochemical Analysis: ALT, AST, ALP and total bilirubin levels were estimated by commercially available kits (Randox of UK). Serum ALT, AST, ALP was estimated by IFCC method. [16-19] Total bilirubin was estimated according to Calorimetric method. [20]

Liver tissue for morphology: When anaesthetized, the liver of all animals were exposed and a wedge was removed after their gross examinations and they were preserved.

Statistical Analysis: The data was entered and analyzed using SPSS 17.0 (Statistical Package for Social Sciences). All data are shown as mean ± S.E.M (standard error of mean). One way ANOVA (analysis of variance) was applied to observe group mean differences. Post Hoc Tukey test was applied to observe mean differences among the groups. A p-value of <0.05 was considered as statistically significant.

RESULTS

We observed that 3g/kg body weight of ethanol prepared as 35% v/v solution in 0.9% w/v NaCl as I.P injection, caused significantly increased($p<0.05$) levels of serum AST,ALT,ALP and bilirubin in rats of group B as compared to group A (control) rats. On the other hand, simultaneous administration of ethanolic extract of *Syzygium aromaticum* resulted in a significant ($p<0.01$) decrease in the serum AST,ALT,ALP and bilirubin levels in rats of groups C, D and E when compared with that of group B.

Table No.1: Mean± SEM values of different biochemical parameters in all groups (A, B, C , D and E)

Parameter	Group A	Group B	Group C	Group D	Group E
Serum ALT (u/l)	40.19±1.10	69.60± 1.82 *	48.18 ± 1.27 **	40.25± 2.38 **	49.53±1.08**
Serum AST (u/l)	82.20±4.09	155.49±6.01*	116.10± 4.57 **	86.14±2.90**	119.76±4.42**
Serum ALP (u/l)	117.73±8.11	278.77±6.96*	235.42±6.20**	202.19±2.28**	240.83±6.71**
Serum Bilirubin(mg/dl)	0.33±0.03	0.83±0.06*	0.61±0.03**	0.37±0.03**	0.63±0.03**

* $p<0.05$ when compared with group A (control)

** $p<0.05$ when compared with group B (diabetic)

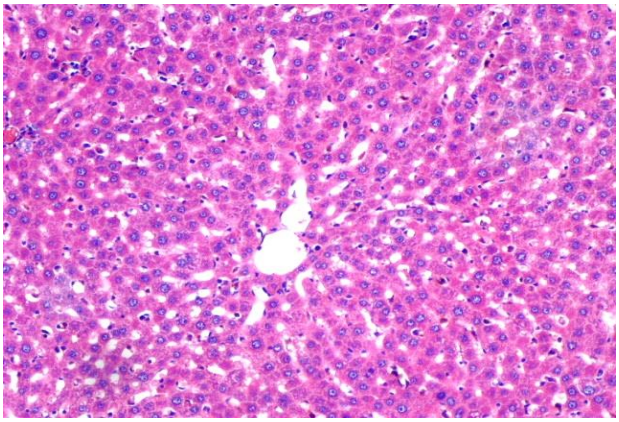


Figure No.1: Photomicrograph of normal liver (control group A) showing normal lobular pattern and normal architecture. The hepatocytes and portal system are normal (H& E ×40)

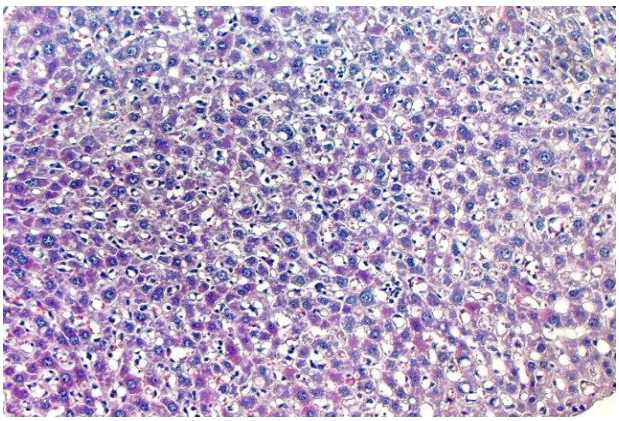


Figure No.2: Photomicrograph of liver of group B rats (treated only with ethanol) showing liver damage characterized by clear cytoplasm, vascular congestion, fatty changes, apoptosis and focal areas of necrosis (H& E ×40).

Histopathological Examination: In histopathological studies of livers of male albino rats, the control group showed normal lobular pattern and normal architecture. The hepatocytes and portal system are normal (Fig.1). The liver of Group B rats (treated only with ethanol) showed liver damage characterized by clear cytoplasm, vascular congestion, fatty changes, apoptosis and focal areas of necrosis (Fig.2)

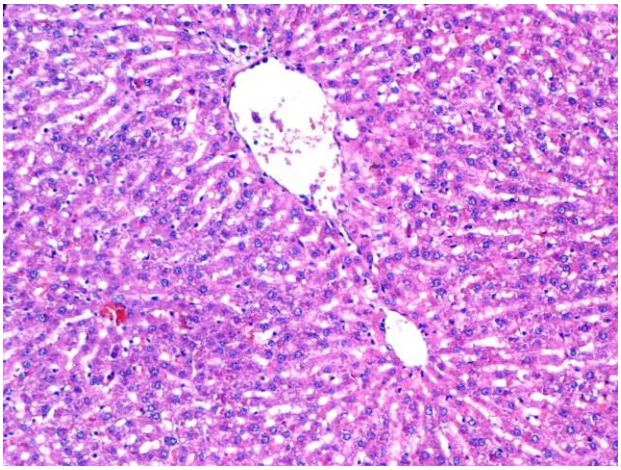


Figure No.3: Photomicrograph of liver of group C rats (treated with ethanol and *Syzygium aromaticum* extract 250mg/kg)) showing mild fatty change along with few apoptotic bodies. (H& E ×40)

These changes were found to be reduced in livers of group C rats treated with ethanol plus Syzygium aromaticum extract in a dose of 250mg/kg (Fig.3) and group E treated with ethanol plus silymarin (Fig.5) The liver of Group D rats treated with ethanol and 500mg/kg of Syzygium aromaticum extract showed vascular congestion and evidence of regeneration

(Fig. 4).This group of rats showed reversal towards normal liver architecture.

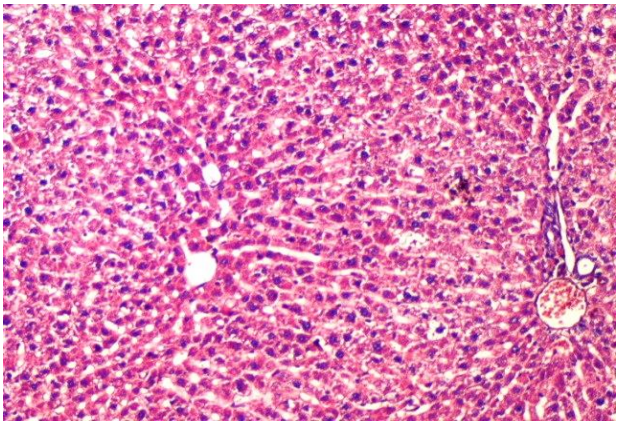


Figure No.4: Photomicrograph of liver of group D rats (treated with ethanol and Syzygium aromaticum extract 500mg/kg)) showing reversal to normal hepatocytes with occasional apoptotic bodies (H& E ×40).

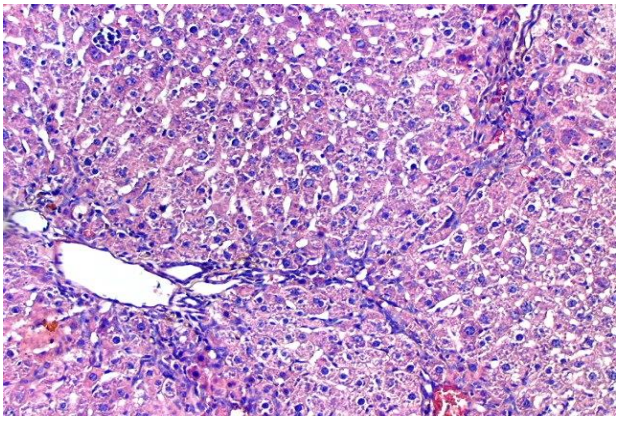


Figure No.5. Photomicrograph of liver of group E rats (treated with ethanol and Silymarin) showing mild fatty change, vascular congestion and apoptotic bodies. (H& E ×40)

DISCUSSION

The ingestion of alcohol for prolong time may lead to alcoholic hepatitis, fatty infiltration, accelerated progression of liver disease and higher frequency of liver cirrhosis. If left untreated, it leads to fibrosis and ultimately to cirrhosis. [21] Alcohol administration in rats basically disrupts permeability of plasma membrane. This lead to leakage of enzymes from the cells which results in elevation of lipid peroxides. It has been reported that liver damage induced by alcohol is due to instability of cell membrane as a result of lipid peroxidation. Lipid peroxidation arising from reaction of free radicals with lipids is considered to be an important feature of cellular injury brought by free radicals attack. Oxidative damage caused by reactive oxygen species is considered to be an important pathophysiological condition promoting cell injury. Antioxidant enzymes also decrease in alcohol induced liver injury. [22-23] Currently available drugs for the treatment of hepatotoxicity have a number of limitations including adverse effects and high rate of secondary failure. A number of plants are being assessed for their therapeutic potential as there is a growing trend towards the use of natural remedies as adjuncts to conventional therapy. Modulations of oxidative stress through treatment with antioxidants can help in hepatotoxicity due to alcohol.

The present study showed a significant elevation in the levels of serum AST,ALT, ALP and bilirubin in rats of group B as compared to group A (control) rats. On the other hand, simultaneous administration of ethanolic extract of Syzygium aromaticum to groups C and D and silymarin to group E resulted in a significant ($p<0.01$) decrease in the serum AST,ALT,ALP and bilirubin levels in rats of groups C , D and E when compared with that of group B (Table 1). When we compare mean values of group C and D with group E, although level decreases but levels reduced more in group C and D as compared to group E showing better effectiveness of Syzygium aromaticum over silymarin. When we compare mean values of group C with group D, although both decrease levels, but group D reduced the levels more as compared to group C. The morphological examination in group C and E animals showed moderate change towards normalcy whereas in group D animals, high dose Syzygium aromaticum ethanolic extract resulted in a significant morphological reversal towards normal. Our results are in accordance with the reports by others who used chemical antioxidants and diet of natural antioxidant plants.[24-25]

The main constituents in syzygium aromaticum are eugenol, polyphenols and flavonoids. The proposed mechanism of syzygium aromaticum in hepatoprotection could be due to the antioxidant mechanism. Atawodi et al. in 2011 showed that polyphenols in syzygium aromaticum have antioxidant activity.[26] Robards and Antolovich in 1997 have critically reviewed the analytical chemistry of bioflavonoid and it was found that flavonoids possess antioxidant activity, they are potent free radical scavengers and metal chelators and they also inhibit lipid oxidation which is a key step in the liver cell injury.[27] Therefore, in our study polyphenols and flavonoids in syzygium aromaticum might have a role in decreasing liver enzymes levels and hepatoprotection in rats. Further studies are needed to observe if higher doses and variable routes of administration have better protective effect on alcohol induced hepatotoxic liver.

CONCLUSION

The results of the present study indicate that the treatment with syzygium aromaticum ethanolic extract provide hepatoprotection against alcohol induced

hepatotoxicity both biochemically and morphologically. The high dose of syzygium aromaticum ethanolic extract, showed better results as compared to its low dose and standard drug silymarin.

Acknowledgments:

The authors are thankful to Lab Technician, Fatima Memorial College of Medicine and Dentistry, Mr. Javaid for helping in instrument handling, biochemical analysis and preparation of pathological slides.

REFERENCES

1. Hendriks HF, Brouwer A, Knook DL. Isolation, purification and characterization of liver cell types. Methods Enzymol 1990;190:49-58.
2. Pang S, Xin X, Stpierre MV. Determinants of metabolic disposition. Ann Rev Pharmacol Toxicol 1992;32:625-6.
3. Baer JS, Barr HM, Bookstein FL, Sampson PD, Streissguth AP. Prenatal alcohol exposure and family history of alcoholism in the etiology of adolescent alcohol problems. J Study Alcohol 1998; 59: 533-43.
4. Zima T, Fialova L, Mestek O, Janebova M, Crkovska J,Malbohan I et al. Oxidative stress, metabolism of ethanol and alcohol-related diseases. J Biomed Sci 2001; 8(1): 59-70.
5. Ahmed AE, Aronson J, Jacob S. Induction of oxidative stress and TNF-alpha secretion by dichloroacetonitrile, a water disinfectant by-product, as possible mediators of apoptosis or necrosis in a murine macrophage cell line (RAW). Toxicol in Vitro 2000; 14(3): 199-210.
6. Balasubramaniyan V, Manju V, Nalini N. Effect of leptin administration on plasma and tissue lipids in alcohol induced liver injury. Hum Exp Toxicol 2003; 22: 149-54.
7. Srivastava A, Shivanandappa T. Hepatoprotective effect of the aqueous extract of the roots of Decalepis hamiltonii against ethanol-induced oxidative stress in rats. Hepatol Res 2006;35: 267-75.
8. Yokozawa T, Jucho E, Sasaki S, Sotah A, Okamoto T , Sei T. The protective role of Chinese prescription Kangen-Karyu extract on diet induced hypercholesterolemia. Bio Pharm Bull 2006; 29:760-5.
9. Zheng GQ, Kenney PM. Sesqueterpenes from Eugenia caryophyllata as potential anticarcinogenic agent. J Nat Prod 1992; 55: 999-1003.
10. Fuller JH, Stevens LK, Wang SL. Risk factors for cardiovascular mortality and morbidity: the WHO multinational study of vascular disease in diabetes. Diabetologia 2001; 44:54-64.
11. Miyazawa M, Hisama M. Antimutagenic activity of phenylpropanoids from cloves (Syzygium aromaticum). J Agric Food Chem 2003; 51(22): 6413-22.
12. Kurkawa M, Houzumi T, Basnet P,Nakano M, Kadota S, Namba T, et al. Purification and characterization of eugenine as anti herpes virus compound from Geum japanicum and Syzygium aromaticum. J Pharm Exp Ther 1998; 284: 728-35.
13. Dan B, Steven Cl, Erich St, Andrew G. Chinese Herbal Medicine: Materia Medica, sesqueterpenes. 3rd ed. 2004.
14. Tajuddin A, Ahmad S, Latif A, Qasmi IA. Aphrodisiac activity of 50% ethanolic extracts of Myristica fragrans Houtt. (nutmeg) and Syzygium aromaticum (L) Merr. & Perry. (clove) in male mice: a comparative study. BMC Complement Altern Med 2003; 3(1):10-20.
15. Shad MA, Iqbal T, Shah MH, Mahmood RK, Tayyab M. Vegetable oils and dyslipidemia. Pak J Med Sci 2003; 19: 45-51.
16. Thomas L. Alanine aminotransferase (ALT), aspartate aminotransferase (AST) Clinical laboratory diagnostic. 1st ed. Frankurt: TH Books verlagessellscheft;1998.p.55-65.
17. Moss DW, Handerson AR, Burtis CA. Ashwood ER. Tietz textbook of chemistry. 3rd ed. Philadelphia: WB Saunders;1999.p.617-721.
18. Fischbach F, Zawata B. Age dependent reference limits of several enzymes in plasma at different measuring temperatures. Kin Lab 1992;38:555-61.
19. Jendrassik L, Grof P, Biochem Z. 1938; 297: 81.
20. Sherlock S. Liver diseases. Churchill: London; 1951.p.204.
21. Prakash M, Gunasekaran G, Elumalai K. Effect of earthworm power on antioxidant enzymes in alcohol induced hepatoxoic rats. Eur Rev Med Pharmacol Sci 2008;12:237-43.
22. Hoek JB, Pastorino JG. Ethanol, oxidative stress, and cytokine induced liver damage. Alcohol 2002;27: 63-8.
23. Kabuto H, Hasuike S, Minagawa N, Shishibori T. Effects of bisphenol A on the metabolisms of active oxygen species in mouse tissues. Environ Res 2003; 93: 31-5.
24. Sharma SB, Nasir A, Prabhu KM, Murthy PS, Dev G. Hypoglycaemic and hypolipidemic effect of ethanolic extract of seeds of Eugenia jambolana in alloxan-induced diabetic rabbits. J Ethnopharmacol 2003; 85(2-3):201-6.
25. Akpanabiatu MI, Umoh IB, Udoh AE, Edet EF. Rats serum electrolytes, lipid profile and cardiovascular activity on Nuclea latifolia leaf extract administration. Indian J Clin Biochem 2005; 20: 29-34.
26. Atawodi SE, Atawodi JC, Pfundstein B, Spiegelhalder B, Bartsch H, Owen R. Assesment of the polyphenol components and invitro antioxidant activity properties of Syzygium aromaticum. EJEAFChe 2011; 10 (3):1970-8.
27. Robards K, Antolovich M. Analytical chemistry of fruit bioflavonoids. A review. Analyst 1997; 122:11-30.

Address for Corresponding Author:
Dr. Soban Sadiq,
Asstt. Prof. of Pharmacology, Azad Jammu & Kashmir Medical College, Muzaffarabad.
Cell No. 0334-5400861

Original Article

Profile of Enteric Fever in Children at Tertiary Care Hospital Sukkur Pakistan

1. Bahawaluddin Jamro 2. Aftab Ahmed Soomro 3. Shankar Lal 4. Saifullah Jamaro

1. Asstt. Prof. of Paediatrics, GMMMC, Sukkur 2. Asstt. Prof. of Hematology, GMMMC, Sukkur 3. Sen. Registrar of Paediatrics, CMC, Larkana 4. Prof. of Paediatrics, CMC, Larkana

ABSTRACT

Background; Enteric fever (Typhoid fever) is widely recognized as a major public health problem in developing countries.

Objective: To study the clinical profile and complication of enteric fever in children.

Study Design: Prospective descriptive study.

Place and Duration of Study: This study was conducted at the Paediatric Department at Ghulam Muhammad Mahar Medical College Hospital Sukkur from January 2010 to December 2011.

Materials and Methods: This was a prospective study, included all patients of enteric fever, of both sex and age ranged from 1 year to 13 years. All cases of enteric fever were confirmed by serological test Typhidot IgM or IgM and IgG positive.

Results: A total of 360 patients of enteric fever were studied during 2 years. Mean age of presentation was 7.47 years and 166 (46.12%) patients were < 5 years whereas 194 (53.88%) were > 5years of age. Male: Female ratio was 2:1. Clinical profile of patients shows, that fever was present in all cases, vomiting 180 (50%), anorexia 180 (50%), headache 126 (35%), abdominal pain 108 (30%), diarrhea 108 (30%), weakness 102 (28.33%), cough 90 (25%), constipation 36 (10%) cases, and coated tongue was found in 275 (75%), tender abdomen 140 (38.88%), hepatomegaly 90 (25.0%), splenomegaly 76 (21.11%), toxic appearance 72 (20.0%), dehydration 70 (19.44%), pallor 54 (15%) and relative bradycardia 12 (3.33%) of cases. Complications were found in 88 (24.44%) of cases, raised ALT in 66 (18.3%) jaundice 6 (1.66%), intestinal hemorrhage in 4 (1.11%), peritonitis and osteomyelitis 3 (0.83%) respectively.

Conclusion: Common clinical features of enteric fever include fever, vomiting, anorexia, abdominal pain, headache, coated tongue, anemia, hepatomegaly and elevated liver enzymes. Diarrhea is more common in children < 5 years. Complication due to late diagnosis and drug resistance will persist in our part of country.

Key Words: Enteric fever, clinical profile, children.

INTRODUCTION

Enteric fever (Typhoid fever) is widely recognized as a major public health problem in developing countries. It is a severe systemic infection caused by Salmonella typhi. The disease is endemic in the Indian sub-continent, South-East Asia, Africa, the Middle-East, South and Central America, where provision of pure water supplies and sewage control are inadequate[1].The worldwide incidence of enteric fever is estimated to be approximately 16 million cases annually with 7 million cases occurring in south east Asia alone, accounting for more than 600,000 deaths annually[2]. Ochiai LR et al, in their review of disease burden due to enteric fever from five Asian countries, reported a higher incidence of enteric fever from India, Indonesia and Pakistan[3].The exact figures on the incidence and prevalence are not available for Pakistan, but the prevalence is deemed comparable to that in South East Asia. Enteric fever represents the 4th most common cause of death in Pakistan[4]The disease may occur in all ages, with the highest incidence found particularly in children[5].Young age was seen in a study from Bangladesh, the 57% of S. typhi isolates were in children less than 5 years of age and 27% less than 2 years[6]. Various organs have been involved in the course of enteric fever, resulting in a wide array of presentation[7].The presenting symptoms and signs of enteric fever in children differ significantly from those in adults[8]. Enteric fever is associated with significant morbidity and mortality due to emerging multidrug –resistant strains of salmonellae and delay in diagnosis[9]. In a study of 1100 hospitalized children in Pakistan, the mortality rate of 1.6% was found to be related to younger age and multidrug -resistant infection[9]. There is a wide spectrum of clinical presentation and with the emergence of drug resistant enteric fever now a days, the treatment has become still more complex. The objective of our study was to determine the clinical profile and complications of enteric fever in hospitalized children from interior of Sindh, were illiteracy, poverty, overcrowding, contaminated water, unhygienic conditions and lack of health facilities and awareness to poor masses predisposing for the diseases and complications.

MATERIALS AND METHODS

This was a prospective study, included all patients of enteric fever, of both sex and age ranged from 1 year to 13 years. All case of enteric fever was confirmed by serological test Typhidot IgM, or IgM and IgG positive.

After consent from parents or patient a separate pro-forma was filled for each patient. Detailed history with clinical examination was undertaken in all patients. Relative bradycardia was defined as normal heart rate inspite of fever. All patients underwent investigations such as complete hemogram, MP, liver and renal function tests, stool and urine examination, and typhidot test. Additional investigations like chest X-ray, ultrasound of abdomen were done where it was indicated. Anemia was defined as hemoglobin less than 10 g/dl. Leucopenia was defined as total leucocyte count (TLC) less than 4000/cu.mm.Leucocytosis was defined as TLC more than 10,000 cells/cu.mm. Thrombocytopenia was defined as platelet count less than150,000 lakh / cu.mm. Elevated ALT was defined as ALT more than 40 IU/L and elevated SGPT as more than 26 IU/L.

RESULTS

A total of 360 patients of enteric fever were studied during 2years. Mean age of presentation was 7.47 years and 166 (46.12%) patients were < 5 years whereas 194 (53.88%) were >5 years of age. Male: Female ratio was 2:1.Table 1 shows the clinical presentation of children on admission. The predominant symptoms were fever in all cases, vomiting 180 (50%), anorexia 180 (50%), headache 126 (35%), abdominal pain 108 (30%), diarrhea 108 (30%), weakness 102 (28.33%), cough 90 (25%), constipation 36 (10%) cases.

Table No.1: Clinical presentation of 360 patients at admission.

Symptoms	No. of patients	%age
Fever	360	100%
Vomiting	180	50%
Anorexia	180	50%
Headache	126	35%
Abdominal pain	108	30%
Diarrhea	108	30%
Weakness	102	28.33%
Cough	90	25%
Constipation	36	10%
Signs		
Coated tongue	275	75%
Tender abdomen	140	38.88%
Hepatomegaly	90	25.0%
Splenomegaly	76	21.11%
Toxic appearance	72	20.0%
Dehydration	70	19.44%
Pallor	54	15.0%
Relative bradycardia	12	3.33%

The signs were coated tongue found in 275 (75%), tender abdomen 140 (38.88%), hepatomegaly 90 (25.0%), splenomegaly 76 (21.11%), toxic appearance 72 (20.0%), dehydration 70 (19.44%), pallor 54 (15%) and relative bradycardia 12 (3.33%) of cases. Typhidot IgM antibodies were positive in 294 (81.67%) of cases while both antibodies IgM and IgG were in 66 (18.33%) of cases. The anemia was found in 180 (50%) of cases, leucopenia in 72 (20.0%), leucocytosis in 66 (18.3%) and thrombocytopenia in 54 (15%) of cases.

Complications were found in 88 (24.44%) of cases, elevated serum alanine and aspartate aminotransferase (> 78 iu/l) were observed in 66 (18.3%), jaundice in 6 (1.66%), intestinal hemorrhage in 4 (1.11%), peritonitis, and osteomyelitis 3 (0.83%) respectively. The other less common complication were seizures, enteric encephalopathy and pancytopenia 2 (0.55%) respectively in each case shown in table 2.

Table No.2: Complications of enteric fever in 360 patients

Complications	No. of patients	%age
Raised ALT	66	18.33%
Jaundice	06	1.66%
Intestinal hemorrhage	04	1.11%
Peritonitis	03	0.83%
Osteomyelitis	03	0.83%
Seizures	02	0.55%
Enteric encephalopathy	02	0.55%
Pancytopenia	02	0.55%

DISCUSSION

Enteric fever still remains a major endemic public health problem in Pakistan especially in areas where healthcare facilities being limited and peoples are illiterate, living in unhyeigenic surroundings, drinking raw-water from canals and especially in rural areas. Enteric fever accounts for significant cause of morbidity in children in developing countries. In our study 46.12% of patients were under 5 years, similar to the reported by Shah 1, et al[10] from India. Most of 53.88% our cases were older than 5 years as reported in most of studies [11,12,13]in children. Also in our patients males were 66.66% more common affected as compared to females, similar to the reported from India by Shah I et al[10,12] whereas Abdel Wahab et al[14] found equal distribution between the boys and girls. Fever was the most common clinical presentation seen in all (100%) our cases similar to other studies done by other authors,[11,12,13,15].The other common features vomiting, anorexia, coated tongue, tender abdomen, headache, abdominal pain, diarrhea, cough, hepatomegaly, splenomegaly, toxic appearance, seen in our study similar to the reported by Bbutta ZA[7]and others [10,12,13,15,16,17]. Other less common features constipation, dehydration, pallor and relative bradycardia seen in our study comparable to that reported by Tohme et al[17].

Relative bradycardia was not a major feature of enteric fever in children in our study similar to that reported by other authors [7,10,17]. Most of our patients had normal leucocyte counts similar to earlier repots[11,18]. Leucocytosis was observed in18.3% of cases while leucopenia in20% in our study, the higher leucocytosis

was reported by Shah I et al from India[10] and low leucopenia 9% as compared to our results. The anemia was found in 50% and thrombocytopenia in 15% of our children, while Shah I from India reported in his series 87.9% anemia and 33.33% thrombocytopenia. Complications of enteric fever were seen in 88 (24.44%) of cases which are similar to the previously reported in other studies[16,17,19], but very low complications were also 4% reported by Ganesh R et al[11] and 18.18% by Shah I et al[10].Elevation of serum aminotransferases was seen in 66 (18.33%) of our cases which is much lower when compared to earlier studies by Ganesh R et al[11] where hepatic dysfunction was seen in 57% of cases. Common complications of enteric fever seen in our cases jaundice, intestinal hemorrhage and peritonitis and osteomyelitis similar to our results were by Tohme A [16,20]The other less common complications were seizures, enteric encephalopathy and pancytopenia seen in our cases. Complications occur in 10-15% of patients and gastrointestinal bleeding (10%), intestinal perforation (1-3%) and neuropsychiatric manifestations (2-40%) are the most important one reported[21]

CONCLUSION

Enteric fever continues to be a major health problem in our existing hygienic conditions, resulting in significant number of children requiring hospitalization. Common clinical features of enteric fever include fever, vomiting, anorexia, abdominal pain headache, coated tongue anemia, hepatomegaly, splenomegaly, and elevated liver enzymes. Diarrhea is more common in children < 5 years. Complications due to late diagnosis and drug resistance will persist in our country. Prevention of enteric fever can be possible with safe drinking water, improving personal hygiene and proper disposal of human sewage and mass vaccination in endemic regions.

REFERENCES

1. Gillespie S. Salmonella infection. In: Cook GC, Zumla A, editors. Manson's Tropical Diseases. 21st ed. London, UK Elsevier Science: Health Science Division; 2003.p.937-947.
2. Smith S. Infectious diseases. In: Marcdante KJ, Kliegman RM, Jenson Hal B, Behrman RE, editors. Nelson Essentials of Pediatrics. 6th ed. Saunders Elsevier; 2011.p.406-410.
3. Ochiai LR, Acosta CJ, Danovaro-Holliday MC, Baiqing D, Bhattcharya SK, et al. A study of Typhoid fever in five Asian countries: disease burden and implications for controls. Bull World Health Organ. 2008;86(4):260-8. PMID: 18438514
4. World Health Organization. 6th International Conference on Typhoid Fever and other Salmonelloses 2006. Geneva WHO. Ref Type: Pamphlet (69kb).
5. Anggraini R, Handoyo I, Aryati. DOT-EIA typhoid test using Omp Salmonella typhi local phage type antigen to support the diagnosis of typhoid fever. Folia Medica Indonesiana 2004;40:10-20.
6. Saha SK, Baqui AH, Hanif M, Darmstadt GL, Ruhulamin M, Nagatake T, et al. Typhoid fever in Bangladesh: implications for vaccination policy. Pediatric Infectious Disease J 2001;20(5):521-524.
7. Bhutta ZA. Salmonella. In: Kliegman RM, Jenson Hal B, Behrman RE, Stanton BF, editors. Nelson Text book of Pediatrics. 18th ed. Saunders Elsevier; 2007.p.1182-1190.
8. Mahle WT, Levine MD. Salmonella typhi infection in children younger than five years of age. Pediatr Infect Dis J 1993;12:627-631.
9. Bhutta ZA. Impact of age and drug resistance on mortality in typhoid fever. Arch Dis Child 1996; 75(3):214-217.(232kb)
10. Shak I, Patankar N. Age Related Clinical and Laboratories Manifestations of Enteric Fever in Children. JK Science 2009;11(3):119-122.
11. Ganesh R, Janakiraman L, Vasanthi T. Sathiyasekeran M. Profile of Typhoid Fever in Children from a Tertiary Care Hospital in Chennai-South India. Indian J Pediatr 2010;77:1089-1092.
12. Rafiq H, Zia R, Naeem S. Typhoid Fever-Continues as a major threat in Children. Biomedica 2009;25:1-2.
13. Walia M, Gaind R, Paul P, Mehta R, Aggarwal P, Kalaivani M. Age-related clinical and microbio-logical characteristics of enteric fever in India Trans R Soc Trop Med Hyg 2006;100(10): 942-48.
14. Abdel Wahab MF, el-Gindy IM, Sultan Y, el-Naby HM. Comparative study on different recent diagnostic and therapeutic regimens in acute typhoid fever. J Egypt Public Health Assoc 1999; 74(1-2):193-205.
15. Siddiqui FJ, Rabbani F, Hasan R, Nizami SQ, Bhutta ZA. Typhoid fever in children; some epidemiological considerations from Karachi, Pakistan. Int J Infect Dis 2006;10:215-222.
16. Tohme A, Zein E, Nasnas R. Typhoid fever. Clinical and therapeutic study in 70 patients. J Med Liban 2004;52(2):71-77.
17. Kumar R, Gupta NS. Multidrug-resistant typhoid fever. Indian J Pediatr 2007;74(1):39-42.
18. IAP task force report. Diagnosis of enteric fever in children. Indian Pediatr 2006;43:875-83.
19. Malik AS, Malik RH. Typhoid fever in Malaysian children. Med J Malaysia 2001;56(4):478-90.
20. Lefebvre N, Gning SB, Nabeth P, et al.Clinical and laboratory features of typhoid fever in Senegal. A 70-case study. Med Trop 2005;65(6):543-48.
21. IAP task force report. Management of enteric fever in children Indian Pediatr 2006;43:884-7.

Address for Corresponding Author:
Dr. Bahawaluddin Jamro
Postal address: Assistant Professor of Paediatrics
Ghulam Muhammad Mahar Medical College Sukkur
E-mail: drbahawaljamro@gamil.com
Cell No: 03363861772, Office No: 0719310774

Original Article

Frequency of Seropositivity of Hepatits C in Thalasemia Major Patients

1. Ali Akbar Siyal 2. Babar Niaz Dahri 3. Tufail Ahmed Balouch
4. Muhammad Sadique Siyal
1. Assoc. Prof. of Pediatric Medicine 2. Medical Officer of Pediatric Medicine 3. Medical Officer in Surgery
4. Consultant of Pediatric Medicine, PUMHS Women, Nawabshah

ABSTRACT

Background: Thalassemia is inherited as an autosomal recessive disorder. Children suffering from beta thalassemia major, due to various genetic defects, have deficient synthesis of ß globin chain of Hemoglobin. They need frequent blood transfusions, so they are at increased risk of transfusion transmitted infections especially HCV.
Objective: To evaluate frequency of hepatitis C in thalassemia major patients.
Study Design: Prospective descriptive study.
Place and Duration of Study: This study was conducted at the Thalassemia care Center Nawabshah, Sindh from 1st January 2011 to 31st December 2011.
Patients and Methods: Children ages from 3 months to 14 years with Beta thalassemia major were included. Patients were scrutinized for anti HCV antibodies by third generation ELISA technique.
Results: Total of 126 patients of thalassemia major studied in this series, 59 (46.82%) were males and 67 (53.17%) females. Out of these 18 (14.26%) were hepatitis C positive.
Conclusion: HCV infection is an important cause of viral infection among thalassemic children with a prevalence of 14.26% in our study population.
Key Words: Beta thalassemia, Hepatitis C, Blood transfusion.

INTRODUCTION

Thalassemia is an autosomal recessive disease prevalent in Pakistan. The carrier rate ranges between 4 and 5.5% in different regions and racial groups[1, 2]. It is estimated that about 9000 children with beta thalassemia are born every year, although no documentary registry is available in Pakistan[3].The cultural and religious scenario in Pakistan is such that consanguineous marriages are quite common[4,5]. Blood transfusion is a necessary treatment for these patients. Regular blood transfusions for patients of thalassaemia have improved the overall survival although these transfusions carry a definite risk of transmission of certain viruses[6]. However, the blood transfusion has its own side effects. Main problems of blood transfusion are transfusion-transmitted infections, especially hepatitis C[7,8] . HCV is responsible for 80 to 90 % of post. Transfusion hepatitis in patients who received blood transfusion prior to introduction of routine blood products screening in 1990[9]. Hepatitis B has a declining trend, probably as a result of regular pre-transfusion screening for HBsAg, use of hepatitis B vaccination and improved public awareness about the disease. HIV infection fortunately, is uncommon in our setup [10]. However, since no such vaccine is so far available against hepatitis C, the only effective protective measure against this virus is provision of HCV negative blood for transfusion. Therefore, screening of transfused blood for HCV in not only mandatory, but also it is essential to use the most sensitive screening methods with least possible false-negative results[10]. HCV seroprevalence and risk factors in north Iran were investigated in 105 Thalassemia sufferers, 93 haemodialysis patient and 5976 blood donors by second generation ELISA. The study showed that haemodialysis patients and thalassemics were at higher risk of having HCV infection; the prevalence being 55.9% and 63.8% respectively in comparison to the prevalence of blood donors (0.5%)[11].

The aim of this study was to look into the frequency of HCV sero-positivity amongst multiply transfused thalassemia major patients in our setup.

PATIENTS AND METHODS

This Prospective descriptive study was conducted at Thalassemia care Center Nawabshah, Sindh. Duration of study was one year , from 1st January 2011 to 31st December 2011.Children age from 3 months to 14 years with Beta thalassemia major, confirmed on hemoglobin electrophoresis were included. Those children who had Sickle Cell anaemia or any other hemolytic anaemia were not included in this study.
A total of 126 cases of ß-Thalassemia major registered for transfusion management at the aforementioned thalassemia center were selected. After an informed written consent, brief clinical history was recorded and relevant physical examination was carried out. 3 ml blood sample was collected in a disposable syringe under strict aseptic conditions and was allowed to clot Serum was separated in a clear plastic bottle for

further testing. The initial screening was carried out by ELISA (3rd generation ELISA technique).

All the data was entered and Analysis was performed on the Statistical Package for Social Sciences (SPSS version 10.0).

RESULT

In a total of 126 patients of thalassemia major studied in this series, 59 (46.82%) were males and 67 (53.17%) females, with male to female ratio 1:1.3 (Figure 1). Out of these 18 (14.26%) were hepatitis C positive, among them 9 (50%) were males and 9 (50%) females.

Table No.1: Age and sex-wise distribution of thalassemic patients n= 126

Age (years)	Male	females	Number of patients
3 mon-< 1 year	12	15	27 (21.42%)
1-5	27	33	60 (47.61%)
6-10	6	14	20 (15.87%)
10-14	14	5	19 (15.07%)
Total	59	67	126 (100%)

Table No.2: Frequency of seropositivity of HCV according to age in thalassemia patients (n =18)

Age (years)	n	Percentage
< 1 year	3	16.16
1-5	10	55.55
6- 10	3	16.16
10- 14	2	11.11

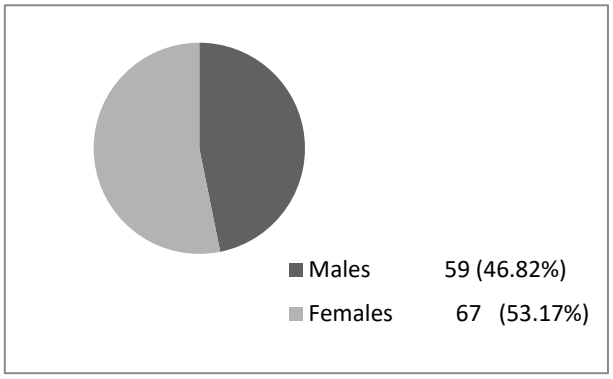


Figure No1: Sex distribution in thalassemia patients

Age ranges from 3 months to 14 years. We divided age in different groups from 3 months to <1 year with the mean age 7.5 ± 4.26 months, number of patients were 27 (21.42%). 1 year to 5 years with mean age of 2.41 ±1.89 , number of patients were 60(47.61%). 6years to 10 years with mean age of 7.25 ±3.56 years , number of patients were 20(15.87%). 11 years to 14 years with mean age of 12.57 ± 6.23 years, number of patients were 19 (15.07%) (Table -1). Seropositivity of HCV according to age in thalassemia patients < 1 year number of patient were 3 (16.16%), 1 year to 5 years number of patient were 10(55.55%), 6years to 10 years number of patient were 3 (16.16%),11 years to 14 years number patient were 2 (11.11%).(Table 2).

DISSCUSSION

Beta thalassaemia occurs world wide, with a higher prevalence among Mediterranean population in the Middle East, in parts of India, Pakistan and South East Asia[13, 14]. Thalassemia is the commonest inherited disorder in Pakistan with the overall prevalence of 5%. The estimated rate of birth of affected infants is 1.3 per 1000 live births, and about 5250 infants with ß-Thalassemia major are born annually. Married couples both consisting of two carriers have a twenty five percent chance that any child they have will be affected.[12] In Pakistan the β-thalassemia is prevalent in all parts of the country and in all ethnic groups. Pathans have a slightly high prevalence rate 7.96% than Punjabi's 3.26% [13]. The average life expectancy in Pakistan is 10 years and at present the disease load is of 90000 to 100000 patients throughout the country.[3]. Major ß thalassemic patients may need 4-6 bags of blood transfusion per month.

This transfusion is able to directly transfer both microbial and viral infections to recipients especially HCV , HBV & HIV[15].Fortunately, HIV infection is still not a problem in our country, and HBV infection can be, to a great extent, prevented by a pre-transfusion immunization, HCV infection has gained importance particularly as one of the major complications in multiply transfused patients during the last decade. This is especially true for counties where HCV is more prevalent in general population and therefore also amongst blood donors[10]. The prevalence rate of seropositivity increases with the number of transfusions[16]. This post-transfusion hepatitis has significantly contributed to morbidity in thalassemia[17]. It should be remembered that HCV hepatitis is more threatening than HBV hepatitis due to a greater risk of chronic liver disease[16.] There are 126 patients of thalassemia major in present study, 59 (46.82%) were males and 67 (53.17%) females, with male to female ratio 1:1.3. Out of these 18 (14.26%) were hepatitis C positive. Most of the patients were transfused to other centers before getting registered here. Most of them were transfused where status of screening was not reliable.

Hepatitis C virus (HCV) is one of the blood borne viruses with highest prevalence in TM patients. In different parts of the world the prevalence of HCV infection in thalassaemic patients is different. In India it is 16.7%[22] and in Malaysia 22.4%[23]. In another study the prevalence of hepatitis C was 23.8% in thalassaemic patients[21].

In Italy the prevalence of hepatitis C in thalassaemic patients was 47.0%[22] and in Iran 63.8%[23].This is much higher than that of our study.

In Pakistan, 20.7% prevalence of anti-HCV in professional donor from Karachi was reported by Ahmed et al[18]. In a study in Rawalpindi region of Pakistan, the prevalence of hepatitis C in thalassaemic children was 60.0%[19]. Another study from Karachi showed the prevalence rate of 20.5% in thalassaemic patients[20].

The difference is due to variation of prevalence of HCV infection in different parts of the world and difference in screening methodology because third generation ELIZA is 10-100 times more sensitive and specific, compared to particle agglutination test. In many previous studies, the prevalence of HCV antibodies was observed to be reduced after the institution of a regular HCV screening before transfusion[16].

CONCLUSION

Despite screening of blood donors, HCV infection remains an important cause of viral infection among thalassaemic children. Every donor must be screened before giving blood. Transfusion should be placed at registered hospital and centers, the current study show 14.26% seropositivity of HCV infection in thallassemic patients.

REFERENCES

1. Hassan K, Ikram N, Dodhy M, Burki UF, Tahir M. Prevalence of ß-thalassemia in and around Islamabad. JRMC 1997;1:18-22.
2. Khattak MF, Saleem M. Prevalence of ß-thalassemia in northern areas of Pakistan. JPMA 1993;42:32-4
3. Lodhi Y. Economics of thalassemia management in Pakistan. In: Ahmed S, editor. Thalassemia Awareness Week ed. Friends of Thalassemia;2003.
4. Ahmed S, Saleem M, Modell B, Petrou M. Screening extended families for genetic hemoglobin disorders in Pakistan. . N Engl J Med 2002 10; 347:1162-8.
5. Bittles AH. The role and significance of consanguinity as a demographic variable. Popul Dev Rev 1994; 20:561-84.
6. Nelson WE, Behrman RE, Kliegman RM, Avin AM. In: Nelson, editor. Text Book of Pediatrics. 16th ed.p.1401-4.
7. Azarkeivan A, Ahmadi MH, Hajibeigi B, Gharebaghian A, ShabehPour Z, Maghsoodlu M. Evaluation of transfusion reactions in thalassemic patients referred to the Tehran adult Thalssemia clinic. J Zanjan Fac Med 2008;1:35-41.
8. Goodnough LT. Risks of blood transfusion. Anesthesiol Clin North America 2005;23:241-52.
9. Arankalle VA, Chadha MS, Jha J, Amrapurkar DN, Banerjee K. Prevalence of anti-HCV antibodies in western India. Indian J Med Res 1995;101:91–3.
10. Younus M, Hassan K, Ikram N, Naseem L, Zaheer HA, Khan MF. Hepatitis C Virus Seropositivity in Repeatedly Transfused Thalassemia Major Patients Int J Pathol 2004; 2(1):20-3.
11. Ansar MM, Kooloobandi A. Prevalence of hepatitis C virus infection in thalassaemia and haemodialysis patients in North Iran-Rasht. J Virol Hepatol 2002; 9: 309-14.
12. Ahmed S, Saleem M, Modell B, Petrou M. Screening extended families for genetic hemoglobin disorders in Pakistan. N Engl J Med 2002; 347: 1162-8.
13. Khattak MF, Saleem M. Prevalence of heterozygous beta-thalassemia in northern areas of Pakistan. J Pak Med Assoc 1992; 42: 32-4.
14. Huang SZ, Zeng FY, Ren ZR, Lu ZH, Rodgers GP, Schechter AN. et al. RNA transcripts of the beta-thalassaemia allele IVS-2-654 C-->T: a small amount of normally processed beta-globin mRNA is still produced from the mutant gene. Br J Haematol 1994; 88:541-6.
15. Higgs DR, Thein Sl, Wood WG. The molecular pathology of the thalassaemia. In: Weatherall DJ, Clegg B, editors. The Thalassaemia Syndromes, 4th ed. Oxford: Blackwell Sciences; 2001.p. 133-191.
16. Al Shayyab M, Baticha A, El Khateeb M. The prevalence of hepatitis B, hepatitis C and human immunodeficiency virus markers in multirans-fusion patients.J Trop Pediatr 2001;47(4):239-42.
17. Prati D. Benefits and complications of regular blood transfusion in patients with beta-thalassemia major. Vox-Sang 2000;79(3):129-137.
18. Shamsi T, Ahmed A, Taj Z, Vajid MA, Hassan F. Prevalence of hepatitis B, C and HIV virus infection among beta thalassaemia major patients. J Pak Med Assoc 1998; 48: 87-9.
19. Bhatti FA, Amin M, Saleem M. Prevalence of antibody to hepatitis C virus in Pakistani thalassaemics by particle agglutination test utilizing C 200 and C 22-3 viral antigen coated particles.J Pak Med Assoc 1995;45: 269-71.
20. Akhtar S, Moatter T, Azam SI, Rahbar MH, Adil S. Prevalence and risk factors for interfamilial transmission of hepatitis C virus in Karachi, Pakistan.Baillieres Clin Haematol 1998;11:147-62.
21. Laosombat V, Pornpatkul M, Wongchanchailert M, Worachat K, Wiriyasatienku A. The prevalence of hepatitis C virus in thalassaemic patients in the south of Thailand. Southeast Asia J Trop Med Public Health 1997; 28: 149-53.
22. Cacopardo B, Russo R, Fatuzzo F, Cosentino S, Lombardo T, LaRosa R, et al. HCV and HBV infection among multi-transfused thalassaemia from eastern Sicily. Ann Trop Med Parasitol 2002; 96: 197-202.
23. Ansar MM, Kooloobandi A. Prevalence of hepatitis C virus infection in thalassaemia and haemodialysis patients in North Iran-Rasht. J Virol Hepatol 2002; 9: 390-2.

Original Article

Head Injury in Paediatric Population

1. Muhammad Ashraf 2. Muhammad Ashfaq 3. Abdul Latif 4. Saadat Parveen 5. Ikramullah

1. Assoc. Prof. of Paed. Surgery, CH&ICH, Multan 2. Assoc. Prof, of Paed. Surgery, MMDC, Multan 3. Asstt. Prof of of Paed. Surgery, NMC, Multan 4. Classified Pathologist, CMH, Multan 5. Sr. Registrar of Paed. Surgery, CH&ICH, Multan

ABSTRACT

Objective: To study the presentation and outcome of head injury in paediatric patients managed in Children Hospital & The institute of Child Health, Multan.

Study Design: Retrospective Descriptive Study.

Place & Duration of Study: This study was conducted in the Deptt. of Paed. Surgery, CH&ICH, Multan, during a period of five years from Jan 2006 to Dec 2010.

Patients and Methods: A total of 1150 paediatric patients with head injury were managed in this unit. Data was collected on the basis of history, clinical examination, base line investigations, radiological findings including CT scan, diagnosis and management. Patients were divided into three groups according to the severity of injury based upon Glasgow Coma Scale (GCS). Final analysis and comparison with literature was done.

Results: Seventy percent patients were male and 30% female. The age ranged from 1 week to 12 years. Commonest cause was history of fall from height found in 68% cases, followed by road traffic accident 25% and other causes 7%. 70 patients had associated injuries, 5 patients were already mentally handicapped. In 75% cases mild head injury with GCS 14 -15 was present. 35 patients required neurosurgical intervention. 15 patients required treatment for post traumatic seizures. 3 developed brain abscess. 15 patients died in the emergency ward without any surgical intervention within 2 days of admission and 2 died post operatively.

Conclusion: Head injury remained a serious problem in paediatric age group with significant morbidity & mortality. Recognizing the pattern of head trauma in children help us to identify high risk groups and environment, which will then help us to design appropriate preventive measures.

Key words: Head Injury, CT Head, Glasgow Coma Scale (GCS)

INTRODUCTION

Head Injury is a leading cause of morbidity and mortality in children world wide[1] and in Pakistan as well[2]. One fourth of population comprises of children under 12 years[2]. Measureable deficit occurs even after mild to moderate head injury but it could be much more after severe head injury. These problems are impaired cognition, motor impairments, disruption of attention and information processing and psychiatric disturbance[1]. Fall from height is the most common cause of injuries visiting emergency department and fourth leading cause of trauma related deaths, followed by motor vehicle accidents, fires and drowning[3-6]. Mostly patients suffer from minor brain injury[6,8,10,11.] Over all, fall accounted for 5.9% of childhood deaths[7]. The present study was done to identify the frequency of head injury among paediatric age groups, assess magnitude of the problem and define meaningful preventive strategies to reduce this major public health issue in our setup.

PATIENTS AND METHODS

The study was carried out in the Department of Paediatric Surgery, Children's Hospital & The Institute of Child Health, Multan from Jan 2006 to Dec 2010. All patients up to 12 years of age with history of head trauma were included. Patients were first seen in emergency department. Initial resuscitation and assessment was made on the basis of history, clinical examination and necessary radiological investigation. Patients were treated according to standard trauma protocol. The initial post resuscitation GCS was used in the assessment of head trauma. According to GCS, head injury is classified as mild with GCS 14-15, moderate with GCS 9-13 and severe with GCS ≤ 8[6]. For patients less than 4 years of age, modified Glasgow Coma Score was used in which best verbal response is modified.

RESULTS

A total of 1150 patients were managed during this period. 70% were male and 30% were female. The age ranged from 1 week to 12 years. Commonest cause of head injury remained fall from height (68%) followed by road traffic accidents (25%) and other causes (7%). There was only one patient of proven child abuse. CT scan of head was performed in 527 patients in which GCS deteriorated or symptoms persisted.

70 patients had associated injuries including fracture of limb, fracture of spine and abdominal injuries. In 75% cases there was mild head injury while 16% patients had moderate head injury and 9% patients were with severe head injury. Most of patients admitted in the hospital for 24 hours observation. 35 patients underwent some surgical procedure, 18 patients had

elevation of depressed fracture, 9 patients had craniotomy for extradural hematoma, 6 patients underwent craniotomy for subdural hematoma.

Nine patients with severe head injury died within 5 days of admission, 4 patients died post operatively. 15 patients were treated for post traumatic seizures and 3 for brain abscess.

Table No.1: CT finding in a total of 527 patients

Normal	321	60.91%
Brain Edema	36	6.3%
Contusion/ Laceration	11	2.03%
Hematoma	25	4.74%
Skull Fractures		
Linear	116	22%
Depressed	18	3.4%

DISCUSSION

There are definite physiological differences between paediatric and adult brain which have direct effect on management and outcome of head trauma. In new born with open fontanels, normal intracranial pressure is upto 2cm of water. In young children it is 3-6 cm of water. In contrast, the upper level of reference range in adults is 15 cm of water. Brain water content is 90% in children and 75% in adolescents. Mylenation is absent at birth and slowly increases until adolescence. Cerebral blood flow is 10% less than that of an adult until the age of 3-4 years and reaches adult level in adolescence. Children with head injury usually present with normal blood pressure and tachycardia. Bradycardia in a child with head injury usually indicates increased intracranial pressure. For reasons not fully understood, children survive higher and more prolonged intracranial pressure. Children have lower chance of surgical lesion as compared to adult head injury patients. As a result children are far better than adults with head injury[8,11]. Concussion which is minor brain injury is also reported to be more common[4-6,11]

Majority of patients in this study presented with mild head injury who survived on conservative treatment. Most of the patients were in 6-11 years of age group. Accidental injuries and child abuse were less common as compared to western world, where at least 10% of children less than 10 years of age were brought to emergency department with alleged accidents and victims of child abuse[9]. Sports related head injury is similarly mentioned in international literatures[11.]

More than 75% of head injuries in paediatric age group are preventable. This shows the gravity of this major problem, issue and inadequacy of the preventive measures taken. Majority of our patients presented with history of fall from the roof while flying kites and playing unsupervised on the roof top without safety railings as compared to western world where road traffic accident is common[6, 8]. Literacy among the mothers appears to be directly linked with provision of safety measures for children at home. In this study illiterate mother and poor families had more than 5 children and were relatively more ignorant of the safety of their children. Parents should supervise their children when they are playing inside are outside the homes. Parents and teachers should teach and train children about the precautions and proper methods to cross the streets and roads[10]. The safety measure if practiced within home and outside can avoid these catastrophic misshapes.

CONCLUSION

Head trauma or craniocerebral injury remained a common problem in the paediatric age group with significant morbidity and mortality. The commonest cause of head injury was fall from height and commonest type of brain injury was concussion. Most of the injuries are preventable by education of children and their parents.

REFERENCES

1. Agarwal A, Kumar A, Lewi o etal. Epidemiology and management of paediatric head injury. African J Paediatr Surg 2008;5:15-8.
2. Census Report of Pakistan: 1998. Pakistan Census Organization. Government of Pakistan.
3. Weiss HB, Mathers LJ. Incidence and characteristics of fall related emergency depart-ment visits. Acad Emerg Med 1998; 5:1064-70.
4. Young SJ, Barnett PL, Oakley EA. Fractures and minor head injury. Minor injuries in children. II Med J Aust 2005;182:644-8.
5. Yattoo GH, Tabish A. Profile of head injury and traumatic brain injury deat. J Trauma management and outcome 2008;2:5.
6. Geeit R. Head injury. Paediatrics in Review 2001; 22 (4):118-24.
7. National Institute for Health and clinical excellence: head injury: triage assessment investigations and early management of head injury in infants, children and adults. Clin Guidelines 4. NICE. 2003.
8. Trenchs V, Curcoy AI, Castillo M et al. Head trauma and skull fracture in infants. Eur J Emerg Med 2009;16(3):150-2.
9. Kellogy ND. Evaluation of suspected child abuse paediatrcs 2007;119(6)1232-41.
10. Atabaki SM. Paediatric Head Injury. Paediatrics in Review 2007;28:215-24.
11. Llovera I, Ward MR, litroff A etal. Sports injuries presenting to emergency department: A paediatric problem. Int J Emerg Med 2005;2:2.

Original Article

Early Response of the Ponseti Method for the Treatment of Idiopathic Congenital Clubfoot

1. Zahoor I. Soomro 2. Karam A. Shah 3. Saeed A. Shah 4. Zulfiqar A. Mastoi

1. Sr. Registrar Orthopaedic Surgery 2. Asstt. Prof. of Orthopaedic Surgery 3. Asstt. Prof. of Orthopaedic Surgery 4. Prof. of Orthopaedic Surgery, Peoples University of Medical & Health Sciences Nawabshah

ABSTRACT

Objective: The objective of this study is to assess the early response of the Ponseti method for the treatment of idiopathic congenital clubfoot by using the Pirani scoring system.

Study Design: Prospective study.

Place and Duration of Study: At the Department of Orthopaedic Surgery Peoples University of Medical & Health Sciences (PUMHS) Nawabshah from JAN 2011 to DEC 2011 (ONE YEAR).

Materials and Methods: Total numbers of 50 cases with 79 feet of idiopathic congenital clubfoot up to the age of one year of either sex were included in this study.

Results: The correction was obtained in 47 (94%) cases but three infants required Posteromedial release (PMR) operation. Average number of casts applied was 5.7 (range: 4-8), average time for full correction was 10 weeks (range: 4-12 weeks), percutaneous Achilles tenotomy was required in 84% of cases. Mean comparison of Pirani score was significantly decreased at final stage.

Conclusion: The Ponseti method is a safe and effective treatment, that PMR surgery is no longer necessary for the majority of idiopathic congenital clubfeet.

Key Words: Idiopathic, Clubfoot, Ponseti

INTRODUCTION

Idiopathic congenital clubfoot or talipes equinovarus (CTEV) is a complex deformity occurring in an otherwise normal child since birth[1]. Exact etiology is unknown, however various theories include primary germ plasm defect, intrauterine malposition, and genetic disorder have been suggested. Incidence is one per 1000 livebirths[2], boys are affected twice than girls, >50% of cases are bilateral while right sided preponderance in unilateral cases[3]. Deformity consists of 4 components: hindfoot equinus, hindfoot varus, forefoot adductus, and cavus.

The goal of treatment is to correct all components of deformity with a pain free, plantigrade foot with good mobility, therefore most orthopaedists have agreed that the initial treatment should be non.surgical, most of them involving manipulation and casting for many months which often resulted in partial correction[4]. The partially corrected feet were then treated by posteromedial release operations. The long term results have been disappointing include wound infection, wound dehiscence, overcorrection, heel valgus, undercorrection, heel varus, persistant equinus, metatarsus adductus, stiffness, and weakness leading to premature arthritis[5].

Because of these complications a renewed interest in conservative treatment in the form of Ponseti has occurred[6]. Since the late 1940s, Ignacio V. Ponseti, MD at university of Iowa, developed a method of clubfoot correction which is easy to learn and has been recommended for use in developing world with a high success rate of 83-98%[7-9].With increased understanding of the biology of the deformity and of the functional anatomy of the clubfoot, the Ponseti technique has developed to give, in most cases, a result superior to that achieved by surgery[10]. Therefore Ponseti described a study on histological section of ligaments from clubfeet, revealed that the abundant young collagen in the ligaments was very wavy, was very cellular known as crimp. This crimp allows the ligaments to be stretched. The crimp reappears a few days later, allowing for further stretching. That is why manual correction of the deformity is feasible. Also he described that there is no single axis of motion exists on which to rotate the tarsus. The tarsal joints are functionally interdependent. The movement of each tarsal bone involves simultaneous shifts in the adjacent bones[11].

This method involves weekly stretching of the deformity followed by application of a long leg cast. All components of deformity usually correct within 5 to 6 weeks, with the exception of the equinus. A simple percutaneous Achilles tenotomy is often necessary to complete the correction. After correction a foot-abduction brace is used to maintain the correction[12]. This technique results in strong, flexible and plantigrade feet with maintenance of function without pain has been demonstrated in a 35-years follow-up study[13].

The purpose of this study is to assess the early response of the Ponseti method for the treatment of idiopathic congenital clubfeet by using the Pirani severity scoring system.

MATERIALS AND METHODS

The study has been conducted from Jan 2011 to Dec 2011 at the Department of Orthopaedic Surgery Peoples University of Medical & Health Sciences (PUMHS) Nawabshah. Fifty cases with 79 feet of either sex up to the age of one year were included in the study. Clubfoot deformity secondary to Polio, Cerebral Palsy, Arthrogryposis, and Meningomyelocele were excluded from the study[8]. Infants were evaluated and graded for severity by using the Pirani scoring system, which is based on physical examination and require no radiographic measurements or other special studies[13]. It comprises six clinical signs of contracture, each is scored according to the following principle: 0, no abnormality; 0.5, moderate abnormality; 1, severe abnormality. The six signs are separated into three related to the hindfoot (severity of posterior crease, emptiness of the heel, and rigidity of the equinus), and three related to the midfoot (severity of medial crease, curvature of lateral border of foot, and position of lateral part of the head of the talus). Thus, each foot can receive a hindfoot score between 0 & 3, a midfoot score between 0 & 3, and a total score between 0 & 6[9,14,15].

Treatment Protocol (FIG: 1): The course of treatment followed the principles of manipulation and casting described by Ponseti as follows:

1. All components of the deformity are corrected simultaneously, not in sequence, except for the equinus, which should be corrected last.
2. The cavus, which results from pronation of the forefoot in relation to the hindfoot, is corrected together with the adduction by supinating and abducting the forefoot in proper alignment with the hindfoot.
3. With the longitudinal arch of the foot well molded and the forefoot in some supination, the entire foot can be gently and gradually abducted under the talus, which is secured against rotation in the ankle mortise by applying counter pressure with the thumb against the lateral part of the head of the talus.
4. Heel varus will correct when the entire foot is fully abducted under the talus. The heel is never touched.
5. Finally, the equinus is corrected by dorsiflexing the foot. This is generally facilitated by a simple percutaneous Achilles tenotomy under local anaesthesia.

To maintain the correction obtained by gentle manipulation, a plaster cast is applied in two sections. The first section extends from the toes to just below the knee and the second covers the knee and thigh. The knee is immobilized at a right angle. The plaster cast is molded to fit the anatomy precisely. Abduction of the foot is progressively increased with each manipulation and plaster cast application until hypercorrection to about 70 degrees of foot abduction is obtained[7,11,12,16,17]. A foot-abduction brace is used to maintain the correction. This brace consists of a bar with shoes attached at the ends at 70 degrees of outward rotation on the affected side and 40 degrees on the normal side. The length of the bar should be equal to the width of the child's shoulders. The brace is used on a full-time basis for 2 to 3 months, and at night and during naptime for 3 to 4 years[11,18].

Analysis*:* The early response of the Ponseti method has been measured in terms of age of the patients, initial severity score of the deformity, total number of casts applied, time required for full correction of the deformity, and final severity score of the deformity.

RESULTS

Total number of 50 cases of either sex with idiopathic congenital clubfoot deformity up to the age of one year were included in this study. Out of 50 infants 34 (68 %) were male and 16 (32 %) were female with M:F = 2.1:1. Age range was 0.5-12 months, with maximum number of infants 33 (66 %) were lying between 2 weeks to 4 months. The earliest cast applied was at an age of 5 days, and the maximum age at which a cast applied was at 11 months. Out of 50 cases, 29 (58 %) of clubfeet were bilateral; while 13 (26 %) cases were right sided and 8 (16 %) of clubfeet were left sided.

Distribution of Pirani's initial severity score of right foot, score range was 3.5-6 and maximum number of patients had score 5 while mean (± SD) score was 4.9 (± 0.6). Distribution of Pirani's initial severity score of left foot, score range was 3.5 - 5.5 and maximum number of patients had score 5 and 5.5 while mean (± SD) score was 4.8 (± 0.65). Percutaneous Achilles tenotomy was done in 42 (84 %) cases.

Distribution of casts applied is presented in fig. 2, the number of casts range was 4 – 8 and mean (± SD) number of casts was 5.74 (± 1.12). Time (in weeks) for full correction of deformity is presented in fig. 3. Full correction occurred in 4-12 weeks, in 26 (52 %) cases correction was achieved in 10 weeks; mean (± SD) was 8.5 {± 2.0) weeks.

Distribution of Pirani's final severity score of right foot, score range was 0-3 and maximum number of patients had score 1 while mean (± SD) score was 0.833 (± 0.928).

Distribution of Pirani's final severity score of left foot, score range was 0-2.5, and maximum number of patients had scored 0.5 while mean (± SD) score was 0.581 (± 0.692).

Mean comparison of Pirani's score at initial and final stages is presented in table I. Mean scores of both right and left foot was significantly decrease at final stage as compared with initial Pirani's score (both p-values < .0001).

Fig No. 1: Summary of ponseti method from manipulation, serial casting, p/c tenotomy to bracing program

Table No.1: Mean Comparison of Pirant's Score at Initial and Final Stages n=50

Slides	Pirani's Severity Score		P-Values*
	Initial Mean ± SD	Final Mean ± SD	
Right	4.952±0.623	0.833±0.928	< .0001**
Left	4.797±0.65	0.581±0.692	< .0001

*By using student-t test
**Difference was significant
Key: SD=Standard Deviation

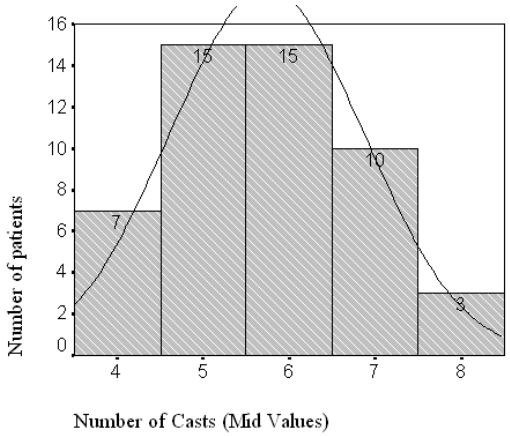


Figure No.2: Distribution of total number of casts applied.

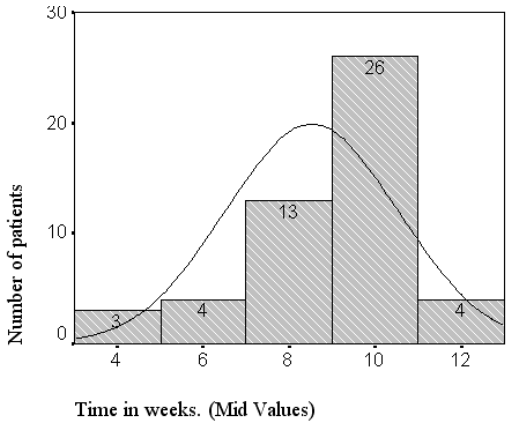


Figure No. 3: Time required for full correction of deformity.

DISCUSSION

In published series success is defined as treatment that avoids a surgical soft tissues release operation and thus in this study the success rate is 94% (47 cases), a figure that compares with other series i.e, 83-98%. The results obtained in this study are comparable to those mentioned in the international literature[6-9,12,16,19].

In this study, the Pirani's initial severity score was 3.5-6 and maximum number of patients had score 5, this is comparable with the study of Grag et al; and revealed that most of the patients presented had severe deformity[9]. The number of casts per feet in this study was 4-8 (average: 5.7). In a series by Ponseti et al; it was 5-10 (average: 7.6), by Laaveg et al; it was 7, by Mourcuende et al; the number was 5. Clubfeet presenting with a Pirani score of > 5 require more cast changes[15,20]. In this study, the time for full correction of deformity required 4-12 weeks (average: 8.5 weeks).Ponseti et al; required 5-12 weeks, Laaveg et al; required 8.6 weeks, and Mourcuende et al; reported 7 weeks.

In this study, percutaneous Achilles tenotomy was needed in 84% 0f cases. In a series by Pirani et al; he did tenotomy in 90%, Dobbs et al; in 91%, Laaveg et al; in 78%, and Changulani et al; experienced tenotomy in 85% of cases[17,21]. I agreed with the findings of Scher et al; that clubfeet with Pirani score of > 5 are highly likely to need an Achilles tenotomy[22]. These final results showed the mean scores of clubfeet were significantly decreased at final stage as compared with the initial Pirani's score (p-values < .0001).

On the contrary to other published studies, that the deformity can be corrected up to the age of 2 years[23]. In this study we found difficulty in correcting the deformity in children older than 9 months. Three of our patients treated with Ponseti method required PMR operation, and this was attributed to the late presentation of infants with severe Pirani score of 6. We observed that these older patients were difficult to hold in proper position and also difficult to do tenotomy under local anaesthesia. Therefore we experienced that these infants should undergo general anaesthesia for proper manipulation, tenotomy and casting.

Recent publications have stressed the importance of compliance with bracing program. Since most of the patients in the current study are from the lower class, educational level is low and thus they fail to understand the importance of bracing to maintain the correction. Strict instruction for the brace application, motivation by dedicated personnel, peer comparison and more frequent follow-up have lead to increased compliance. Mourcuende et al; described a relapse rate of > 80% in non.compliant cases. This is in contrast to a relapse rate of only 6% in compliant families[13,24].

In this series, the initial experience with the use of Ponseti method at PUMHS Nawabshah is as good as those from other published series. This study needs a future follow-up of these infants up to the age of skeletal maturity to observe the long-term effects of early response with Ponseti method. Lastly, the Ponseti method has been recommended for use in the developing world due to its simplicity, high success rate, and low demands on health resources[25].

CONCLUSION

The Ponseti technique is a safe, easy, result-oriented, economical, and effective method of treatment, that posteromedial release operation is no longer necessary for the majority of idiopathic congenital clubfeet.

REFERENCES

1. Ponseti IV, Zhivkov M, Davis N, Sinclair M, Dobbs MB, Mourcuende JA. Treatment of the complex idiopathic clubfoot. Clin Orthopaedics and Related Research 2006; 451: 171-6.
2. Skinner HB, Rab GT. Congenital clubfoot. Current diagnosis and treatment in orthopaedics. 4th ed. New York. Chicago. London. Sydney. Toronto: McGraw-Hill Co; 2006. 613-5.
3. Shah RA. Clubfoot in children surgical/ operative treatment. Ann. Abbasi Shaheed Hosp. Karachi & KMDC Coll 2004; 9 (2): 605-7.
4. Sud A, Tiwari A, Sharma D, Kapoor S. Ponseti's vs Kite's method in the treatment of clubfoot- a prospective randomized study. Int Orthop 2007; 24: [E pub ahead of print].
5. Dobbs M, Nunly R, Schoenecker PL. Long-term follow-up of patients with clubfeet treated with extensive soft tissues release. J Bone Joint Surg 2006; 88: 986-96.
6. Halanski MA, Davison JE, Huang JC, Walker CG, Walsh SG, Crawford HA. Ponseti method compared with surgical treatment of clubfoot: a prospective comparison. J Bone Joint Surg 2010; 92 (2): 270-8.
7. Zwick EB, Kraus T, Maizen C, Steinwender G, Linhart WE. Comparison of Ponseti versus surgical treatment for idiopathic clubfoot: a short-term preliminary report. Clin Orthop Relat Res 2009; 467 (10): 2668-76.
8. Din SU, Shah SA, Hayat S. Conservative treatment of congenital talipes equinovarus. J Postgrad Inst 2004; 18 (3): 368-72.
9. Changulani M, Grag NK, Rajagopal TS, Bass A, Nayagam SN, Sampath J, et al. Treatment of idiopathic clubfoot using the Ponseti method. Initial experience. J Bone Joint Surg 2006; 88-B: 1385-7.
10. Goksan SB, Bursali A, Bilgili F, Sivacioglu S, Ayanoglu S. Ponseti technique for the correction of idiopathic clubfeet presenting upto 1 year of age: a preliminary study in children with untreated or complex deformities. Arch Orthop Trauma Surg 2006; 126: 15-21.
11. Scher DM. The Ponseti method for clubfoot correction. Oper Tech Orthop 2005; 15: 345-9.
12. Bor N, Coplan JA, Herzenberg JE. Ponseti treatment for idiopathic clubfoot: minimum 5 year followup. Clin Orthop Relat Res 2009; 467 (57): 1263-70.
13. Ponseti IV, Mourcuende JA, Mosca V, Pirani S, Dietz F, Herzenberg JE, et al. In: Staheli L, editor. Clubfoot: Ponseti management. 3rd ed. Global-HELP; 2009.
14. Hussain FN. The role of the Pirani scoring system in the management of clubfoot by the Poneti method. J Bone Joint Surg 2007; 89 (4): 561-2.
15. Dyer PJ, Davis N. The role of the Pirani scoring system in the management of clubfoot by the Ponseti method. J Bone Joint Surg 2006; 88 (8): 1082-4.
16. Porcha MM, Parmar DS, Chavda HR. Mid-term results of Ponseti method for the treatment of congenital idiopathic clubfoot- (A study of 67 clubfeet with mean 5 year followup). J Orthop Surg Res 2011 Jan; 6: 3.
17. Maranho DA, Noqeira MH, Simao MN, Volpon JB. Ultrasonographic evaluation of Achilles tendon repair after percutaneous sectioning for the correction of congenital clubfoot residual equinus. J Pediatr Orthop 2009; 29 (7): 804-10.
18. Zionts LE, Dietz FR. Bracing following correction of idiopathic clubfoot using the Ponseti method. J Am Acad Orthop Surg 2010; 18 (8): 486-93.
19. Ziontz LE, Zhao G, Hitchcock K, Maewal J, Ebramzadeh E. Has the rate of extensive surgery to treat idiopathic clubfoot declined in the united states? J Bone Joint Surg 2010; 92 (4): 882-9.
20. Mourcuende JA, Terrazas G. Effect of cast removal timing in the correction of idiopathic clubfoot by the Ponseti method. Iowa Orthop J 2007; 27: 24-7.
21. Bor N, Katz Y, Vofsi O, Herzenberg JE, Zuckerberg AL. Sedation protocols for Ponseti clubfoot Achilles tenotomy. J Child Orthop 2007; 1 (6): 333-5.
22. Scher DM, Feldman DS, Bosse HJP, Sala DA, Lehman WB. Predicting the need for tenotomy in the Ponseti method for correction of clubfoot. J Pediatr Orthop 2004; 24 (4): 349-52.
23. Haqazy M, Nasef NM, Abdel-Ghani H. Results of treatment of idiopathic clubfoot in older infants using the Ponseti method: a preliminary report. J Pediatr Orthop 2009; 18 (2): 76-8.
24. Haft GF, Walker CG, Crawford HA. Early clubfoot recurrence after use of the Ponseti method in a New Zealand population. J Bone Joint Surg 2007; 89 (3): 487-93.
25. Gupta A, Singh S, Patel P, Patel J, Varshney MK. Evaluation of the utility of the Ponseti method of correction of clubfoot deformity in a developing nation. Int Orthop 2008; 32 (1): 75-9.

Address for Corresponding Author:
Dr. Zahoor Illahi Soomro,
Senior Registrar Orthopaedic Surgery,
PUM&HS, Nawabshah.
Email: zisoomro786@yahoo.com
Cell # 0301-3814247.
Mailing Address: H. No. A/134
G.E.C. Housing Society Nawabshah Sindh

Original Article

Frequency of Dominant Blood Groups in Medical Students of Karachi

1. Tariq Kamal Jafri 2. Kiran Mehtab 3. Aijaz Ahmed Qureshi 4. Tafazzul HZ 5. Husan Bano

1. Asstt. Prof. of Physiology 2. Asstt. Prof. of Community Medicine 3. Asstt. Prof. of Physiology 4. Asstt. Prof. of Community Medicine, Sindh Medical College, DUHS, Karachi 5. Assoc. Prof. Al-Tibri Medical College, Karachi

ABSTRACT

Objectives:

1. To assess the different blood groups, in students of DUHS.
2. To determine the dominant blood group in the students of DUHS
3. To compare the results of present study with other cities of Pakistan & countries of the world

Study Design: Cross-sectional study.

Place and Duration of Study: This study was carried out on medical students of Sindh & Dow medical Colleges, {DUHS) Karachi from September 2000-2004.

Materials and Methods: Sample size of 2300 was drawn by using convenient sampling method. Blood samples were collected by finger prick method. Data was collected & analyzed on SPSS version 16.

Results Out of 2300 students group B was found to be the commonest (40%), group O (32%), group A (20%), group AB (08%).Rh positive (85%).The dominant being B+ in karachi as well in Pakistan, compared to O blood group in different countries of world

Conclusion The study showed very little %{ 08) of blood (AB) groups among the medical students of Karachi; it generated an authentic data, which may serve a useful purpose for high transfusion demand to very emergent situations.

Key Words: ABO, Rh (D), Blood groups, Medical Students, Dominant, Transfusion.

INTRODUCTION

Determination of blood group has important significance in clinical medicine. The frequency of blood groups in various populations can be used to establish relationship with certain diseases [1, 2]. In addition to establishment of efficient transfusion services data can be utilized for genetic studies, forensic investigations and exploring ancestral relations of humans [3]

Landsteiener in 1901 discovered first classical ABO system; Rh system was discovered in 1941[4].The basis of ABO system is occurrence or absence of antigens on erythrocytes. However these antigens may be present in other tissues like salivary glands, pancreas, kidney, liver [5].Rh blood system is polymorphic. The antigens of this system are C, D,E [6].Anti – D agglutins are cause of erythroblastosis foetalis.[7]

The purpose of this study was to determine the frequency of blood groups (ABO, Rh) in students of Sindh Medical Colleges, Karachi, to determine the dominant blood group in the students, as well as compare results with similar studies carried out in other cities of Pakistan and world wide this study can become a tool to generate data in case of high transfusion demands.

MATERIALS AND METHODS

A total of 2300 students,1288 females and 1012 males were selected for determining there blood groups during a four year period from September 2000 to 2004.

Blood samples were collected by finger prick. ABO and Rh grouping was done by Agglutination test, using antisera A, B, D. The data was entered and analyzed by using Statistical Package for Social Sciences (SPSS) version 16.0.

RESULTS

Out of 2300 students,1288 (56%) females, 1012 (44%) males. Group B was found to be the commonest (40%) followed by group O (32%) group A (20%). Group AB was the least common (08%).

Table No.1: Prevalence of Different Blood Groups in the 2300 Students

Blood Group	Number	Percentage
A	460	20
B	920	40
AB	184	08
O	736	32

In Rh factor determination of 2300 students, out of 2186 Rh +ve (95%), 114 Rh –ve (5%).Blood group A with 95.1% Rh +ve (4.9 %) Rh –ve. B, 95.6% were Rh +ve and 4.4% were Rh –ve. Those with blood group AB (96.0%) Rh +ve (4.0%) Rh –ve and those with group O (95.21%) Rh +ve (4.79%) Rh –ve.

Table No.2: Frequency of Rh factor among student's ABO groups.

Rh Factor	Total students (n=2300)	Blood Group			
		A	B	AB	O
Rh +ve	95% (n=2186)	95.10	95.60	96.00	95.21
Rh -ve	5% (n=114)	4.90	4.40	4.00	4.79

Table No.3: Comparisons of frequency of ABO& Rh blood groups in cities of Pakistan & other countries

Population	A	B	AB	O	Rh+	Rh-
Peshawar	26	34	7	31	94.6	5.4
Multan	21.9	36.9	7.4	33.8	92.1	7.4
Bannu	31.3	36.2	7.5	25	89.2	10.8
Britain	42	8	3	47	61	39
S.arabia	26	18	4	51	92	8
Iran	33	23	9	34	88.8	11.2

DISCUSSION

The results of the study were in approximation with similar studies carried out in other cities of Pakistan,[8,9,10] all studies showed dominance of group B and O, The studies in other countries showed high frequency of blood group O followed by B[11, 12, 13]

A study carried out in Muslim population of Karachi, who migrated from India also showed dominance of blood group B +ve. In Sindh & Dow medical colleges the high frequency of blood group B could be due to majority of students belonged to parents who ancestral relations with population had migrated from India during partition[14] all the studies showed least frequency of Rh –ve.

CONCLUSION

In Pakistan due to the dominance of B+ blood group, any emergency condition requiring Rh- groups would be difficult to meet, there is need for more extensive research throughout Pakistan, Government should add a column in censes or in voter lists mentioning blood groups, so a comprehensive data would be available.

REFERENCES

1. Purushottan A, Girri, Sankalp ZYadav. Guarav Singh Parhar Deepak B. phalke. Int. J Biol Med Res. 2011; 2(4): 988-90.
2. Fikrin F, Chesterman C, Penington D, Rush B. De.gruchs clinical haemotology in medical practice. 5th ed. Blackwell Science Publisher; 2008.p.475.
3. Boskabady MH, Shademan A, Ghanami G, Mazloom R. Pak J Med Sci 2005; 21(2): 194 – 8.
4. Mahmood MA, Anjum AH. Tariq SMA, Rafiq S, Usman M, Khawar S. Biomedical 21(2) 2005 1-4
5. Khanms, Subhan, et.al. Prevalence of blood groups and Rh factor in Bannu region (N.W.F.P) Pakistan Pak Med Res 2004; 43(1). 8-10.
6. Ganong WF. Review of Medical Physiology 21st ed. 2003.p.539-40.
7. Bashwari LA. Almulhim AA. Ahmad MS. Ahmed M.A. Frequency of ABO blood groups in eastern region of Saudi Arabia, Saudi Med J 2001; 22: 1008 – 12.
8. Guyton AC. Hal JE. Text book of Medical Physiology. 10th ed. London: WB Saunder Company; 2000.
9. Khursid B. Naz M. Hassan, Mabood SF. Frequency of ABO RH(D) blood groups in district Swabi NWFP Pakistan J. Sci Tech Univ Peshawar 1992;16:5-6.
10. Khaliq MA, Khan JA, Shah H, et al. Frequency of ABO and Rh (D) blood groups in Hazara division (Abbottabad) Pak J Med Res 1984; 23(4): 102-3.
11. Blood typing system other than ABO.http:// www.Bloodbank.com/type-sys.html
12. Blood Group Antigen GeneMutation,Database, http://www.bioc.aecom.yu.edu/bgmutlabo.html
13. PMRC. Some normal parameters of Pakistani's in the Peshawar area 1976 – 82 Peshawar: Pakistan Medical Research Council, KMC; 1982.
14. Moten AN, Stewart. Blood groups of muslims and parsees in Pakistan. Br J Haem.1956;2:61-4

Address for Corresponding Author:
Dr. Tariq Kamal Jafri,
Assistant Professor of Physiology,
Sindh Medical College (DUHS), Karachi
Email Address: dr_tariqkamal@yahoo.com
Phone #: 03002163790

Original Article

Four Years Profile of Cases of as Asphyxial Death Autopsied at Ghulam Muhammad Mehar Medical College / Hospital Sukkur

1. Waqar Shaikh 2. Sarwar Pirzada 3. Muhammad Aakber Kazi 4. Waheed Ali Nahyoon 5. Ishrat Bibi

1. Asstt. Prof., GMMC, Sukkur 2. PUMHSW, Nawabshah 3. Assoc. Prof. LUMHS, Jamshoro 4. Lecturer, LUMHS, Jamshoro 5. Dept. of Forensic Medicine, LUMHS, Jamshoro

ABSTRACT

Background: History of Asphyxial death is as old as human history. Homicide is oldest crime in human civilization and was started from murder of abel by the hand of cane. Homicide can be done by using mechanical asphyxia like, throatling, smoothering, and hanging. Similarly suicide can be done by means of hanging where throatling by one self is rare. In small children, old and feeble people smoothering is choice of homicide.

Study Design: Retrospective study

Place and Duration of Study: This study was carried out in the office of additional police surgeon and Forensic Medicine Department of Ghulam Muhammad Mehar Medical College Sukkur (GMMMC), of asphyxial death from 2007 to 2010.

Materials and Methods: This retrospective study includes results of hundred autopsy examination carried out in the office of additional police surgeon and Forensic Medicine Department of Ghulam Muhammad Mehar Medical college Sukkur (GMMMC), of asphyxial death. Total period of study was four Years so that from 2007 to 2010.

Result: The study revealed that the individual in the third decade of life are maximally involved the ligature was a single loop in 77.7% cases and multiple in 22.3% cases. The most frequent non specific sign was congestion seen in 70% cases and petecheal haemorrhage in 78% cases. The hyoid bone was fractured in 30 cases. The associated injuries found were physical and sexual in nature in 73% of cases.

Conclusion: The vast majority of cases of asphyxial death were as a result of strangulation, both manual and by means of rope (ligature). Associated injuries of physical nature were present in 68% of cases. This reveals the cruelty of the criminals towards human being.

Key Word: Asphyxia, smoothering, strangulation, ligature, sexual.

INTRODUCTION

There is strong relation between criminal intent and crimes. For commission of crime a person is spose to be having criminal mentality and action. A person who do not have any regard about humanity he can commit any type of crime. The present study is about asphyxial death cases those were reported during the years 2007-10 at additional police surgeon office and department of Forensic Medicine of GMMMC Sukkur.

Oxygen supply is essential for the integrity of human tissue, and lake of oxygen is incompatible with life. There are different definitions of asphyxia which are as follow.

According to Parikh: asphyxia is defined as pulselessness derived from greek word and is restricted to those form of oxygen lake which result from mechanical interference with the process of respiration, that is, anoxic anoxia1.

According to krishan VIJ: The term asphyxia commonly means "lake of oxygen". The term has been translated from the original greek, implying "pulselessness / Absence of pulsation". While Hypoxia is a general term referring to inadequate supply of oxygen to the tissues or an impairment of the cellular utilization of oxygen for any reason[2].

According to Nasib R. Awan.

Asphyxia is define as interference with the process of oxygenation in the lungs. The essential substance of asphyxia is the struggle to breathe against some kind of interference with respiration e.g. Mechanical asphyxia, Pathological asphyxia, Toxic asphyxia, Environmental asphyxia and Iatrogenic asphyxia[3].

In the USA most common method of Homicide and suicide is by means of firearm[4].

More than 25000 people die every year in the USA by injuries cause by firearm[5].

A part from data collected by recent study from Sukkur, in rest of Pakistan most common cause of Homicide is Firearm.

Oxygen supply is essential for the integrity of human tissue and lack of oxygen is incompatible with life. According to Shapiro many rapid deaths of medico-legal importance are fundamentally due to an interference with oxygenation of the tissues. Death due to an interference with oxygenation of the tissues result from hypoxia or anoxia[6]. The term anoxia is used when oxygenation of tissue is interfered with, it may occur due to non-availability of oxygen or its defective

utilization. The cases of mechanical asphyxia require medico legal investigation. The airway is blocked from within or out side. When the external orifices are blocked, It is called smothering, blocking from within is called gagging, when the oral cavity is stuffed, and choking when foreign material enters into the trachea or main bronchus. Strangulation is one of the most common causes for violent asphyxial mode of death. Strangulation may be caused by a ligature such as neck tie, scarf, rope, electric cable, dhoti, azaar band, belts and rubber and lather straps or by any linear, flexible material. If by hands, it is called manual strangulation or throttling, if the forearm is pressed against the neck, is called mugging. When constricting force is the weight of the victim body itself, it is called hanging. In a study conducted on survived cases of strangulation in Switzerland[7] three groups have been defined light strangulation confined to skin abrasions and / or bleeding from neck and /or damage to deeper soft tissues or larynx. In cases of severe, life threatening strangulation petecheal hemorrhages are seen. The present study was planned to see the incidence and autopsy finding of cases of strangulation, throttling and hanging.

MATERIALS AND METHODS

The present study includes the cases of strangulation, throttling and hanging subjected to medico legal autopsy in the department of medico legal GMMMC Hospital Sukkur during years / 2007,2008,2009 and 2010 that is study period extending over four years. The following parameters were recorded.

1. Age
2. Sex
3. Ligature Marks
4. Non specific asphyxial findings
5. Status of hyoid bone
6. Presence of associated injuries

RESULT

Total of 132 cases 100 cases examined, out of them 75% were male and females were 25% as shown in the table 01. The age distribution is given in table 02. The pattern of ligature mark revealed that ligature was applied as single loop in 80 cases (80%) and multiple loop in 20 (20%) cases. In of throttling, multiple abrasions and bruise were found n the neck region. The non specific asphyxial finding like congestion were present in 78 cases (78%)petechac found in the eyes were in 22 cases in the lung region in 40 cases petechac of heart were present in 16 cases bleeding from ears was seen in 6 cases (6%) and from the nose in 17 cases (17%) hyoid bone was fractured in 30 cases (30%) associated injuries of physical nature were present in 68 cases (68%) and injuries of sexual nature in 08 cases theses cases 05 were females and 3 males (table 05).

Table No.1: Sex Distribution

Sex	No. of Patient	Percentage
Male	75	75%
Female	25	25%
Total	100	100%

Table No.2: Age Distribution

Age(Age Years)	No. Patient	Percentage
09	00	00%
10-19	10	10%
20-29	50	50%
30-39	20	20%
40-49	20	20%

Table No.3: Presence of Non Specific Injuries

Finding	No. Patient	Percentage
Congestion	86	86%
Cyanosis	14	14%
Petichial haemorrhages	78	78%
Eyes	22	22%
Lungs	40	40%
Hearts	16	16%

Table No.4: Status of Hyoid Bone

Finding	No. Patient	Percentage
Fractured	30	30%
Not Fractured	70	70%

Table No.5: Presence of Associated

Finding	No. Patient	Percentage
Injuries	76	76%
Physical	68	68%
Sexual	08	08%

DISCUSSION

In the present study 100 cases were examined. The male to female ratio was 3.1 in study at Delhi the ratio was the same[8]. The maximum cases are from the third decade of life. This is also in accordance with the Delhi study 8. The presence of congestion seen in 90% and petecheal haemorrhage 78% were the most frequent non-specific finding. The hyoid bone was fractured in 22% cases in Delhi stud 80% of the cases had fractured neck bone cartilage. In a study in Australia[9] the survived cases of strangulation were studied. In such cases the deeper damages were evaluated using the M.R.I technique (15 scanners). Haemorrhage was observed in subcutaneous fatty tissues of the neck, muscles of the neck and larynx and larynx soft tissues. Associated injuries of physical and sexual nature were present in cases strangulation. Physical violence may be

applied to over power the victim and may be found any where on the body. Where as sexual abuse may be followed by strangulation simple to eliminate the risk of identification of he offender. In our study, associated injuries were found in 73 cases, out of these 60 cases had physical injuries and in 08 of the cases the injuries were of sexual nature. In Delhi study associated injuries were found in 90% of the cases. Our study is also concomitant with study from Belgrade[10].

Suicidal strangulation though not very common but it possible. Concomitant with a report published by Dr. Anil Aggrawal[11].

CONCLUSION

In case where congestion and petechal haemorrhage are present the possibility of asphyxia death may be kept in mind and neck should carefully examined to rule out interference. The neck examination should be conducted with great care. Internal examination of the neck structure should be done thoroughly, following special dissection techniques. Neck should be disceted last, opting for yinciision to open the neck.

REFERENCES

1. Parikh's textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 6th ed. CBS Publishers & Distributors: Death from Asphyxia; p.35.
2. Krishan VIJ. Forensic Medicine & Toxicology. 4th ed. Elsevier (A division of reed Elsevier India Private Limited): Asphyxial Death;p.149.
3. Awan NR. Principle and Practice of Forensic Medicine, Sub Lime Arts Hafeez Chamber the Mall Lahore: Asphyxia;106.
4. Forest De, Ganesslen ER, Lee CH. Tool marks and firearm. Forensic Sciences: An introduction to criminalistics. 1st ed. New York: McGraw Hill; 1983.p.383-412.
5. Rasheed MA, Majid A, Malik MM, Zaheer M, Goraya SU. Analysis of unnatural death in Rawalpindi during 1997. Pak Armed Forces Med J 1999;49(1):68-70.
6. Gordon 1. Sharipo HA, Berson SD. Rapid deaths from interference with oxygenation of tissue on Forensic Medicine Churchill Livingstone: New York;1988.p.80.
7. Lattner P. Bolliger T. Zollings S, Forensic U. Assessment of survived strangulation Forensic science 2005:13(2-3):202-7.
8. Verma SK. Lal's strangulation deaths during 1993-2002 in East Delhi (India) leg. Med (Tokyo) 2006; 8(10):1-4.
9. Yen K, Vok P, Christe A. Clinical Forensic Radiology in strangulation victims Forensic expertise based on magnetic resonance imagine (MRI)finding inter, J legal Mode 2007;121(2): 115-23.
10. Nickolic S, Micic J. Antasjevic T. Analysis of neck injuries in hanging. Am J Forensic Medicine Pathol 2003;24 (2):82.
11. Agarwal. A. Forensic files death by strangulation available at http://lifeloom.com/II4Aggrawal.htm/ spring 2005 Volume II issue

Address for corresponding Author:
Dr. **Waqar Shaikh,**
Asstt. Prof., GMMC, Sukkur.

Original Article

Congenital Diaphragmatic Hernia in Children

1. Muhammad Ashfaq 2. Abdul Latif 3. Muhammad Ashraf 4. Saadat Parveen 5. Ikramullah

1. Assoc. Prof. of Pead Surgery, MMDC, Multan 2. Asst. Prof. of Pead Surgery, NMC, Multan 3. Assoc. Prof, of Pead Surgery, CH&ICH, Multan 4. Classified Pathologist, CMH, Multan 5. Sr Registrar of Pead Surgery, CH&ICH, Multan

ABSTRACT

Objective: To study the presentation, results and complications of management of congenital diaphragmatic hernia in children at our setup.

Study Design: Retrospective Descriptive Study.

Place & Duration of Study: This study was conducted in the department of Paediatric Surgery, Children Hospital & The Institute of Child Health, Multan during a period of three years from January 2008 to December 2010.

Materials and Methods: A total of 25 patients with congenital diaphragmatic hernia were managed. Data was collected on the basis of history, clinical examination, relevant investigations, operative results and complications. Final analysis was made at the completion of study.

Results: Study included 25 consecutive cases with ages ranging from 12 hours to 7 months. 19 (76%) were male and 6 (24%) female. 20 (80%) were neonates with predominant symptoms of respiratory distress since birth along with cyanosis and apnoeic spells. Five (20%) patients were beyond the age of one month with predominant symptoms of recurrent respiratory tract infection, vomiting and failure to thrive. Clinical signs included absence of breath sounds, presence of bowel sounds and impaired resonance on affected side of chest in all 25 (100%) patients. Flat abdomen in 18 (72%) and cachexia in 2(8%). Left side involvement was in 22 (88%) and right side in 3 (12%). All the patients were operated upon. Conventional mechanical ventilation (CMV) was given to 16(64%). One (4%) patient died and rest of the 24(96%) survived.

Conclusion: Best possible operative results can be obtained with the help of limited facilities present in our setup.

Key words: Congenital diaphragmatic hernia, Ventilation, ECMO

INTRODUCTION

Congenital diaphragmatic hernia (CDH) is defect in diaphragm and protrusion of abdominal viscera through it into the thoracic cavity. Its etiology is still unknown[1]. CDH is a common surgical cause of severe respiratory distress in newborn. An infant born with CDH has high morbidity and mortality due to respiratory failure caused by pulmonary hypoplasia and persistent pulmonary hypertension[2-3]. Delayed surgery, respiratory support and extracorporeal membrane oxygenation in selected cases have improved survival in such cases[4-5]. In developing countries, patients of CDH who are critically ill or develop respiratory distress within 6 hours rarely reach specialized center. We usually receive those patients who have either survived the initial respiratory distress or develop the symptoms later on. This factor and the help of conventional mechanical ventilation have markedly improved the post operative survival of our patients[6-7]. In this study we report our experience of these cases.

MATERIALS AND METHODS

From Jan. 2008 to Dec. 2010, a study was conducted in the Department of Paediatric Surgery, Children Hospital & the Institute of Child Health, Multan on 25 patients with CDH. All the patients were admitted through emergency and OPD. Diagnosis was made on the basis of history and clinical examination. Investigations included CBC, serum electrolytes and X.ray chest with abdomen. Barium meal follow through was done in 5 cases. 20 neonate and 5 infants underwent surgery. Nasogastric tube passed before surgery. Subcostal incision was made in all cases. Herniated contents were reduced back into the abdominal cavity. Primary repair of defect in diaphragm was performed. A chest tube was placed and connected with underwater seal. Post operative care included antibiotics, IV fluid and analgesia. Conventional mechanical ventilation was given to the patients showing delayed recovery. Nasogastric and chest tubes were removed accordingly. Patients were discharged after removal of stitches about 10 days after surgery and follow up advised.

RESULTS

This study included 25 patients with ages ranging from 10 hours to 7 months. Five (20%) presented in first 24 hours, 6 (24%) in 48 hours, 5 (20%) in 72 hours, 4(16%) on 4th day of life, 2 (8%) at two months, 1 (4%) at 5 months and 2 (8%) at seven months of age. 19 (76%) were male and 6 (24%) female. 20 (80%) were neonates with predominant symptoms of respiratory distress since birth along with cyanosis and apnoeic

spells. Five (20%) patients were beyond the age of one month with predominant symptoms of recurrent respiratory tract infection, vomiting and failure to thrive. Clinical signs included absence of breath sounds, presence of bowel sounds and impaired resonance on affected side of chest in all 25 (100%) patients. Flat abdomen in 18 (72%) and cachexia in 2(8%). Left side involvement was in 22 (88%) and right side in 3(12%). All the patients were operated upon. Conventional mechanical ventilation (CMV) was given to 16(64%). Recurrence of hernia developed in 1(4%), wound infection in 2(8%). One (4%) patient died and rest of the 24(96%) survived.

Table No.1: Age at Presentation

Age	Number (Percentage)
24 hours	5 (20%)
48 hours	6 (24%)
72 hours	5 (20%)
4 day	4 (16%)
2 months	2(8%)
5 months	1(4%)
7 months	2(8%)
Total	25(100%)

Table No.2: Complications

Complications	Number (Percentage)
Recurrence	1(4%)
Wound Infection	2(8%)
Mortality	1(4%)

DISCUSSION

CDH is a challenging emergency both for the paediatrician and paediatric surgeon, especially when severe respiratory distress develops within 6 hours of birth. Introduction of CMV, ECMO and pharmacological agents along with delayed repair of hernia have markedly influenced the outcome of high risk cases. In general, later the onset of symptoms, better the prognosis. Internationally postoperative survival figures close to 100% have been recorded for neonates who were brought for operation after the first 48 hours of life[8-9].

In our study symptomatology of all cases presenting in the neonatal period is similar to that reported in literature i.e respiratory distress and cyanosis since birth. Recurrent respiratory tract infection, vomiting and weight loss are common features in older cases beyond neonatal period. Major complication requiring secondary surgery was recurrence of hernia in one case which is (4%). This complication is also mentioned in literature at about 5% (Deprest JA et al) [7]. All of our cases presented after the first 12 hours of life and twenty four (96%) out of 25 cases survived after surgery. Mitanchez D[5] reported a postoperative survival of 92% in his study, which is close to our study.

ECMO[3-4] and Tracheal occlusion[10] for fetal congenital diaphragmatic hernia have also improved the outcome of CDH but these facilities are not available in developing countries such as Pakistan. Still best possible operative results were obtained with the help of limited existing facilities. It was also observed that patients who developed symptoms late had good prognosis and even conventional mechanical ventilation was not required in 36% cases.

CONCLUSION

Best possible results of surgery were obtained with the help of limited existing facilities. It was also observed that patients who developed symptom late had good prognosis even without CMV.

REFERENCES

1. Klaassens M, de Klein A, Tibboel D. The etiology of congenital diaphragmatic hernia: still largely unknown? Eur J Med Genet 2009;52(5):281-6.
2. Keller RL, Tacy TA, Hendricks-Munoz K, et al. Congenital diaphragmatic hernia: endothelin-1, pulmonary hypertension, and disease severity. Am J Respir Crit Care Med 15 2010;182(4):555-61.
3. Fliman PJ, deRegnier RA, Kinsella JP, Reynolds M, Rankin LL, Steinhorn RH. Neonatal extracorporeal life support: impact of new therapies on survival. J Pediatr 2006;148(5):595-9.
4. Bryner BS, West BT, Hirschl RB, et al. Congenital diaphragmatic hernia requiring extracorporeal membrane oxygenation: does timing of repair matter? J Pediatr Surg 2009;44(6):1165-71; discussion 1171-2.
5. Mitanchez D. [Neonatal prognosis of congenital diaphragmatic hernia]. Arch Pediatr 2009;16(6): 888-90
6. Hussain M, Pasha HK, Farooq U, Ashraf M, Sheikh MA. Congenital diaphragmatic hernia: Nishtar hospital experience. J Surg 1998; 3(1):8-9.
7. Deprest JA, Gratacos E, Nicolaides K, et al. Changing perspectives on the perinatal management of isolated congenital diaphragmatic hernia in Europe. Clin Perinatol 2009;36(2):329-47.
8. Peetsold M, Huisman J, Hofman VE, Heij HA, Raat H, Gemke RJ. Psychological outcome and quality of life in children born with congenital diaphragmatic hernia. Arch Dis Child 2009.
9. Walsh-Sukys MC, Tyson JE, Wright LL, et al. Persistent pulmonary hypertension of the newborn in the era before nitric oxide: practice variation and outcomes. Pediatrics 2000;105(1 Pt 1):14-20.
10. Jelin E, Lee H. Tracheal occlusion for fetal congenital diaphragmatic hernia: the US experience. Clin Perinatol 2009;36(2):349-61.

Original Article

Maternal Factors Associated with Low Birth Weight Babies

1. Sabreena Talpur 2. Gulfareen Haider 3. Farida Wagan 4. Razia Tariq Qureshi

1. Sr. Registrar. Obs & Gynae, PUMHS, Nawabshah 2. Assoc. Prof. Obs & Gynae, Isra University Hospital, Hyderabad 3. Assoc. Prof. Obs & Gynae, PUMHS, Nawabshah 4. Asstt. Prof. Obs & Gynae, PUMHS, Nawabshah

ABSTRACT

Objective: To determine the maternal factors associated with low birth weight babies in women age of 15-35 years.
Study Design: Case control study.
Place and Duration of Study: This study was carried out in the department of gynecology and obstetrics, Isra University Hospital (IUH) Hyderabad, Sindh from 02-05-2009 to 02-11-2009.
Materials and Methods: Total 200 women were included in the study.100 as cases and 100 as control. Mothers aged 15-35 years, who deliver live or dead singleton baby through vaginal delivery or cesarean section after 37 week of gestation were included in the study while others who have delivered newborn with congenital abnormalities, had multiple pregnancy or known chronic illness (hypertension, tuberculosis, diabetes mellitus) were excluded from the study.
Results: The mean ± SD of maternal age (years) in cases was26.40 ± 4.77 and controls was 26.23 ± 4.36 with P-value 0.739. The mean ± SD of maternal weight (Kg) in cases was 53.13 ± 8.93 and in controls was 64.97 ± 13.72 with P-value < 0.001.
Maternal history of smoking and anemia had significant association with low birth weight with P-Value of 0.005 and <0.001 respectively.
Conclusion: It was concluded from our study that malnutrition, anemia, short stature like under weight & height are important risk factors for low birth weight.
Key Words: Low Birth Weight, Maternal Risk Factors, Prevention

INTRODUCTION

Low-birth weight (LBW) is defined as the birth weight less than 2.5 kg, It is a high priority and potentially preventable public health problem, particularly in the developing countries. Globally every year 18 million LBW babies are born of which 90% are in developing countries. In South Asia, the problem is most acute with as many as 59% of all newborns being LBW[1]. Approximately 25% of newborns in Pakistan have LBW. In neighboring country Bangladesh the living conditions are same as that of Pakistan, the prevalence varies between 23-60%[2,3].

There are numerous maternal and fetal factors contributing to LBW. The maternal risk factors are biologically and socially interrelated. However most of them are modifiable. A short inter pregnancy interval may leave the woman in a compromised nutritional state and at a higher risk. In addition to this breast feeding places further nutritional demands on the mother. Anemia and LBW are interrelated with each other [4].

Women with a poor obstetric history such as previous abortions, LBW babies, still birth, intrauterine death are also at higher risk. Smoking during pregnancy increases the risk. Low socioeconomic status, unemployment and low level of education of parents are also included in risk factors[5,6].

Antenatal care (ANC) plays an important part in reducing LBW. Appropriate ANC may reduce the prevalence of LBW by providing early risk assessment to manage preexisting medical conditions such as urinary tract infection and anemia, and by offering health behavior advice such as smoking cessation and nutritional counseling[7,8].

Smoking during pregnancy increases the risk[9]. The adverse effects of Cigarette smoking are mediated through nicotine and carbon monoxide lead to chronic fetal deficiency of oxygen and LBW.

LBW infants have higher rates of morbidly and mortality from infectious disease, malnutrition and growth failure. These children are also more likely to have abnormal cognitive development, neurological impairment, and poor school performance [10].

In addition to this deafness, blindness epilepsy and chronic long disease all are found more commonly in the LBW babies[11].

More recent evidence indicates that LBW babies are at greater risk of cardiovascular disease, hypertension, and diabetes in adult life as compared to their normal birth weight counterparts[12].

In Pakistan, although vital statistics and national nutritional surveys are carried out and the prevalence of LBW has been found out to be 12-25% there is no research work pursued on risk factors of LBW among women age 15-35 years. This population of woman is not biologically at high risk but most child bearing occurs. In this age group and preventable risk factors among this age group need to be assessed.

The problem of infant mortality is multifaceted, but from a public health prospective, the key goal is prevention of LBW due to preventable causes this goal cannot be achieved without a much better understanding then we currently have of the risk factors of LBW.

The result of this project will be of important for the health's of children of Pakistan and will also provide information to the Government and other responsible agencies which may help in planning appropriate measured to reduce the neonatal and infant morbidity and mortality.

The objective of this study is to determine the maternal factors associated with low birth wt babies in the age of 15-35years.

MATERIALS AND METHODS

This prospective, case control study was carried in Obstetrics & Gynae Department of Isra university hospital Hyderabad from 02-05-2009 to 02-11-2009. Total 200 women were included in this study, 100 as cases and 100 as controls.

Mothers aged 15 – 35 years, who delivered live or dead singleton baby after 37 weeks of gestation through normal vaginal delivery or caesarian section were included in this study. Weight of new born was measured with in 24hours in kilograms without cloths to an infant weighing scale (TANITA Scale).

Cases were those women who had give birth to baby weighing < 2.5 kg while controls were those women who gave birth to baby weighing > 2.5 kg.

Mothers who have delivered newborn with congenital anomaly and had multiple pregnancy or known chronic illness were excluded from study.

After taking verbal informed consent, information of risk factors was gathered through detailed interview and examination of each mother on pre-designed proforma. Maternal weight was taken in kilograms on adult weighing scale and height against a wall height scale in centimeters within 48 hours of delivery and body mass index was calculated.

Low maternal weight means BMI of women < 20. Short stature means height of women < 150 cm. Smoking was estimated by taking history including two or more cigarettes / day for six months.

Anemia was estimated on clinical examination of woman and also by means of investigation i.e. Hb level ($\leq$ 10gm/dl). All the data was carefully recorded and analyzed by using statistical package for social sciences (SPSS) version 10.0 was used to calculate odds ratio, and 95% confidence interval. Comparison between cases and controls was done by using chi-square test for categorical data and student's t test for means. The results were analyzed, as mean $\pm$ SD of different variables and by univariate logistic regression.

P-value of <0.05 was taken as significant.

RESULTS

In this study 100 newborns who were weighing < 2.5 Kg and having gestational age 37 weeks or more were taken as cases and another 100 newborns with birth weight $\geq$ 2.5 kg and gestational age 37 weeks or more were taken as controls.

In our study, among cases, 45 (45 %) were booked while 55 (55 %) were unbooked, while in control group 65 (65 %) were booked and 35 (35 %) patients were unbooked.

The mean $\pm$ SD of maternal age (years) was in cases 26.40 $\pm$ 4.77 and controls 26.23 $\pm$ 4.36 with P-value 0.739 (Table 1).

Table No.1: Comparison of means between cases and controls (n=200)

Characteristics	Cases n =100 mean $\pm$ SD	Controls n=100 means $\pm$ SD	P-value ¥
Wt of neonate (Kg)	2.27 ± 0.19	3.13 ± 0.40	<0.001*
Maternal age (Years)	26.40 ± 4.77	26.23 ± 4.36	0.793
Maternal Wt (Kg)	53.13 ± 8.93	64.97 ± 13.72	<0.001*
Maternal Ht (cm)	153.29 ± 3.96	155.29 ± 4.04	0.001*
Gestational age in weeks	38.35 ± 1.24	38.61 ± 1.19	0.132
Maternal BMI (wt in Kg/Sq.Ht in m)	22.65 ± 3.94	27.02 ± 5.90	<0.001*
Maternal HB (in mg/dl)	9.62 ± 1.13	10.94 ± 1.19	<0.001*

¥ Calculated by student's t-test

* P-value significant at level <0.05

The mean $\pm$ SD of maternal weight (Kg) was 53.13 $\pm$ 8.93 cases and of controls 64.97 $\pm$ 13.72 with P-value < 0.001 (Table 1).

Maternal age and height were compared in cases and control group but results were not statistically significant (Table 2).

Maternal history of smoking and anemia had significant association with low birth weight with P Value of 0.005 and <0.001 respectively (Table 3).

DISCUSSION

Low birth weight is an important determinant of neonatal morbidity , mortality and poor neurologic out come[13,14]. Reduction of low birth weight also forms an important contribution to Millennium Developmental goal (MDG) for reducing child mortality[15].

Table No.2: Distribution of various variables among cases and controls

Age Group	Cases n =100	Controls n =100	Odd Ratio (95%Cl)	P-value ¥
15-19 years	5	5	1.0	-
20-29 years	62	69	0.9 (0.3-3.3)	0.899
30-35 years	33	26	1.3 (0.3-4.9)	0.728
Height Group				
<150 cm	12	9	1.0	-
151-155 cm	55	35	1.2 (0.5-3.1)	0.222
156-160 cm	29	37	0.6 (0.2-1.6)	0.715
>160 cm	4	19	0.2 (0.04-0.63)	0.318
Weight Group				
<45 Kg	15	9	1.0	-
46-49 Kg	27	9	1.8 (0.6-5.5)	0.303
50-59 Kg	35	18	1.2 (0.4-3.2)	0.763
≥60 Kg	23	64	0.2 (0.1-0.6)	0.002*
BMI				
<18.5 (Underweight)	12	9	1.0	-
18.5-22.9 (Normal)	50	20	1.9 (0.7-5.1)	0.222
23.0-24.9 (Overweight)	15	9	1.3 (0.4-4.1)	0.715
25.0-29.9 (Obese-I)	17	22	0.6 (0.2-1.7)	0.318
≥ 30.0 (Obese-II)	6	40	0.1 (0.03-0.38)	<0.001 *

Table No.3: Comparison of cases with controls regarding other risk factors for L.B.W

Characteristic	Cases n =100	Controls n =100	Odd Ratio (95%Cl)	P-value ¥
H/O smoking				
No	86	97	1.0	0.005*
Yes	14	3	5.3 (1.5-18.9)	
H/O of previous LBW Baby				
No	88	95	1.0	0.076
Yes	12	5	2.6 (0.9-7.6)	
Maternal Anemia †				
No	21	58	1.0	<0.001*
Yes	79	42	5.2 (2.8-9.7)	

¥ Calculated by Chi square test

* Significant at level <0.05

† Anemia defined as Hemoglobin ≤10 mg/dl of blood

The result of this study showed significant association of cigarette smoking with LBW as out of 100 cases 14 cases have a positive history of smoking similarly. Same is seen in study conducted by Moore et al from USA who have demonstrated the importance of smoking as risk factors for LBW[16].

The result of present study showed that the maternal age is not significant risk factor for LBW. But in another study, maternal age is an important determinant of LBW especially in extremes of reproductive age pregnancies have poor outcome in the form of LBW[17]. In the present study maternal age ranges from 15 – 35 years.

Women between 18 – 35 years of age are considered not to be at high risk so this may be the reason in this study that maternal age was not significantly associated with LBW.

The result of this study showed that the history of previous LBW babies was significantly associated with LBW. Same is seen in study conducted by Verhoeff et al reported that past history of IUGR babies increase the chance of recurrence of the same[18].

In this study results shows that maternal anemia is significantly associated with LBW. The findings were in agreement with other studies of anemic pregnant women carried out at Pakistan[19].

In take of iron supplements during pregnancy was also found to have a protective association with LBW. This finding is consistent with some other studies of iron supplementation and pregnancy outcome[20]. In other study, the effect of iron deficiency on fetal growth is not very clear but folic acid deficiency has been found to lead to LBW[21].

According to Pakistan Integrated Household Survey (2000), 22 (30 %) of pregnant women seek ANC[22]. However the results from this study have showed that almost 75% of women participating in the study received ANC during pregnancy. The reason for this difference could be due to the fact that no documented information regarding ANC was available and information gathered from interviews was relied upon. Moreover this high prevalence of ANC could be due to the reason that it was a hospital based study.

CONCLUSION

It is concluded from this study that maternal anemia, low BMI, malnutrition, smoking and history of LBW babies are significantly associated with LBW. It is suggested that following steps may help to reduce the burden of LBW babies.

1) Nutritional supplementation in pre-pregnancy and during pregnancy
2) Prompt detection and management of high risk pregnancies like anemia and low BMI
3) Avoidance of smoking
4) proper and regular ANC
5) Avoidance of pregnancies at extremes of age

6) improve maternal education and property workup about previous LBW babies
7) Give interval between two pregnancies which is at least two years to improve maternal general health.

REFERENCES

1. Fauchs GJ. Low birth weight. Global forum for health research [Online]. [Cited 2003 June 20]. Available from: http:/www.globalforumhealth.org/Non complaint pages/ forum3 Forum3doc326.htm
2. Yasmin S, Osrin D, Paul E. Costello A. Neonatal Mortality of low birth weight infants in Bangladesh. Bull World Health Organ 2001; 79:608-14.
3. Khan N, Jamal M. Maternal risk factors associated with low birth weight. J Coll Physicians Surg Pak 2003; 13:25-8.
4. Khan MM. Effect of maternal anaemia on fetal parameters. J Ayub Med Col12001; 13:3-41.
5. Dickute J, Padaiga Z, Grabauskas V, Nadisaukiene RJ, Basys V, Gaizauskiene A. Maternal socio-economic factors and the risk of' low birth weight in Lithuania. Medicina (Kaunas) 2004; 40:475-82.
6. Keeley RD, Birchard A, Dickinson P, Steiner J, Dickinson LM, Rymer S, et al. Parental attitudes about a pregnancy predicts birth weight in a low-income population. Ann Fam Med 2004; 2:145-9.
7. Islam A, Malik F. Role of traditional birth attendants in improving reproductive health. J Pak Med Assoc 2001; 51:218-22.
8. Krueger PM, School TO. Adequacy of prenatal car and pregnancy outcomes. J Am Osteopath Assoc 2000; 10098:L 485-92.
9. Magee BD, Hattis D, Kivel NM. Role of Smoking in low birth weight. J Reprod Med 2004; 49 (1): 23-7.
10. Ellenberg J, Nelson KB. Birth weight and gestational age in children with cerebral palsy or seizure disorders. Am J Dis Child 1999;133: 1044-48.
11. Saw SM, Chew SJ. Myopia in children born Premature or with LBW. Acta ophthalmol Scand 1997; 75 (5): 548-50.
12. Suzuki T, Minami J, ohroi, Ishimitsou T, Matsuoka H. Relationship between birth weight and cardiovascular risk factors in Japanese young adults. Am J Hypertens 2000; 13 (8): 907-13.
13. Mc Cowhn LM, Harding JE, Stewart AW. Umbilical artery doppler studies in small for gestational age babies reflect disease severity. Br J Obstet Gynecol 2000; 107:916-25.
14. Change TC, Robson SC, Boys RJ. Prediction of the small for gestational age infant, which ultrasonic measurement is best. Am J Obstet Gynecol 2000; 80: 1030-8.
15. UNDP 2002, Human development report 2002, deepening democracy in fragmented world, Oxford University Press.
16. Moore ML, Zaccaro DJ. Cigarette smoking low birth weight and preterm births in low income African American Women. J Perinatol 2000; 20: 176-80.
17. Khushwaha KP, Rai AK, Rathi AK, Sirohi R. Pregnancy in adolescent: fetal, neonatal and maternal outcome. Indian J Pediatr 1999;30:501-4.
18. Vickers MH, Breier BH, Cutfield WS, Hofman PL, Gluckman PD. Fetal origins of hyperphagia, obesity and hypertension and postnatal amplification by hypercaloric nutrition. Am J Physiol Endocrinol Metab 2000; 279: 83-7.
19. Raha FWL, Qureshi N, Emanual F. Maternal anaenia and Farah emanual. Maternal anemia and its impact on perinatal outcome. Trop Med Int Health 2004; (4(9):786-489.
20. Lindsey H. Allen. Anemia and iron deficiency: effects on pregnancy outcome. Am Jclin Nutr 2000;71 (Suppl): 1280 S-4S.
21. Black RE. Micronutrients in pregnancy. Br J Nutr 2001;85 (Suppl. 12):S193-7
22. UNICEF Globalr Database Antenatal Cak (on live) *(cited 2004 at august) available from http://www.chindinfo.orgledb/antenatal /database2.5htm.

Address for Corresponding Author:
Dr. Sabreena Talpur
9-B, Khalid Housing Society Near Muslim Society,
Qasimabad. Hyderabad
Mobile No: 0300-3041557, 0333-2567759
Email: stalpur07@yahoo.com

Original Article

To Study the Effects of Simvastatin on Lipid Profile in Obese Patients with Changing Lifestyle

1. Samina Kausar 2. Muhammad Binyameen 3. Murad Khan 4. Sabiha Karim 5. Rukhshan Khurshid 6. Asima Malik

1. Asstt. Prof. of Pharmacology, PGMI, Lahore 2. Asstt. Prof. of Physiology, AIMC, Lahore 3. Assoc. Prof. of Biochemistry, CMH Lahore Medical College, Lahore 4. Assoc. Prof. of Pharmacology, SIMS, Lahore 5. Asstt. Prof. of Biochemistry, FJMC, Lahore 6. Prof. of Biochemistry, FJMC, Lahore

ABSTRACT

Simvastatin is a competitive inhibitor of HMG-CoA (3-hydroxy 3-Methyl glutaryl Coenzyme A) reductase.

Objective: Present study proposed that the lipid lowering effect of simvastatin may be enhanced, if it was taken with fat free diet and morning walk.

Study Design: Cross Sectional Study.

Place and Duration of Study: This study was conducted at Fatima Jinnah Medical College, Lahore for a period of six months from December 2009 to May 2010.

Patients and Methods: 20 male and 20 female obese patients were selected. The obese patients were re-examined three times i.e. before giving the simvastatin, then after 6 and 12 weeks. The patients were advised to take fat free diet and a morning walk. Serum Cholesterol, serum Triglycerides and serum Lipoprotiens (HDL, LDL) were determined.

Results: This study shows that with use of simvastatin, serum cholesterol, serum triglycerides, and serum LDL-Cholesterol was reduced significantly and serum HDL-Cholesterol increased significantly in both sexes. It was also observed that the fat free diet and some exercise causes weight reduction.

Conclusion: It is therefore concluded that simvastatin shows significant lipid lowering effects augment process of body weight reduction, if patients used calorie restricted diet with some morning walk.

Key Words: Simvastatin, Lipid Profile, Obesity.

INTRODUCTION

Simvastatin is lipophilic statin with a short half-life that is primarily metabolized by Cytochrome P450[1] (Robinson 2007). It is a competitive inhibitor of HMG-CoA (3Hydroxy 3Methyl Glutaryl Coenzyme A) reductase. The gene of HMG-CoA reductase may serve as a modifier gene for hypercholesterolemia in diabetic patients.[2](Ying).

HMG-CoA reductase mediates the first committed step in sterol biosynthesis. Simvastatin is structural analog of HMG-CoA intermediate that is formed by HMG-Co A reductase in the synthesis of Mevalonate[3]. It is reported that HMG-CoA reductase inhibitors are effective in the prevention of cardiovascular events and regression of atherosclerotic lesions evaluated by angiography[4].

Simvastatin treatment significantly reduced circulating conjugated diene level and led to an increase in glutathione peroxidase activity. These effects were more pronounced in patients with combined hyperlipidemia than in hypercholesterolemia. The results suggest that simvastatin possesses certain antioxidant properties, which may contribute to its beneficial cardiovascular effect [5](Molka).

Simvastatin is a safe and efficacious lipid lowering drug. It is quite effective in reducing Low Density Lipoprotein (LDL) levels. It appears to be twice as effective as Lovastatin at doses of 40 mgs/day.[6] The lowering of LDL-Cholesterol primarily is due to decrease in LDL particle number, although there also is a slight decrease in the cholesterol content of the LDL particle and a small decrease in VLDL Cholesterol.

Simvastatin also inhibit intestinal cholesterol absorption and appears to offer significant therapeutic value. It is anticipated that this option will allow clinicians to optimize the management of dyslipidemia in high-risk patients, thereby further reducing the morbidity and mortality of cardiac disease[7] (Stein et).Triglyceride concentration also decline by 10-30% reflecting the decrease in VLDL levels. Of great importance is the fact that HDL-Cholesterol levels typically rise 8-10%. However, the most important adverse effects of Simvastatin are increases in hepatic transaminases in serum and myopathy[8].

PATIENTS AND METHODS

The present study of lipid profile was undertaken on 20 male and 20 female obese patients. In each case a detailed personal, past and family history was obtained and physical examination for body weight and blood pressure was recorded. A singly dose therapy of Simvastatin 10 mg/day at bed time was taken by patients.

The obese patients were re-examined three times i.e. before giving the simvastatin, then after 6 and 12 weeks. The patients were advised to take fat free diet and a morning walk. They were checked physically for

weight and blood pressure and biochemical investigations.

Effort was made to minimize the dropouts. Serum Cholesterol, serum Triglycerides and serum Lipoprotiens (HDL, LDL) was carried out by Standard kit methods (Merck).

Statistical Analysis: The data was collected and analysed by standard statistical methods using SPSS Computer Soft ware Program Version 9.

RESULTS

The mean value of age, body weight and blood pressure at 0 week and after 6 and 12 weeks was noted in both sexes (Table 1). It was observed that the mean age of the male patients was 32 years and in female patients was 34 years. Mean body weight at 0, 6 & 12 week was 203 lbs, 200 lbs and 199 lbs. However in female patients, mean body weight at 0, 6 & 12 weeks was 199 lbs, 187 lbs & 176 lbs respectively. This showed a highly significant decrease in body weight (P<0.001) after use of Simvastatin in female patients. Mean blood pressure at 0, 6, 12 weeks 125/80,125/80 & 120/80 mm/Hg in male patients respectively, while in female patients the mean blood pressure was 125/80, 120/80 & 120/80 mm/Hg respectively.

The levels of serum cholesterol, serum triglyceride and serum lipoprotiens (HDL and LDL) in male obese patients at 0 week and after twelve weeks with Simvastatin was noted (Table 2). This showed a significant reduction (P<0.001) in levels of Serum cholesterol, Serum LDL-Cholesterol and in serum triglyceride while serum HDL-Cholesterol was significantly increased (P<0.001) in male patients between 0-12 weeks..

The levels of serum cholesterol, HDL-Cholesterol, LDL- Cholesterol and serum triglyceride in obese female patients at 0 week and after twelve weeks with Simvastatin were noted (Table 3). This showed a significant reduction (P<0.001) in levels of Serum cholesterol, Serum LDL-Cholesterol and in serum triglyceride while serum HDL-Cholesterol was significantly increased (P<0.001) between 0-12 week.

Table No. 1: Mean age, body weight and blood pressure in male/female patients before (0 week) and after (6, 12 weeks) taking Simvastatin+ changing life style.

Values expressed in mean ± s.e.m. No. of cases in (parentheses).

Time Period	**Male (20)**			**Female (20)**		
	Age (Years)	**Weight (lbs)**	**B.P (mmHg)**	**Age (Years)**	**Weight (lbs)**	**B.P (mmHg)**
0 weeks	32.35 ± 0.88	203.53±11.14	125.75/80.25 ±1.16/±0.85	34.52±1.88	199.40 ±7.58	125.80/80.00 ±4.53/±1.00
6 weeks	---	200.50±2.59	125.0/80.40 ±1.04/±1.22	---	187.44±7.39	120.20/80.80 ±1.33/±1.04
12 weeks	---	199.17±11.05	120.80/80.60 ±0.92/±1.23	---	176.66±7.22**	120.80/80.40 ±1.27/±0.97

**** P< 0.001= Highly significant difference**

Table No. 2: Level of serum chol, HDL-Chol, LDL-Chol and serum triglyceride in obese male patients before (0 week) and after (12 weeks) with Simvastatin + changing life style.

Values expressed as mean±s.e.m. No of cases in parenthesis.

Parameters	0 Week (n=20)	12 Weeks (n=20)
Serum cholesterol (mg/dl)	240.28±3.55	215.52±4.00**
HDL-cholesterol (mg/dl)	25.55±0.49	35.29±0.71**
LDL-cholesterol (mg/dl)	201.72±3.23	160.86±3.50**
Serum Triglyceride (mg/dl)	170.88±7.72	122.88±5.00**

**P<0.001=Highly significant difference

Table No. 3: Level of serum chol, HDL-Chol, LDL-Chol and serum triglyceride in obese female patients before (0 week) and after (12 weeks) with Simvastatin + changing life style.

Values expressed as mean±s.e.m. No of cases in parenthesis.

Parameters	0 Week (n=20)	12 Weeks (n=20)
Total cholesterol (mg/dl)	245.50±4.30	225.20±4.90**
HDL-cholesterol (mg/dl)	30.00±0.60	39.90±0.75**
LDL-cholesterol (mg/dl)	200.50±5.20	165.60±5.00**
Serum Triglyceride (mg/dl)	115.50±3.00	93.22±1.50**

**P<0.001=Highly significant difference

DISCUSSION

In this study we assessed the change in lipid profile before and after giving Simvastatin. A number of studies[3,4] confirmed its inhibitory effect on HMG-CoA reductase. An association of hyperlipidemia with obesity (increased body weight) was also reported by studies[9,10].

Present study tried to find out the effect of simvastatin in obese patients without instructing any fat free diet or changing of life style (routine morning work). It is found that although simvastatin showed a lipid lowering effect but there is a mild effect on body weight (data not shown). This study was a pilot study.

Later, study was designed to find out the lipid lowering effect of simvastatin along with the instructions of fat free diet and morning walk of 20-30 min. Present study was observed that although body weight was decreased in both sexes but significant difference ($P<0.001$) was only observed in female patients. It is confirmed by group of authors[11] that life style changes are advocated as a first line of treatment for dyslipidaemia and obesity. They observed that with dietary control and exercise, there is 10 % reduction in body weight associated with 7.6 % reduction in LDL Cholesterol. They found that more intense life style intervention may be effective at improving blood lipids and quality of life. Another study[12] also found that a comprehensive life style intervention can substantially lower blood pressure in hypertensive adults. It is reported[13] that daily walking reduces visceral adipose tissue areas and improves insulin resistance in obese subjects. However, the effect of Simvastatin on reduction of body weight was not reported[14] but it was observed that changes in lipid profile also effects body weight. It may be an insulin distinct resistance related metabolite syndrome characterized by dyslipidemia and obesity in both sexes[15]. This study shows that with the use of Simvastatin serum cholesterol, serum triglycerides, and serum LDL-Cholesterol was reduced significantly and serum HDL-Cholesterol increased significantly in both sexes and is in accord with no of studies[4,5,10-16]. A lipid lowering effect of simvastatin also reportrd by a group of workers[17]. Reason being that Simvastatin `is a competitive inhibitor of HMG-CoA reductase. which mediates the first commited step in sterol biosynthesis[3]. On the other, a study[18] found that simvastatin reduced lipoprotein lipase and endothelial lipase expression, mechanism independent of HMG-CoA reductase inhibition. However a contradictory study found that monotherapy of statin fail to achieve cholesterol goal[19].

Present study also observed the blood pressure of patients taking Simvastatin. It was observed that there is no remarkable change in blood pressure of patients of both sexes. Study is in accord with a study[16] which reported that Simvastatin promotes intracellular oxidant any effect on blood pressure. Another study also found that the use of simvastatin did not incrementally lower blood pressure.[20]

CONCLUSION

It is therefore concluded that Simvastatin shows significant lipid lowering effects and also reduced the body weight, if patients used calorie restricted diet with some morning walk. However a further study is needed to reach a better conclusion.

REFERENCES

1. Robinson JG. Simvastatin: present and future perspectives. Expert Opin Pharmacother 2007; 8(13):2159-27.
2. Ying S, Sun YM, Liu XM, An CY, Gao YY. Effect of ScrF I polymorphism in the 2nd intron of the HMGCR gene on lipid-lowering response to simvastatin in Chinese diabetic patients. Biochem Biophys Res Commun 2007;363(2):395-8.
3. Malloy MJ and Kane JP. Agents used in hyperlipidemia. Basic and Clinical Pharmacology (BG Katzung). 8th ed. USA; 2001.p.581-595.
4. Arai Y, Hirose N, Yamamura K, Kimura M, Murayama A, Fujii I, Tsushima M. Long term effect of atherosclerosis of abdominal aorta in patients with hypercholesterolemia : noninvasive evaluation by a new image analysis program. Angiology 2002;53(1):57-68.
5. Molcányiova A, Stancákova A, Javorský M, Tkác I. Beneficial effect of simvastatin treatment on LDL oxidation and antioxidant protection is more pronounced in combined hyperlipidemia than in hypercholesterolemia. Pharmacol Res 2006; 54(3):203-7.
6. Udawat H, Goyal RK. Lipid lowering effect of simvastatin in patients of type II diabetes mellitus. Indian Heart J 2001; 53(2):172-6.
7. Stein EA. Managing dyslipidemia in the high-risk patient. Am J Cardiol 2002;89(5A):50C-57C.
8. Mahley RW, Bersot TP. Drug therapy for hypercholesterolemia and dyslipidemia. In: Hardman JG, Limbird LE, editors. Goodmans and Gillman's. The pharmacological basis of therapeutics. 10th ed. USA; 2001.p.971-1002.
9. Spangler JG, Bell RA, Summerson JH, Konen JC. Hyperinsulinemia in Hypertension: associations with race, abdominal obesity, and hyperlipidemia. Arch Fam Med 1998; 7(1):53-6.
10. Abdul-Rahim HF, Abu-Rmeileh NM, Husseini A, Holmboe-Ottesen G, Jervell J, Bjertness E. Obesity and selected co-morbidities in an urban Palestinian population. Int J Obes Relat Metab Disord 2001; 25(11) : 1736-40.
11. Lalonde L, et al. Comparing the benefits of diet and exercise in the treatment of dyslipidemia. Prev Med 2002;35(1):16-24.

12. Miller ER, et al. Results of the Diet, Exercise, and Weight loss Intervention trial. Hypertension 2002; 40(5):612-8.
13. Miyatake N, et al. Daily walking reduces visceral adipose tissue areas and improves insulin resistance in Japanese obese subjects. Diabetes Res Clin Pract 2002;58(2):101-7.
14. Chen CH, Lin KC, Tsai ST, Chou P. Different association of hypertension and insulin-related metabolic syndrome between men and women in 8437 nondiabetic Chinese. Am J Hypertens 2000; 3 (7):846-53.
15. Hess DC, Fagan SC. Pharmacology and clinical experience with Simvastatin. Expert Opin Pharmacother 2001;2(1):153-63.
16. Omacka A, Dudkora R, Baumgartner M. Effect of diet therapy and increased physical activity on risk factors for atherosclerosis in obese patients with ischemic coronary heart disease. Sb Lek 2000; 101(1):121-5.
17. Bays HE, Dujovne CA, McGovern ME, White TE, Kashyap ML, Hutcheson AG, et al. Versus Other Cholesterol-Modulating Agents Trial Evaluation. Comparison of once-daily, niacin extended-release/ lovastatin with standard doses of atorvastatin and simvastatin. ADvicor Versus Other Cholesterol-Modulating Agents Trial Evaluation [Advocate). Am J Cardiol 2003 15;91(6):667-72.
18. Qiu G, Hill JS. Atorvastatin decreases lipoprotein lipase and endothelial lipase expression in human THP-1 macrophages. J Lipid Res 2007;48(10): 2112-2122.
19. Daskalopoulou SS, Mikhailidis DP. Reaching goal in hypercholesterolaemia: dual inhibition of cholesterol synthesis and absorption with simvastatin plus ezetimibe. Curr Med Res Opin 2006;22(3):511-28.
20. Carneado J, et al. Simvastatin improves endothelial function in spontaneously hypertensive rats through a superoxide dismutase mediated antioxidant effect. J Hypertens 2002;20 (3):429-37

Address for Corresponding Author:
Dr. Samina Kausar,
Assistant Professor,
Department of Pharmacology,
Postgraduate Medical Institute (PGMI) Lahore.

Original Article

An Outcome of Well's Operation in the Surgical Management of Rectal Prolapse

1. Aijaz Ahmed Shaikh 2. Mujeeb Rehman Abbassi 3. Gulshan Ara 4. Abdul Razzaque Shaikh

1. Senior Registrar, Minimal Invasive Surgical Centre 2. Asstt. Prof., Minimal Invasive Surgical Centre 3. Asstt. Prof. of Radiology 4. Professor of Surgery, Liaquat University of Medical & Health Sciences, Jamshoro

ABSTRACT

Objective: To see the outcome of Well's operation in the surgical management of rectal prolapse.

Study Design: Quasi Experimental study.

Place and Duration of Study: This study was carried out in Department of surgery, Liaquat University of Medical & Health Sciences, Jamshoro from 11-5-2006 to 10-05-2009.

Materials and Methods: This study consisted of 30 cases of rectal prolapse admitted through the outpatient department, as well as from casualty department of Liaquat University Hospital Jamshoro. Detailed History was taken from all the patients with special regard to the rectal prolapse . Inclusion criteria were that all the adults patients (Male and female) of rectal prolapse on the basis of history and fit for anesthesia and surgery were included in the study. Exclusion criteria included unfit patients for general anesthesia, another local pathology like haemorrhoids or rectal tumor. Data was analyzed through SPSS software.

Results: Out of 30 cases, 14(46.7%) were males and 16(53.3%) were females. There was wide variation of age with mean age + SD was 40.67 + 12.4 years. Most of the patients had constipation 23(76.7%) cases, 20(66.6%) cases were presented with Mucus discharge, 11(36.6%) cases had urinary incontinence, 09(30.0%) cases had Diarrhoea and 07(23.3%) cases had bleeding. Co-morbidity factors were diabetes mellitus in 07(23.3%) cases, hypertension was present in 09(30.0%) and IHD was found only in 02(6.7%). Ten (33.3%) cases were anemic, 05(16.66%) cases with HBsAg, 07(23.3%) had Hepatitis C and only 1(3.3%) case had duel viral infection. Complications were seen in all the cases, 28(93.3%) cases were found in majority who had pain after the procedure, 08(26.7%) cases developed the wound infection associated with retention of urine, 05(16.7%) had urinary incontinence associated with reactionary haemorrhage, 07(13.3%) had anal stenosis associated with incisional hernia, 01(3.3%) were found with ureteric damage, 03(10.0%) cases had sexual dysfunction and only 1(3.3%) case had Rectal stricture. Recurrence of rectal prolapse occurred in only 1(3.3%) patient.

Conclusion: In conclusion ,this study suggests that Wells operation may be a good choice for treatment of complete rectal prolapse, in view of its low complication and recurrence rates.

Key Words: Rectal Prolapse, Well's Operation, Complications Well's Operation.

INTRODUCTION

Rectal prolapse is defined as protrusion of all layers of the rectal wall through anus and is synonymous with procidentia [1]. The classic description of rectal prolapse, or procidentia, is a protrusion of the rectum beyond the anus. Complete or full-thickness rectal prolapse is the protrusion of the entire rectal wall through the anal canal; if the rectal wall has prolapsed but does not protrude through the anus. It is called an occult (internal) rectal prolapse or a rectal intussusception. Full-thickness rectal prolapse should be distinguished from mucosal prolapse in which there is protrusion of only the rectal or anal mucosa [2,3,4].

It has a higher incidence in advanced age, and is frequently associated with anal incontinence difficulties (in 50-70% of cases) and on occasion– constipation [5]. More than half of rectal prolapse patients complain of fecal incontinence and 15 to 65% of patients have constipation[6]. Treatment for rectal prolapse is surgical, although the technique that should be employed continues to be a matter of controversy and the choice of technique is justified in each case according to different parameters. The perineal techniques (Delorme, Altemeier) are usually used in patients of advanced age or with high comorbidities, despite the fact that they have a higher rate of recurrence and do not offer a clear improvement in the patient's level of incontinence, while the trans-abdominal techniques, which consist of both recto-sigmoid or surgical fixation with a mesh anchored to the pubis (anterior, Ripstein) or the sacrum (posterior, Wells),have a lower incidence rate of recurrence but are more aggressive [7,8].

In 1999, Cuschieri described the use of the laparoscopic approach for carrying out rectopexy, and afterwards several authors have demonstrated the technical possibility and potential short-term advantages, with long-term results that are comparable to open surgery in both rate of recurrence and functional improvement (continence, constipation)[9]. A selective policy has probably improved outcome, although there is no objective method of selecting a particular type of operation [10]. Perineal procedures were preferred for older female patients and co morbid patients were

associated with a shorter operative time and hospital stay[11].

MATERIALS AND METHODS

This study was conducted at surgical department, Liaquat University of Medical & Health Sciences, Jamshoro from 11-5-2006 to 10-05-2009. This study consisted of 30 cases of rectal prolapse admitted through the outpatient department, as well as from casualty department of Liaquat University Hospital Jamshoro. Detailed History was taken from all the patients with special regard to the rectal prolapse . Inclusion criteria were that all the adults patients (Male and female) of rectal prolapse on the basis of history and fit for anesthesia and surgery were included in the study. Exclusion criteria included unfit patients for general anesthesia, another local pathology like haemorrhoids or rectal tumor. Data was analyzed through SPSS software.

RESULTS

The 30 cases of rectal prolapse were admitted. Out of 30 cases, 14(46.7%) were males and 16(53.3%) were females (Chart 1). There was wide variation of age with mean age + SD was 40.67 + 12.4 years. All the cases were found with different sign and symptoms (Chart 2). Out of these 30 cases, most of the patients had constipation 23(76.7%) cases, 20(66.6%) cases were presented with Mucus discharge, 11(36.6%) cases had urinary incontinence, 09(30.0%) cases had Diarrhoea and 07(23.3%) cases had bleeding. Co-morbidity factors were diabetes mellitus in 07(23.3%) cases, hypertension was present in 09(30.0%) and IHD was found only in 02(6.7%). Ten (33.3%) cases were anemic, 05(16.66%) cases with HBsAg, 07(23.3%) had Hepatitis C and only 1(3.3%) case had duel viral infection.

Complications were seen in all the cases, 28(93.3%) cases were found in majority who had pain after the procedure, 08(26.7%) cases developed the wound infection associated with retention of urine, 05(16.7%) had urinary incontinence associated with reactionary haemorrhage, 07(13.3%) had anal stenosis associated with incisional hernia, 01(3.3%) were found with ureteric damage, 03(10.0%) cases had sexual dysfunction and only 1(3.3%) case had Rectal stricture. Recurrence of rectal prolapse occurred in only 1(3.3%) patient (Chart 3).

DISCUSSION

Rectal prolapse is a disabling condition and a difficult problem for both the patients and the clinicians. The majority of sufferers are elderly, multiparous women, often with psycho-griatric problems. Difficulty with evacuation of the rectum occurs in 50% of the cases and constipation in upto 25%, while faecal incontinence occurs in about 60% [12].

Many surgical techniques –both through the perineal and abdominal routes– have been described for the treatment of rectal prolapse. Wells method is associated with a low risk of complications and reoccurrence of rectal prolapse.

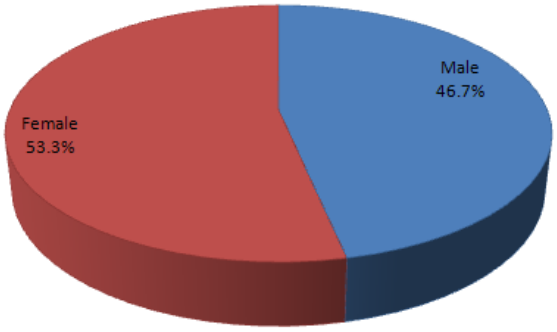


Chart No.1: Gender

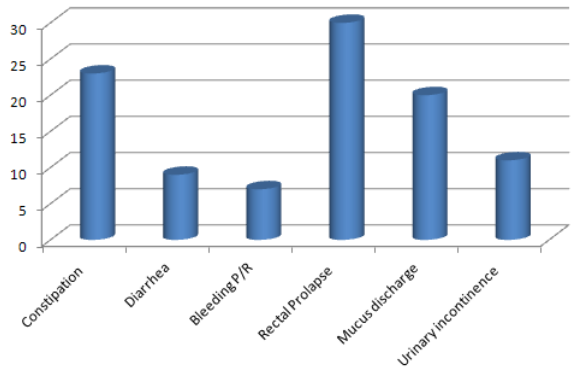


Chart No.2: Presenting Sign and Symptoms of Patients

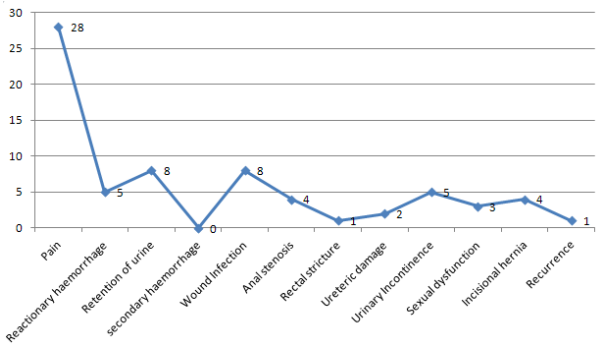


Chart No.3: Complications

There is no finest or regular procedure for treatment of rectal prolapse. In overload of a hundred different operations have been described so far, only a few are in practice today[13,14,15]. There are more than five hundred published papers on this topic, but only a small number of relevant clinical trials have been conducted to find the "best" operation, and even their usefulness is

severely limited because of small sample size and other methodological weaknesses[13].

One consensus that we have managed to reach after decades of research is that the abdominal procedures are associated with a lower recurrence rate. Abdominal rectopexy was the most commonly performed procedure at our centre, perhaps because of its excellent results in literature, both in terms of recurrence and incontinence. Most surgeons once considered this procedure as the operation of choice for the control of prolapse in the elderly patients[11].

Abdominal procedure like Well's involve the use of foreign material like prolence mesh and fixing it to the sacrum. The complications included pelvic infection, erosion of foreign material and fistula formation and stenosis. The rectal prolapse is usually associated with incontinence due to increased sigmoid motility, due to increased resting and squeeze pressure and persistent rectoanal inhibition[12].

The results of this study showed that 93.3% cases had pain, 16.7% had Reactionary haemorrhage, 26.7% developed Retention of urine, wound infection was present in 26.7% cases, 13.3% had Anal stenosis, 3.3% had Rectal stricture, 6.7% cases had Ureteric damage, 16.7% had Urinary Incontinence, 10.0% had sexual dysfunction, 13.3% had Incisional hernia and only 3.3% had recurrence out of 30 patients. In an other study 2 patients were operated by Wells operation and there was no recurrence or complications [12] while in the observation of Marderstein EL et al.[16] 89.3% cases had pain, 13.2% had reactionary haemorrhage, 22.4% developed retention of urine, wound infection was present in 7.1% cases, 9.3% had Anal stenosis, 1.7% had rectal stricture, 5.2% cases had Ureteric damage, 13.7% had Urinary Incontinence, 8.0% had sexual dysfunction, 11.3% had Incisional hernia and only 1.3% had recurrence out of 14 cases. In another study conducted by Bo Holmstrom et al [17]. the recurrence rate in his study was 4.1% and surgical complications occurred in an additional 3.7% which is similar to this study.

Overall morbidity rate in the present study was 11% out of 30 cases of rectal prolapse with complete follow up time of six months. Same observation was noted in the study of Safar B et al[18]. There was no mortality rate in this study and similarly in a study of Mahmud Aurangzeb et al[19]. mortality rate was not found in his study out of 34 cases.

CONCLUSION

Many procedures have been devised for the treatment of rectal prolapse; generally, these can be divided into perineal and abdominal approaches. Abdominal procedure (Wells procedure) is ideal for young healthy patients and is associated with lower recurrence rate, low morbidity and rapid postoperative recovery. For these reasons Wells rectopexy has become the treatment of choice for many surgeons even for those patients with a significant co-morbidity.

The ideal surgical technique should, therefore, be based not only on the elements of simplicity, recurrence and complications, but should also take into account the treatment or at least alleviation of the functional disorder so commonly associated with rectal prolapse.

REFERENCES

1. Donato AF, GianAndrea B, Ezio G, Paola DN, Paolo G, Mario P. Long-Term Outcome of Altemeier's Procedure for Rectal Prolapse. Diseases of the Colon & Rectum 2009;52(4): 698-703.
2. Gourgiotis S, Baratsis S. Rectal prolapse. Int J Colorectal Dis 2007;22(3):231-43.
3. Felt-Bersma RJ, Cuesta MA. Rectal prolapse, rectal intussusception, rectocele, and solitary rectal ulcer syndrome. Gastroenterol Clin North Am 2001;30(1):199-222.
4. Krukowskl ZH. The Rectum. In: Russel RCG, Williams NS, Bulstrode CJK, editors. Bailey & Love's Short practice of surgery. 25th ed. London: Arnold; 2008.p.1222-3.
5. Tsunoda A, Yasuda N, Yokoyama N, Kamiyana G, Kusano M. Delorme's procedure for rectal prolapse. Clinical and physiological analysis. Dis Colon Rectum 2003; 46: 1260-5.
6. Madiba TE, Baig MK, Wexner SD. Surgical management of rectal prolapse. Arch Surg 2005; 140:63–73.
7. Hernandez P, Targarona EM, Balague C, Martínez C, Pallares JL, Garriga J, et al. Laparoscopic treatment of rectal prolapse. Cir Esp 2008;84(6): 318-22.
8. Shah A, Parik D, Jawaheer G, Gornall P. Persistent rectal prolapse: Sclerotherapy & surgical management. Pediatr Surg Int 2005;21:270-73.
9. Ashari LHS, Lumley JW, Stevenson ARL, Stitz RW. Laparoscopicallyassisted resection rectopexy for rectal prolapse: ten years'experience. Dis Colon Rectum 2005;48:982-7.
10. Brown AJ, Anderson JH, McKee RF, Finlay IG. Strategy for selection of type of operation for rectal prolapse based on clinical criteria. Dis Colon Rectum 2004;47:103-7.
11. Shamim SM, Hameed K. Surgically treated Rectal Prolapse: Experience at a teaching hospital J Pak Med Assoc 2005;55(6):247-50.
12. Shaikh RA, Ahuja P, Laghari HM. Surgical treatment of adult rectal prolapse. Med Channel 2004;10:101-3.
13. Azimuddin K, Khubchandani IT, Rosen L, Stasik JJ, Riether RD, Reed JF. Rectal prolapse: a search for the "best" operation. Ann Surg 2001;67:622-27.

14. Corman ML. Colon and Rectal Surgery. 5th ed. Philadelphia: Lippincott Williams and Wilkins; 2005.
15. Kim DS, Tsang CB, Wong WD, Lowry AC, Goldberg SM, Madoff RD. Complete rectal prolapse: evolution of management and results. Dis Colon Rectum 1999; 42:466-9.
16. Mardersterin EL, Delaney CP. Surgical management of rectal prolapse. Nat Clin Pract Gastroenterol Hepatol 2007;4(10):552-61.
17. Holmstrom B, Broden G, Dolk A. Results of the Ripstein operation in the treatment of rectal prolapse and internal rectal procidentia. Dis Colon Rectum 2007;29(12):845-8.
18. Safar B, Vernava AM. Abdominal approaches for rectal prolapse. Clin Colon Rectal Surg 2008; 21(2):94-9.
19. Aurangzeb M. Experience of Delorme`s procedure for complete rectal prolapse Pak J Surg 2005;21(2): 84-8.

Address for Corresponding Author:
Dr. Aijaz Ahmed Shaikh
Senior Registrar,
Minimal Invasive Surgical Centre,
Liaquat University of Medical & Health Sciences,
Jamshoro.
Cell: 03332601364

Original Article

The Prevalence and Proportion of Haemato-logical complications of Malaria in Distric Shaheed Benazirabad

1. Mir Muhammad Sahito 2. Riaz Ahmad Qazi 3. Farzana Chang 4. Amber Mir 5. Riaz Ahmad Sahito

1. Asstt. Prof. of Pathology, PUM&HSW, Shaheed Benazir-Abad 2. Asstt. Prof. of Pathology, PUM&HSW, Shaheed Benazir-Abad 3. Assoc. Prof. of Pathology, LUMHS, Jamshoro 4. LUMHS, Jamshoro 5. PG Trainee PUMHSW, Shaheed Banazeer-Abad.

ABSTRACT

Objectives: To find out the prevalence of malaria in district Shaheed Benazirabad (SBA). To Study the proportion of haematological complications among the patients who present with malaria.

Study Design: This is descriptive and experimental study.

Place and Duration of Study: This study was conducted at Medical Out Patients Department (OPD) and Pathology Department of PUMHSW Peoples Medical College and Hospital at district (SBA) from April 2008 to September 2010.

Patients and Methods: A total 1200 cases of malaria diagnosed on basis of clinical and laboratory findings were recorded. The proportion of haemotological complication including anaemia, leucocytosis and thrombocytopenia among these patients were also studied.

Results: Out of 1200 patients, 700 (58.33%) were children and remaining 500 (41.77) were adults. Ages of these patients including children and adults ranged between 5 to 65 years with a mean of 35 $\pm$ 30 years. Male to female ratio in these patients were 1.1:1.

The diagnosis of malaria was made by clinical as well as by laboratory findings. The problem of haematological complications as anaemia, leucocytosis and thrombocytopenia were detected among the patient with malaria by determination of Haemoglobin Concentration and Complete Blood Count (CBC).

Conclusion: Malaria is more prevalent in district SBA, and many of these patient are children and women. Anaemia, leucocytosis and thrombocytopenia are common haematological complications in them.

Key Words: Malaria, Prevalence, Haematological complications, Complete Blood Count (CBC).

INTRODUCTION

Malaria is a major cause of morbidity in the tropics and about 300 million cases were reported worldwide in 2006.[1] Among the 100 species of genous Plasmodia, the four species namely P.Falciparum, P.Vivax, P.Ovale, P.Malariae cause the malaria & the former two species of malarial parasites are common in Pakistan as recorded by national malaria control program.[2] The malaria is transmitted by the bite of female anopheles mosquitoes. There are about 430 species of mosquitoes and out of them about 30 – 50 species such as A. Culicifacies and A. Stephensi are common in Pakistan and these transmitted the malaria as records of national malaria control program.[3]

The life cycle of malarial parasite is completed in human beings and female anopheles mosquitoes. In the human the sprozoites are transmitted into blood by mosquito bite and they first infect the liver cells, then red blood cells which release merozoites that mature into the male and female gametocytes. When a mosquito bites a malaria infected human, these gametocytes in the mosquito's stomach unite together to form zygotes that develop into oocysts, which grow and rupture to release sporozoites and cycle start again.[4]

Blood is the most easily accessible diagnostic tissue. The changes in haematological parameters are likely to be induced by any disease like malaria which affects the physiology of haemopoeisis at the level of bone marrow resulting in hematological complication along with clinical presentation of malaria such as anemia, leukocytosis and thrombocytopenia, fever with rigor, sweating, body ache, headache, vomiting, pallor and splenomegaly.[5] Hence the diagnosis of malaria is necessary for the prevention and treatment which make the physician to control this divesting disease that causes death due to complications including Cerebral malaria and haematological ones.[6] The microscopic examination of peripheral blood for detection of malarial parasite along with estimation of haemoglobin concentration, ESR and complete blood count are important laboratory investigation for diagnosis of malaria and its hematological complications.[7] The rapid malaria diagnostic test has been used for detection of P.Vivax and P. Falciparum malaria by immuno chromatography (IC) technique. This test has been developed recently.[8]

The aim of this study was to evaluate prevalence of malaria among the patients living in areas of District SBA & also to study the hematological complication in

these patients so that a physician remain aware of these complications for early diagnosis prevention and prompt to treatment of malaria.

PATIENTS AND METHODS

This descriptive and experimental study was conducted from April 2008 to September 2008 at pathology, pediatric and medical out patients departments. Total 1200 patients including children and adults of both sexes were selected. The prevalence of malaria on the basis of age, sex, areas of residents at district SBA and clinical findings of all this patients were recorded. For the laboratory diagnosis of malaria and its hematological complication, 2-3ml of venous blood samples were taken from all the patients and delivered in to the tubes containing EDTA and sent to the pathology department. Thick and thin blood smears were made on the clean glass slides from the EDTA mixed blood and examined under the microscope for detection of various developmental stages of malarial parasites after staining with Giemsa's stain. The haemoglobin concentration, CBC including total leukocyte count (TLC), differential leukocyte count (DLC) and platelet count were determined by haematology analyzer. ESR and Malaria Rapid Diagnostic Test were also performed.

RESULTS

A total of 1200 cases were studied, among these 700 (58.3%) were children and 500 (41.7%) were adult. The ages of these patients were ranged between 5 and 65 years with their mean age was (35 ± 30) while male to female ratio was 1.7:1. out of total 1200 patients 400 (32.3%) were residents of Nawabshah city and 800 (66.7%) belonged to the rural areas of district SBA. (Table 1). The clinical findings in these patients were fever with rigor, feeling of cold and hot, sweating, pallor, body aches & splenomegaly (Table No. 2). The laboratory findings in these patients are shown in Table No. 3, such as mean values of hemoglobin, ESR, TLC, DLC, platelet count, detection of malarial parasites and malarial antigens in serum of these patients were determined by examination of peripheral blood smears and malaria rapid diagnostic test.

Table No.1: Prevalence of malaria among the children and adults on the basis of age, sex and dwelling (n=1200)

Age	Sex	Dwelling
Adults 500 (41.7%) Children 700 (58.3 %) Age range 5 – 65 years Mean age 35 ± 30	Male 770 (64.1%) Female 430 (35.9%) Male to Female ratio 1.7:1	Rural 800 (66.7%) Urban 400 (33.3)

Table No. 2: Clinical finding in patients with malaria (n=1200)

S.No.	Clinical finding	No. of patients	Percentage
1.	Fever	1200	100%
2.	Associated symptoms with fever like chills, sweating or feeling of coldness and hotness	980	81.7%
3.	Bodyache	750	62.5%
4.	Headache	600	50.0%
5.	Pallor	800	66.6%
6.	Splenomegaly	300	25.0%

Table No. 3: Laboratory finding in patients with malaria and its hematological complications (n=1200) N = 1200

S. No.	Laboratory finding	No. of patients	Percentage
1.	Hemoglobin concentration 5.5 – 11.5 g / dl (8.5 ± 3)	800	66.6%
2.	ESR: 40 – 110 mm Hg. (37.5 ± 72.5)	1200	100.0%
3.	Total leukocytes count 6500 – 25000 / cumm (1625 ± 8750)	900	75.0%
4.	Red Cell Counts 2.5 – 4.5 m / cumm 3.5 ± 1.0	700	58.3%
5.	Platelet count 40,000 – 110,000 /cumm (75000) ± 35000)	750	62.5%
6.	Differential leukocytes count Neutrophils 67 – 85 % (80.5 ± 5.5) Lymphocytes 10 – 14 % (11 ± 3) Monocytes 10 – 18 % (14 ± 4) Eosinophils 2–4% (3 ±1)	1,000 900 950 1200	83.3% 75.0% 79.1% 100.0%
7.	Microscopy Pl: vivax Pl: Falciparum	850 350	70.8% 29.2
8.	Malaria diagnostic test Immunochromatography Technique (ICT) +ve for Pl: Vivax +ve for Pl: Falciparum	850 350	70.8% 29.8%

The mean values of hemoglobin, RBC and platelet counts were significantly reduced while WBC count with percentage of neutrophils and ESR were significantly increased. The microscopic examination of stained thick and thin blood smears of all these patients were showing Plasmodium vivax in 70.8% of cases and

P.falciparum in 29.2% of cases. The ICT malaria test was positive for P.Vivax in 70.8% cases and 29.8% positive for P. Falciparum.

DISCUSSION

Malaria remain a major cause of morbidity and mortality in Asian as well as African countries of the world. According to Snow et al[9], globally the incidence of malaria cases is about 300-500 million and malaria related deaths are 1 million. It is also stated that 90% cases of malaria caused by plasmodium falciparum occur in Africa. Prevalence of malaria is common cause of death among the children and pregnant women as reported by Luxemburger et al[10]. Malaria in pediatric age group of 200 cases was investigated by Jamal et al[11] and they founded high ratio of P.vivax (62.5%) than P. falciparum (36%). Malaria in Karachi and other areas of Sindh was studied by Mahmood[12] and he observed P. Vivax to be two times higher than P. Falciparum. According to Nizamani et al[13] that P. Falciparum ratio is increasing in many districts of Sindh while Yasin Zai and Kakar suleman Khel[14] founded high prevalence of P.Vivax malaria in Mastung and Khuzdar districts of Balochistan. The hematological complications of malaria such as anemia, leukocytosis with neutrophilia and thrombocytopenia are reported by Bashawri et al[15], Scott et al[16] and Ladhani et al[17]. They stated that anaemia is one of the most common complications in malaria that result from a combination of haemolytic mechanisms and accelerated removal of both parasitized and non-parasitized red blood cells, depressed and ineffective erythropoisis. According to Adedapo et al[18] age is a risk factor for thrombo-cytopenia and anaemia in children treated for acute uncomplicated falciparum malaria.

In our study, prevalence of P.Vivax malaria(70.8%) is commoner than the P. Falciparum(29.2%). The significant clinical findings in these patients were fever with rigors, pallor, body ache and headache while hematological complication in these patients were anemia, leukocytosis with neutrophilia, ESR and thrombocytopenia and these were detected by haemoglobin, ESR and complete blood count estimations. In our study, hemoglobin, platelet count and RBC count were significantly reduced while ESR, leukocyte count and percentage of neutrophils were significantly increased.

CONCLUSIONS

The following conclusion has been made from the above study.

1. The prevalence rate of the malaria caused by P.Vivax is 2.5 times greater than the malaria caused by P.Falciparum among the children and adults in District Shaheed Benazirabad.
2. The hematological complications such as Anemia, leucocytosis with neutrophilia and thrombo-cytopenia among the children and adults were assessed by hemoglobin and ESR estimations and complete blood count. It has been observed that hemoglobin, RBC count, platelet count were decreased while ESR and total leukocyte count with percentage of neutrophils in these patients were increased.
3. Further studies are needed to determine cold agglutination test, platelet aggregation test and serum interleukin level in the malaria.

REFERENCES

1. World Health Organization: world malaria report. Geneva;2008.
2. Malaria control program (MCP). District wise epidemiological data of malaria control program, Balochistan, Pakistan. Islamabad: Malaria control program; 2005.
3. Malaria control program (MPC). Districts wise epidemiological data of malaria control program, Balochistan, Pakistan. Islamabad: Malaria control program; 2006.
4. Palaisa M. Life cycle of malarial parasites. Med J Therapeutics Africa 2008;2(3):227-228.
5. Erhart LM, Yingyuen K, Chuanak N, Buathong N, Laoboonchai A, Miller RS, et al. Hematological and clinical presentation of malaria. Am J Trop Med Hyg 2004;70:8-14.
6. World Health Organization: New perspective, malaria diagnosis. Geneva;2000.
7. Reyburn H, Mbakilwa H, Mwangi R, Mwerinde O, Olomi R, Darkeley C, et al. Rapid diagnostic tests for malaria by immuno chromatography techniques BMJ 2007:334-403.
8. Ministry of health: national guidelines for diagnosis, treatment and prevention of malaria for health workers in Kenya. In: division of malaria control. Ministry of health. Kenya 2006.
9. Snow RW, Guerra, CA, Noor AM, Myint HY, Hay SI. The global distribution of clinical episodes of Plasmodium falciparum malaria. Nature 2005; 434(7030): 214 -217.
10. Luxemburger C, McGready R, Kham A, Morison L, Cho T, Chongsuphajaisiddi T, et al. Effects of malaria during pregnancy on infant mortality in an

area of low malaria transmission. Am J Epidemiol 2001;154(5):459-465.
11. Jamal MM, Jehan A, Nadir A, Malaria in pediatric age group: a study of 200cases Pak Armed Forces Med J 2005; 55:74-7
12. Mahmood KH. Malaria in Karachi and other areas in Sindh. Pak Armed Forces Med J 2005;55: 345-8.
13. Nizamani A, Kalar NA, Khushk IA. Burden of malaria in Sindh, Pakistan: a two years surveillance report. J Liaqat Uni Med Health Sci. 2006;5:76-83.
14. Yasin Zai MI, Kakar Suleman Khel JK. Incidence of malaria infection in central areas of Balochistan: Mastung and khuzdar. Rawal Med J 2007;32: 176-8.
15. Bashawri LA, Mandil AA, Bahnassy AA, Ahmed MA. Malaria: hematological aspects. Ann Saudi Med 2002;22:372-571
16. Scott CS, Van Zyl D, Ho E, Ruivo L, Mendelow B, Coetzer TL. Thrombocytopenia in patients with malaria: automated analysis of optical platelet counts and platelet clumps with the cell dyn CD4000 analyzers. Clin Lab Haematol 2002; 24:295-302
17. Ladhani S, Lowe B, Cole AO, Kowuondo K,Newton CR. Changes in white blood cells and platelets in children with falciparum malaria: relationship to disease outcome. Br J Haematol 2002; 119:839-847.
18. Adedapo AD, Falade CO, Kotila RT, Ademowo GO: Age as a risk factor for thrombocytopenia and anaemia in children treated for acute uncomplicated falciparum malaria. J Vector Borne Dis 2007; 44:266-271.

Address for Corresponding Author:
Dr. Mir Muhammad Sahito
Asstt. Prof. Pathology,
Peoples University of Medical & Health Sciences for Women,
Shaheed Benazir-Abad

Original Article

A Comparison of Safety and Efficacy Between Sodium Cromoglycate 2% and Fluorometholone 0.1% in Management of Vernal Keratoconjunctivitis

1. Masood Alam Shah 2. Khalid Bin Saleem 3. Assad Zaman 4. Talat Mehmood 5. Omer Farooq

1. Eye Specialist, Sheikh Khalifa Bin Zaid Al-Nahyan Hospital, Muzafarabad 2. Asstt. Prof. of Ophthalmology, Eye Dept. Women's Medical College, Abottabad 3. Eye Specialist, CMH, Lahore 4. Community Medicine Specialist, CMH, Noshera 5. Eye Specialist, CMH, Multan

ABSTRACT

Objective: To compare the safety and efficacy of sodium cromoglycate 2% eye drops with fluorometholone 0.1% eye drops in patients with bilateral vernal keratoconjunctivitis (limbal and conjunctival palpebral or mixed).

Study Design: Quasi Experimental Study

Place and duration of Study: This study was carried out in Department of Ophthalmology, Combined Military Hospital, Multan from 20th May 2009 to 20th June 2009.

Patients and Methods: This was hospital based study conducted on 60 diagnosed cases of vernal keratoconjunctivitis attending the OPD of Eye Department Combined Military Hospital, Multan in year 2009. Cases were divided in to two groups of 30 patients each. Group 2 was treated with sodium Cromoglycate while Group 1 was given Fluoro metholone 0.1%. Ocular complaints were noted and graded. Slit lamp examination was done at the start of treatment and at the end of the treatment.

Results: After first week of treatment in group 2 (sodium cromoglycate 2%) 22 patients had mucoidal discharge with photophobia, redness and itching while in group 1 (Fluorometholone 0.1%) none of the patient had mucoidal discharge. At the end of study 24 patients had itching, redness and photophobia in group 2 but in group 1 only 16 patients had these symptoms. It was also revealed that 6 patients in group 2 had watering and mucoid discharge but none of the patient in group 1 had watering and mucoid discharge at the end of study. ($p < 0.001$)

Conclusion: Patients treated with fluorometholone 0.1% got better results than patients treated with sodium cromoglycate 2% in the management of vernal Keratoconjunctivitis

Key Words: Vernal keratoconjunctivitis, Sodium cromoglycate, Fluorometholone

INTRODUCTION

Vernal conjunctivitis is a bilateral, recurrent inflammation of the conjunctiva that tends to occur during warm weather, with peak onset in the spring and summer.

It may be a seasonal, external ocular inflammatory disease of unknown cause. Afflicted patients experience intense itching, tearing, photophobia and mucous discharge or a thick, ropy, yellow, mucoid discharge[1] and usually demonstrate large cobblestone papillae on their superior tarsal conjunctiva and limbal conjunctiva[1]. Although usually self-limited, vernal conjunctivitis can result in potentially blinding corneal complications. The condition occurs mainly in children and young adults in the age range of 5-25 years[2], with peak incidence in the age range 11-13 years. Boys are affected twice as frequently as girls[3]. Three forms of the disease occurs which are palpebral, limbal and mixed[1]. The palpebral form is marked by cobblestone papillae on the superior tarsal conjunctiva, while the lower lid is affected minimally[4]. The limbal form is marked by a broad, thickened, gelatinous opacification of the superior limbus that can override the cornea. A very characteristic manifestation of limbal vernal conjunctivitis is the presence of Horner-Trantas dots[5].

The drug treatment options for allergic conjunctivitis have markedly expanded over the last few years, providing opportunities for more focused therapy, but unfortunately often leaving both patient and doctor confused over the variety of options. This overview attempts to simplify the pharmacological treatment options based on the current understanding of drugs and their mechanisms of action. Simple therapeutic options will be eluded in the final suggested 'stepcare' approach.

Cromolyn sodium: This compound is beneficial in the treatment of seasonal and perennial allergic conjunctivitis, giant papillary conjunctivitis, vernal and atopic keratoconjunctivitis. It is extremely well tolerated in the eye and the risks of long-term use are negligible. Its long safety record (up to 10 years of continuous use) makes it the drug of choice for many clinicians in long term use[6]. Fluoromethalone 0.1% (FML, Flucon) is a structured analogue of progesterone and is very effective in reducing ocular surface

inflammation with a low potential for IOP elevation. It is therefore a popular choice for surface disease[6,13].

The chronic nature of the disease must be considered when the treatment is decided. Treatment of chronic forms of ocular allergies may necessitate collaborative efforts between the ophthalmologist and the allergist or immunologist[6].

MATERIALS AND METHODS

This was quasi experimental study carried on 60 cases of primary vernal keratoconjunctivitis reporting Department of Ophthalmology in Combined Military Hospital, Multan during year 2009. The study included patients between 6 to 14 years of age and included both sexes. Those patients with history of dry eye other forms of allergic conjunctivitis, ocular surgery within 2 months before study, corneal ulcer of infectious origin, active ocular herpes, abnormality of nasolacrimal drainage apparatus and severe systemic allergy requiring systemic treatment were excluded and only patients having primary vernal keratoconjunctivitis were included in the study. After informed consent the procedure was explained and disease highlighted. Personal data including age and gender was noted and entered in proforma. Different symptoms (itching, tearing, burning, redness and mucoidal discharge) and signs (limbal hypertrophy, conjunctival chemosis, and presence of follicle) of VKC was noted and graded on slit lamp examination at the time of their enrolment (day zero) and at different times after starting the treatment (days 7, 15, and 30).

These patients were divided into two groups of 30 each. Group 2 had 30 patients who were treated with topical sodium cromoglycate (2%) and group 1 (30 patients) treated with topical floromethalone (1%). Follow up visits were planned to see response on 1st ,2nd ,3rd and 4th week**.** Cases were assessed for the overall effect of treatment using a five point grading system starting from Excellent to bad for variables of irritation, photophobia,watering and mucidal discharge.Data was analyzed by using SPSS version 11.T-test was applied to compare the two groups. Descriptive statistics were used to calculate mean and SD.

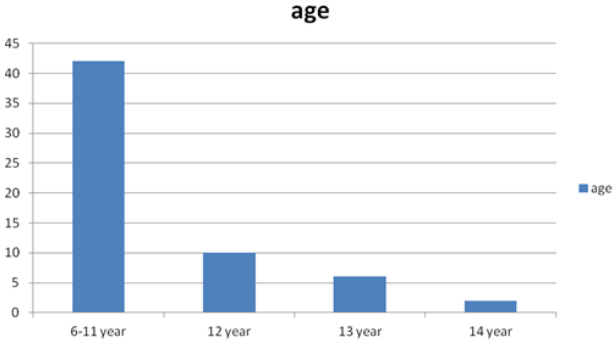
RESULTS

There was no drop out from our patients because they were included in study after detailed work up. All the patients were followed as outdoor cases. None of the patients required any hospital admission. There were a total of 48 male (80%) patients and 12 (20%) female patients. 42 (70%) patients were in age group 6-11, 10 (16.66%) in 12 years of age,6 (10%) of 13 years and 2 (3.33%) of 14 years of age. Most of the patients were from a younger age group. Age distribution is given in graph 1. No patients were found to have unilateral vernal keratoconjunctivits. Out of 60 patients, 36 (60%) had palpebral VKC, 5 patients (8.33%) had limbal VKC while 19 (31.66%) of patients had mixed VKC.

After first week, in group 2 (sodium cromoglycate 2%), out of 30 patients, 7 (23.33%) had itching and redness, 8 (26.66%) had itching, redness and photophobia. While 22 (73.33%) had mucoidal discharge with photophobia, redness and itching. In group 1 (Fluorometholone 0.1%), 4 (13.33%) had itching and redness, 3 (10%) had photophobia but none of the patient had mucoidal discharge.

After 2nd week of treatment in group 2, none of the patient complained of itching but 3 (10%) had redness with itching and 19 (63.33%) had itching, redness, photophobia and mucoidal discharge. In group 1 patients 3 (10%) had itching, 17 (56.66%) had redness but none of the patients had photophobia or mucoidal discharge.

At the end of 3rd week, out of 30 patients of group 2, 10 (33.33%) had redness and itching ,14 (46.66%) were photophobic and 10 (33.33%) had some mucoidal discharge with other symptoms. In group 1, 20 (66.66%) had some itching and redness but no patient was photophobic, or had any watering and mucoidal discharge. At the end of study 24 (80%) had itching, redness and photophobia in group 2 but in group 1 only 16 (53.3%) had these symptoms and 6 patient in group 2 had watering and mucoid discharge but none of patient in group 1 had watering and mucoid discharge.



Graph 1. Age distribution

Table No.1: Symptoms – At the End of Study.

Drug	Symptoms				Total
	Itching & redness	Itching, redness & photphobia	Itching, redness, photphobia & watering	Itching, redness, photphobia, watering, mucoidal discharge	
Sodium Cromoglycate 2%	10	14	4	2	30
Fluorometholone 0.1%	24	6	-	-	30
Total	**34**	**20**	**4**	**2**	**60**

DISCUSSION

The hypothesis of this study was that fluorometholone 0.1% was more effective than sodium cromoglycate 2% in the management of Vernal Keratoconjunctivitis. The study was conducted on 60 patients. There seemed to be was a male preponderance (95%). The results are comparable to a similar study conducted in Swat by Sheikh et al (82%)[7]. It was a retrospective study which was carried over 73 patients of Vernal Kerato-conjunctivitis (VKC) in Swat from July 1998 to April 1999. Most patients were between 4 years to 18 years. 64 out of these were male patients. The authors observed that 10 years or below and males patients were more affected. A similar study done at Karachi by Syed Shahab Ali also had similar results, showing (92%) male preponderance[8]. In Italy a study done by Gormaz et al[9] showed a 90% male preponderance.

Majority of the patients presented in first decade of their life between ages of 6-11 (60%). A study conducted in Peshawar showed similar results (61%)[9]. Another study done in Italy had the same result (65%)[10] which depicts that the disease is more common in young age group and presents before puberty.

The most common form of vernal keratoconjunctivitis encountered was palpebral (75%), and then the mixed type and a few cases of limbal were also seen. These results are comparable to the results shown by Iqbal et al.[9]

The most common symptom seen in the study was itching which all the patients reported (n=100%). The second common symptom was mucoid discharge. These findings are comparable to data given by Syed Shahab Ali at Karachi and Bisht R[8] in India. Photophobia was reported by only a few patients. This symptom is more associated when cornea is involved and as in our study there was less corneal complications so the result is explainable.

In our study after 4 weeks of treatment none of the patients complained of photophobia and mucoidal discharge. In a study done by Mentalli et al[11] Improvement in the watering, discharge, conjunctival hyperaemia, papillary hypertrophy, and Trantas' dots was noted in both groups, but overall fluorometholone was significantly more effective than nedocromil. Eyes treated with fluorometholone showed a significant decrease in ocular surface temperature compared with nedocromil treated eyes[6]. But in a study done by Greg et al. According to him significant improvement in all signs and symptoms except photophobia was observed after topical treatment for active VKC. Comparision of the efficacy of different drugs was not possible due to lack of standardized criteria among studies.[12]

In another study done in London was more effective in combating the acute stage of VKC and giving more rapid relief to the patient.

As the duration of our study was 4 weeks for each patient so the results were more in favour of flourometholone. A more comprehensive study of longer duration is therefore required to clearly understand the effect of both these medicines.

CONCLUSION

Vernal keratoconjunctivitis is a common form of ocular allergy in our part of the world The patients are usually young males in their early years of life. As the disease has a course of many years so it is a financial burden on the patients and their families. Many treatments are available but none so far have proven to be a better option than fluorometholone in its management. The need of the hour is to do more and more research so that we come up with a final solution to decrease the misery of the patient.

REFERENCES

1. Leonardi A, Motterle L, Bortolotti M. Allergy and the eye. Clin Exp Immunol 2008;153 Suppl: 17–21.
2. Bonini S, Coassin M, Aronni S, Lambiase A. Vernal keratoconjunctivitis. Eye 2004;(4):345-51.
3. Leonardi A, Motterle L, Bortolotti M. Allergy and the eye.Clin Exp Immunol 2008;153 Suppl:17-21.
4. Bremond-Gignac D, Donadieu J, Leonardi A, Pouliquen P, Doan S, Chiambarretta F, et al. Prevalence of Vernal Keratoconjunctivitis: A Rare Disease? Br J Ophthalmol 2008;92:1097-102.
5. Shady T, Awwad M, Najjar DM, Aouad A, Randa S, Haddad. Vernal keratoconjunctivitis presenting unilaterally. J Pediatr Ophthalmol Strabismus 2006;43(3):179-80.
6. Jun J, Bielory L, Raizman MB. Vernal Conjunctivitis. Immunol Allergy Clin 2008; 28(1): 59-82.
7. Kanski JJ, Clinical Ophthalmology A Systematic Approach. Publisher: Butterworth-Heinemann Medical; 2007.
8. Hu Y, Matsumoto Y, Dogru M, Okada N, Igarashi A, Fukagawa K, et al. The differences of tear function and ocular surface findings in patients with atopic keratoconjunctivitis and vernal keratoconjunctivitis. Allergy 2007;62(8):917-25.
9. Koczman JM, Thomas A, Oetting M. Vernal Keratoconjunctivitis: 8 year-old asthmatic male with reduced vision 2007 [cited 2007 June 25]; Available from: http://webeye.ophth.uiowa.edu.
10. Knop N, Knop E. Conjunctiva-associated lymphoid tissue in the human eye. Invest Ophthalmol Vis Sci 2000;41(6):1270-9.
11. Tiffany J. The Normal Tear Film. In: Geerling G, Brewitt H, editors. Surgery for the Dry Eye. Dev Ophthalmol. 41st ed. Basel: Karger; 2008.p.1-20.
12. Ghavami S, Hashemi M, de Serres FJ, Bajestani SN, Mehrabifar H, Leonardi A, et al. Trypsin inhibitory capacity in vernal keratoconjunctivitis. Invest Ophthalmol Vis Sci 2007;48(1)264-9.
13. Keklikci U, Soker SI, Soker CS, Ozkul S, Sakalar YB. Unilateral vernal keratoconjunctivitis: a case report. Eur J Ophthalmol 2007;17(6):973-5.

Address for Corresponding Author:
Mr. Masood Alam Shah
Cell: 0322-6660075

Original Article

Scabies in Community of Jamshoro Hills

1. Hussain Bux A. Kolachi 2. Abdul Sattar Channa 3. Aijaz Hussain Memon

1. Prof. of Community Medicine, DIMC, Karachi 2. Sr. Med. Officer, Skin OPD, LUH, Jamshoro 3. Asstt. Prof. of Community Medicine, GMMMC, Sukkur.

ABSTRACT

Introduction: The Muslim Physician Avenzoar described itch mite (Acarus Scabiei) in the twelfth century. Problem is worldwide in superpower country like USA 5% to 10%children have Scabies. The situation in other poor countries can be much worse. Frequent changes of underclothing and bedding are control measures of value.

Objectives:

1. To collect data on prevalence of Scabies infection in community residing in Jamshoro Hills
2. to record Socio-demographic character of patients of scabies
3. To recommend control and prevention strategies based on this research

Study Design: Descriptive and cross sectional study.

Place and Duration of Study: This study was carried on patients who utilized services of LUH Skin OPD in Jamshoro from 1st February 2007 to 1stFebruary 2008

Materials and Methods: Dermatology Out Patient Department of Liaquat University Hospital Jamshoro. 112 patients were included in study sample.

Results: :Study was conducted on 112 patients who utilized services of skin OPD at LUH out of these 30(26.2%) were children in the age group of 1-9 years, 38(33.9%) adolescents and teen angers in age group of 10-19 years this was largest age group of scabies patients. while infection was 10.7% to 5.4% in 40-49 years age and above showing low prevalence. Regarding sex of patients suffering from scabies out of 112 patients the ratio of male to female was 50:62 i.e. 50 (44.6 %) and 62 (55.4%.).This showed females suffered more.

the occupation of patients showed strong association with scabies diseases occurrence P<001 as out of total 112 patients house wives were 26 (23.2%) students 31(27.7%) , laborer 15(13.4%) children 33(29.5%) office Job 7(6.3%) while education was not significant.

Conclusion: Study concludes that scabies is common in rural areas of Jamshoro in young age and teen agers. Occupation wise students and house wives had more scabies. Community based cheap treatment of sulphur ointment programme supported by IEC material and free skin camps be promoted

Key Words: Mite, Scabies, Sulphur, Ointment.

INTRODUCTION

The Muslim Physician Avenzoar described itch mite (Acarus Scabiei) in the twelfth century [1]. The itch mite, arthropods of medical importance which causes scabies in 1667 became first disease of the man with known cause. The life cycle from egg to adult parasite takes 10 to 15 days, and adult mite lives for one to two months period., it spreads in families therefore is called familial or household infection [2] . Mite can be located in the skin with the help of hand lens. It causes irritation of skin termed as Acarisis. Itch mite is found all over the world. Gupta & Kulkarani [3,4.] 5% to 10%children have scabies in USA than situation in other poor countries can be much worse. Frequent changes of underclothing and bedding are control measures of value.

The itch mite scab mite, sarcoptes scabei, Acarus Scabei is strict ecto-parasite of human being. It lives in his demise, it parasitizes people with poor personal hygiene living in overcrowded and unsanitary conditions, the itch mite is ovoid, grayish, nearly transparent, tortoise-like arthropod. The male is 0.22mm and female 0.4mm long, and itch mite carries four pair of short legs. Itch mite is not vector it causes of these scabies diseases .It spreads through body contact. Scabies is treated with 25% benzyl benzoate emulsion alternative to benzyl benzoate can be 2.5 % to 10% sulfur ointment for four days a cheap remedy [5] . Used bedding, towel, clothing are boiled and laundered. All children of patient's family and child neighbors as well as all patients' schoolmates are simultaneously treated. 25% Benzyl benzoate 40 ml is applied after hot bath to whole body except head and face i.e. below chin no bath is taken till 24 hours. Second course of treatment after 7 day can be repeated in some cases [6]

Common sites of lesion are hands and wrists, exterior aspects of elbow, axillae, buttocks, lower abdomen, feet and ankles, breast in women and genitals in men 3. It is infestation of Arthropod it is endemic but spreads in epidemic especially in winter [7]. There are many types of skin infections that require clinical care by a physician or other healthcare professional. To prevent scabies on e should keep away him or herself from scabies suffering person and those close living together and they have been properly treated and personal hygiene is maintained are viral ,bacterial, fungal infection which may occur as co morbidities in same patients and need appropriate diagnosis and treatment [8,9,10 ,11].

MATERIALS AND METHODS

Study Design: The study is descriptive and cross sectional carried on patients who utilized services of Dermatology out patient Department of Liaquat University Hospital Jamshoro

Total 112 Patient was included who were permanent resident and came first time for treatment

Duration: Study was conducted from 10 February 2007 to 10 February 2008. Data was collected on especially designed and pre-tested proforma related brief information about parent's age, sex education, occupation, place of residence whether rural or urban.

Data Analysis: SPSS version 14 computer software programme was used for data analysis

Inclusion Criteria: Permanent residents of Jamshoro Hills and came first time for treatment /consultation were included in study

Exclusion Criteria: Patients who revisited or suffered second or third time were excluded.

Classical Scabies infection of palm Red spots are burrows of mite

Common sites of Scabies Infection

Mite –small parasite causing scabies

RESULTS

1.Table1 Showed age of patients out of 112 patients 30(26.2%) were children in the age group of 1-9 years, 38(33.9%) adolescents and teen angers in thee age group of 10-19 years this was largest age group while infection was 10.7% and 5.4% in 40-49 years age and above 5.4% showing lowest prevalence.

2. Table 2. Showed sex of patients suffering from scabies out of 112 patients the ratio of male to female was 50:62 i.e. 44.6 % to 55.4%.

This showed females suffered more.

3. Table 3 showed marital status and data revealed that out of 112 patients 41 (36. 6%) were married and 71(44, 4%) were unmarried including child age.

4. Table 4 Showing education of patients 56(50.0%) were illiterate, 23(20.5%) were primary pass and 12(10.7%) were university graduate and remaining were post Matric and college educated. The education was statistically insignificant (P>05)

5. Table5. Showed place of residence rural or urban in our study 99 (88. 4 %) and 13 (11. 6 %) were urban showing great proportion of rural residents as Jamshoro is rural and dominated by hilly scattered settlement.

6. Table 6 showed the occupation of patients and out of 112 patients house wives were in 26 (23.2%) , students 31(27.7%), labour 15(13.4%) children 33(29.5%) office Job 7(6.3%)

Table No.1: showing age of Patients suffering from Scabies – age of patients

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
1-9 years	30	26.8	26.8	26.8
10-19 years	38	33.9	33.9	60.7
20-29 years	12	10.7	10.7	71.4
30-39 years	12	10.7	10.7	82.1
40-49 years	6	5.4	5.4	87.5
50-59 years	8	7.1	7.1	94.6
60 & above years	6	5.4	5.4	100.0
Total	112	100.0	100.0	

Table No.2: showing age of Patients suffering from Scabies – sex of patients

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Male	50	44.6	44.6	44.6
Female	62	55.4	55.4	100.0
Total	112	100.0	100.0	

Table No.3: showing age of Patients suffering from Scabies – marital status

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Married	41	36.6	36.6	36.6
Unmarried	71	63.4	63.4	100.0
Total	112	100.0	100.0	

Table No.4: showing age of Patients suffering from Scabies – Education of Patients

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Illiterate	56	50.0	50.0	50.0
Primary	23	20.5	20.5	70.5
Middle	8	7.1	7.1	77.7
Matric	7	6.3	6.3	83.9
College	6	5.4	5.4	89.3
University	12	10.7	10.7	100.0
Total	112	100.0	100.0	

Table No.5: showing place of residence Rural R and Urban U patients suffering from Scabies - address

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
R	99	88.4	88.4	84.4
U	13	11.6	11.6	100.0
Total	112	100.0	100.0	

Table No.6: showing age of Patients suffering from Scabies –Patients Occupation

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Housewives	26	23.2	23.2	23.2
Students	31	27.7	27.7	50.9
Laborers	15	13.4	13.4	64.3
Office Jobs	7	6.3	6.3	70.5
Child	33	29.5	29.5	100.0
Total	112	100.0	100.0	

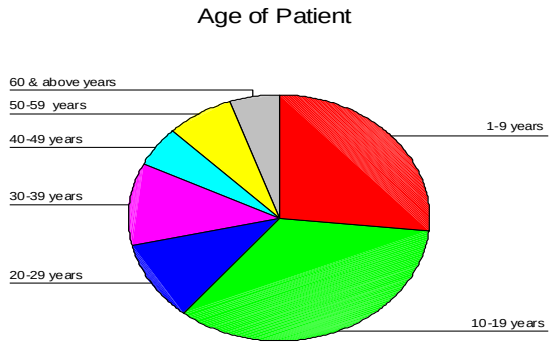


Diagram 1:Showing Occupation of patient of scabies

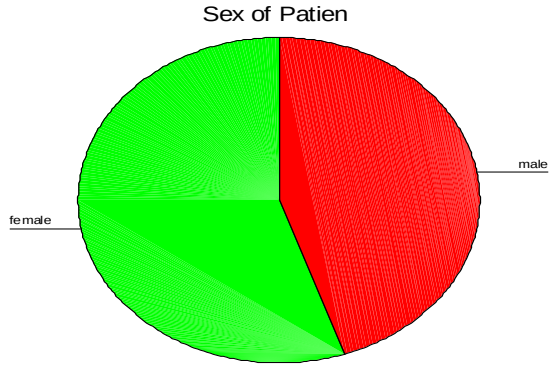


Diagram2: Showing sex of patient of scabies

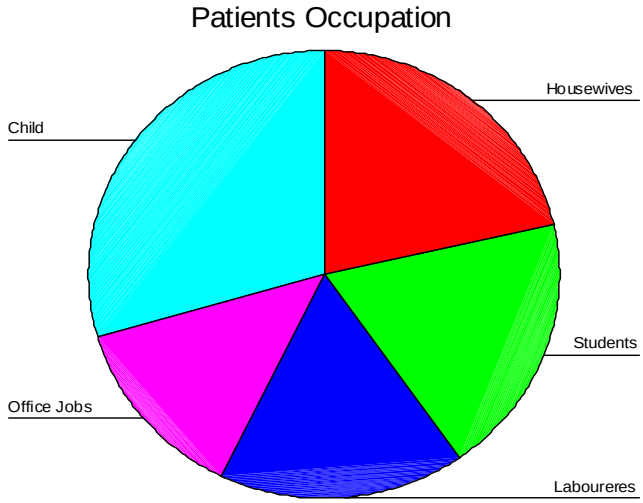


Diagram 3.Showing Occupation of patient of scabies

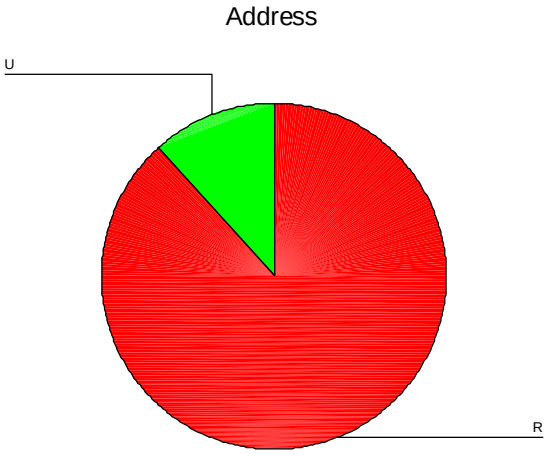


Diagram 4: Showing place of Residence Rural (R) or Urban of patient of scabies

DISCUSSION

The scabies is contagious diseases and is common worldwide. It is more in poor communities and where over crowding is prevalent. In Pakistan children ARI and Scabies were mentioned two frequently occurring morbidities and our study also showed same pattern. In USA 5 to 10% children are affected but here 26.2% children were suffering from scabies incidence twice to thrice higher [9.] if this simple diseases is not controlled in west and in east what progress in medical science has taken place this eye opener for us also that after 60 years of independence 26% children have scabies how they will learn and grow in schools homes and play ground naturally unsatisfactory. The education and its primary, secondary, and tertiary form had no association as 50% were those who had got some level of formal education. The most significant feature of our study that occupation was significantly associated and students and housewives were found highly vulnerable

occupation. There is need for community health education campaign and media publicity and series of refresher course on scabies prevention, treatment and control for doctors, nurses, LHWs and general doctors and private practioners. The cheap and locally made drugs from sulphur compound be made available, [10] Personal hygiene, cloth and bed sharing be discouraged, Whole family treatment where one patient is reported is important. In winter sunlight and proper ventilation of house be advised. Skin camps are good intervention hence be regularly held under Skin department and LUH in future. In study in adjoining district of Jamshoro i.e. Tando Khan hospital Umrani and Baloch found 69% patients were illiterate in males and 92% females were also illiterate while in our study 50% patients were illiterate and 63% were male 37% females while this was 44% male and 64% females , 15% children in their study while in our study 26% were children,[12], In developing countries 10% suffer from scabies but this figure is much higher in both studies .[13 14,15,16 ,17 ,The studies in Brazil Bangladesh and Egypt scabies has been reported as public health problem with similar findings [18,19,20,21 ,22]

CONCLUSION

Study concludes that scabies is common in rural areas of Jamshoro. And more prevalent in young age .Also in occupation students and house wives ha more scabies. Scabies prevention and control and community based treatment programme supported by IEC material and free skin camps and cheap treatment be promoted.

Acknowledgement: I acknowledge the cooperation of Dr. Shamshad Ali Surahio consultant Dermatologist LUH, Dr Samia Shaikh deputed in Skin OPD LUH for verification of diagnosis and professional opinion. And photographer Mr. Shaji. And Mr. Mujeeb leghari for data entry and record work. The whole effort was voluntary and academic research

REFERENCES

1. Iliyas M, et al, editors. Public Health and Community Medicine. 7th ed. Time Publisher Urdu Bazar Hashmi Trust Building Karachi: Pakistan; 2006.p.586.
2. Park K. Parks' Textbook of Preventive and Social Medicine, 24th ed. Jabalpur India. M/S Banarsidas Bhanot Publisher 1167 PremNagar; 2004.p.555.
3. Lodhi A, Dewan A. Qamar RA, AAA Medical Microbiology. 1st ed. Iabalian Book shop. Allama Iqbal Medical College Lahore; 2005.p.209.
4. Mirza T, Khalid U. Tamoor's Community Medicine. 1st ed. Lahore. Carvan Book House; 2005.p.51.
5. Rao SB. Principle of Community Medicine. 4th ed. AITBS Publishers J-5/6 Kishan Nagar-Dehli-110051(India);2005.p.160.
6. Gupta MC, Mahjan BK. Text book of preventive and social medicine. 3rd ed. Jaypee Brothers. Medical Publishers (P) Ltd: New Dehli;2003.p. 152.
7. Shaheena M, Anjum A. ABC of Public Health and Community Medicine: 1st ed. Shirkat Printing Press Lahore: Pakistan;2006.p.185.
8. Kulkarani AP, Baride JP. Textbook of Community Medicine. 2nd ed. Mumbai: Vohra Medical Publication Mumbai;2002.p.248.
9. Iliyas M, et al. editors. Public Health and Community Medicine. 7th ed. Time Publisher Urdu Bazar Hashmi Trust Building Karachi: Pakistan; 2006.p.586.
10. David LH, editor. Control of Communicable Diseases Manual. 18th ed. American Public Health Association 8001 Street NW: Washington DC 20001-3710;2004.p.426.
11. Health Library [online] 2008 February 13 [cited2008 February 13] Available from:http://www.lancastergeneral.org/content/gStone.aspx?pageid=P00286
12. Umrani NM, Baloch GH. Scabies Epidemic in Tando Muhammad Khan Sindh J Pak Assoc of Dermatologist 2009;86.
13. Henderson CA. Skin disease in rural Tanzania. Int J Dermatol 1996; 35: 640-2.
14. Sharma RS, Mishra RS, Pal D, et al. An epidemiological study of scabies in a rural Community in India. Ann Trop Med Parasitol 1984; 78: 157-64.
15. Hegazy AA, Darwish NM, Abdel-Hamid IA, Hammad SM. Epidemiology and Control of scabies in an Egyptian village. Int J Dermatol 1999; 38: 291-5.
16. Currie BJ, Carapetis JR. Skin infections and infestations in Aboriginal Communities in northern Australia. Australia's J Dermatol 2000;41:139-43.
17. Terry BC, Kanjah F, Sahr F, et al. Sarcoptes Scabiei infestation among Children in a displacement camp in Sierra Leone. Public Health 2001; 115: 208-11.
18. Jackson A, Heukelbach J, Feldmeier H. Transmission of scabies in rural Community. Braz Infec Dis 2007;11:386.
19. Heukelbach J, Feldmeier H. Scabies. Lancet 2006; 367: 1767-74.
20. Stanton B, Khanam S, Nazrul H, et al. Scabies in urban Bangladesh. J Trop Med Hyg 1987;90: 219-26.
21. Poudat A, Nasirian H. Prevalence of pediculosis and scabies in the prisoners of Bandar Abbas, Hormozgan province, Iran Pak J Biol Sci 2007;10: 3967-9.
22. Heukelbach J, Feldmeier H. Scabies. Lancet 2006; 367: 1767-74.

Address for Corresponding Author:
Dr. Hussain Bux A. Kolachi
Email: Kolachi83@hotmail.com
Phone # 03332654685

Original Article

Post BCG Vaccination Lymphadenitis with or Without Supporation, What is the Optimum Management

1. Muhammad Kashif 2. Muhammad Riaz ul Haq 3. M. Naeem Ch. 4. Elbagir Elhassan 5. Haroon Khurshid Pasha

1. Asstt. Prof. of Paediatric Surgery, Nishtar Medical College and Hospital, Multan 2. Consultant Paediatric Surgeon, King Faisal Hospital Taif Saudia Arabia 3. Asstt. Prof. of Pathology, NMC, Multan 2. Consultant Paediatric Surgeon, King Faisal Hospital Taif Saudia Arabia 5. Prof. of Pead Surgery, NMC, Multan

ABSTRACT

Background:The Bacille-Calmette-Guerin (BCG), a living attenuated vaccine with characteristic residual virulence, has been used to prevent tuberculosis since 1921. The world health organization (WHO) has recommended BCG Vaccination as a part of the global expanded program for immunization (EPI) in developing countries. Lymphadenitis with or without suppuration is the most common complication of this vaccination.

Study Design: Retrospective Study

Place and Duration of Study: This study was conducted in Nishtar Hospital, Multan Pakistan and King Faisal Hospital Taif, KSA between May 2009 to June 2012.

Materials and Methods: All patients referred to pediatric surgical service in a period of three years were retrospectively studied for optimum management.

Results: Our all 28 patients underwent surgical management and were advised antituberculous treatment but only 6 (21.4%) were compliant with medical treatment. All patients recovered after surgery with or without antituberculous treatment.

Conclusion: Optimum treatment for post BCG lymphadenitis who are unresponsive to medical treatment is surgery. Post operative antituberculous treatment seems to be unnecessary.

Key Words: Bacillus Calmette-Guerin (BCG); Lymphadenitis; Management.

INTRODUCTION

The live attenuated Bacillus Calmette-Guerin (BCG) vaccine is the oldest vaccine that continues to be widely used nowadays. It is derived by in vitro attenuation of an isolate of Mycobacterium bovis especially cultured in an artificial medium for years and named after its discoverers, the French bacteriologist Albert Calmette and veterinarian Camille Guerin[1]. The product was subsequently distributed to many laboratories, which continue to propagate the vaccine strain under different conditions. The marketed strains of BCG from different pharmaceutical companies are now bacteriologically different[1]. The BCG, a living attenuated vaccine with characteristic residual virulence, has been used to prevent tuberculosis since 1921. The world health organization (WHO) has recommended BCG Vaccination as a part of the global expanded program for immunization (EPI) in developing countries[2]. Though, the efficacy of BCG vaccine against tuberculosis is uncertain, it is generally agreed that the vaccine is protective against the meningeal/miliary TB in childhood tuberculosis[3]. BCG is a live attenuated vaccine and is being given routinely to all newborns under the universal immunization program. BCG vaccine induces delayed type of hypersensitivity (DTH) reaction and cell-mediated immunity in the host 4-8 weeks after vaccination[4]. After intradermal injection, BCG start multiplying rapidly at the site of inoculation and later is transported through the lymphatics to the regional lymph glands, followed by heamatogenous dissemination resulting in creation of very small foci in different organs. This is also called normal in the course of successful BCG vaccination[5].

Although BCG vaccination often results in local adverse reactions, serious complications are rare, therefore BCG vaccine is considered as safe method of tuberculosis prevention. lymphadenitis is the most common complication of BCG vaccination[6]. There are two forms of BCG lymphadenitis in natural course of lymphadenopathy. Simple or non-suppurative lymphadenitis which may resolve spontaneously within a few weeks, and suppurative lymphadenitis, which characterized by appearance of fluctuation with erythema and edema of the overlying skin[5].

The incidence of regional suppurative lymphadenitis ranges from 0.1-38/1000[7]. There appears to be no agreement on the treatment of this relatively common complication. Opinions differ widely, from no treatment to surgical drainage to administration of antituberculous drugs. The beneficial effects of these therapies are controversial[8]. The aim of this study was to find out an optimum management for unresolved supporative or non supporative post BCG lymphadenitis.

MATERIALS AND METHODS

This retrospective study was carried out in Nishtar Hospital, Multan Pakistan and King Faisal Hospital Taif, KSA between May 2009 to June 2012. Medical records were reviewed on sex, place of vaccinations, interval between vaccinations and development of lymphadenitis, clinical findings on physical examinations, hematological, microbiological and histopathological data, chest radiographs, treatment and outcome. 28 patients were referred to pediatric surgery departments for surgical treatment after failure of medical treatment.

Indications of surgery include failure of medical treatment, large (~2.0cm) lymph nodes, and development of fluctuation and inflammation of overlying skin. The surgical procedure was performed under general anaesthesia where indicated, including repeated aspiration of supporative lymphadenitis, excision of lymph node or excision of abscess along with necrotic lymph node. Debridement of all the necrotic tissue and excision of enlarged lymph nodes was performed through a skin crease incision. After hemostasis the wound was closed in subcuticular fashion using 5/0 Vicryl suture after leaving a Penrose drain. A pressure dressing was applied for 48- hours. All the surgical specimens were sent to microbiology; for a routine and AFB culture on Lowenstein Jensen agar and for histopathological evaluation.

RESULTS

Total 28 patients underwent surgical intervention in a period of 3 years. Males suffered a little higher than the females. Male / female ratio was 1.33:1 (Table-1).

Age distribution at the time of referral for surgical opinion ranged between 4 and 24 weeks. The highest rate of lymphadenopathy was found between 6-12 (64.2%) weeks of life. None of our patient was more than 24 weeks at the time of referral to our department (Table-2).

Maximum patients were having lymphadenopathy in ipsilateral axilla, 24 (85.7%), followed by supraclavicular region and both (Table-3).

3 (10.7%) of our patients who had frank suppuration without palpable lymph node underwent repeated aspirations and ultimately healed after 3-5 sessions at weekly interval and in remaining primary excision of lymph node , abscess or sinus was done (Table-4). AFB was positive in 6 patients. Histopathological evaluation of extirpated nodes showed caseous necrosis and granuloma formation, a finding consistent with tuberculosis.

Table No.1: Sex Distribution (n = 28)

Sex	No. of patients	Percentage
Male	16	57.1
Female	12	42.9

All patients were prescribed INH for 3 months. Only 6 (21.4%) patients were compliant with complete treatment. Remaining 22(79.6%), either took incomplete therapy or not at all. 2 of 28 (7.1%) patients developed wound infection and recovered with simple dressing for a few days. Patients were followed for 6 months. All recovered fully without any lymphadeno-pathy, sinus or systemic disease with or without antituberculous treatment.

Table No.2: Age distribution (n = 28)

Age (years)	No. of patients	%age
< 6	02	07.1
6-12	18	64.2
13-16	06	21.4
17-24	02	07.1

Table No.3: Distribution of region of lymphadeno-pathy (n = 28)

Region	No. of patients	%age
Axilla	24	85.7
Supraclivicular	03	10.7
Both	01	03.6

Table No.4: Surgical management

Method of surgery	No. of patients	%age
Excision of lymph node	12	42.8
Excision of abscess	11	39.3
Repeated aspirations	03	10.7
Excision of sinus	02	07.1

DISCUSSION

Approximately 100 million children receive BCG vaccine every year. The most common local reaction at the site of injection is in a form of skin induration 5–15 mm wide, and a crust formation occurs from 3 to 4 weeks. When the crust falls off between the 6th and 10th week, a flat scar measuring 3-7 mm remains[9]. The most common complication of BCG vaccination is lymphadenopathy or suppurative lymphadenitis, which occurs in the axilla as seen in our patients and rarely in the neck region. The incidence of BCG adverse reaction differs between regions, ranging between 1-10% to 0.1-0.5 per 1000 vaccinations[10]. Disseminated infection is a serious complication which occurs at a rate of less than 1 in a million vaccinations[6], and nearly all reported cases were seen in immuno-compromised patients[11]. BCG lymphadenitis is commonly observed two to eight weeks following vaccination, although there can be a delay up to 6 months or even more[12]. Most of our patients presented between 6 and 12 weeks of life. Nazir et al mentioned some cases beyond 6 months also[13].

The risk factors associated with BCG lymphadenitis can be either host-related or vaccine-related[1]. Host-related factors:

1. Age. Vaccine given during the neonatal period is associated with a higher risk of regional lymphadenitis.

2. Immunocompetence. Immunocompromised patients such as those suffering from severe combined immunodeficiency or AIDS have increased complication rates of local as well as disseminated BCG infections.
3. Route of administration. Failure of intradermal injection may result in inadvertent subcutaneous administration, which contributes to increased complication rate[14].
4. Race. A wide variation in the incidence of BCG-related complications has been reported in different countries and ethnic groups.

(B) Vaccine-related factors:
1. Dosage of BCG vaccine. Over dosage may lead to more severe adverse reactions.
2. Residual virulence of the BCG strain. BCG strains from different pharmaceutical manufacturers are known to have different reactogenicity[15].
3. Viability of final vaccine product (the relative proportions of living and dead bacilli).
This is related to the quality of the administered vaccine and is affected by storage conditions such as the cold chain.

Lymphadenopathy occurred on the side of vaccination in all of our patients and axilla was the most commonly involved region (85.7%). In one study the localization of lymphadenopathy was also common in left axillary area (n=57), followed by left supraclavicular region (n=2) and right inguinal region (n=1)[13].
There are variable recommendations for management of post BCG lymphadenopathy and suppurative lymphadenitis. This management ranges from no treatment to treatments such as needle aspiration, drug treatment, surgical drainage, surgical excision, or a combination of two[16]. Several antibiotics (e.g. erythromycin) and antituberculous medications (e.g. isoniazid and rifampicin) have been used. There are case series suggesting their efficacy[17]. Well controlled trials involving more subjects have shown that these drugs cannot prevent suppuration nor shorten the duration of healing[18].
Some authors advocate a single intranodal injection of isoniazid after needle aspiration. Local isoniazid therapy caused significantly earlier resolution of the abscesses (3.9 months) compared with Erythromycin therapy alone (5.2 months; $P < 0.001$)[19]. For adherent or fistulated lymph nodes, the World Health Organization (WHO) suggests drainage and direct instillation of an anti-TB drug into the lesion. Patients with non suppurative and non adherent lymphadenitis were managed in other centers with regular follow up till the lymphadenitis regresses spontaneously over a period of few week[20]. In a series from Japan, lymphadenopathy was detected in 253 (0.79%) of 34 516 vaccinated children. The great majority resolved spontaneously and only eight (0.02%) proceeded to suppuration and discharge[21].
Needle aspiration has a major role in the management of post-BCG fluctuant (suppurative) lymphadenitis. The advantage of needle aspiration is prevention of spontaneous perforation and sinus formation[22]. If properly done, it has no significant complication or morbidity[1]. We did needle aspiration on 3 cases, all healed without any complications. The effect of needle aspiration was retrospectively studied on 24 cases. Successful results were achieved with complete resolution in 22 (92%) patients in a period of 3-6 months of follow up. Those patients treated by weekly needle aspirations approximately 3 -5 times and covered with Erythromycin 30-50 mg/kg for 4-6 weeks[9]. Aglayan et al also obtained satisfactory results in non drained suppurative adenitis with needle aspiration[23].
Surgical excision is a definitive way to remove the affected lymph node(s) and promote early cure and better wound recovery. However, the patient needs to bear the risks of general anaesthesia in addition to the risks of surgical manipulation, which are considerably higher in infants as compared to older individuals[16]. Surgical excision should be considered as the last resort in case of failed needle aspiration (dry tap or recollection despite repeated aspirations), and in those patients with matted and multi-loculated lymph nodes[1]. Wound healing after excision is usually excellent. A Penrose drain in the residual space after the excision of axillary lymph nodes can prevent seroma. Although recommended, postoperative anti-tuberculosis therapy seems to be unnecessary[1,13]
Simple incision and drainage is not recommended because it results in persistent discharges requiring cumbersome dressing, inadequate evacuation of inflammatory materials, suboptimal wound healing, scarring and delayed recovery[16,24]. We did excision of lymph node in 12 (42.8%), excision of abscess in 11 (39.3%), and excision of sinus in 2 (7.1%) cases. Nazir et al mentioned their experience on 52 cases who underwent surgical excision. All patients recovered fully with minor complications with or without antituberculous drugs[13]. Our 6 (21.4%) patients were compliant with antituberculous treatment but all recovered irrespective of antituberculous treatment and none of them suffered with recurrent sinus, lymphadenopathy or systemic disease.

CONCLUSION

Management of BCG lymphadenitis is primarily surgical. Supporative lymphadenitis may heal completely with needle aspiration but in case of suppuration with palpable lymph node or sinus or lymph node > 2 cm in size, excision with primary closure of wound with a penrose drain for 48 hours or so should be carried out. Antituberculous drugs seem to be unnecessary although recommended by many authors.

REFERENCES

1. Chan WM, Kwan YW, Leung CW. Management of Bacillus Calmette-Guerin Lymphadenitis. HK J Paediatr 2011;16: 85-94.
2. Lugosi L. Theoretical and methodological aspects of BCG Vaccine from the discovery of Calmette and Guerin to molecular biology. Tuber Lung Dis J 1992; 73(5): 252-61.
3. Bonmon MJ. BCG and Tuberculosis, Arch Dis Child 1999; 80(1): 80-3.
4. Kaur S, Faridi MMA, Agarwal KN. BCG Vaccination reaction in low birth weight infants. Indian J Med Res 2002; 116: 64-9.
5. Goraya JS, Virdi VS, Bacilli calmette- Guerin lymphadenitis. Postgraduate Med J London 2002;78(920):327-9.
6. Milstien JB, Gibson JJ. Quality control of BCG Vaccine by WHO: a review of factors that may influence Vaccine effectiveness and safety. Bull WHO 1990;68(1):93-108.
7. Merry C, Fitzgerald RJ. Regional lymphadenitis following BCG vaccination. Pediatr Surg Int 1996;11:269-71
8. Karnak I, Senocak ME, Buyukpamukcu N, Gocmen A. Is BCG vaccine innocent? Pediatr Surg Int 1997; 12: 220-223.
9. Fatma D. Hameed A, Tarig ISurgical Management of BCG Vaccine - Induced Regional Lymph Nodes Adverse Effects. Ann Pediatr Surg 2009;5(3): 187-93.
10. Bennet M, Hass D. Complication of BCG vaccination. Principles and practice of infectious disease. 4th ed. Churchill Livingston Inc; 2000.p. 2218-9.
11. Voss L. Paediatric Infectious Disease Physician, Starship Children's Hospital, Guidelines for Tuberculosis Control in New Zealand Chapter 8: BCG Vaccination. 2003.
12. Merry C, Fitzgerald RJ. Regional lymphadenitis following BCG vaccination. Pediatr Surg Int 1996; 11: 269-71.
13. Nazir Z, Qazi SH. Bacillus calmette-guerin (bcg) lymphadenitis-changing trends and management. J Ayub Med Coll Abbottabad 2005; 17(4).
14. Daoud W. Control of an outbreak of BCG complications in Gaza. Respirology 2003;8:376-8.
15. Awad R. BCG vaccine and post-BCG complications among infants in Gaza Strip, 1999. East Mediterr Health J 2001; 7: 211-20.
16. Caglayan S, Yegin 0, Kayran K. Is medical therapy effective for regional lymphadenitis following BCG vaccination. Am J Dis Child 1987;141: 1213-4.
17. Power JT, Stewart IC, Ross JD. Erythromycin in the management of troublesome BCG lesions. Br J Dis Chest 1984; 78: 192-4.
18. Kuyucu N, Kuyucu S, Ocal B, Teziç T. Comparison of oral erythromycin, local administration of streptomycin and placebo therapy for non-suppurative Bacillus Calmette-Guerin lymphadenitis. Pediatr Infect Dis J 1998;17:524-5.
19. Noah PK, Pande D, Johnson B. Evaluation of oral erythromycin and local isoniazid instillation therapy in infants with Bacillus Calmette-Guérin lymphadenitis and abscesses. Pediatr Infect Dis J 1993; 12: 136–9.
20. Hamedi AB, Velayati A. Clinical Course Study Post B.C.G Vaccination. Int J Infect Dis 2004;3(2).
21. Mori T, Yamauchi Y, Shiozawa K. Lymph node swelling due to bacille Calmette-Guerin vaccination with multipuncture. 1996;77: 269-73.
22. Banani S, Alborzi A. Needle aspiration of Suppurative post B.C.G adenitis. Arch Dis Childhood 1994; 71: 446-7.
23. Caglayan S, Arikan A, Yaprak I. Management of suppuration in regional lymph nodes secondary to BCG vaccination. Acta Paediatr Jpn 1991; 33: 699-702.
24. O uz F, Mujgan S, Alper G, Alev F, Neyzi O. Treatment of Bacillus Calmette-Guérin associated lymphadenitis. Pediatr Infect Dis J 1992;10: 887-8.

Address for Corresponding Author:
Dr. Muhammad Kashif,
Assistant Professor of Paediatric Surgery,
Nishtar Medical College and Hospital, Multan.
E.mail: drkashifchishti@yahoo.com
Mobile: 0300-8637667