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Editorial

Cholesterol in Blood Depends More on Genetics than Diet

Mohsin Masud Jan
Editor

Cholesterol is not a nutrient of concern for overconsumption. The point made is that replacing all foods containing cholesterol from your diet does not make the amount of cholesterol in the blood go down. That said, more important than the total amount of cholesterol in our blood from a heart artery problem is the amount of the 'good' cholesterol. And the amount of the good cholesterol in our blood depends more on genetics than diet.

And as such limiting cholesterol intake does not make sense. Also, people try and fill themselves up with sugary foods and carbohydrates especially of the refined sort when they avoid fatty foods. The reason is simple, fatty foods 'satiate' or fill a person up more easily than non-fatty foods and a sated person does not get hungry too soon.

The other problem with removing cholesterol rich fat from food is that the prepared, processed and fast food suppliers all try and add more sugar and salt to their foods to make them taste better. Increased amount of refined sugar and refined starches play an important role in the recent 'epidemic' of adult type diabetes. High salt/sodium possibly contributes to high blood pressure.

So, avoiding cholesterol in food is not the main concern rather what the removed cholesterol is eventually replaced with.

A Healthy dietary pattern is higher in vegetables, fruits, whole grains, low or non-fat dairy, seafood, legumes and nuts; lower in red and processed meats, and low in sugar sweetened foods and drinks and refined grains. Current research also strongly demonstrates that regular physical activity promotes health and reduces chronic disease risk.

Nutrient data from a representative sample of the US population of ages two and older indicate that: vitamin A, vitamin D, vitamin E, folate, vitamin C, calcium, and magnesium are under consumed relative to the requirement.

A country where close to a majority of people barely fulfill their recommended daily needs for caloric intakes, especially women and children, the above recommendations provide two important pieces of information. First, that diets high in animal fats and 'red meat' that so many of the poor and even some in the middle class long for are not necessarily good for them.

The important point is that less expensive forms of calories and protein like unrefined grains, vegetables and legumes (daals), on the whole, form a better basis for a healthy diet. And for those that can afford cooking oils of their choice, oils from vegetable origins (olive oil, canola oil, etc.) are better than oils of animal origin. Oils that are liquid at room temperature (for people in Lahore-room temperature means 25 degrees centigrade, give or take), are better than those that are solid at room temperature. However, it is important to remember the old adage, everything in moderation.

One thing that needs to be considered by the well-to-do is that eating cows and other animals that are bred for this purpose is just bad. Cattle breeding requires areas for producing feed that in cattle breeding countries can produce deforestation and diversion of available agricultural land towards producing cattle feed. Besides that, breeding cattle stresses water supplies and produces ecological damage.

As the world population increases and more people are able to afford meat, the damage to the environment from cattle breeding will become more pronounced. Eventually people will have to make a choice between eating meat or letting most of Bangladesh disappear into the Bay of Bengal. Eventually all forms of meat including that from chicken and pork, all forms of 'animal' proteins are going to become difficult to procure.

The 'under consumption' of micronutrients like vitamins and minerals which are of tremendous importance to normal and healthy function of the human body, is rampant. For decades physicians have advised patients that those who eat a 'proper' diet do not require 'dietary supplements'. This is even more so true of people in Pakistan including even the well-off that can eat whatever they want, that they still do not have a proper diet.

Iodine to salt virtually eliminated enlargement of thyroid glands (goiter). The same can be said of adding Vitamin D and Calcium to foods like milk and bread that virtually eliminated 'Rickets'. But even so as we all live longer, even in Pakistan it is important that we really start eating unprocessed foods.

In young women especially those who might get pregnant, Iron and Folate supplements are absolutely necessary. And for those that cannot afford them especially among children and pregnant women, provision of many of these micronutrients has to be a public health imperative.

Original Article

Pterygium Excision with Suture Less, Glue Free Conjunctival Auto graft

Suture Less Pterygium Excision

Abdul Rasheed Khokhar, Lakhani Das Hargun, Muhammad Akram Nizamani and Nisar Ahmed Siyal

ABSTRACT

Objective: To find out outcomes of pterygium excision with sutureless, glue free conjunctival auto graft.
Study Design: Observational / descriptive study.
Place and Duration of Study: This study was conducted at the Ophthalmology Department Unit-I, Dow University of Health Sciences, Civil Hospital Karachi from June 2011 to May 2015.
Materials and Methods: Either gender patients above 25 years of age enrolled for primary pterygium excisionfollowed by limbal to limbal orientation of conjunctival auto graft without suture or adhesive glue. Recurrent pterygia, pseudo pterygia, ocular surface disorders, vascularized cornea, dry eye and patients already on topical anti metabolites were not included. Follow up was scheduled on 1st day, 1st week, 1st, 3rd, and finally 6th months.Chi square test was applied to check significance of recurrence with age, gender, occupation and graft size or graft application time.
Results: Out of 382 participants, 303 (79.3%) were males. Majority of patients (77.7%) were young between 25 to 45 years of age. Mean time required for graft application was 16.89 ± 2.58 (std) minutes. Recurrence of pterygium was found in 32 (8.4%) cases. No significant relationship of recurrence of pterygium was found with other variables like gender, age, occupation, graft size or graft application time.
Conclusion: Natural healing tendency of vascularized conjunctiva allow graft to adhere underlying scleral bed while well aligned autograft margins and limbal to limbal orientation do not allow overgrowth of fibrovascular conjunctival tissue thereby prevent recurrence of pterygium.
Key Words: Primarypterygium, suturelesss, glue free, conjunctival auto graft, recurrence

Citation of article: Khokhar AR, Hargun LD, Nizamani MA, Siyal NA. Pterygium Excision with Suture Less, Glue Free Conjunctival Auto graft. Med Forum 2016;27(7):2-5.

INTRODUCTION

Pterygium is a triangular wing shaped fibro vascular conjunctival growth arising from nasal side encroaching onto the cornea. It is degenerative, hyperplastic disorder along with inflammatory cell infiltrate and abnormal extracellular matrix accumulation at sub conjunctival level. Ultra violet light induced damage of the limbal stem cells with subsequent conjunctivalization of the cornea is the currently accepted etiology of pterygium[1,2]. Some individuals or occupational groups are susceptible to develop pterygia. It is more common in drivers, welders, carpenters and those living in rural areas. The inhabitant of the countries with relatively high exposure to sunlight, hot, dry and dusty climates are more prone to develop pterygium[3,4].
Large pterygia induce greater amount of astigmatism[5]. Pterygium excision is required when chronic inflammation and/or irritation is not relieved by conservative therapy, pterygia progress to threaten visual axis or when it become a cosmetic nuisance. Main complication with pterygium excision is recurrence. The simple pterygium excision with bare sclera has high recurrence rate. Various modalities used to avoid recurrence include use of mitomycin C, beta radiation, conjunctival and amniotic membrane graft with suture or adhesive glue but none has satisfactory results so far[6, 7].
Conjunctival auto graft technique is gaining popularity despite variable recurrence rate and other complications. Suture material (vicryl or prolene) used for securing conjunctival autograft causes discomfort, scarring, infection,granuloma formation and chronic inflammation which usually require a second operation for removal. Fibrin glue is costly and produce possible hypersensitivity reaction and carries risk of viral transmission. Some studies favor the use of fibrin glue above sutures with improved comfort, decreased surgical time, reduced complication and recurrence rate[8, 9].Recent cross sectional study describes the successful outcome with sutureless and glue free conjunctival autograft[10].
Our population is prone to develop pterygia as we live in pterygium endemic zone[11]. So this study was conducted on large number of primary pterygia to find out the outcome of pterygium excision with conjunctival autograft technique without use of suture or any adhesive glue.

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MATERIALS AND METHODS

This observational / descriptive study was conducted at Ophthalmology Department, Dow University of Health Sciences, Civil Hospital Karachi, from June 2011 to May 2015.

Either gender patients above 25 years of age having primary pterygia were enrolled after getting written consent with complete demographic data. Characteristics of pterygia including site, size, vascularity and extent across the cornea were noted. Recurrent pterygia, pseudo pterygia, ocular surface disorders, vascularized cornea, dry eye and patients already on topical anti metabolites were excluded from this study. Primary pterygia excised under local and/or topical anesthesia followed by conjunctival auto graft taken from superior bulber conjunctiva of the same eye and placed over the bare sclera.

The body of pterygium was grasped and cut with Westcott scissors up to limbus. Holding with forceps and gently pushing the body of pterygium with sponge swab towards cornea while asking the patient to look towards nasal side until the head detached from cornea. By this maneuver using opposite forces (patient looking nasally while sponge swab pushing temporally) no residual fibers were left behind and cornea become free of pterygium. Then, the dimensions of bare sclera were measured. Superior temporal conjunctiva of the same eye approximately 1mm greater than bare sclera was marked and inflated with normal saline. This makes easy dissection of the conjunctiva from the tenon. Keeping limbal to limbal orientation, edges of the graft were carefully aligned in all dimensions with margins of the conjunctiva without any suture or adhesive glue and left there for 10-20 minutes to get attached.

Post operative follow up was scheduled on 1st day, 1st week, 1st, 3rd, and finally 6th months. Recurrence was defined as fibro vascular tissue crossing limbus and onto clear cornea in the area of previous pterygium excision.

Statistical analysis was done through SPSS version 16.0. The results were presented in terms of frequencies and percentages. Mean values and standard deviation were calculated for age and graft application time. Chi square test was applied to check significance of recurrence with age, gender, occupation and graft size or graft application time. P-value < 0.05 was considered statistically significant.

RESULTS

Out of 382 participants, 303 (79.3%) were males and 79 (20.7%) were females. Mean age of the patients was 41.81 ± 8.95 (std) years whereas minimum and maximum age was 27 and 67 years respectively. Majority of patients (77.7%) were young between 25 to 45 years of age. Occupation of the participants is shown in table 1. All participants completed at least 6 months of follow up visits. Conjunctival graft size varies from 6 mm to 9 mm. Minimum time required for graft

Table No.1: Demographic characteristics (n=382)

Variable	Frequency	Percentage(%)
Gender		
• Male	303	79.3
• Female	79	20.7
Age (years)		
• Minimum	27	
• Maximum	67	
• Mean	41.81 ± 8.95 std	
Age Group		26.7
• 25 – 35	102	51.0
• 36 – 45	195	
• 46 – 60	74	19.4
• > 60	11	2.9
Occupation		
• Farmer	68	17.8
• Labor	48	12.6
• Field Worker	48	12.6
• Office Worker	20	5.2
• Driver	53	13.9
• Welder	52	13.6
• Carpenter	44	11.5
• House Wife	41	10.7
• Others	8	2.1

Table No. 2: Output data (n=382)

Variable	Frequency	%age	P-Value
Graft Size			
• 6 mm	70	18.3	
• 7 mm	95	24.9	
• 8 mm	89	23.3	
• 9 mm	128	33.5	
Graft Application Time (minutes)			
• Minimum	11		
• Maximum	20		
• Mean	16.89 ± 2.58std		
Group		8.4	
• 11 – 12	32	7.3	
• 13 – 14	28	25.7	
• 15 – 16	98	22.5	
• 17 – 18	86	36.1	
• 19 – 20	138		
Complication			
• Recurrence	32	8.4	
• Graft Retraction	06	1.6	
• Graft Displacement	11	2.9	
• Granuloma	03	0.8	
• No complication	330	86.4	
Relationship of recurrence with			
• Gender			0.357
• Age			0.132
• Occupation			0.090
• Graft Size			0.928
• Graft Application time			0.665

P-value< 0.05 is considered statistically significant.

application was 11 minutes and maximum was 20 minutes while mean time recorded was 16.89 ± 2.58 (std) minutes. In majority 330 (86.4%) cases no complication was seen while recurrence of pterygium was found in 32 (8.4%) cases only (table 2). No statistically significant relationship of recurrence of pterygium was found with other variables like gender, age, occupation, graft size or graft application time (table 2).

Table No. 3: Comparative analysis about pterygium recurrence after conjunctival autograft

Author / Year	Type of Study	Number of Eyes	Technique used	Follow up Period (months)	Recurrence Rate
Koranyi et al / 2005[14]	Retrospective comparative	461	325 with fibrin glue 136 with sutures	6-112	5.3% with fibrin glue 13.5% with sutures
Bahar et al / 2007[15]	Randomized clinical trial	81	42 fibrin glue 39 with sutures	12	11.9% with fibrin glue 7.7% with suture
Jiang et al / 2008[16]	Prospective comparative	40	20 fibrin glue 20 with suture	12	5% with fibrin glue 10% with suture
Coral-Ghanem / 2010[17]	Prospective retrospective	100	106 eyes fibrin glue 58 eyes sutures	5	11.3% with fibrin glue 25.9% with sutures
Nieuwendaal et al/2011[18]	Retrospective	35	Fibrin glue	12	2.9%
Rubin et al / 2011[19]	Randomized clinical trial	47	21 with fibrin glue 26 with suture	6	4.76% with fibrin glue 7.69% with sutures
Hargun LD et al /2016*	**Prospective**	**382**	**No glue,No suture**	**6-60**	**8.4 %**

***This study for comparison**

DISCUSSION

Male preponderance of pterygium development correlates with its etiology in susceptible individuals and occupational groups living in rural areas of the countries with relatively hot and dusty climates and being exposed to more sunlight (ultra violet radiation). We found more pterygium 297 (77.7%) cases in age group between 25 to 45 years. Obviously these young people are mainly involved in outdoor and laborious jobs in daily socio economic activities which are also evident from list of occupation of participants shown in table 1.

Patel D et al[12] found pterygium recurrence in young age individuals whereas Hueva V et al[13] not only noticed young age for higher recurrence but also correlated size and morphology of pterygium with high recurrence rate. Heavily pigmented individuals have a higher recurrence of pterygium than lighter pigmented peoples as documented by Ayala M.[8]. We did not found any significant relationship of recurrence with age, gender, occupation, graft size or graft application time in this study.

Different surgical techniques adopted so far mainly focused to prevent recurrence of pterygium. Conjunctival auto graft either sutured or fixed with fibrin glue are widely practiced techniques now a days. Table 3 shows comparison of recurrence rate of sutures (7.7% to 25.9%) and fibrin glue (2.9% to 11.9%) when used for conjunctival auto graft after pterygium surgery [14-19]. In our study we did not used sutures or fibrin glue and allowed conjunctival auto graft to take its position by natural healing thereby do not encounter glue and suture related complications while recurrent pterygium was observed in 8.4% cases only.

After comparing different techniques for pterygium excision, Alpay A et al[20] reported 4 months as mean time for developing recurrence and/or other complications. Our minimum follow up period was six months. We observed complications like graft retraction, graft displacement and granuloma formation in initial two weeks after pterygium excision while recurrence was noticed after four months and late post graft period. We found graft retraction in only 6 (1.6%) cases. Retraction is very minimal as long as meticulous dissection of the sub epithelial conjunctival tissue is respected[10].

Surgical technique is the mainstay to overcome or reduce complications including recurrence. Special care should be observed while dissecting pterygium, conjunctival graft and placing it over the excision site. Only fibrovascular pterygium tissue and the immediate adjacent and subjacent tenon's capsule showing tortuous vessels were excised in our series. We avoided use of cautery and natural spontaneous haemostasis achieved. Carefully measure the dimensions of defect and tailor 1mm oversized graft to allow natural graft positioning without tension to prevent retraction. Tenon's layer should not be taken and graft tissue confined to anterior stromal layers of dissected conjunctiva. Limbal orientation of the graft maintained with host limbus. Such orientation of graft was also advocated by Oguz H et al and others[21, 22] to prevent recurrence. In our study 10 to 20 minutes awaited after applying graft so as natural tendency of vascularized conjunctival graft allow its adherence over the host bare

sclera. Conjunctival healing rates of 3.16 ±0.17 mm^2 per day have been shown in rabbit models[23]. Compression and close proximity to the excision site is added by apposition of lids which works as natural biological dressing and allow conjunctival autograft healing[10].

CONCLUSION

Natural healing tendency of vascularized conjunctiva allow graft to adhere underlying scleral bed while well aligned autograft margins and limbal to limbal orientation do not allow overgrowth of fibrovascular conjunctival tissue thereby prevent recurrence of pterygium.

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

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Original Article

Choice of Subject as Carrier by Medical Students in Pakistan

Choice - Carrier by Medical Students

Khalid Javed[1] Faiza Aamir[2] and Khursheed Anwar[3]

ABSTRACT

Objective: To find out the preference of medical students in Pakistan.
Study Design: Observational / descriptive / cross-sectional study
Place and Duration of Study: This study was conducted at Avicenna Medical College from January 2016 to March 2016.
Materials and Methods: All the 2nd year students were included in the study. They were asked to fill a self-designed questionnaire in which along the demographic details, they were to mention the field which they want to continue for specialization. Also they were to mention the reason for opting that specialty.
Results: A total of 105 students participated in the study. The mean age of participants was calculated as 21.75±3.68 years. There were 73 (69.5%) females while 32 (30.5%) male participants. The most commonly opted field was clinical sciences and among them surgery was selected by most of the participants. The most common reason for opting particular specialty was interest of the students.
Conclusion: We conclude that interest of our medical students into basic medical sciences is less than clinical sciences. We need to identify the factors and take certain measures so that more students could opt basic sciences also as their career

Key Words: Choice, Carrier, Medical students

Citation of article: Javed K, Aamir F, Anwar K. Choice of Subject as Carrier by Medical Students in Pakistan. Med Forum 2016;27(7):6-8.

INTRODUCTION

The number of medical graduates is increasing every year, like all over the world, because of new emerging medical colleges. There is a debate about the choice of new medical graduates about their career and the factors influencing their choices. Many international studies have suggested that family medicine is in high demand[1-3], while other studies suggest a variable response by medical students regarding their choices.[4] Many researchers have found that exposure to a particular field during undergraduate years has a particular impact on the choice of specialty by students.[5,6]

In Pakistan, medical graduates are free to choose specialty of their own choice but they usually have to compete for the particular specialty according to the competition in that specialty. As number of graduates is increasing so is the competition in specialties. Medical students usually have to choose from 2 broad categories as clinical sciences (surgical and medical), basic sciences for their specialization.[7,8].

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Previous studies have shown that this preference by medical students is influenced by many factors including their background, gender, race, previous exposure, family influence, intelligence level, opportunities in that field and personal interest.[9,10]

MATERIALS AND METHODS

This cross-sectional study was conducted at Avicenna Hospital. All the 2nd year medical students were asked to fill a self-designed questionnaire. All the benefits and hazards were explained to the students and verbal consent for inclusion in the study was taken. They were supposed to fill the questionnaire honestly without disclosure of identity. All the demographic details of the students were noted. The first question asked from the students was 'Which field would you like to choose after graduation?' The options included basic medical sciences and clinical sciences. The next question was to specify the field. Third question was to justify their choice by giving at least one reason for choosing the particular specialty. All the data were analyzed by SPSS version 20.

RESULTS

A total of 105 students participated in the study and all of them fulfilled the proforma with a response rate of 100%. The mean age of the students was found to be 21.75 ± 3.68 years. Of 105 students, 73 participants (69.5%) were females while 32 participants (30.5%) were males. The preferred field for specialization was clinical sciences than basic medical sciences by most of

the students (Table 1). When asked to specify their field, most commonly gotten answer was surgery followed by general medicine. The least commonly received answer was Pathology by one participant. Surprising to us, 3 participants opted for anatomy and 2 opted for physiology. When asked to mention the reason for opting this field, the most common reason was the interest in this field. There were some other answers which have been summarized in table 2. Also the specialties chosen by students were stratified according to gender which has been summarized in Table 2.

Table No.1: Reason for opting a specialty as given by students (n = 105)

Reason for opting this field	No.	%age
Interest in the subject	52	49.5
More money	21	20.0
Less specialists in market	15	14.3
Parent's wish	3	2.8
Other reasons	14	13.4

Table No. 2: Specialties chosen according to gender (n = 105)

Specialty	Male		Female	
	No.	%	No.	%
General Surgery	12	11.4	10	9.5
General Medicine	5	4.7	13	12.3
Gynaecology	1	0.9	14	13.4
Neurosurgery	1	0.9	2	1.9
General Physician	1	0.9	2	1.9
Paediatrics	1	0.9	4	3.8
Oncological Surgery	1	0.9	3	2.8
Cardiology	2	1.9	8	7.6
Orthopedics	2	1.9	-	-
Radiology	1	0.9	-	-
Neurology	-	-	1	0.9
Forensic Medicine	-	-	2	1.9
Rheumatology	-	-	2	1.9
Anesthesia	1	0.9	-	-
Community Medicine	3	0.9	3	2.8
Paediatric Surgery	1	0.9		
Pathology	-	-	6	5.6
Anatomy	1	0.9	2	1.9
Physiology	1	0.9	1	0.9

DISCUSSION

Our study focused to find the preference of subjects as specialty among our medical students. Many authors have found factors which influence medical students to choose a particular subject for future. Both academic exposure and personal experiences matter in this regard and help them to shape their perception of different subjects and formulate their own choices.[11-13] Zarkovic et al[14] had stated that role modeling is important in this context and many students opt for a particular subject from this. In our study, most of the participants had mentioned the reason to opt for particular subject as interest. Harris et al had conducted a similar trial in Australian medical students and had found that the choice by medical students is strongly influenced by their exposure to clinical settings. If a bad incident happens during their exposure, they usually don't go for that specialty.[11] Similarly when they spend a good time in a particular department, they usually get into it and decide to continue with it. There might be some controversies in it but most of the authors agree on it.

According to a recent article by Rathore et al[8], there are 203,000 doctors registered with Pakistan Medical and Dental Council (PMDC) and more than 90 medical colleges are functioning in Pakistan. According to authors, the number of medical students is rising every year and we don't have any structure to place and fit them into adequate places. We also don't have any plan in our country and therefore can't guide our junior medical students to opt for specialties.

Syed and colleagues[15] had conducted a study among Pakistani students to continue psychiatry as a career. They had found that 7.6% of the medical students opted to continue it as career. However in our study, none of the participants had labeled Psychiatry as their option. In our study, most of the patients opted clinical sciences as career option. In most of the previous studies, it had been found that usually medical students find it more thrilling to opt for clinical subjects because they have to deal with patients and to face new challenges on the daily basis.[16,17] Therefore, basic medical sciences are usually not opted because of having a static life in it.

Cleland et al conducted a trial on United Kingdom medical students and they found that along with other factors, an important factor regarding choice of subject by medical student is the study year of medical school.[18] The choices of the students change from year to year because of difference in exposure of clinical settings. In our study, we included only 2nd year medical students.

CONCLUSION

In this study we found that most if the students in Pakistan opt for clinical sciences. We recommend more trials on the topic and also to look into the factors leading our student to opt for a specialty. We need to focus on these factors and guide our students to choose a specialty of their own interest.

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

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Original Article

Pre-Menstrual Syndrome

Frequency of Pre-Menstrual Syndrome and Menstrual Irregularities in Adolescents of Different Socioeconomic Groups

Farah Deeba Nasrullah, Riffat Jalil and Ayesha Khan

ABSTRACT

Objective: To assess association between menstrual irregularities and socioeconomic status in adolescent girls.
Study Design: Cross sectional study
Place and Duration of study: This study was conducted at different schools and colleges of Karachi from December, 20th 2010 to 15th January 2011
Materials and Methods: The study included 650 girls from schools and colleges of Karachi district representing different socio economic groups. A questionnaire was constructed comprising of biodata, menstrual cycle pattern and details of dysmenorrhea and premenstrual syndrome (PMS). Girls between 15-19 years were selected randomly from schools and colleges representing low, middle and high income group. They were requested to fill questionnaire. Information thus obtained was analysed on spss version 11.
Results: A total of 611 questionnaires were analyzed. 33.2% of adolescent girls belonged to low income group, 30.3% were from middle and 36.5% from high income group. Mean age of girls was 16.7 years. Menstrual cycle pattern was regular in 75.28% girls. No difference was found in cycle pattern between different socioeconomic groups. 83.79% girls complained of dysmenorrhea and 34.76% of them were from low income group, 29.49% from middle and 35.75% from high income group. Treatment of dysmenorrhea was required in 14.56% girls, including 41.57% from low, 24.71% middle and 33.8% from high income group. PMS was noted 71.68% girls. 36.1% girls reporting PMS were from low and 32.2% and 31.7% from middle & high income group respectively.
Conclusion: Menstrual cycles are regular in majority of teen age girls. Dysmenorrhea and PMS are prevalent menstrual disorders in young adolescents. Incidence of PMS is significantly higher in low socio-economic group.
Key Words: Menstrual disorders- premenstrual syndrome (PMS)- Dysmenorrhea- Adolescents

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INTRODUCTION

Adolescence is a transitional period between childhood and adulthood and is associated with many physiological changes including growth spurt. Menarche is the onset of menstruation which is the main physiological change occurring in adolescent girls. Menstruation plays a very important role in female reproductive life representing maturity of hypothalamus-pituitary-ovarian axis. Menstrual problems are frequently seen in adolescent and about 75% of girls experience some problem associated with menstruation[1]. The common menstrual disorders in adolescents include menstrual irregularities, dysmeno-rrhoea and pre menstrual syndrome (PMS)[2]. Few years after menarche more than half of cycles are anovulatory resulting in menstrual irregularities.

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After 1-2 years maturation of hypothalamus-pituitary develops which initiates regular mid cycle LH surge and ovulation, thus establishing regular menstruation. Dysmenorrhea is a common menstrual disorder characterized by recurrent crampy abdominal pain during menstruation. This may sometimes cause disturbances in daily activities, missing school and social withdrawal in severe cases[3]. Primary dysmenorrhea is associated with ovulatry cycles and it is due to myometrial contractions induced by prostaglandins originating in secretary endometrium, whereas secondary dysmenorrhea is due to associated pelvic pathology

An another common menstrual disorder seen in adolescents is Premenstrual Syndrome
which consists of emotional, behavioral and physiological changes not caused by organic
disease typically occuring in last week of menstrual cycle and symptoms regress after onset of menstruation[4].

Premenstrual syndrome is listed in international statistical classification of disease and related health problems 10th revision (ICD 10)[5] with a symptom checklist for diagnosis of PMS.

The ICD criteria for PMS includes seven symptoms i.e., minor psychological discomfort, weight gain or bloating, breast tenderness, muscular tension, aches and pain, poor concentration and appetite changes. Symptoms are typically confined to luteal phase of cycle and should disappear with menstruation.

The severe form of PMS is called premenstrual dysphoric disorder PMDD[6]. It is characterized by the presence of at least five symptoms including (one should be severe) that occur one week before menstruation. Symptoms included are depressed mood ,anxiety and tension, fluctuating mood , anger and irritability, decreased interest and poor concentration, lethargy and fatigue, feeling over whelmed and out of control. Physical symptoms including breast tenderness and weight gain are also associated with PMDD. These changes are due to fluctuating hormonal levels during menstrual cycles.

Previous studies about menstrual cycles in teen age girls have been conducted using mainly Caucasian or multi-ethnic population. Only few local studies are available on menstrual disorders. More over there is no information regarding association of menstrual disorders with socioeconomic status.. Therefore, purpose of this study was to find out frequency of menstrual disorders in our adolescent sand to determine association between socioeconomic status and menstrual disorders in these adolescent girls.

MATERIALS AND METHODS

This was a cross- sectional study conducted at different schools and colleges of Karachi representing low, middle and high socioeconomic groups on the basis of family income. The study was conducted from 20th December 2010to 15th January 2011. It included all unmarried girls between 15-19 yrs of age. Married girls, adolescents with endocrine diseases, blood clotting disorders and chronic illness were excluded from the Study on the clinical basis.

A self structured questionnaire was made. It included biodata, family income, menstrual cycle pattern and details of dysmenorrhea and PMS. It included physical, psychological and behavioral symptoms of PMS based on Moos menstrual distress questionnaire. Prior approval was taken from principles of respective schools and colleges and informed consent was taken from girls prior to the distribution. The questionnaire was personally explained to the girls in detail and then distributed among 650 girls .Filled questionnaires were retrieved from 629 girls with a response rate of 96.74%. Among these 18 were incompletely filled therefore excluded from the study.

Statistical Analysis: A total of 611 questionnaires were analyzed on SPSS version 11. Mean and standard deviation of nominal variables calculated. Frequencies were used to analyze categoric variables. Chi square test was used to determine association between socio-economic status and menstrual disorders. P value of less than .05 was considered significant.

RESULTS

Mean age of girls was 16.5years (table 1). Study included 203 (33.2%) girls from low, 185(30.3%) from middle and 223(36.5%) from high income group (table 2). Menstrual cycle was regular in 460(75.2%)) girls (table 3). There was no difference in regularity of cycles among different socio-economic groups. 132(21.6%) girls had oligomenorrhea and 19(3.1%) had polymenorrhea. No significant difference was noted in three groups. In this study 83.79% girls complained of dysmenorrhea including 34.76% % from low, 29.49% from middle and 35.75% from high income group (table 4). Majority of girls had mild to moderate dysmenorrhea (table 5). 14.5% girls required treatment for dysmenorrhea. This included 41.5% low, 24.7% middle and 33.8% high class teen age girls (table 6). Premenstrual syndrome was observed in 71.68% adolescent girls, including 36.1% from low, 32.2% from middle and 31.7% from high income group (table 7).

Table No. I: Age of participants

Minimum	Maximum	Mean	Standard Deviation
15 years	19 years	16.7 years	±0.697

Table No.2: Socio-Economic Status

SE status	Number	%age
Low SE	203	33.2%
Middle SE	185	30.3%

Table No.3: Regularity of Cycle

Socio-economic Status	**Regular cycles**	**Oligomeno-rrhoea**	**Polymeno-rrhoea**	**Total**
Low	153	41	9	203
Middle	140	40	5	185
High	167	51	5	223
total	460	132	19	611

Table No.4: Dysmenorrhoea in different Socio economic groups

Socio-economic status	Dysmeno-rrhoea positive	Dysmeno-rrhoea negative	Total
Low	178	25	203
Middle	151	34	185
high	185	38	223
Total	514	97	611

Table No.5: Intensity of dysmenorrhoea

Socio-economic status	mild	moderate	Severe	Very severe	total
Low	62	65	34	17	178
Middle	64	58	20	9	151
high	62	75	34	14	185

Table No.6: Treatment of Dysmenorrhoea

Socioeconomic status	Treatment required	Not required
Low	37	166
Middle	22	163
High	31	192
Total	90	521

Table No.7: Premenstrual Syndrome (PMS)

Socioeconomic status	PMS positive	PMS negative	Total
Low	158	45	203
Middle	141	44	185
High	139	84	223
Total	438	173	611

DISCUSSION

Menstrual disorders are common among adolescents. Many teen age girls lack the information necessary to recognize that these problems are medical disorders which can be treated. Evaluation of menstrual disorders results in early diagnosis and management which may improve quality of life in young adolescents. The common menstrual disorders include dysmenorrhea, menstrual irregularities and premenstrual syndrome. Social status could be important predisposing factor for these menstrual disorders. This study included 611 teen age girls from different socio economic groups based on monthly family income.

Dysmenorrhea is regarded as most common cause of school and college absteeniesm by girls than any other cause[7]. The prevalence of dysmenorrhea increases steadily among menstruating adolescent from 38-39% at 12 year (tanner stage III) to 66-72% at 17 years or tanner stage IV. Pain is mild in 30-50% girls while severe in 15%[8, 9]

Balbi C, Musone R, et al described frequency of dysmenorrhea as being 85%[10]. In another study Hillen T, Cabavac SL observed that 80% of young Australian girls had dysmennorea and 53% of these girls reported that it limited their activities. In particular 37% said that dysmennorea affected their school activities.[11] Deligeoroglou E et al suggested in their study that dysmenorrhea is most frequent cause of referral to the physician.[12]

Studies have shown that 14-46% of school absence among adolescent is the result of severe dysmenorrhea. In a study by Banikarim 58% of Hispanic girls reported dysmenorrhea. 38% of these girls reported missing school and 33% reported missing individual classes.[13] In our study 83.79 % of girls reported dysmenorrhea. frequency was not significantly different among different income groups (p value >.05).though the need of treatment was more frequent in low income group (41.57%).

Adolescent girls often visit physicians for menstrual disorders. Although irregular periods during first three years after menarche are usually physiological, it does not excludes pathology. Bieniaz J in 2006 observed 76 adolescent girls and reported that 50 % had oligomenorrhoea, 10.5% had polymenorrhoea and 15.8% had mixed disorder.[14]

In our study 21.60% of teen age girls had oligomenorrhea 31% of these girls were from low30% from middle and 38.6%% from high income group.. Polymenorrhoea was reported by 3.2% of girls, 47.3% from low 26.3% from middle and26.4% high income group.

PMS is an important menstrual disorder seen in adolescent girls. PMS is shown to have an adverse impact on quality of life and productivity in young adolescents. Avril in 2006 conducted a study on knowledge, attitude and consequences of menstrual health in urban adolescents; he concluded that PMS is most prevalent disorder in adolescent girls. He reported PMS in 84.3% girls. In this study dysmenorrhea and abnormal cycle length was seen in 65% and 13.2% respectively[15]. In another study Fisher et al demonstrated that PMS affects between 14% and 84% of adolescent girls [16]. Recognizing that PMS is a common problem is important as it affect teen's ability to concentrate and have a direct effect on social life. Wilson & Kye reported in their study that 17% of adolescents missed their school because of PMS symptoms .Two other studies from France and China reported a lower incidence of 35% and 30.4% respectively.[17,18] In contrast Thu et al and Wiksten reported a high incidence of 75% and 88% respectively.[19,20] In a local study at Khyber medical college 53% of young college girls reported PMS.[21]

Our finding of 71.68% girls reporting PMS concurs with Cleckner-Smith and Wilson &, Kye studies. Our study showed a high incidence of PMS (36.1%) in low socio economic group (p value<.05). The most common symptoms were psychological and behavioral in local study at Khyber medical college. Similar results have been reported by other local studies[22,23]. In our study irritability (43.6%) mylagia and tension were most frequent symptoms. Majority of adolescent had mild PMS in this study.

Limitations of study include inability to calculate sample size and lack of assessment of predisposing factors in low income group which makes PMS more prevalent in them.

PMS is a common disorder in our adolescent girls but it is often under estimated, as most of our young girls and general physicians do not recognize it as a problem. PMS has a great impact on quality of life in teen age girls and therefore there is a definite need of further research so that risk factors could be assessed and prevented. Adolescent awareness of PMS is also required so that early diagnosis and treatment becomes possible which will enhance the morale and performance of our adolescent girls.

CONCLUSION

This study concluded that menstrual cycles are regular in majority of our adolescent girls. PMS and dysmenorrhea are common in our young adolescents. .Incidence of PMS is significantly high among low socioeconomic group. The limitation of the study includes focused group of adolescents and lack of further evaluation of factors involved in the etiology.
The study recommends further evaluation of nutritional, social, and environmental factors influencing the prevalence of these menstrual disorders, so that adequate measures could be taken to reduce incidence of these menstrual disorders which influence quality of life in young adolescent.

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

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Original Article

Liver Diseases

The Prevalence of Liver Diseases and Etiological Factors among the Patients of Jinnah Post Graduate Medical Centre (JPMC), Karachi

Mubashira Hashmi[1], Bhawani Shanker[2], Kashif Faisal[3] and Shenaz Imdad Kehar[4]

ABSTRACT

Objective: To determine the frequency and etiological factors of nonneoplastic and neoplastic liver diseases
Study Design: Observational / analytic study.
Place and Duration of Study: This study was conducted at the Department of Pathology, BMSI, JPMC from 1st January 2012 to 31st September 2014.
Materials and Methods: A total of 288 liver biopsycases of formalin fixed liver tissue biopsies were selected and analyzed for morphological features and grading received from January 2010-December 2012, at the department of Pathology, Basic Medical Sciences Institute, Jinnah Post Graduate Medical Centre.
Most common liver disease was CLD (88.54%). Most common age for CLD was between 3rd-5th decades of life with male predominance. HCV was the most common etiological factor. Out of total cases, 6.59% were hepatocellular and bile duct carcinomas. Most common age for liver cancers was 5th-7th decade of life with male predominance. The data feeding and analysis were on computer package SPSS (Statistical Packages of Social Sciences) version 20.0. In all statistical analysis only p-value <0.05 was considered significant.
Results: The most commonly encountered liver disease CLD was found as a major liver disease (71%) of the samples were suffering from CLD , while 25 % were suffering from HCC, Hepatitis C was the major cause of the liver diseases, (55.56%) of the liver patients were earlier suffering from the Hepatitis C.
Conclusion: In conclusion we observed that the most common liver disease in biopsy cases is chronic liver disease (chronic hepatitis), mostly occur between 21-50 years of age with male predominance and most frequent etiological factor is HCV.
Key Words: Liverdiseases, non-neoplastic liver diseases, neoplastic liver diseases

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INTRODUCTION

JPMC is the biggest and the best equipped public sector hospital in Pakistan. The Section of Histopathology at the JPMC, Karachi is the largest and busiest centre for Histopathology in Pakistan, a country with a population of over 180 million people. Primary liver cancer is the sixth most common cancer in the world, 750000 people worldwide i.e. 6% of the total) were diagnosed with liver cancer[1]. Liver cancer is the fifth most frequently diagnosed cancer in men worldwide and second most common cause of death. While in female it is seventh most common and sixth leading cause of cancer death[2]. In cancer research, UK (2009)[3], around 3960 people were diagnosed with liver cancer.

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In Pakistan the data from Shaukat Khanum Cancer Hospital & Research Centre from Dec 1994 to Dec 2011[4] shows that liver cancer is at number 1 position amongst the top 10 malignancies and accounts 1,926 cases i.e8.8% in males while in females it is 697 i.e. 2.97 %. Incidence in Pakistan for liver cancer is lower than eastern Asia but higher than the sub –continent and west.
The risk is equal in both sexes [5]. Main causes of liver cancer are hepatitis B and C viruses, alcohol, cirrhosis related to B &C viruses and heavy alcohol, smokers, vinyl chloride (occupational exposure) and aflatoxin[3]. HBV and HCV are among the principal causes of severe liver disease, including hepatocellular carcinoma. WHO estimates that there are 350 million people with chronic HBV infection and 170 million people with chronic HCV infection worldwide[6, 7]. Pakistan is among the worst afflicted nations[8]. Chronic inflammation is a known risk factor for carcinogenesis and is thought to play a role in pathogenesis of several types of cancers like cervical, ovarian, oesophageal adenocarcinoma, mesothelioma, colorectal cancer, lung ,initial step in the development of malignancy with genetic changes occurring as a later manifestation of a prolonged inflammatory process.

Hepatitis C virus (HCV) has been identified as one of the leading causes of chronic liver disease with serious sequel as the end stage of cirrhosis and liver cancer [9]. According to recent statistics, the worldwide prevalence of HCV infection is ~3% and affects around more than 170 million people globally[10]. Chronic hepatitis C infection mainly affects liver but can be associated with various extrahepatic manifestations including cryoglobulinemia, sialadenitis, glomerulonephritis, and porphyria cutanea tarda[11]

MATERIALS AND METHODS

This study is based on the analysis of liver diseases biopsies received at department of pathology, BMSI, JPMC from first January 2010 to 31st December 2012.

Inclusion Criteria: All properly fixedliver biopsies received in department of pathology, BMSI, JPMC during the above mentioned time

Exclusion Criteria:

I. Inadequate material
II. Metastatic carcinomas (adenocarcinomas)
III. Cystic lesion (Hydatid cyst)
2) H&E stained slides for all cases.
3) MassonsTrichrome stained slides for all cases.
4) Clinical records
5) Surgical pathological records.

Clinical history and relevant data were recorded on the request form in the Performa.

H&E and mass ontrichromestaining were performed.

All the slides were studied under light microscopy using scanner (4x), low power (10x), and high power (40x) lenses and were revised with supervisor.

4. Various parameters were recorded as mentioned in proforma.
5. Grading and staging was done in all cases.
6. Results were statistically analyzed.

Hematoxylin And Eosin Staining Results:

• Nuclei: stained blue
• Cytoplasm: stained varying shades of pink

Masson Trichrome Staining Results:

Nuclei---------- blue-black
Cytoplasm, muscles and erythrocytes----------red
Collagen----------green.

Interpretation of H&E Staining and Trichrome Staining.

Grading and Staging:

• For the interpretation of grading and staging of all the selected slides we have used the "modified histological activity index" an extension of the original knodell system.

• Modified HAI grading or necroinflammatory scores has maximum possible score is 18(1-4=minimal inflammation, 5-8=mild inflammation,9-12=moderate inflammation and 13-18=marked or severe inflammation).

• Modified HAI staging, is for extent of fibrosis. The maximum score is 6(0=no fibrosis, to gradual increase in fibrosis upto stage 5 which is early cirrhotic change and then definite cirrhosis which is grade 6).

• Severity of steatosis is judged from mild (less than one third), moderate (one third to two thirds) to severe (more than two thirds).but in our study we have only included severe steatosis cases.

• Dysplasia is found in two forms large cell dysplasia and small cell dysplasia. In large cell dysplasia there is cellular enlargement, pleomorphism and multi-nucleation but nucleus cytoplasm ratio will remain same while in small cell there is decreased volume of hepatocytic cytoplasm associated with moderately enlarged nuclear size, resulting in an increased N/C ratio[12]. In our study we had only large cell dysplasia.

RESULTS

Table 1 shows the frequency of various hepatic lesions amongst the liver biopsies received during study period .the most commonly encountered liver disease cases out of the total 288 cases were chronic liver disease (CLD) including 255 cases (88.54%), out of these 12(4.7%) showed full- fledged cirrhotic nodule. liver and bile duct carcinoma were 19 cases (6.59%), metastatic tumors contributes 12 cases (4.1%) and there were two cases of hydatid cyst (0.6%).

Table 2 shows distribution of liver diseases according to age most common age for chronic liver disease is between 3rd ,4th and 5th decade(mean age was 32) , for HCC it is 4th,5th and 6th decades(mean age 48) while for metastatic carcinoma it is 5th,6thand 7th decade of life (mean age 48).

Table No.1: Distribution of various liver diseases amongst liver biopsies received from 2010-2012 (n=288)

Liver Diseases	No. of Cases	%age	95% Confidence Interval
Chronic Liver Diseases (Chronic Hepatitis +Cirrhosis)	255 (243+12)	88.54	81.5 - 89.4
Hepatocellular Carcinoma	18	6.25	3.4 - 8.8
Cholangiocarcinoma Metastatic	01	0.35	0.01-1.6
Adenocarcinoma	12	4.17	2.2-6.7
Hydatid Cyst	02	0.69	0.1-0.2

*C.I =Confidence Interval

Table No.2: Distribution of 288 liver diseases cases according to age (n=288)

Liver Disease	**No. of Cases**	**Age In Years Mean ± S.D**
ChronicLiver Disease (CLD) 255	255	32.9± 14.94
Hepatocellular Carcinoma (HCC) & Cholangiocarcinoma	19	48.5 ± 18.12 *
Metastatic Carcinoma	12	48.9 ± 20.24 *
Hydatid Cyst 02	02	22.9 ± 4.24
P-value		0.001

* Significantly high as compared to CLD and hydatid cyst $p<0.05$

Table No.3: Distribution of 288 liver diseases cases according to gender (n=288). No significant difference was observed p>0.05

Liver Disease	No. of cases	Male	female	M/F ratio
Chronic Liver Disease (CLD)	255	157 (61.5%)	98 (38.4%)	1.6:1
Hepatocellular Carcinoma (HCC) & Cholangiocarcinoma	19	14 (73.7%)	5 (26.3%)	2.8:1
MetastaticCarcinoma	12	4 (33.3%)	8(66.7%)	0.5:1
Hydatid Cyst	02	1 (50%)	1 (50%)	1:1
Total	288	176 (61.1%)	112 (38.9%)	1.5:1

Table 3 shows the gender distribution according to liver diseases in total 288 cases, in CLD cases male were 61.5% and female 38.4%, male female ratio was 1.6:1 while for hepatocellular carcinoma and bile duct carcinoma male were 73.7% and female were 26.3% and M/F ratio was 2.8:1. In total liver diseases male female ratio was 1.5:1.

Table 4 shows the etiological distribution of 255 cases of CLD cases revealing that hepatitis C is the most common cause of chronic hepatitis accounting for 70% of cases followed by equal no. of cases of HBV and HBV&HDV co-infection i.e. 8.6% and 1 case of HBV&HCV co-infection (0.3%) infection .while hepatocellular and bile duct carcinoma shows 31.5% of HCV infection and 15.7% of HBV infection however 52.6% of cases data was not available ,therefore we cannot be sure that what could be the most frequent cause of HCC.

Table No.4: Distribution of chronic liver diseases cases (n=255) and hepatocellular and bile duct carcinoma (n=19) acording to etiology amongst liver biopsies received from 2010-2012

Liver Diseases	HBV	HBV&HDV	HBV&HCV	HCV	drug	unknown	Total
CLD	22(8.6%)	22(8.6%)	3(1.17%)	180(70%)	1(0.3%)	27(10.58%)	255
HCC & cholangiocarcinoma	3 (15.7%)	-	-	6(31.5%)	-	10(52.6%)	19

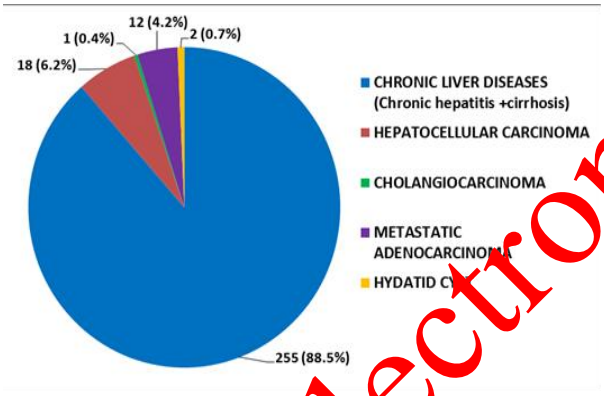

Figure No.1; Various Liver Disease Amongst Liver Biopsies In The Year 2010-2012 (N=288)

DISCUSSION

In this study we attempted to determine the frequency of various types of liver diseases including neoplastic lesions amongst the cases received in pathology department of JPMC from January 2010 to December 2012.

In our study out of total 288 cases of liver biopsies 88.54% had chronic liver disease showing various grades of chronic hepatitis, including 4.1% cases with cirrhosis. Our study is in accordance with the Khokar study[13] reporting 77.8% of chronic liver disease including chronic hepatitis (68.3%), chronic hepatitis with early cirrhotic changes (4.8%), and cirrhosis (3.1%).A PMRC study from 1987 to 2007[14], findings differ with our study and reports chronic hepatitis as 44.2%, cirrhosis 27.5% while 20.8% were carriers and 6.7% had acute hepatitis. This discrepancy may be due to a longer duration i.e. 21 years of their study. Moreover, this study includes additional cases of acute hepatitis and carriers also.

The minimum age of CLD cases in our series is 2 years and maximum 80 years while mean age is 36.2.Most common ages is 4th, 5th decade followed by 3rd decade. Ullahet al.[15] also reports commonest affected age group as 4th and 5th decade. In the NHANES study, the chronicity rate was estimated at 30% in subjects below the age of 20 years, and 76% for those older than 20 years[16].

Our study shows male predominance with 61.5% males and female were 38.4%. Male to female ratio was1.5: 1. Our finding are supported by the study of Ahmed[14], in which total 62.5% were males and 37.5% were females which giving a male / female ratio of 1.7:1. Devrajani et al. (2010)[17] also report similar results that 60% were males and 40% were females, M/F ratio was 1.4:1.While Ullah et al. (2012)[15] reports 51.6% males and 48.4% female.

According to etiological factors our series shows 70% cases of hepatitis C and 8.6% of hepatitis B. Our study is in close proximity with Ahmed [14], showing that hepatitis C was the most common infection (58.8%), followed by hepatitis B cases (32.6%). Khokhar[13] also reported HCV 86% followed by HBV 10%, comparable findings are shown by Ullah[15] and Almani[18]HCV 61.66% and HBV 18.94 % and HCV 52 % & HBV 16% respectively. In a USA based study[19]has given lower frequency compare, but also shows Hepatitis C is the most common cause i.e. 42% alone and 22% with alcohol combination. According to Beynon&

Hungerford[20], Alcohol-related liver disease accounted for the greatest proportion of liver disease deaths in the North West during 2010.

Approximately 1.7% of our cases showed HBV & HCV co-infections .Our findings are comparable with Khokar[13] reporting 3.1% and Ullah et al.[15]5.3% . Almani[18] however giving a higher figures of HBV &HCV co –infections as 16%. Our findings are similar with a study of India by Kumar[21] which reports HBV &HCV co-infections is 1.7%. Different studies have shown variable percentages as in China by Chen[22], it is 14.47%, in a Japanese study bySato[23] it is 23% and in Taiwan by Liaw[24] , it is 12%.

HBV &HDV co-infection was found in our cases is 8.6% while Ullah[15] has reported lower figures of 4.2%. while Kumar[21] reports 2.2% of HBV&HDV co-infection .Another study by Zaidi[25] shows high positivity rate of anti HDV i.e. 88.8% in HBV positive patients. Khan[26]study reports prevalence of HDV in Sindh 67%, Khyber Pakhtoonkhaw (KPK) 6% and Punjab 4%.Both these studies, Zaidi[25]&Khan[26]shows higher percentage because the study focuses on HDV detection in an extensive groups of patients showing HBsAg positivity only.

In the present study period we had total 6.59% liver and bile duct carcinomas and 4.1% metastatic adenocarcinoma in received liver biopsy cases. Our findings are comparable with the other study reports with slight variations from higher to lower figures as Khokar[13]finds 7.9% of hepatocellular carcinoma and 4.6% of adenocarcinoma (metastatic). However Ahmed[14] from PMRC gives 0.8% of HCC, lower percentage may be due to a longer study period (2 years) including all cases of CLD with carriers as well as acute inflammation .In Shaukat Khanum annual collective cancer registry report (1994-2011) liver and bile duct malignancies were 5.22% and by Bhurgri[27] it is 5.7% in male and 3.7% in female. According to Parkin[28], in USA SEER white population shows 3.0% in male and 1.2% in females. As indicated by cancer research UK (2010)[29] rate of liver cancer in England 4.6%, Wales 4.9%, Scotland 5.1%, northern Ireland 3.7% and in UK 4.6%.

In our study HCC and bile duct carcinoma were found b/w age groups of 27-80 years. Mean age was 54.2. Most common age was 5th to 7th decade. According to SKMCH cancer registry report (2011)[4] most common age for liver and bile duct cancer is also between 5th, 6th and 7th decade of life. In cancer research UK (2010)[29], an average of 70% of cases was diagnosed in men and women aged 65 years and over.

In our study gender frequency of liver cancer in male 68.4% and female 31.5% .M/F ratio was 2.1:1. SKMCH &RC (2011)[4] reports male 71.84% and female 28.1%. M/F ratio was 2.5:1. WhileBosch et al. (2004)[30]pointed out that worldwide rate of liver cancer in men are typically 2 to 4 times higher than in women.

Out of 19 cases of liver and bile duct cancer 6(31.5%) had HCV and 3(15.7%) HBV positive, for remaining 10 (52.6%) cases data was not available. Ahmed et al. (2010)[14] report 40 HCC cases in which 40% had HBV, 47.5% HCV, 2.5% had HCV&HBV co-infection and 21% had others. While Khokar (2002)[13], had 41 cases in which 29.3% had HCV and 14% HBV, remaining 53% cases had no data provided. Patients with cirrhosis have the highest risk of developing HCC[31]. Hepatitis C is the most common cause of HCC in Europe. According to GLOBOCAN data 2000, the percentage of worldwide HCC associated with HBV is 53%, HCV 25% and others 22 % [32].

CONCLUSION

Hepatocellular carcinoma (HCC) is a neoplasm the incidence of which is increasing worldwide, but striking geographical differences are observed for both risk factors and occurrence. The incidence in developing countries is two to three times higher than in developed countries. Male sex is associated with a higher incidence. The incidence also increases with age. The most powerful risk factor is the existence of liver cirrhosis regardless of its etiology. In Pakistan, liver cirrhosis is mostly associated with viral infection i.e. HBV &HCV.Most common liver disease was CLD (88.94%). Most common age for CLD was between 3rd-5th decades of life with male predominance. HCV was the most common etiological factor. Out of total cases, 6.59% were hepatocellular and bile duct carcinomas. Most common age for liver cancers was 5th-7th decade of life with male predominance.

In conclusion we observed that the most common liver disease in biopsy cases is chronic liver disease (chronic hepatitis), mostly occur between 21-50 years of age with male predominance and most frequent etiological factor is HCV.

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

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Original Article

Impacted Canines in Orthodontic Patients

Frequency of Impacted Canines in Orthodontic Patients Visiting KMDC

Hassan Rashid and Syed Sheeraz Hussain

ABSTRACT

Objective: To determine the frequency of impacted canines in orthodontics patients visiting KMDC.
Study Design: Cross-sectional study
Place and Duration of Study: This study was carried out at Dental OPD of Karachi Medical Dental College, Karachi from July 2015 to December 2015.
Materials and Methods: A sample size of 262 patients was taken. All the patients were 16 years or above. Diagnosis of canine impaction was made on clinical examination and OPG. Patients with history of extractions and trauma, cleft lip and palate and patients with syndrome were excluded from the study. Blurred OPG and inappropriate taken OPG of patients were also excluded. All the clinical examination and OPG analysis was done by same person.
Results: Out of 262 patients 66 (25.1%) were male and 196 (74.9%) were female. Mean age of the patients were 19.6 years. Canine impaction was found to be 3.8% i.e. 10 patients have canine impactions. 3.04% patients have maxillary canine impactions and 0.76% patients have mandibular canine impactions. Male to female ratio was 1:4.
Conclusion: A much higher frequency of impacted maxillary and mandibular canines was observed in our study. Male to female ratio is 1:4. Maxillary canines were impacted more frequently than mandibular. Left sides were most affected in the maxilla and mandible.

Key Words: Impacted Canines, Orthodontic, KMDC

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INTRODUCTION

Maxillary canine impaction is a well known dental anomaly to orthodontists and the incidence is 0.8–2.8% in different studies.[1-3] Mandibular canine impaction occur less than maxillary canine impaction and mandibular canine impaction is 20 times lower than that of maxillary canines.[4]

Several studies foreign and local found out prevalence of canine impaction from 1% to 3.8%. Reviewing several data canine impaction frequency found out to be 1 to 2.5%. Canine can be impacted on buccal or lingual side. Canine impaction is more common in female as compare to male. One study found prevalence of canine impaction 3.33%[5].

Impacted teeth are defined as those teeth that are prevented from eruption into their normal functional positions because of some physical barrier or loss of eruptive forces[6]. The last teeth to erupt in arch in chronological order has more chances of impaction.[7]

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The maxillary canines have the most longest and most tortuous development path in all teeth[8,9]. Mineralization process of Maxillary canine starts before the maxillary incisors and molars, although it takes twice as long to complete their eruption, maxillary canine become more susceptible to changes in their trajectory path[10].

The exact etiology for the impaction of maxillary canines is still not clear. local causes are more related to factors associated with canine impaction. Some of the local causes are: failure in the root reabsorption of the deciduous canine; early loss of the deciduous canine or prolonged retention of it; less space due to insufficient length or girth of the arc;[11-13] excess width of the palate[12]; pathological lesions in the canine area and ankylosis of canine; anomalies in size and shape of neighboring lateral incisors;[14] dilacerated root; supernumerary teeth; cleft lip and/or palate, early closure of the root apex, rotation of the permanent tooth germ, transverse maxillary deficiency and trauma in canine area.

Complications of Canine impaction are following root resorption to adjacent teeth, can cause cyst formation, poor esthetics & compromise occlusion. Early diagnosis is very important to prevent damage cause by canine impaction. Position of impacted canine in arch and its relationship to adjacent important structures influence treatment plan and outcome.

Delayed eruption and canine impaction is commonly seen in orthodontics patients. It is important to

determine if canine is impacted or will erupt in future. X-rays including OPG and periapical are very useful tool to diagnose canine impaction. Further canine can be located buccally or lingually by occlusal view and CBCT etc. Early diagnosis is very important for treatment planning in canine impaction.

Canine is cornerstone of the mouth. Canine has esthetic value in smile and provide canine guidance in occlusion. Prevalence and frequency of canine impaction is different in different races. Since dealing with canine impaction is difficult for practitioner it is important to know the extent of this condition and to find solution for it in our subset of population.

MATERIALS AND METHODS

A cross sectional study was conducted at dental OPD of KMDC from July 2015 to December 2015. A sample size of 262 patients was taken. All the patients were 16 years or above. Diagnosis of canine impaction was made on clinical examination and OPG. Patients with history of extractions and trauma, cleft lip and palate and patients with syndrome were excluded from the study. Blurred OPG and inappropriate taken OPG of patients were also excluded. All the clinical examination and OPG analysis was done by same person.

RESULTS

Out of 262 patients 66 (25.1%) were male and 196 (74.9%) were female. Mean age of the patients were 19.6 years. Canine impaction was found to be 3.8% i.e. 10 patients have canine impactions. 3.04% patients have maxillary canine impactions and 0.76% patients have mandibular canine impactions. Male to female ratio was 1:4.

80% patient have single canine impaction and 20% have two canine impaction. Commonest canine impaction is upper left canine i.e. 41.6%. Table 1 & 2. Figure 1.

Table No.1:Commonest impacted canine teeth

Teeth (FDI No)	Impacted canine in number of patients
13	4 (33.3 %)
23	5 (41.6 %)
33	3 (25 %)
43	0

Table No.2: Type of impaction according to number of impactions in a patient

Type of impaction	Percentage of cases
Single tooth impaction	80 %
Two canine impaction	20 %
Three canine impaction	0 %
Four canine impaction	0 %

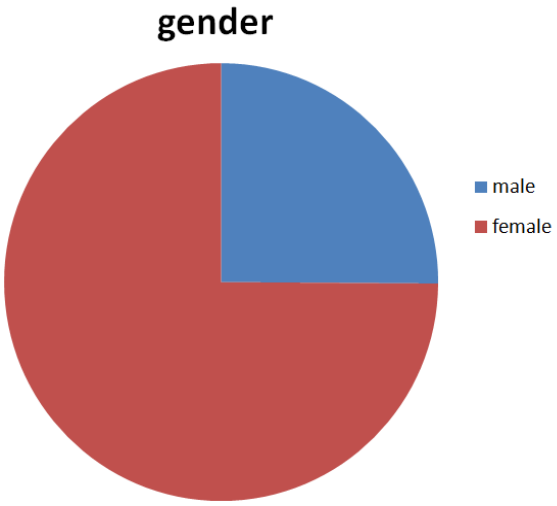

Figure No.1: Pie chart showing male to female ratio.

DISCUSSION

The frequency of impacted canines in our study comes out to be 3.8% which is higher than majority of other studies done till now. One of the reasons for A higher ratio could be attributed to the fact that our study sample consisted of orthodontic patients only rather than general population. Secondly racial factors and familial trends also influence the prevalence of canine impaction and can play important role in difference between results.[15-16]

Tuo et al.[11] observed different studies held and found out that finding canine impaction in dental clinic is not rare. Further found out canine impactions are more common in palatal side, in maxillary arch, and have a more common unilateral tendency on the left side, especially in females.

The gender ratio of our study is also different from most of the other studies.[17-18] where females were found twice as much affected then as males. The male to female ratio of our study is 1:4.

Toledo et al.[19] studied 3,152 radiographs from the digital archives of the All Doc Radiology Clinic, in which 503 showed impacted teeth, and 40 were canines out of these. Canine impaction is more common in female, with 63.8% (23 women). Ages of the patients ranged from 15 to 65 years. Unilateral impactions (80%) was significantly predominant over the bilateral (20%) in this study.

Cury[14] studied 5,400 panoramic radiographs obtained from January 2008 to July 2009 in the city of Volta Redonda, Rio de Janeiro, and found that 81 images which showed impacted canines (1.5%), which is more common in females (62.9 %), with the greatest occurrence in the age group between 10 to 19 years old (51.86 %), and right side is more affected than left side (51.85%).

Presence of bilateral canine impactions is variable but most of the studies have showed that maxillary canines

are affected bilaterally in 8-10% of impactions.[20] according to our study 25% of maxillary canine impactions were bilateral. Frequency of individual canine impactions in our study determine that the left maxillary cuspid was impacted the most common followed by the right maxillary cuspid.

Maxillary canine impactions are believed to occur 10-20 times more common than mandibular canine impaction. In our subset of population maxillary canine impactions were 3 times more common than mandibular canine impaction. This is because mandibular canine impactions occurred in our study with a frequency of 0.76% where as in other studies it varies from 0.07-1.29%.[15]

Mandibular canine impaction is very much rarer anomaly and there is only few number of studies revealing its frequency of occurrence. In one study, only 8 impacted mandibular canines were found in 7886 radiographs, and in another study only 11 impacted mandibular canines were found in 5000 radiographs, which result in an incidence of 0.10% .[1,21]

A study conducted on Turkish population with sample size 1000 showed incidence of maxillary canine impaction to be 2.9% and 0.3% incidence of mandibular canine impaction.[22]

Another study conducted on Saudi population with sample size of 4898 patients aged 13 years or older. The result showed that 3.6% had impacted canine.[23]

Another study conducted on 1858 patients of 11 to 18 year old needing orthodontic treatment and the results showed 101 cases of impacted cuspids that is 5.43%.[24]

from above studies we can conclude that different populations have different incidence of canine impaction some have high and some have low.

Although we have not notice position of impacted maxillary canine whether it is palatal or labial but it varied much. When European population was compare to Asian population then it was found out that palatal impaction is 5 times common in Europeans.[25] A study conducted by Kim et al.[26] found out that there is 3 times greater chances of labial impaction in Korean population. Another study by Zhong et al.[27] found out that Chinese population also showed greater incidence of labial impaction then palatal which is 2.1 times more common.

If canine Impactions are left untreated then it increases the chances of infection and may develop cystic lesion. Impacted canine also may cause root resorption of lateral incisors. The incidence of root resorption due to impacted canine is 12% and the prevalence of lateral incisor root resorption in 10-13 year olds is 0.7%.[28]

CONCLUSION

1. A much higher frequency of impacted maxillary and mandibular canines was observed in our study.
2. Male to female ratio is 1:4.
3. Maxillary canines were impacted more frequently than mandibular.
4. Left sides were most affected in the maxilla and mandible.

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

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Original Article

Tooth Transposition

Prevalence of Tooth Transposition among Pakistani Population

Muhammad Ashfaq and Syed Sheeraz Hussain

ABSTRACT

Objective: The objective of this study was to determine the prevalence of tooth transposition among Pakistani population

Study Design: Observational / descriptive study

Place and Duration of Study: This study was carried out in the Department of Orthodontics Karachi Medical and College, Karachi from September 2013 to April 2014.

Materials and Methods: This study was done with panaromic radiographs of 530 subjects (210 males, 320 females). For each patient variables like age, sex, presence of tooth transposition, type, location and classification of tooth transposition.

Results: Tooth transposition was found in 09 subjects (1.69%) (8 females and 1 male). The most commonly involved transposition was found was found in Maxillary canine and lateral incisor (66.67 %).The frequency of complete transposition was 30% (3 out of 10) , it was found more on left side than right side(7/3).all transpositions were found in maxilla.

Conclusion: The tooth transposition was found in 1.69% in a sample of Pakistani population and transposition between upper canine and lateral incisor was the most commonly observed transposition.

Key Words: tooth transposition, Population, KMDC

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INTRODUCTION

Transposition is a abnormality of tooth alignment in which two adjacent teeth have erupted in interchanged positions in the dental arch. In a complete transposition both the crown and root structures are transposed. In a pseudotransposition (also known as incomplete transposition) crowns of the adjacent tooth change in positional location but the root remain in the normal tooth order.[1] (figure 1).

Anomalies in number of tooth, shape of teeth and their position may alter arch length which may disturb occlusion and it may affect the treatment plan for the orthodontists. Transposed teeth has a multifactorial etiology including both genetic and enivornmental factors. Transposition is often associated with other dental anomalies e.g. hypodontia, peg laterals[2] and retained primary teeth. Frequent association between dental anomalies provides a strong argument for a genetic basis, however studies have also found evidence for local rather than genetic factors being the predominant aetiological component.[3]

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Tooth transposition is a rare condition and is related to abnormal occlusal relationship.[4] According to Ruprecht A et al 1985 in a study tooth transposition is prevalent in less than 1% population[5] and it affects both males and females almost in equal ratios ,it was also seen that transposition affects the permanent dentition unilaterally as well as bilaterally , but most of the cases were unilateral,[6] according Joshi MR left side more involved than right[7]. The upper canine is the tooth which is most commonly displaced.[8] When that canine is displaced in the palatolabial plane, it might be become palatally or buccally impacted. When it is displaced mesially or distally, this ectopically erupting maxillary canine may be found transposed with either of the teeth adjacent to it[9].

Tooth transpositions can be classified according to peck and peck's[10]. Maxillary canine and first premolar (Mx C-P1), maxillary canine and lateral incisor (Mx C - lat), maxillary canine and first molar site (Mx.C - M1), maxillary lateral incisor and central incisor (MxI2 -I1), maxillary canine and central incisor site (Mx C - I1), and mandibular lateral incisor and canine (Mn.I2 -C).

Since there is not enough data in published form about tooth transposition in Pakistani population our study was to determine the prevalence of tooth transposition among Pakistani population.

Operational Definitions: Tooth transposition was observed on panoramic radiographs of patients. A Tooth was considered transposed when there was a interchange of positions between two adjacent teeth or

eruption of a tooth in a position which normally occupied by non-adjacent tooth[11]. Transposition was called complete when both crown and root exchange their position in dental arch whereas was called incomplete or pseudo transposed when crown exchanged positions while roots were in their normal position.

MATERIALS AND METHODS

A observational / descriptive study was performed and the data was collected from 530 panaromic radiographs of the patients subjected to department of orthodontics, Karachi medical and dental college, (Karachi, Pakistan) between September 2013 to April 2014. The patients were included on the basis of inclusion and extrusion critera . Convenient sampling technique was used to induct the patients in the study.

Inclusion criteria: Selection criteria of the samples included :

- The patients who were not with any syndromic features.
- The patient were not diagnosed with illness involved odontogenesis and dental eruption.

Exclusion criteria: Those patients who were previously orthodontically treated were excluded from the study.

All radiographs were taken when the patient presented for orthodontic diagnosis. Those radiographs were then examined under ample light, to determine transpositions. Radiographs were reviewed and discussed with an orthodontic consultant to assure the correction of diagnosis. The radiographs which were not of good quality were not selected for study. The data recorded for each subject with tooth transposition: included age of patient , sex , type of transposition , classification and location at which tooth transposition was present .

RESULTS

It was found that transposition was present in 09 subjects (1.69%). 8 out of those 9 were females and 1 was male with a 8:1 female to male ratio. There were ten transpositions in total that were found in 9 subjects .

Table No.1: Prevalence of tooth transposition .

Gender	n	Transposed subjects	Frequency	Total
Male	210	01	0.47 %	09` (1.69%)
Female	320	08	2.50 %	

The most commonly involved transposition was found was found in Maxillary canine and lateral incisors in 6 subjects which is 66.67 %, secondly Maxillary canine and first premolar were found in 2 subjects (22.22 %) ,and Maxillary central and lateral incisor were found in only one subject that is 11.11%. All of transpositions were found in maxilla, and it was more common on left side than right side with seven transpositions were found on left side compare to only three on right side. One subject have bilateral transpositions on both sides of the arch rest had only unilateral transposition. Two transpositions out of 10 were complete while remaining eight were incomplete transpositions.

Table No.2: Type, location and symmetry of tooth transposition

	MX.C-12	MX12-I1	Mx.C-P1	Total
No of subjects	06 (66.67%)	01 (11.11%)	02 (22.22 %)	09 (1.69 %)
Male: Female	1 : 5	0 : 1	0 : 2	1 : 8
Complete: incomplete	2 : 5	1 : 0	0 : 2	3 : 7
Unilateral: bilateral	5: 1	1: 0	2 : 0	8 : 1
Left: Right	5 : 2	1 : 0	1 : 1	7 : 3

Figure No.1: Tooth transpositions

DISCUSSION

Dental anomalies like size of tooth, their number and position, as well as the developmental timing of teeth etiologically have been suggested to be of genetic and hereditary origin. It has been observed from various studies in different families and monozygotic twins, and by various observations of associations of many dental anomalies.[12] Orthodontic treatment can be affected if those dental anomalies are not considered in diagnosis and treatment planning. The results of various studies have shown variation in tooth anomalies.

The frequency of tooth transposition found in our study is 1.69 % which is different from results shown in their studies by Mevlut Celikoglu (0.27%)[13] and Yılmaz et al[14]. Sample size in this study was smaller than different studies done regarding tooth transposition which could be the reason of difference in the results. Results shown in this study are close to those shown by a study in Nigeria (1.4 %)[15]. There seems to be a difference between gender as tooth transposition is concerned. Some studies have shown that transposition is found more frequently in females[Error! Bookmark not defined.,Error! Bookmark not defined.,Error! Bookmark not defined.]. Like shapira's study showed transposition in 40 females compared to 25 males, while some reports have shown that it was found frequently in males[16]. Chattopadhyay found in his study that tooth transposition was found more in

males than females with a ratio of (2.5:1 male/ female).In our study transposition was frequently found in females (8 subjects) with only a single male subject with transposition. Since our sample was from orthodontic department so it was justified as female seek more orthodontic treatment than males.

Several studies have shown that maxillary canines are the most frequently transposed teeth which are mostly transposed with lateral incisor or premolars[Error! Bookmark not defined.,Error! Bookmark not defined.,Error! Bookmark not defined.]. Maxillary canine first premolar transposition may have a retained deciduous canine, permanent canine itself may be blocked out bucally between first and second premolar along with mesiolabial rotation. The transposed first premolar may me rotated mesiopalataly 90 deg or may be blocked out palatally. In maxillary canine and lateral incisor transposition features may include retained deciduous , blocked in labial region or a rotated canine and lateral incisor , small laterals or congenitally absent second premolars or impacted canine or a central incisor on the side of transposition. Transposition can also be found between maxillary central and lateral incisors but these cases are extremely rare.[17] One case of asymmetric tooth transposition have been found in a study[18]. The patient in that study was a male having upper canine and premolar tooth found transposed on right side and mandibular canine and lateral incisor were found transposed on left side. In this study most of the cases were involving maxillary canines which were frequently transposed with the lateral incisors, as there were six subjects in which there was this sort of transposition (66.67 %), this result was quite similar to that of shown in the results by Chattopadhyay and Srinivas[Error! Bookmark not defined.]. Results in this study showed only two cases (22.22 %) with maxillary canine premolar transpositions which was different from the results shown by plunkett et al[Error! Bookmark not defined.]. however this was similar to studies by Chattopadhyay[16] and Srinivas' who reported more frequent occurrence of Rx C-2 transposition . Only one case shows transposition in maxillary central and lateral incisor.

Going through number os studies their seems to be more frequent cases of maxilla over mandible in tooth transposition. It can be thought that due to high density of bone present in mandible may decrease the occurrence of tooth transposition, this seems to be the reason which justifies greater incidence of maxillary occurrence[19]. This study also shows similar results as all the transpositions were found in maxilla. Unilateral transpositions are found more frequently this study as compared to bilateral (8 to 1 respectively). These results are similar to study by shapira and many others[11]. This increased frequency of unilateral cases can be linked to the reason that bodies and faces are not perfectly symmetrical in any individual. That minor asymmetry also affect dental arches in term of length between the two sides which, in extreme cases, can result in the form of transposition[20]. Some studies[Error! Bookmark not defined.,Error! Bookmark not defined.,Error! Bookmark not defined.] have shown greater frequency on left side while some studies **Error! Bookmark not defined.** showed that left and right sides are equally affected. Our study shows that left side is more affected than right side since 7 transpositions were found on left side while 3 transpositions were found un right side (7: 3).

CONCLUSION

As the results found in the study showed that transposition was commonly found in maxilla with canine is the most commonly involved tooth which transposed with lateral incisor (66.67%) and with premolar (22.22 %). Females (88.88%) presented with more transpositions than those that were found in males. Most of the transpositions were unilateral cases (88.88%) with more were on left side (70%). Transposition is a rare anomaly and early diagnosis of it can help orthodontists to manage the patients in appropriate way.

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

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Original Article

Role of Serum Procalcitonin in Sepsis

Haris Alvi, Muhammad Rehan and Abu Talib

ABSTRACT

Objective: Role of serum procalcitonin in sepsis
Study Design: Descriptive / Cross sectional study
Place and Duration of Study: This study was carried out at the Mamji Hospital Karachi from January 2013 to July 2014.
Materials and Methods: The adult patients presented with short duration of fever, altered consciousness, bed sores, cough, increased frequency of urine, diarrhea and vomiting and abdominal pain. ESR, CRP and serum procalcitonin level were sent simultaneously with blood, sputum and urine cultures. The study was conducted in Mamji Hospital F. B. area, data was recorded in a preset proforma. The features like biodata, symptoms/signs, biochemical test and cultures reports were shown in tables. The data was analysed on SPSS version 15.
Results: In this study total cases were 33. Males were 19(55%) and 14(45%)were females. The mean age was 47 $\pm$ 19. With the age range from 28 to 68 years. Males were slightly more than females. The patients were divided into two groups according to the level of procalcitonin. Group I were those with raised procalcitonin level > 0.5 and group II were those with procalcitonin level < 0.5. The ESR and CRP were raised in every case. In Group I total number of cases were 27, pneumonias 06 cases, UTI06 cases, bacterial meningitis 05 cases, bacterial dysentery 05 cases, skin infection 04 cases and septic arthritis 01 cases. In group II total cases were 06, 02 cases were viral one is cytomegalovirus and other is Epstein–Barr virus, 01 cases was connective tissue disease and was diaganosed as systemic lupus erythematosus 01 case was wegner's granulomatosis, 01 case was bronchogenic carcinoma and 01 was peripartum cardiomyopathy. The culture report showed 08 cases were E coli, 6 cases were pseudomonas aeroginosa, 5 cases were staphylococcus aureus, 3 cases Enterobacter 03 cases and streptococcus pneumonia 02 cases.
Conclusion: In cases with fever the early detection of high serum procalcitonin level will clearly differentiate between inflammatory conditions caused by bacterial rather non bacterial conditions.
Key Words: procalcitonin, fever, sepsis, culture

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INTRODUCTION

High serum procalcitonin[1] level can differentiate between inflammatory conditions caused by bacterial rather non bacterial. It is a new blood marker and clearly reasonable rather CRP and ESR. Sepsis[2 3 4] can lead to high mortality so early diagnosis and prompt selection of antibiotic is the utmost requirement and so it reduces complications. Procalcitonin is a precursor of calcitonin, is elevated in early sepsis. So is considered as a good early diagnostic marker[5 6 7 8] of sepsis in serious ill patients. It really helps to clearly the bacterial infections and in selection of appropriate antibiotics and shorten the ICU stay and reduced the complication.

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Assicot et al in 1993 was the first person who observed that the procalcitonin level was high significantly in bacterial infections. Normally the level of procalcitonin[9] in healthy people were below the detection level that is (0.01 µg/L) it usually rises due to some inflammatory response especially of bacterial origin. It is produced mainly by the cells of the lung and the intestine. It does not rise significantly with viral or non-infectious inflammations. In severe infection the blood levels of procalcitonin may rise to 100 µg/L in vitro its half-life of 25 to 30 hours. Procalcitonin [10 11] has the greatest sensitivity (85%) and specificity (91%) for differentiating patients with systemic inflammatory response syndrome (SIRS) from those with sepsis, when compared with IL-2, IL-6, IL-8, CRP and TNF-alpha. So procalcitonin levels can reduce unnecessary use of antibiotic[12 13]. Clinically the serum procalcitonin level is widely in use.

Blood infections are very common in our part of the world. Data from US was reported that there were more than half a million cases of blood infections in a calendar year with a high mortality[14]. The key is early

diagnosis and differentiate between infectious to non-infectious conditions. The blood markers like leucocytosis, ESR, CRP have poor sensitivity and specificity. The patients in ER or OPD presented with illness, the early diagnosis and sending different cultures are the gold standard of the management, it helps in identifying definitive organism and antibiotic selection but it needs a delay of 24to 48 hours for first culture and sensitivity report to start the appropriate antibiotics so this delay will create a need to evaluate the early inflammatory marker. So on one hand it cures the patient and on the other hand it reduce the complication. There are chances of false positive results of blood cultures as skin contaminants. Patients with febrile illness and positive blood cultures due to contaminant organisms undergo unnecessary diagnostic measures, hospitalization, and unwarranted antimicrobial therapy, so the prompt checking of serum procalcitonin[15] level can give a logical answer. The procalcitonin level is not elevated in viral infections. Studies in the critical care setting, have clearly proof that the efficacy of serum procalcitonin levels in sepsis. Procalcitonin analysis can be performed in less than 1 hour of reporting in ER, so it is useful for evaluation of febrile patients at risk for bacteremia and sepsis. Early diagnosis of sepsis andprompt start of antibiotics[12] reduces mortality and complications in these patients.

MATERIALS AND METHODS

This is a descriptive / cross sectional study conducted in Mamji Hospital Karachi, a private Hospital. It is a large Hospital and covered a large area of central and north Karachi. The average OPD is more than 450 /day of different specialities and 25-30 admission per day. Emergency room seen more than 350 patients daily. All the patients included were adult and the duration of the study is from Jan 2013 to July 2014.

Basic biodata, detailed history and clinical examination were taken and recorded in preset proforma. The symptoms and sign were recorded and laboratories finding were recorded on the day first and on daily basis. The data were analysed on SPSS version 15.

Inclusion criteria: 1) Adult 18 years and more of age
2) Informed consent
3) Febrile illness
4) Had not received any antibiotic before

Exclusion criteria: 1) Ages less than 18
2) Cultures commonly considers contaminant organism were excluded
3) Patients on antibiotics
4) Cultures that remain negative after fifth day.

RESULTS

Total cases were 33. Males were 19 (55%) and 14(45%) were females. The mean age was 47 ± 19. With the range from 28 to 68 years. Males were slightly more than females as shown in Table No. 1. The patients were divided into two groups according to the level of procalcitonin. Group I were those with raised procalcitonin level > 0.5 and group II were those with procalcitonin level < 0.5. The ESR and CRP were raised in every case. In Group I total cases were 27, among them pneumonia 06 cases, UTI 06 cases, bacterial meningitis 05 cases, bacterial dysentery 05 cases, skin infection 04 cases and septic arthritis 01 cases. In group II total cases were 06, among them 02 cases were viral one is cytomegalovirus and other is Epstein–Barr virus, 01 case was connective tissue disease and diagnosed as systemic lupus erythematosus 01 case was wegner's granulomatosis, 01 case was bronchogenic carcinoma and 01 case was peripartum cardiomyopathy. The culture report showed 08 cases were E coli, 6 cases were pseudomonas aeroginosa, 5 cases were staphylococcus aureus, 3 cases were Enterobacter, 03 cases were streptococcus pneumonia and 02 cases were klebsella pneumonae. The procalcitonin level, ESR, CRP and total WBC count were shown in Table No. 2 of Group I and of group II in Table No. 3. The Cultures reports of the specimen were shown in Table No. 4.

Table No.1: Biodata

Total Cases	33
Male	19 (55%)
Female	14 (45%)
Mean age	47±19 YEARS
Range of age	28-68 YEARS
Group I	27 (81%)
Group II	06 (19%)

Table No.2: Group I

Infection	No. of Cases	Total Lecocyte Count	C Reactive Protein	Procal-citonin Level	ESR
Pneumonia	06	23000	116	1.5	77
UTI	06	17000	87	1.8	65
Bacterial meningitis	05	15000	145	2.0	45
Bacterial Dysentary	05	14000	57	1.5	55
Soft Tissue Infection	04	22000	66	2.0	63
Septic Arthritis	01	24000	89	3.0	80

Table No.3: Group II

Diseases	No. of cases	Total Leucocyte Count	C Reactive Protein	Proca-lcitonin Level	ESR
Viral infection	02	9000	54	0.2	26
Connective tissue disease	01	6600	23	0.3	100
Vasculitis	01	7000	55	0.2	95
Carcinoma	01	5400	66	0.1	100
Peripartum Cardiomyopathy	01	7600	52	0.3	67

Table No. 4: Culture Report

Organism	No. of Cases
E coli	08
Pseudomonas aueregenosa	06
Staphlococcus aureus	05
Enterobacter	03
Streptococcus pneumonae	03
Klebsella pneumonia	02

DISCUSSION

The health structure of Pakistan is not so developed nor it covers its citizens and the people of this country are poor and uneducated so they cannot understand and maintain their health status. There are climate extremes and resources are insufficient to cope with the situation. I mean to state that the health issues are great and they are difficult to cope. When in emergency if some patients report with the feature of febrile illness and with some comorbid then it is our responsibility to counter the response and manage the patient requirement. In this situation it is pertinent to identify infectious diseases with non infectious febrile illness. The old markers[16] like raised ESR, CRP and raised WBC would not enough to predicts. It been shown that serum procalcitonin level [10] has a good specificity and a good positive predictive value for systemic bacterial infection. With a cut off level for PCT of >0.5 ng/ml for diagnosis of bacterial infection. PCT[17] levels only rose significantly during systemic bacterial or fungal infection. In patients with fever or inflammatory syndrome who have PCT levels >1.2 ng/ml, we consider that bacterial infection.In this study we studied 33 patients they were 47± 19 years and the age has same worldwide distribution shown in other studies[18,19,20] males were little bit more than females. In other studies the ratio of males were also higher, all the patient were presented with fever and they were toxic in look and very much sick and it was benign to set that all the investigation like blood complete picture , renal profile, liver profile, random blood sugar level, urine detailed report, ECG, X-ray chest PA view, abdominal ultrasound and the possible sample of culture from the sites of involvement together with ESR, CRP and serum procalcitonin levels[21,22] were sent and convectional antibiotic was started according to the available culture sensitivity report of the hospital and related co-morbids. Patients were admitted in intensive care unit and follow and up them daily. Among the patients 27 were in group I which had high serum procalcitonin level and the infections were lobar pneumonia and bronchopneumonia, UTI, bed sores, meningitis and arthritis. The commonest organism was E-coli. While in other group there were only six cases and they were two viral, one is SLE, one is bronchogenic carcinoma, one is vasculitis and one is peripartum cardiomyopathy. The duration of the stay in ICU, selection of the antibiotics[23], other treatments modalities were very much influenced by the serum procalcitonin level and because of the perfect timing and early diagnosis we saved all the patients for that hospital stay.

The patients in group I were all serious and they appeared to be very toxic but with the help of serum procalcitonin level and prompt antibiotic they all saved and it is highly recommended that the PCT level is very effective. Other[15,18,20,21] studies on the same issue were also have promising result. In group II the case of peripartum cardiomyopathy was very challenging as she had a C- section 20 days back and had no known co-morbid, her antenatal care was also uneventful and it was her third child, and patient was breathlessness, fever with no pedal edema or raised JVP but the normal serum procalcitonin level easily gave a clue to think for else and her ejection fraction on ECHO was 30 %. Our study showed a 100 % result while in other studies there were nearly 97 % were reported. The main reason of such high sensitivity is the less number of cases and early and prompt timing of the test.

CONCLUSION

In cases with fever the early detection of high serum procalcitonin level will clearly differentiate between inflammatory conditions caused by bacterial rather non bacterial conditions. Further studies were required to set the format but it is an early and quick way to differentiate the issue.

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

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Original Article

Central Obesity

Central Obesity as a Risk Factor for Impaired Glucose Tolerance

Adil Faraz[1], Muhammad Tanveer Alam[1], Muhammad Umar Khan[2] and Muhammad Rehan[1]

ABSTRACT

Objectives: To examine the association of central obesity (measured as waist-to-hip ratio) with glucose intolerance, and to compare the mean fasting blood sugar and the mean random blood sugar levels of centrally obese and non-obese adults.

Study Design: Analytical case-control study

Place and Duration of Study: This study was carried out at the Medical Wards and OPDs of Civil Hospital Karachi from June 2015 to December 2015.

Materials and Methods: The subjects were selected by non-probability convenience. Based on their waist-to-hip ratio they were divided into centrally obese (group A) and non-obese (group B). The cut-off point for waist-to-hip ratio was 1.0 for males and 0.85 for females. One hundred non-diabetic, healthy adults were included in each group. All the subjects underwent a 2 hour 75-gm oral glucose tolerance test. Fasting blood sugar and random blood sugar at two hours post-glucose challenge were measured.

Results: Five individuals had blood sugar levels in the diabetic range and were excluded from the study. Impaired glucose tolerance was observed in fifteen out of 98 subjects in the centrally obese group and six out of 97 subjects in the non-obese group. This difference was statistically significant (p=0.04). Statistically significant difference was also observed between the mean fasting blood sugar and the mean random blood sugar of the two groups (p<0.001 in both cases). The odds ratio for a person with central obesity to have impaired glucose tolerance was estimated to be 2.74.

Conclusion: There is a significant association between central obesity (waist-to-hip ratio) and glucose intolerance.

Key Words: obesity, waist-to-hip ratio, glucose intolerance

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INTRODUCTION

Obesity is associated with significant increases in both morbidity and mortality.[1,2] A number of diseases including type 2 diabetes mellitus (T2DM), hypertension, hyperlipidemia, coronary artery disease, metabolic syndrome, osteoarthritis and psychosocial disabilities are more prevalent in the obese.[3,4,5] Certain cancers (colo-rectal and prostate in males; uterus, ovary, biliary tract and breast in females), thromboembolic disorders and digestive tract diseases (gallstones, reflux esophagitis) occur with greater frequency in the obese.[6,7] Obesity is a major risk factor for T2DM and impaired glucose tolerance.[8,9,10] The incidence of T2DM has risen to an alarming level in our country and poses a huge health burden.[11,12]

According to WHO estimates of the prevalence of diabetes in 1995, Pakistan was number eight in the world with a population of 4.3 million diabetics. It is estimated that by the year 2025 Pakistan will be ranked fourth with a population of 14.5 million diabetics.[13]

Impaired glucose tolerance (IGT) is a transitional stage between normal glucose tolerance and blatant diabetes. Hence people with impaired glucose tolerance form an important target group for interventions aimed at preventing diabetes mellitus.[14] In general, body mass index (BMI) has been consistently associated with T2DM and impaired glucose tolerance. However, recent studies have indicated that central obesity, as assessed by waist circumference or waist–to–hip ratio (WHR), is a more sensitive index of the risk of having impaired glucose tolerance and T2DM.[15,16,17]

According to International Diabetes Federation estimates, 193 million people with diabetes are undiagnosed and are therefore at greater risk of developing complications.[18] Moreover one in 15 adults is estimated to have impaired glucose tolerance. The purpose of this study was to identify individuals at high risk of having impaired glucose tolerance, by obtaining simple anthropometric measurements. In this way we may be able to recommend measures of primary prevention, like weight loss and lifestyle modification, for high-risk obese people.[19]

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MATERIALS AND METHODS

An analytical case-control study was conducted in the medical wards and outpatients department of Civil Hospital Karachi, with the help of house officers and post-graduate students. A total of 200 individuals were initially included in the study. They were divided into two sub- groups, obese and non-obese, each containing 100 individuals. Subjects were picked up by non-probability convenience. The participants of the study were not among the patients who attended the hospital but instead their healthy attendants and members of the hospital staff.

Individuals of both sexes with ages between 25 and 60 years, no personal or family history of diabetes mellitus or hypertension and no intercurrent illness were included in the study. Known diabetics, hypertensives, first degree relatives of diabetics, pregnant females, patients suffering from any acute or chronic illness, people taking medications that affect glucose metabolism and subjects discovered to be diabetic after the glucose tolerance test were excluded from the study.

A brief history and routine clinical examination were recorded on a pre-designed proforma. Waist and hip circumferences were measured while the subjects were standing, by specially trained doctors. Waist-to-hip ratio was calculated as waist circumference divided by hip circumference.

$$WHR = \frac{\text{waist circumference (cm)}}{\text{hip circumference (cm)}}$$

After determining the WHR, the subjects were divided into two groups as follows:

Group A (centrally obese)
- Males WHR > 1.0
- Females WHR > 0.85

Group B (non-obese)
- Males WHR ≤ 1.0
- Females WHR ≤ 0.85

A total of 100 individuals were included in each group. The metabolic status of all the subjects was assessed by a standardized 2 hour 75-gm oral glucose tolerance test (OGTT) as follows:

After an overnight fast, a venous blood sample was drawn to measure the fasting blood sugar (FBS). 75 grams of glucose dissolved in 300 ml of water was then administered to the subjects. The subjects were not allowed to eat anything for two hours, after which another venous blood sample was drawn to measure the post glucose challenge random blood sugar (RBS). Results were interpreted in accordance with the World Health Organization and International Diabetes Federation criteria.[20]

- Normal glucose tolerance (NGT) was defined as FBS less than 110 mg per deciliter and RBS at two hours post glucose challenge less than 140 mg per deciliter.
- Impaired glucose tolerance (IGT) was defined as FBS level of 110 to 125 mg per deciliter (also known as impaired fasting glucose - IFG) and/or RBS at two hours post glucose challenge in the range of 140 to 199 mg per deciliter.
- Diabetes mellitus was defined as FBS level of 126 mg per deciliter or higher, or RBS at two hours post glucose challenge 200 mg per deciliter or higher (these individuals were excluded from the study).

All blood sugar measurements were done on Microlab–200 Analyzer at the Clinical Laboratory of Civil Hospital Karachi. Data analysis was done using the SPSS computer software, version 16.0. Categorization of the subjects on the basis of WHR (centrally obese / non-obese) was taken as the independent variable while FBS, RBS at two hours post-glucose challenge and inference of the glucose tolerance test were the dependent variables.

RESULTS

The demographic characteristics of the study population are summarized in Table 1. A total of 200 individuals were initially included in the study. Based on the WHR they were categorized into centrally obese (group A) and non-obese (group B). The results of the oral glucose tolerance test are summarized in Table 2.

Group A comprised of 43 males and 57 females. After the glucose tolerance test, blood sugar levels of two of them (one male and one female) were found to be in the diabetic range. These two were excluded from the study. The mean age (±SD) of the remaining 98 subjects was 40.23 (±9.77) years. Their mean FBS and RBS were 87.7 (±12.52) mg% and 130.49 (±20.77) mg% respectively. Fifteen subjects (six males and nine females) had impaired glucose tolerance. Impaired fasting glucose was concurrently seen in five of these 15 subjects. Impaired fasting glucose was not observed in any subject with normal post glucose challenge RBS.

Group B consisted of 54 males and 46 females. One female and two males were discovered diabetic after the glucose tolerance test and were excluded from the study. The mean age of the remaining 97 subjects was 36.70 (±9.15) years. The mean FBS and RBS were 77.92 (±11.56) mg% and 116.82 (±17.07) mg % respectively. Six subjects (three males and three females) had impaired glucose tolerance. Impaired fasting glucose was observed in only one female, who concurrently had impaired post glucose challenge RBS as well.

The overall frequency of impaired glucose tolerance in the study population was 10.8% (21 out of 195 subjects). Only six individuals (6.2%) in the non-obese group had IGT as opposed to fifteen individuals (15.3%) in the obese group (Figure 1). As assessed by

the Chi-square test (Table 3), this difference was statistically significant (p=0.04).

Table No.1: Demographics of the Study Population

Total No. of Subjects	195
Group A (Obese)	98
Males	42
Females	56
Group B (Non-obese)	97
Males	52
Females	45
Mean Age in Years (±SD)	
Group A	40.23 (±9.77)
Group B	36.70 (±9.15)

Table No.2: Results of the Oral Glucose Tolerance Test

Study Group			Metabolic Status* NGT	IGT	Total
Group A	Male	Count	36	6	42
		% within sub-group	85.7%	14.3%	100%
	female	Count	47	9	56
		% within sub-group	83.9%	16.1%	100%
	total	Count	83	15	98
		% within study-group	84.7%	15.3%	100%
Group B	Male	Count	49	3	52
		% within sub-group	94.2%	5.8%	100%
	female	Count	42	3	45
		% within sub-group	93.3%	6.7%	100%
	total	Count	91	6	97
		% within study-group	93.8%	6.2%	100%
Total		Count	174	21	195
		% of study population	89.2%	10.8%	100%

*__NGT__ - Normal Glucose Tolerance, __IGT__ - Impaired Glucose Tolerance

Table No.3: Tests of Statistical Significance

Variable	Group A (obese) n=98	Group B (non-obese) n=97	Chi-square test value	t-test value	p-value*	Odds Ratio
Number of subjects with IGT	15 (15.3%)	6 (6.2%)	4.22	—	0.04	2.74
Mean FBS in mg%	87.7 (±12.52)	77.92 (±11.56)	—	5.67	<0.001	—
Mean RBS in mg%	130.49 (±20.77)	116.82 (±17.07)	—	5.012	<0.001	—

*statistically significant at p<0.05

The odds ratio for a person with central obesity to have IGT was estimated to be 2.74. Statistically significant difference was also observed between the mean FBS (p<0.001) and the mean RBS (p<0.001) of the two groups as assessed by students t-test. Centrally obese individuals had significantly higher values of FBS and RBS at two hours post-glucose challenge.

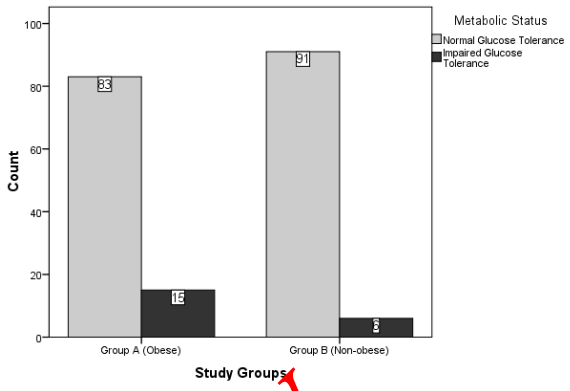

Figure No.1. Comparison of Metabolic Status of the Study Groups

DISCUSSION

The study provides evidence of a statistically significant association between central obesity and glucose intolerance. People who had a WHR above the normal limits were more likely to have impaired glucose tolerance as compared to those with normal WHR (p=0.04). Similar findings were reported in a number of other studies. Shera A and colleagues[12] performed a survey to determine the prevalence of diabetes mellitus and IGT in the NWFP. The overall frequency of IGT they reported (9.4%) was quite similar to our study. Sekikawa A and colleagues[10] in their study of a sample population of Japan reported a significant association of IGT with WHR. This association was even stronger than the association of IGT with body mass index. But the overall prevalence of IGT was higher in their study (15.6% vs. 10.8% in our study). The difference in the prevalence of IGT among the two populations is most likely due to both genetic and environmental factors.

Out of the 195 subjects studied, only six had impaired fasting glucose (five in group A and one in group B). Most of the subjects who had IGT had normal FBS. The occurrence of normal FBS even in the presence of IGT can be multifactorial. Firstly, FBS depends on the caloric content of the last night's meal, the physical activity following it and the time interval for which the person remains fasting. Secondly, fasting hyperglycemia is proposed to be indicative of a more advanced stage of altered glucose metabolism. This concept was supported by Sinha R and colleagues[9] in their study in which they found that only a small percentage of subjects with IGT had IFG as well.

Significantly higher values of mean FBS and mean post glucose challenge RBS were also observed in the centrally obese individuals. This might suggest that the

glucose metabolism of obese persons has a tendency to transform into IGT or diabetes mellitus. Hence more frequent surveillance of blood sugar levels may be recommended for individuals with above normal WHR. This may result in early detection of altered glucose metabolism at the stage of IGT or pre-diabetes where simple interventions like weight loss and lifestyle modification might prevent the development of diabetes mellitus. A number of local and international studies have shown that changes in lifestyle, like weight reduction, dietary modification, and increasing the level of physical activity, may actually reduce the risk of diabetes in obese people.[14,19] After a six years cohort study Tuomilehto J and collegues[14] reported a 58% reduction in the risk of diabetes mellitus by lifestyle modification in subjects with IGT. Since people with abnormally high WHR are more likely to be glucose intolerant, they should be the prime targets of such interventions.

CONCLUSION

The results of this study reinforce the need to encourage the use of waist-to-hip ratio as a screening tool for impaired glucose tolerance and diabetes risk. Determining the WHR is a very easy and cost effective way to identify high-risk obese individuals and can be of value to identify individuals suitable for early institution of preventive measures.

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

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Original Article

ASE on Lipoproteins and Blood Indices

Effects of Allium Sativum Extract (ASE) on Blood Lipoproteins and Blood Indices in Wistar Albino Rat Model

Kashif Rasheed Shaikh[1], Alina Saqib[2] and Umair Ali Soomro[3]

ABSTRACT

Objective: To study the effects of Allium sativum extract (ASE) on blood lipoproteins and blood indices in Wistar albino rat model.

Study design: Experimental study

Place and Duration of Study: This study was conducted at the Animal House, Isra University Hyderabad from September 2014 to June 2015.

Materials and Methods: 80 albino rats were divided into 4 groups; Group 1- Controls (Placebo 0.9% isotonic saline), Group 2- ASE 100 mg/kg, Group 3- ASE 200 mg/kg and Group 4- ASE 300 mg/kg were given orally for 30 days. Blood sample was collected by cardiac puncture. Statistical analysis was performed on SPSS 22.0 by one way ANOVA and post Hoc Duncan test at 95% confidence interval.

Results: Triglycerides, total cholesterol, LDLc and HDLc showed statistically significant differences among groups (p =0.0001). High dose fed ASE showed significant reductions in TAG, TC and LDLc and a rise in HDLc. Also the blood indices showed improvement in ASE treated rats (p=0.001).

Conclusion: The Allium sativum extract reduces triglycerides, total cholesterol and low density lipoproteins and increases high density lipoprotein (HDLc). Blood indices were also improved in high dose rats.

Key Words: Allium sativum, Blood lipoproteins, Blood indices, Rats

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INTRODUCTION

Allium sativum is a popular spice herb used in food cooking. It is commonly known as Garlic. Its use in herbal medicine has been reported for a number of disorders ranging from the infections to cardiac disorders. It is used for both prevention and treatment of diseases.[1-5] A previous study reported anti-microbial activity of Allium sativum extract (ASE).[2] ASE has shown promising results as an antibiotic antioxidant, anti hyperglycemic agent, anti inflammatory, anti cancer and anti atherosclerosis agent. It use for cardiovascular disease is confidently reported.[3,4] ASE is reported to reduce the blood total cholesterol and also the liver cholesterol.[4,5] A review of published literature shows the ASE supplements reduces the blood lipoproteins and has anti hyperlipidemic effect.[5-7]

Allium sativum is reported to protect against cardiovascular disease by lowering Triglycerides (TAG), total cholesterol (TC), Low density lipoprotein-cholesterol (LDLc) and increasing high density lipoprotein-cholesterol (HDLc). A reduction in bad cholesterol (LDLc) and a rise in good cholesterol (HDLc) is of clinical importance as it prevents the atherosclerosis, coronary artery disease (CAD) and other vascular disorders (CVD).[8,9] The effect of Allium sativum extract (ASE) on the plasma lipoproteins shows diverging views of different researchers as regards a reduction in CAD. Recently published research has shown ASE protects against CAD by reducing blood cholesterol in human beings.[10-12] Sufficient scientific evidence is available from research in developed countries, while the research from developing countries like Pakistan is lacking.[11,13] Previous studies had reported anti-hypertensive effects of ASE.[13-14] ASE has been used for a variety of ailments since centuries back.[15-16]

Sang et al[17] concluded that the ASE oil prevented against the fatty liver in a previous study. ASE active ingredient is known as the "allicin". Allicin is biochemically a diallyl-disulfide-oxide compound reported to cause vasodilation.[18] Another previous study reported a reduction in diastolic blood pressure (DBP) in uncontrolled hypertension subjects.[19] Inhibition of human platelet aggregation has been reported in an in-vitro study using Allium sativum ether extract.[20]

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Allium sativum extract enhances the immune cell activity. A previous study reported it increase the NK (natural killer) and T cell activity. An increase in interleukin-2 (IL-2) has also been noted.[21] Immune stimulating effects of ASE have been reported in both in-vitro and in-vivo studies.[22]

Various studies have been conducted to evaluate different biological effects of ASE in animal models, but none has ever evaluated the effects on blood lipoproteins and blood parameters with raw Allium sativum extract. As the cardiovascular disorders are on rise due to increasing diabetes mellitus, sedentary life style, stress, etc, it is worth to search into common remedies which should be easily available and inexpensive. The present study reports on beneficial effects of Allium sativum extract (ASE) on blood lipoproteins and blood indices in experimental rat model.

MATERIALS AND METHODS

The present experimental study took place at the animal house of Faculty of Medicine and Allied Medical Sciences (FMAMS) Isra University. Duration was from September 2014 to June 2015. 80 albino rats of Wistar strain were selected according to criteria of inclusion and exclusion. Rats of 200- 280 grams of either gender were enrolled for the study purpose. Rats of weight more or less, sick rats, and rats not feeding well were excluded form study protocol. Animal housing was in accordance to NIH guidelines. Room temperature, 55-60 % humidity and 12/12 dark light cycles were ensured. Ventilation, fresh water availability and chow were made available on priority basis.

Controls and experimental rats were divided into four groups;

- **Group 1.** Control Group (n=20) Placebo (0.9% isotonic saline) given orally.
- **Group 2. Experimental Group** (n=20) Allium sativum extract (ASE) orally- 100 mg/5ml/kg b.w.
- **Group 3. Experimental Group** (n=20) Allium sativum extract (ASE) orally- 200 mg/5ml/kg b.w.
- **Group 4. Experimental Group** (n=20) Allium sativum extract (ASE) orally- 300 mg/5ml/kg b.w.
- **Allium sativum extract (ASE) preparation**

Fresh Allium sativum was purchased. They were dissolved in pure water. Three containers were marked for preparation of ASE at quantity of 100mg, 200mg and 300mg by calculation, so that the final concentration was 100, 200 and 300 mg/5ml. Experimental rats were given ASE at dose of 100, 200 and 300 mg/5ml/kg b.w. ASE was given for 30 days duration.

- **Animal euthanasia and Experimental protocol**

12 hour fasting animals were given GA (general anesthesia) and were sacrificed by cervical dislocation (CD) after thirty days. Blood sampling was performed by cardiac puncture (24G B.D Disposable syringe). Blood was taken into heparinized test tubes. Blood was centrifuged and stored at 4°C. Sera were separated by centrifugation at 300xs for 10 minutes. Samples were stored in deep refrigerators if assays were performed late.

- **Complete blood counts (CBC)**

CBC was performed on automated Hemato-analyzers (Sysmex KX 21).

- **Blood lipoprotein estimation**

TAG, TC and HDLc were estimated enzymatically using assay kits (Asia Pharmaceuticals, Seoul) and an enzyme-linked immuno-sorbent assay reader (Pharmacia-Biotech, Cambridge, UK). Friedewald's formula was used for the estimation of LDLc.

- **Data analysis**

Statistical analysis was performed on SPSS 22.0. Numerical data variables were compared by one-way ANOVA. Post Hoc Duncan test was used for difference between groups. Data was analyzed at 95% CI (P-value ≤ 0.05) of significance.

RESULTS

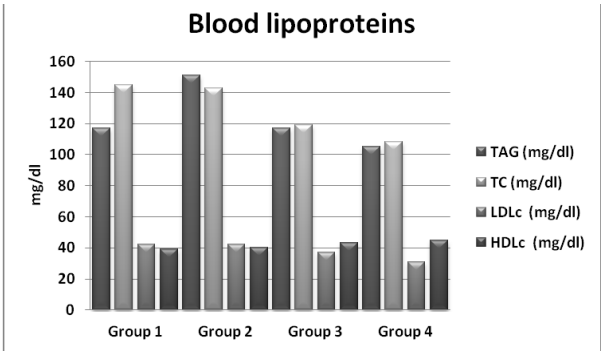
The experimental study evaluated the blood lipoproteins and blood indices in experimental albino rat model. Triglycerides (TAG), total cholesterol (TC), LDLc and HDLc showed statistically significant differences among controls and experimental groups (p =0.0001) as shown in table 1. Significant reductions in TAG, TC and LDLc were noted in high dose Allium sativum treated group.

Table No. 1: Blood lipoproteins and blood indices in different animal groups

	Group 1	Group 2	Group 3	Group 4
TAG (mg/dl)	117.92	151.5	117.8	105.18
Total cholesterol (TC) (mg/dl)	145	143.6	119.78	108.6
LDLc (mg/dl)	42.8	42.1	37.5	31.98
HDLc (mg/dl)	39.4	40.4	43.5	45.75
Hemoglobin (g/dl)	14.2	14.1	14.9	15.1
Packed cell volume (%)	42.7	42.9	44.1	46.1
Red blood cells ($x10^3/\mu L$)	3.89	3.99	4.39	4.93
White blood cells (/µL)	9711	7350	8871	9321
Neutrophils (%)	61	65	67	81
Lymphocytes (%)	39	31.1	33.2	28.41
Monocytes (%)	2.12	2.34	2.56	3.11
Basophils (/µL)	0.3	0.21	0.12	0.11
Eosinophils (%)	1.0	1.1	1.14	1.27
Basophils (/µL)	0.3	0.21	0.12	0.11
Blood Platelets ($x10^3/\mu L$)	4.25	4.23	4.19	5.18

Good cholesterol- the HDLc was elevated in Allium sativum treated animals compared to controls. Similarly, improvement was noted in the hemoglobin,

packed cell volume, red blood cell counts, white blood cell counts and white blood differential cell counts ($p \leq 0.02$) as shown in table 1. Bar graph 1 shows the differences of various blood lipoproteins in controls and experimental rats.



Graph No.1: Blood lipoproteins and blood indices in animal groups

DISCUSSION

The present experimental study evaluated the lipoproteins and blood indices in Wistar albino rat model. To the best of knowledge, it is the first being reported on the effects of ASE on the blood lipoproteins and blood indices. In the present study TAG, TC, LDLc, and HDLc showed statistically significant differences between controls and experimental groups ($p = 0.0001$). High dose fed ASE showed significant reductions in TAG, TC and LDLc and a rise in HDLc. Good cholesterol (HDLc) is a finding of clinical importance for the patients. As the present study is a pre-clinical experimental it needs confirmation in clinical trials. However, it is noted that the ASE oil is already being prescribed in clinical practice. The need is to evaluate the underlying mechanisms and active ingredient of Allium sativum. It is the first study which reported on the effects of ASE on blood indices. Hemoglobin, PCV and RBC were increased in Allium sativum treated rats. Similarly the WBC and WBC-differential cell counts ($p \leq 0.02$) revealed statistically significant differences. Highly significant reductions of lipoproteins, an increase in HDLc (good cholesterol) and increase in blood indices were prominent at high of ASE. The reduction in lipoprotein levels are consistent with previous studies[21,22] Previous studies had reported immune boosting effects of ASE in rat studies with a improve NK cells, T-cells and IL-2.[20,22] The findings support the present study as the blood indices were significantly improved in high dose ASE treated rats.

Previous studies[11,12] had reported raw garlic extract reduced blood total cholesterol in subjects with hypercholesterolemia. The findings are in keeping with the present study findings. Previous research[23-25] had reported that the ASE might inhibit the HMG-CoA reductase enzyme which is main regulatory enzyme of cholesterol biosynthesis in liver.

Blood bad cholesterol (LDLc) was reduced and good cholesterol (HDLc) are the worth findings of the present study. ASE has blood lipoprotein modulating effects has been proved in the present study and are supported by previous studies.[11-14] This may be clinically important for inhibiting the initiation and progression of atheroma plaque formation in patients. How the ASE reduces bad cholesterol and increases good cholesterol, it is before time to propose any mechanisms, but the most probable mechanism lies within the liver. TAGs were also reduced by ASE in present study which is in keeping with previous studies.[22,23] Previous studies[22,23] proposed that the ASE probably stimulates the hormone sensitive lipase and mobilizes blood triglycerides. However, it is not more than just a speculation. Evidence based results of present study and available reports of previous literature[24,25] shows the ASE is of potential use for hyperlipidemia and improving blood indices.

CONCLUSION

The Allium sativum extract reduces triglycerides, total cholesterol and low density lipoproteins (LDLc) and increases high density lipoprotein (HDLc). Good cholesterol (HDLc) was increased in Allium sativum treated animals. Similarly, an improvement was noted in the hemoglobin, packed cell volume, red blood cell counts, white blood cell counts and white blood differential cell counts. Further studies are recommended.

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

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Original Article

Frequency of Hepatitis B and Hepatitis C in Psoriatic Patients

Humaira Talat[1], Deepak Talreja[1], Humaira Maryam[2] and Zarnaz Wahid[1]

ABSTRACT

Objective: To determine the frequency of hepatitis B and hepatitis C in psoriatic patients.
Study Design: Prospective cross-sectional study
Place and Duration of Study: This study was conducted at the Dermatology Department of a Tertiary Health Care Facility, Dow University of Health Sciences& Civil Hospital Karachi from January 2014 to December 2014.
Materials and Methods: Irrespective of age and sex, a total of 47 patients with diagnosis of psoriasis and psoriatic arthritis were enrolled for this study.
Results: Out of 47 eligible subjects, 89.4 % were male. Most of the patients (36 %) had a body involvement of 25-50 % and the commonest type of psoriasis was plaque type. On further analysis, 8 % of the subjects were found to be positive for HBsAg on ICT method, but only 6.4 % confirmed positive on CMI techniques. Anti HCV Antibody reported positive in 10.6 % of the patients on ICT methods and the same results confirmed on CMI techniques.
Conclusion: The number of psoriatic patients suffering from hepatitis B & C virus is not very much significant but should be considered. Once it is positive, then the treatment options are totally differe...

Key Words: Hepatitis B, Hepatitis C, Psoriasis

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INTRODUCTION

There is an important role Hepatitis B and C in the causation of liver chronicity and ultimately cirrohsis. Even patient may end in hepatocellular carcinoma because of these viral infections. The prevalence of both HCV and HBV is increasing globally day by day. Pakistan is among those countries in which the burden of these type of infections are highest and ultimately the mortality because of the complications of Hepatitis B and C are quite common and documented prevalence had been reported between 2% to 5% [1,2].
Psoriasis is among one of the common dermatological disease which a dermatologist has to deal in his or her clinical practice. It is a chronic dermatological inflammation and has complex etiology. It has a relapsing and remitting tendency. In general population the prevalence of psoriasis is relatively high and reported up to 0.6% - 4.8 %[3]. The most common form of psoriasis is plaque psoriasis[3] .The clinical presentation of this variant is a salmon pink coloured scaly plaques over the skin. The other form of psoriasis are guttate, pustular and erythrodermic psoriasis. There is a direct or indirect association that psoriasis can be associated with hepatitis B and C infection and had been reported by several authors[4,6,7].

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As already been stated that there is an association between psoriasis and HCV infection and in dermatology literature it is said that HCV can be a concomitant pathology with psoriasis.
Pathophysiology behind this phenomena is that the elevated tumor necrosis factor -αin hepatitis infections cause progression of a hepatic disease into a dermatological disease which clinically presents as psoriasis. Association of psoriasis and psoriatic arthropathy. Psoriatic arthropathy is present in 30 % of patients who had psoriasis and it also has strong correlation with hepatitis C infection.
There is a greater risk of developing hepatitis B and C among psoriatic patients and route of entry for these viruses is via intravenous pricks or by skin cuts.
Treatment of psoriasis with or without arthropathy with hepatits C infection is very challenging and demands special care.The drugs which are available for the treatment of psoriasis is hepatotoxic and if used can cause extensive and irreversible hepaocelluardamage. Most common therapy for psoriatic patients include methotraxate, cyclosporine and mycophenolatemofetel but there are limitation for these drugs to be used in psoriatic patients with hepatitios C infection as it can exacerbate the viral load of HCV which will further damage the liver. Nevertheless these patients have a drug regimen which can be used in this type of infection without further liver damage. and this includes interferone with ribaverin (5) but the cost is a major obstacle for the treatment(8).But there is very good alternative which is a combination of interferon with etanercept and has minimal side effects and is proving to be effective in the treatment of psoriasis with or without arthropathy and HCV.

MATERIALS AND METHODS

It is a prospective cross-sectional study, conducted in dermatology department of atertiary health care facility, DOW University of Health Sciences& Civil hospital Karachi. The time period was from January 2014 to December 2014. After approval from the hospital ethical review committee and consent from the patients the study was carried out in a total of 47 diagnosed patients of psoriasis.

Sampling technique was non probability and consecutive. Demographic data was recorded along with age and sex. Patient body surface area was also recorded. Viral markers on ICT(kit) and ELISA technique were evaluated.

Any dermatologist document regarding the detail of type and duration of psoriasis were also analyzed along with area of body involvement, presence of psoriaticarthropathy and treatment history.

Special biochemical tests include transaminases were also recorded.

Inclusion criteria include patients of both genders

1) Clinically or histological diagnosed psoriasis by a dermatologist
2) Aged between 18-70 years
3) With or without psoriatic arthropathy

Exclusion criteria include

1) Suffering from HIV or disseminated TB and
2) Taken any treatment for Hepatitis B or C in past.

Statistical analysis was performed using SPSS version 17. Quantitative data was described by mean and standard deviation while qualitative data was described by frequency and percentage.

RESULTS

Total of 47 patients were included in this study out of which approximately 90% of the patients were males. Sixty eight percent of the patients were greater than 36 years. Majority of the patients had upto 50 % involvement of body (table 1).Most common type of psoriasis in this study was of plaque variant (fig 1).

Eight percent of the patients were found to have HBsAg and were diagnosed by ICT methods while 6.4% of the patients were diagnosed on CMI method.

Patients who were found to be positive for Anti HCV Antibody were 10.6% for both ICT and CMI techniques.

There was no patients who suffered from hepatitis and had guttate and pustular type of psoriasis (Table #2).Only 1 hepatitispatient reported positive with the plaque anderytherodermic types.

Table No. 1: Demographic characteristics and pattern of Psoriasis patients with Hepatitis C virus antibody (ANTI-HCV)

Characteristics	No	Percent %
Age (Years)		
18 – 25	8	17.0
26 – 35	7	14.9
36 – 45	12	25.5
46 – 55	8	17.0
55-70	12	25.5
Gender		
Female	5	10.6
Male	42	89.4
Surface area affected		
< 25 %	8	17.0
26 - 50 %	17	36.2
51 - 75 %	10	21.3
76 - 100 %	12	25.5
Hbs Antigen ICT		
Test Negative	43	91.5
Test Positive	4	8.5
Hbs Antigen CMI		
Test Negative	44	93.6
Test Positive	3	6.4
HCV Antibody ICT		
Test Negative	42	89.4
Test Positive	5	10.6
HCV Antibody CMI		
Test Negative	42	89.4
Test Positive	5	10.6

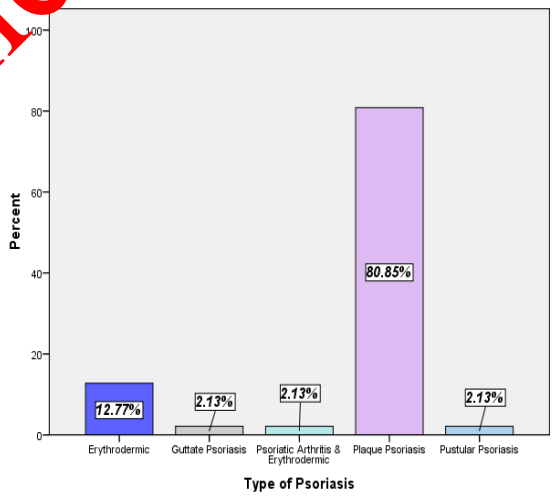

Figure No.1: Type of psoriasis in percentage.

Table No.2: Relationship of type of psoriasis with Hepatitis B and Hepatitis C antibody on CMI technique.

	Erythro-dermic	Plaque	Guttate	Pustular	Total
Hep B	1 pt.	2 pts.	nil	nil	3
Hep C	3 pt.	2 pt.	nil	nil	5

DISCUSSION

Psoriasis is a noncontageous skin lesion that produce plaques of thickened scaling on skin which ends in a chronic disfiguring state of the skin. It has a high association with metabolic complication present in metabolic syndrome[10]. These complications include diabetes mellitus, hyperlipidemia, obesity, hypertension and cardiovascular diseases[12,13] either as an alone entity or in combination.

Navne et al reported a strong correlation of psoriasis with hepatitis B and C and also the sequeale if treated with interferon.[11,14]

This study includes 47 patients all of them had psoriasis with or without arthropathy with malepreponderance. There was more patients with hepatitis C infection than HBsAg (6.4%vs 10.6%) diagnosed with CMI technique. Patients in whom antibodies were detected,[7] were males and 1 was female and the ratio of antibody detected is 7:1. One study shows similar results for Hepatitis C; on ELISA, anti-HCV antibodies were detected in 6/50 (12%) patients with PsA and in 5/50 (10%) patients with psoriasis[15]. While study conducted by Khan, G., et al[16], shows only 3.86% of psoriasis patients were suffering from hepatitis C virus. In our study out of these 8 Hep B antigen positive patients,7 were males and 1 was female patient. Male preponderance was seen in this study and male to female ratio of psoriatic patients was 42: 5, however the ratio of antibody detected is 7:1i.e 7 males and 1 female patient; one recent study shows similar results with higher male to female ratio with viral hepatitis[17].

The first presentation of the patients in our study was psoriasis however they later acquired hepatitis and were diagnosed by positive serology during the course of their illness.[18]

There is scanty literature regarding psoriasis and hepatitis and one of the reason of doing this study is to share the incidence in our part of the world. Furthermore few interesting results found in our study showed that all the patients who had hepatitis B or C were suffering from erythrodermic or plaque psoriasis with more incidence of HCV in erythrodermic type and HBsAg positive in plaque type. Another study confirms that more severe skin lesion were found in patients who were AntiHCV positive[18]. Taha, EA, et al[19] concluded in his study that, When HCV was found concomitantly with PV, a high possibility of severe disease pattern will be expected that entails special precautions in the treatment process. Anti-TNF agents, particularly etanercept, and ustekinumab are effective and likely safe in most of the patients with chronic hepatitis C or B[20].

Only very few patients had aggressive type of psoriasis which include arthropathy.

CONCLUSION

The most likely route of infection of hepatitis in psoriasis patients is by parentral or skin abrasions. There is not marked difference between the infections of HCV and HBsAg and the overall incidence is also not very high. Nevertheless screening for viral hepatitis is mandatory in every psoriatic patients as treatment modality is based on the positivity of viral markers which differs widely in both the groups.

Take home message from our study is derived on this fact that we strongly recommend viral markers in every psoriatic patients and it is always advisable to treat these patient under multidisciplinary approach which include a dermatologist and hepatologist.

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

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Original Article

Hospitalized Stroke Patients

Frequency of Medical Complications in Hospitalized Stroke Patients at Bahawal Victoria Hospital, Bahawalpur

Saleem Akhtar, Raheel Khan, Sohail Tariq, Shabana Mehar and Sadaf Shafiq

ABSTRACT

Objective: To find out the frequency and nature of medical complications in hospitalized patients admitted to Bahawal Victoria Hospital, Bahawalpur with acute stroke.

Study Design: Cross-sectional Study

Place and Duration of Study: This study was conducted at the Department of Medicine, Bahawal Victoria Hospital & Quaid-e-Azam Medical College, Bahawalpur from July 2015 to September 2015.

Materials and Methods: 98 patients who fulfill the inclusion criteria and gave informed consent were enlisted in the study. These patients were regularly observed for any post stroke medical complications after the clinical evaluation and CT scan plain brain until they were discharged from the hospital.

Results: The mean age of the patients was 57.15 ± 15.42. Most of the patients suffering from stroke were female (68.4 %) and belonged from rural population (73.5 %). Most of them were suffering from ischemic stroke (66.3 %). Specified medical complications included: Recurrent Stroke (29.6 %), Epileptic seizures (12. 2 %), Urinary tract infections (30. 6 %), respiratory tract infections (31. 6 %), bed sores (15.3 %), Shoulder pain (10.2 %), depression (53.1 %), falls (13.3 %), Venous Thromboembolism (7.1 %). A total of 14 patients (14.28 %) died during the hospital stay due to severe disease.

Conclusion: This study established the post stroke medical complications mainly the pressure sores, pain and infection. As a complication, depression was also identified among the stroke patients. The disability and mortality can be minimized by early identification and treatment of these likely avertable complications.

Key Words: Stroke, Medical Complications

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INTRODUCTION

Stroke is one of the important causes of death and physical disability and social dependence throughout the world. The patients who are suffering from this devastating condition are at risk of developing many complications during hospital stay. These complications delay rehabilitation and may increase the risk of death among the patients. It is important to recognize the frequencies of these complications because most of them are treatable and preventable.

The incidence of stroke is rising in Pakistan to due increase of incidence of risk factors of stroke among Pakistani population which include Diabetes Mellitus, Hypertension, Dyslipidemia and Smoking. [1] Every year 3.5 million humans suffer from stroke worldwide. [2]

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The objective of this study was to find out the frequency and nature of medical complications in hospitalized patients admitted to Bahawal Victoria Hospital, Bahawalpur with acute stroke. Bahawal Victoria Hospital is a 1610 bedded teaching hospital situated at District Bahawalpur of Southern Punjab.

MATERIALS AND METHODS

The patients who were admitted to the hospital had presented to us with acute stroke after the onset of disease within 5 days. The stroke was diagnosed on the basis of clinical features and Computerized tomography of brain. Patients who were excluded included those with hypertension, metabolic encephalopathy meningitis, encephalitis causing neurological deficit and brain tumors. This Cross Sectional study was conducted at Department of Medicine, Bahwal Victoria Hospital Bahawalpur from July 2015 to September 2015. The patients were initially assessed for their degree of neuro deficit, demographic details and functional status after complete history and physical examination. The symptomatic complications such as pressure sores, chest and urinary tract infections, recurrent stroke, epileptic seizures, venous thromboembolism and mobility related injuries.

The patients were daily assessed for any development of complications till their discharge from the hospital or

death. The complications were confirmed after thorough review of baseline and relevant investigations. Designed questionnaires were filled with the relevant data of these patients and then statistically analyzed by using SPSS of version 22.0.

RESULTS

A total of 98 patients fulfilled the inclusion criteria during the study period. The mean age of patients was 57.15 ± 15.42 years. Most of the patients suffering from stroke were female (68.4 %) and belonged from rural population (73.5 %). Most of them were suffering from ischemic stroke (66.3 %). The Demographic details are described in table no. 1.

The observed frequencies of medical complications during hospital stay are shown in Figure no. 1. Most common complication among the patients was depression (53.1 %).

A total of 14 patients (14.28 %) died during the hospital stay due to severe disease. The frequency of complications was compared among the different age groups and were more among the age group of patients having age more than 60 years. However only the respiratory tract infections frequency (42.0 %) was found to be significant in the patients having the age more than 60 years ($p = \leq 0.05$). When the complications frequency was compared in gender groups it was observed that frequency of recurrent stroke was found to be statistically significant ($p = \leq 0.05$) more in females as compared to males (29.9 %).

Table No. 1: Demographic details of patients

Gender	Male	n (98)	% age
		31	31.6
	Female	67	68.4
Age (years)	Mean = 57.15		
	St. Deviation = 15.42		
	Minimum = 16		
	Maximum = 90		
Residence	Rural	n (98)	%
		73	74.2
	Urban	25	25.8
Type of Stroke		n (98)	%
	Ischemic	65	66.3
	Hemorrhagic	33	33.7

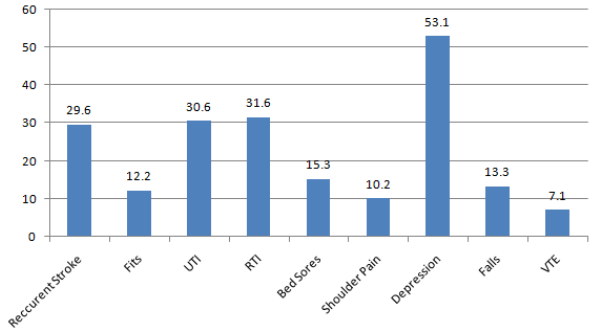

Figure No.1: Frequency Of Complications - n= 98

DISCUSSION

Current study determined the frequency of complication that developed during the hospital stay of the patients after suffering from stroke. The study analysis showed that post-stroke depression was the commonest complication among the patients which is also found in variable proportions in different studies. [3, 4] The frequency of both urinary tract and respiratory tract infections was greater in the study as compared to different other studies [5, 6, 7] . The incidence of infections can be reduced by admitting the patients to specialized stroke centers. [8] The risk of venous thromboembolism events due to immobilization of the patient can be reduced by using low molecular weight heparin preparations like fondaparinux which do not increase the risk of bleeding in ischemic stroke patients.[9] Different designs, diagnostic criteria and method of patients' selection have been used by these studies. The time and duration of follow up also greatly varied. Therefore in these studies the frequencies reported for these specific complications also vary [10, 11]. The limitations of the current study included cases at only one hospital, simple nature of some defined complications and focus on symptomatic complications. To improve the direct patient care of stroke and planning in the future the knowledge of these complications is necessary. By establishing specialized stroke units with well trained doctors and paramedical staff is the best possible way to reduce disability and economic burden of stroke.

CONCLUSION

The patients suffering from stroke are likely to develop medical complications beside neurological complications. These complications not only cause death but also delay the rehabilitation of the patients. Reduction in hospital stay and improvement in functional outcome can be done by early detection and treatment of these medical complications. This can lead to successful integration of post stroke patients into the society.

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

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Original Article

Trans-Bronchial Needle Aspiration

Diagnostic Yield of Conventional Trans-Bronchial Needle Aspiration (TBNA) for Subcarinal and Right Paratracheal Nodes

Muhammad Ashraf, Muhammad Hussain and Kamran Khalid Chima

ABSTRACT

Objective: to observe the diagnostic yield of conventional TBNA with EBUS-TBNA for right paratracheal and subcarinal nodes.

Study Design: Observational / descriptive study.

Place and Duration of study: This Study was conducted in Pulmonology Department of Services Institute of Medical Sciences (SIMS) Lahore from January 2013 to March 2015 after approval from ethical review committee.

Materials and Methods: We prospectively enrolled patients with right Mediastinal and sub carinal lymph nodes for bronchoscopy and TBNA. Patients of both gender with significant (>1.5 cm) subcarinal and right paratracheal nodes or mass lesions were included in the study. All patients had conventional TBNA done with Smooth shot needle #19 F via video bronchoscope under light sedation. Adequacy of the sample and definitive diagnosis either by Histopathology or cytology was noted.

Results: Sixty patients including 27 male (45%) and 33 (55%) female had TBNA for Subcarinal or paratracheal nodes or mass lesions. Mean age was 50.31 + 14.3. Fifty four (90%) patients had the diagnosis on histopathology, cytology or tissue culture while 6 (10%) patients had non-diagnostic/inadequate samples. Leading diagnosis was Sarcoidosis 24 (44.4%) followed by NSCCA 11(20.3%), Tuberculosis 10 (18.5%), SCCA 7 (12.9%), and Endocrine Tumor 2 (3.7%). Minor hemorrhage 6 (10 %) was managed by topical adrenaline.

Conclusion: Conventional TBNA is useful easily available, cheap and safe diagnostic tool in patients with Sub-carinal and right Para-tracheal lymph nodes/mass lesions of >1.5 cm size.

Key Words: Bronchoscopy, TBNA=Trans-bronchial Needle Aspiration, EBUS-TBNA =Ultrasound guided Trans-bronchial Needle Aspiration.

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INTRODUCTION

Pulmonary malignancies are 2nd most common causes of death among all cancers. Pulmonary masses can be Parenchymal, Pleural, Endobronchial or Mediastinal in origin.[1] Mediastinal masses can be primary or metastatic malignancies, lymphoma, tuberculosis or sarcoidosis. Mediastinal lymph nodes are common problem and a diagnostic dilemma in routine clinical practice. Work up for most of the causes needs tissue diagnosis. Mediastinoscopy, open thoracotomy and VATS biopsy are the mainstays of obtaining tissue with multiple complications and heavy procedural cost.[2]

CT guided biopsy is another option in selected cases to obtain tissue. Bronchoscopic transbronchial biopsies are easily performed, well tolerated and associated with minimal complications. Endobronchial ultrasound guided-Fine Needle Aspiration (EBUS-FNA) and conventional TBNA have been used for the mediastinal masses and lymph node biopsies for many years. There is significant variation in between the diagnostic yields reported by different authors.[3] No doubt ROS (Rapid Onsite cytological analysis) and ultrasound guidance have improved the yield significantly in many studies[4] but its availability, expertise, and cost still make it difficult option in developing countries.

TBNA (Trans-Bronchial Needle Aspiration) by conventional methods is still a handy tool. As the procedure is performed blindly and depends on the nodal size,[5] location of the nodes and underlying etiology. Trisolini and colleagues found that EBUS-FNA is superior to conventional TBNA in nodes <1 cm and nodes in difficult to approach positions[6] To check whether specific locations of nodes and significant size can compete EBUS-FNA, we performed the study and calculated the diagnostic yield. It will not only improve the diagnosis because of its availability but also reduce the cost of procedure.

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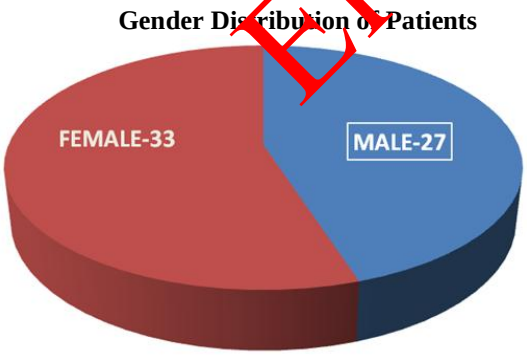
MATERIALS AND METHODS

Study was performed in Pulmonology department of Services Institute of Medical Sciences (SIMS) / Services Hospital Lahore from January 2013 to March 2015 after approval from ethical review committee. The patients of both gender with Sub-carinal or right Para-tracheal nodes or masses with significant size (>1.5 cm) were included in the study. Patients were briefed about the procedure and informed consent was taken. Patient with young age <14 years, nodal masses in other places (4 L, 10 R/L, 11 R/L), smaller size (<1.5 cm) and failure to consent were excluded from the study.

All patients underwent Bronchoscopy under light sedation with Olympus video-bronchoscope (6c. 260) and conventional TBNA was performed with Smooth shot needle #19 F for core biopsy and aspiration. Bronchoalveolar lavage, endobronchial or trans-bronchial biopsies were also performed in selected cases. Aspiration Samples were fixed with alcohol and core tissue was preserved in formalin (for histopathology) or saline (for culture). Adequacy of sample, complications and definitive diagnosis either by Histopathology or cytology was noted. All data was recorded on Microsoft Excel and then tabulated manually. The primary outcome was to obtain a tissue diagnosis. Diagnostic yield was calculated and compared with literature.

RESULTS

Baseline demographics are shown in Graph I. Sixty patients including 27 male (45%) and 33 (55%) female had TBNA for Subcarinal or Para-tracheal nodes or mass lesions. Mean age was 50.31 + 14.6. Fifty four (90%) patients had the diagnosis on histopathology, cytology or tissue culture while 6 (10%) patients had non-diagnostic/inadequate samples and required other interventional modalities for the diagnosis.



Pie Chart 1: Showing the gender distribution of the registered patients.

The mean size of lymph nodes was 2.1 cm and Subcarinal Lymph nodes were most common (Graph 2). Most common diagnosis was Sarcoidosis 24 (44.4%) followed by NSCCA 11 (20.3%), Tuberculosis 10 (18.5%), SCCA 7 (12.9%), Endocrine Tumor 2 (3.7%). The only complication was minor hemorrhage that was managed by topical adrenaline in 6 (10%) cases.

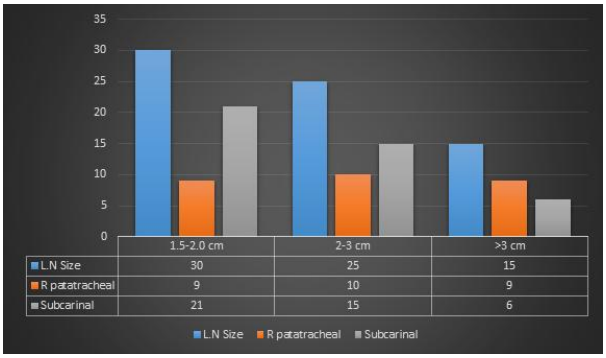


Chart No.1: Frequency of Lymph node location and size. The majority of the number was 1.5-2.0 cm and Subcarinal.

DISCUSSION

To our Knowledge this is first study of conventional TBNA in Pakistan. Mediastinal nodal enlargements need tissue diagnosis in most of the cases. Mediastinoscopy, mediastinotomy, thoracotomy and VATS (Video-assisted thoracoscopic surgery) used to be the mainstay of obtaining tissue for diagnosis. Minimally invasive procedures for tissue diagnosis are conventional TBNA and EBUS-TBNA.[7] EBUS-TBNA needs expensive equipments which is not available everywhere in Pakistan, in addition, it requires special expertise; conventional TBNA rather does not need such special expertise and can be used wherever bronchoscopy is done[8].

Though, USG guidance increases the yield[9] but it is scarcely available in Pakistan and costly procedure. EBUS-TBNA is done under deep sedation or general anesthesia and needs a comprehensive teamwork. Although Conventional TBNA is a blindly performed procedure and threatens the risk of bleeding[10] but it can be done under light sedation and is cost effective. We have found that it has the good diagnostic yield (90%) in selective group of patients, i.e. right paratracheal and subcarinal with significant adenopathy. Flex Herth and colleague found that conventional TBNA had comparable yield with EBUS-TBNA (74% vs 86%) for the Sub-carinal lymph nodes.[6] The yield of EBUS-TBNA was significantly higher for other nodal stations. Almost same results with yield of 60-90% have been reported by different authors for lymph nodes stations 4 R and 7, 7a (subcarinal).[6-11]

Sampling 4 R, 7, 7a showed very good results and statistically significant diagnostic yield that is comparable to the overall yield of EUS - TBNA for all nodal stations[12]. Diagnostic yield for other stations like hilar, 4 L and size <1.5 cm was low and ultrasound guidance is the best option of tissue sampling; were excluded these nodes from the study.

The rate of complication was quite low and minor hemorrhage managed with topical adrenaline was reported in 6(10%) patients. The possibility of minimal hemorrhage in the mediastinum is there and required follow-up CT Chest of every patient and it was not performed. However, on follow up observation, none of the patients developed chest pain, fever and hemodynamic instability; an indirect evidence against the mediastinal hemorrhages or mediastinitis.

This study allows us to comment on diagnostic yield and not diagnostic sensitivity because all the patients did not undergo surgery. This study only offers statistical data of a commonly available, cost effective procedure and can be equally helpful for diagnosis of some groups of Mediastinal lymph nodes who otherwise have to undergo major surgical procedures. A larger comparative study is needed to see the diagnostic sensitivity of this cost effective procedure.

CONCLUSION

Conventional TBNA is cost effective, easily available, safe and cheap diagnostic tool for patients with 4 R, 7, 7a Nodal stations or masses.

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

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Original Article

Effectiveness of Gastrografin in Resolving Small Bowel Obstruction

Zulfiqar Ali[1], Muhammad Aqil Razzaq[2], Azhar Bashir[3] and Haroon Javaid Majid[1]

ABSTRACT

Objectives: To determine the effectiveness of Gastrografin in resolving intestinal obstruction.
Study Design: Observational / descriptive study.
Place and Duration of Study: This study was conducted in the Department of Surgery, Shaikh Zayed Hospital, Lahore from 02-10-2013 to 02-04-2014.
Materials and Methods: One hundred thirty five patients who having small bowel obstruction were admitted through out-patient, accident & emergency departments. Every participant was explained about both procedures and their consequences.
Results: Average age was 44±70 years. 77 (57%) were males and 58 (43%) were females with a male to female ratio was 1.32:1. In 58 (43%) male patients the obstruction was resolved, but in 19 (14%) male patients obstruction was not resolved. In 41 (30%) female patients the obstruction was resolved and in 17 (12%) female patients the obstruction could not be resolved. Overall, in 99 (73%) patients, the obstruction was resolved but in 36 (27%) of patients the obstruction was not resolved.
Conclusion: Gastrografin is a secure and reduces the need for surgery when conservative treatment fails. It remains a leading cause of hospital admission in surgical departments.

Key Words: Gastrografin, Small bowel obstruction, Intestinal obstruction.

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INTRODUCTION

In surgery small bowel obstruction is a common complication. The intra-abdominal adhesions are the leading cause of small bowel obstruction. It has been observed that surgery can lead to new adhesions; the non-operative management is the preferred way in the absence of peritonitis or strangulation.[1] The surgical intervention may be required in 20-30% of the patients not responding to conservative treatment or who develop complications if the surgery is delayed for more than 48 hours. It has been found that Gastrografin is very helpful for predicting the outcome of obstruction.[2]

Initially, the Gastrografin was used for diagnostic purpose and radiographs used to be taken to see whether it reached the caecum or not. It has been shown to resolve adhesive small bowel obstruction and significantly decreases the length of stay in the hospital.[6]

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Gastrografin is a Hydrophilic substance when given for non - operative treatment of an uncomplicated small bowel obstruction, the advantage is taken of the high osmotic pressure of the contrast medium, the surrounding tissue is forced to release considerable amounts of fluid, which then flows into the gut and resolves the small bowel obstruction.

Abdelkader et al, it has been demonstrated that 66.6% of the patients subjected to Gastrografin administration, the adhesive small bowel obstruction resolved within 3-12 hours (average 7.5 hours).[7] In the Gastrografin group obstructions resolved subsequently in 31 of 38 cases (81.5%) after a mean time of 6.4 hours. The use of Gastrografin in adhesive intestinal obstruction is safe and reduces the operative rate and the time to resolution of obstruction.[8] There are controversies regarding the resolution of bolus obstruction by using Gastrografin.[7,8,9]

MATERIALS AND METHODS

This descriptive case series study was conducted in the Department of General Surgery at Shaikh Zayed Hospital, Lahore from 02-10-2013 to 02-04-2014. One hundred thirty five patients were selected as per the inclusion criteria. Study variables were age, sex, time of onset of symptoms, chief complaints, history of the illness, symptoms and signs, clinical examination, baseline investigations and radiological findings. After labeling the obstruction, the patient was resuscitated. The baseline X-ray abdomen was taken to establish the intestinal obstruction. Then 100ml of Gastrografin was

given through nasogastric tube followed by clamping of the tube. Then immediate x-ray abdomen in erect posture was taken, then after 2 hours, 4 hours and after 6 hours to establish diagnosis. If the contrast was not reaching in large intestine within 6 hours, it was considered as a complete obstruction and was an indication for exploration. After 8 hours the radiograph were also taken. The proposal was approved by the hospital ethical committee. An informed consent was obtained from the patient confidentiality observed. All the data was collected on proforma and was entered in SPSS version 16. The quantitative variables age was presented by using Mean±SD. Frequency and percentages were calculated for gender and complete resolution of intestinal obstruction.

RESULTS

The average age of patients was 44±70 years. Majority of the patients (47%) were above the age of 40 years (Table 1). There were 99 (73%) patients who had resolved the obstruction and 36 (27%) patients did not resolve the obstruction. In 44 (33%) patients obstruction was resolved but in 20 (15%) patients the obstruction was not resolved with Gastrografin and 44 (33%) patients who had resolved the obstruction and 12 (9%) patients had not resolved the obstruction were between 20-40 years of age while 12 (9%) patients had not resolved the obstruction and only 4 (3%) patients did not resolve the obstruction (Table 2). In 36 patients we observed that obstruction was not resolved with Gastrografin and underwent surgical intervention. Amongst these patients 30 patients were having previous history of abdominopelvic region (Table 3) and 6 patients were having no previous history of previous surgery.

Table No.1: Age distribution of patients (n=135)

Age in years	No. of Patients	Percentage
20– 40	56	41.0
41– 60	63	47.0
>60	16	12.0
Total	**135**	**100.0**
Mean ± SD	44.70±14.45	

Table No.2: Obstruction resolved according to patients age (n=135)

Age in years	Yes	No
20– 40	44 (33%)	12 (9%)
41– 60	43 (32%)	20 (15%)
>60	12 (8%)	4 (3%)
Total	**99 (73%)**	**36 (27%)**

In 30 patients, the operative finds were consistent with adhesion obstruction and adhesiolysis was performed. But in 6 patients having no previous history of operation, were having other pathologies. Amongst this group, 1 (3.0%) patient was having ileo-ileal intussusception and resection anastomosis was done. Two (6.0%) patients were gangrene of ascending colon, 1 (3.0%) patient with mass caecum, one (3.0%) with mass right colon and they all underwent right hemicolectomy. In 1 (3.0%) patient, preoperatively found stricture of ileum and stricturoplasty was done (Table 4). In our study most of the patients 77 (57%) were male and 58 (43%) were females with male to female ratio 1.32:1.

Table No. 3: Obstruction not resolved with Gastrografin and explored surgically (n=36)
Previous history of surgery (n=30)

History of Surgery	No	%	Findings	Treatment
Transabdominal hysterectomy	3	8.0	Adhesions obstruction	Adhesiolysis
Open cholecystectomy	6	17.0	Adhesions obstruction	Adhesiolysis
Diagnosis laparoscopy	1	3.0	Adhesions obstruction	Adhesiolysis
Appendectomy	7	19.0	Adhesions obstruction	Adhesiolysis
Exploratory laparotomy for perforated appendix	3	8.0	Adhesions obstruction	Adhesiolysis
CBD exploration	2	6.0	Adhesions obstruction	Adhesiolysis
Exploratory laparotomy for intestinal obstruction	5	13.0	Adhesions obstruction	Adhesiolysis
Exploratory laparotomy for ruptured ectopic pregnancy	1	3.0	Adhesions obstruction	Adhesiolysis
Caesarean section	1	3.0	Adhesions obstruction	Adhesiolysis
Exploratory laparotomy for blunt renal trauma	1	3.0	Adhesions obstruction	Adhesiolysis

Table No.4: Obstruction not resolved with Gastrografin and explored surgically with no previous history of surgery (n=6)

Findings	No.	%	Treatment
Intussusception (ileo-ileal)	1	3.0	Resection and anastomosis
Gangrene right colon	2	6.0	Right hemicolectomy
Carcinoma caecum	1	3.0	Right hemicolectomy
Mass right colon	1	3.0	Right hemicolectomy
Stricture of ileum	1	3.0	Stricturoplasty

When we considered gender, in 58 (43%) male patients the obstruction was resolved, but in 19 (14%) male patients, the obstruction was not resolved. In 41 (30%)

female patients the obstruction was resolved and in 17 (12%) female patients the obstruction could be resolved with Gastrografin. Overall, in 99 (73%) patients, the obstruction was resolved but in 36 (27%) of patients the obstruction was not resolved (Table 5).

Table No.5: Obstruction resolved according to gender distribution

Gender	Yes	No
Male	58 (43%)	19 (14%)
Female	41 (30%)	17 (12%)
Total	**99 (73%)**	**36 (27%)**

DISCUSSION

Most people with small bowel obstruction primarily managed conservatively because in many cases, the bowel opens up. The conservative treatment involves insertion of a nasogastric tube, correction of dehydration and electrolyte abnormalities. Opioid pain relievers may be used for patients with severe pain. Antiemetics may be administered if the patient is vomiting. If obstruction is complete a surgery is required.

In our study the mean±SD age was 44.70±14.45 years. The mean age varies, according to the inclusion criteria of various studies. A study done by Wadani the mean age was 38.2 years and age range from 19-69 years.[2] A study reported by Safamanesh the mean age of patients was 44 years (ranging from 14 to 80 years) which is comparable with our study.[10] Al-Salamah reported the mean age was 35.70±12.65 years.[5]

In our study there were 44 (33%) patients who resolved the obstruction after passing the Gastrografin and in only 12 (9%) patients, the obstruction could not be resolved between 20-40 years of age. There were 43 (32%) patients who resolved the obstruction between 41-60 years of age and 20 (15%) patients could not resolves the obstruction while 15 (8%) patients had resolved the obstruction and only 4 (3%) patients had not resolved the obstruction >60 years of age. The whole resolution of bowel obstruction showed the mean administration of Gastrografin of 41 hours.

There were 77 (57%) male patients while 58 (43%) patients were female with male to female ratio of 1.32:1. Chu[11] reported that 44 (62%) were males and 27 (38%) were females and ratio was 1.62:1. Wadani[5] also reported male to female ratio was 1.83:1, which is comparable with our study.

The conservative management can be used safely for postoperative bowel obstruction up to 5 days.[12] Hostetter[13] also reported that small bowel obstruction can be treated surgically if obstruction was not resolved within 12 hours of non-operative treatment. In another study reported by Brolin et al[14] that failure of conservative treatment requires prompt laparotomy usually within 24 hours.

Sosa and Gardner[15] reported that patients who have adhesive small bowel obstruction can be treated conservatively for 24-48 hours, if no signs of strangulation were recorded. However, Bizer et al[16] noticed that 48-72 hours is a ample time for conservative treatment. Chen[17] also reported that resolution of adhesive small bowel obstruction might be weighed against the need to decrease the complication of delayed surgery.[17] This study indicated that operation should be performed in patients in whom Gastrografin fails to reach the colon within 24 hours.

The reports of recent studies have indicated that abdominal computed tomography and ultrasonography may improve the diagnostic accuracy of bowel strangulation increasing the safety of conservative treatment. The use of Gastrografin in the management of adhesive bowel obstruction has been evaluated in recent years.[18]

CONCLUSION

Gastrografin is a safe and reduces the need for surgery when non-operative management fails. Also oral Gastrografin helps in the management of patients with small bowel obstruction and allows a shorter hospital stay. It also showed that administration of Gastrografin in the patients who have small bowel obstruction symptoms decreased the need to surgery. Because of its therapeutic effect, it seems logical to try Gastrografin administration before the decision for surgical intervention which may impose unwanted complications and excessive cost.

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

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Corrigendum

Materials and Methods in **Abstract** of article titled '**Short Term Outcome of Single Stage Anterior Sagittal Anorectoplasty in the Management of Rectovestibular Fistula in Female Children**' (**Muhammad Ramzan, Asif Qureshi, Farasat Majid and Sofia Mustafa**) printed at **page 60** in the Med Forum Vol. 27 No.6 **(June, 2016)** as 'for this study twenty seven rabbits of either sex were selected and divided in three groups, control group, low dose group and high dose group, each group having nine rabbits. The dose of the drug was calculated according to weight of the animals,' may be read as follows:-

Materials and Methods: Total 151 female children from 1 month to 13 years with the diagnosis of recto vestibular fistula undergoing primary ASARP were selected. No covering colostomy was done in any case. All the patients who were previously operated for RVF, or colostomy done for RVF, and those with septicemia were excluded. All the cases were managed in the ward and short term outcome was assessed in terms of post-operative wound infection (noted at 72 hours after surgery), vaginal tear(assessed during surgery), hospital stay and operative time.

Editor

Guidelines & Instructions

Guidelines and Instructions to Authors

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Requirement for Submission of Manuscripts

The material submitted for publication may be Original research, Review article, Evidence based reports, Special article, Commentary, Short Communication, Case report, Recent advances, New technique, View points on Clinical/Medical education, Adverse drug reports, Letter to Editor and Guest Editorials.

1) 3 Hard copies of Laser Print.
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4) All Manuscript typed in MS Word and Figures, Graphs and Charts in Corel, JPG or BMP.

The manuscript should be typed in double spacing. Begin each section or component on a new page. Review the sequence: Title Page, Abstract, Key Words, Text, Acknowledgement, References, Tables (each on separate page). Illustrations, Uncounted prints should not be larger than 8 x 10 inches.

ORIGINAL ARTICLE

Original Article should be of 2000 Words and not more than 3000 Words, not more than 6 Tables or Figures and at least 20 References but not more than 40.

REVIEW ARTICLE

Review Article should be of 3000 Words with at least 40 References but not more than 60.

SHORT COMMUNICATIONS OR CASE REPORTS

It should be 600 Words with one Table or Figure and 5 References.

LETTER TO EDITOR

It should be 400 Words with 5 References.

TITLE OF THE ARTICLE

It should be Accurate, Effective and Represent the main message of Article.

ABSTRACT

In Original Article, It should consist of the following subheadings: Objective, Design, Place & Duration, Materials & Methods, Results, Discussion, Conclusion & Key Words. In Original Article, the abstract should not more than 250 Words.

Review Article, Case Report and other require a short unstructured abstract. Short Communications & Commentaries do not require abstract.

INTRODUCTION

The start of the introduction should be Relevant. Reasons and Importance of the study should be clear. In the subject of the paper Significant findings may be elaborated. Previous 10 years National & International literature may be reviewed and recorded in the introduction. State the purpose of the Article and summarize the rationale for the study or observation. Give only strictly pertinent References and do not include data or conclusions from the work being reported.

MATERIALS & METHODS

The Population taken for the study should be uniform and Sample selection criteria should be reliable. Inclusion & Exclusion criteria should be clearly specified. Control within the study or literature may be given. Important variable measurement criteria should be mentioned. Investigation, Procedure & Technique should be clearly described.

RESULTS

Present yours results in a logical sequence in the Text, Tables, Illustrations. Do not repeat in the text all the data in the tables or illustrations. Emphasize or Summarize only important observations. Do not duplicate data in Graphs & Tables.

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Emphasize the new and important aspects of the study and conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or Results Section. Include in the Discussion Section the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies.

CONCLUSION

In this link write the goals of the study but avoid unqualified statements and conclusions not completely supported by data.

RECOMMENDATIONS

When appropriate, may be included.

ACKNOWLEDGMENTS

List of all contributors who do not meet the criteria for Authorship, such as a person who provided purely technical help, writing assistance or department chair who provided only general support. Financial & Material support should be acknowledged.

REFERENCES

It should be in the **Vancouver style**. References should be numbered in the order in which they are cited in the text. At the end of the article, the full list of references should give the names and initials of all the authors. **(if the authors are more than 6, then et al should be followed after the 6th name).** The author (s) names are followed by the title of the article; title of the journal abbreviated according to the style of the Index Medicus (see "List of Journals Indexed." Printed yearly in the January issue of Index Medicus); year volume and page number; e.g: Hall RR. The healing of tissues by C02 laser. Br J Surg: 1971;58:222-5. (Vancover Style).

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