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REVIEWER'S LIST

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School Dental Health Services In Pakistan: A Challenging Situation

Daud Mirza

A good oral health care is directly related to the general health of the entire body. The dental diseases are most common and widespread diseases around the world. But it is challenging for developing countries. One of the most common prevailing conditions is dental caries. It is progressive and cumulative in nature and becomes more complex with the advancing age. It can affect children's quality of life.[1] The low socioeconomic status factor in developing countries affects dental caries more than the developed countries.[2] The oral health status is observed differently in different social classes as well as in gender and the educational level of the parents.[3] The prevalence of dental caries among school going children of different social class showed higher predilection of dental caries in government school children than private.[3]

Presence of decayed, missing teeth, bad breath and untreated dental caries may result in pain and swelling and restricts an individual's routine activities at school causing ample loss of productive working hours throughout the year.[4] A study conducted in neighbouring country showed more than fifty million school hours are lost due to dental problems among school going children. The most common dental issues are dental caries and gingival diseases however trauma and dental defects are also of great clinical significance. Early tooth loss may affect the nutritional intake of a child which affects the growth and development.[5] In Pakistan, the information about the burden of oral diseases are insufficient however, the issue of limited availability of care and unmet oral health needs is well documented. Curative dental services are available at primary health care level in Pakistan in only a few places, and cannot deal with the burden of oral cancer and tooth decay.[4]

In government sector hospitals practice of extracting tooth is higher than saving teeth. It may be due to shortage of staff or lack of availability of proper instrumentation and materials. Pakistan is 7th most populous country where dental diseases are highly prevalent because our large number of population reside in rural area where due to lack of school health services, hospital facility and inadequate resources the dental diseases have been known to be the fourth most high-priced disease to treat.[4,6,7]Therefore the people of Pakistan are immensely burdened by dental problems.[8] Hence oral health is given low priority and as a consequence large population of Pakistan has untreated oral diseases.[9,10.] Special personal and government interventions are required to reduce the burden of dental problems among school children at primary care level.[4] Parental knowledge about dental care is very important. Those parents who have lack of oral health knowledge and very low educational level has shown evidence that their children are having more dental problems because of lack of proper oral health guidance and care as compared to those parents having better education and adequate dental knowledge.[11,12]

There is strong need for oral health promotion in schools. Oral disease can lead to pain and tooth loss, a condition that affects the appearance, quality of life, nutritional intake and consequently the growth and development of children. The cost of treating dental decay alone could easily exhaust a country's total health care budget for children.[13] Many oral health problems are preventable and their early onset reversible. However, in several countries a considerable number of children, their parents and teachers have limited knowledge of the causes and prevention of oral diseases. The need for the promotion of oral health in schools is evident and it can easily be integrated into general health promotion, school curricula and activities. Children can be provided with skills that enable them to adopt a healthy lifestyle. Healthy behaviours and lifestyles developed at a young age are more sustainable. Messages can be reinforced throughout the school years.[14,15]

It is recommend that the government should design a standard policy to take onboard various government and private institutions, dental community and pharmaceutical companies to highlight the dental issues especially on the prevention side, oral health promotion particularly on tooth decay and oral cancer. Poor oral health can have a detrimental effect on children's quality of life.

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Nasal Itching And Bleeding Due To Excessive Exposure To Air Conditioners

Adnan Asghar, Anwar ul Haq, Syed Shaukat Hussain, Muhammad Khan, Asif Alam Gul

ABSTRACT:

Introduction: Nasal mucosa is very sensitive when it is exposed to extreme dry and cold weather conditions. Persistent or recurrent nasal itching due to such exposure is usually followed by the epistaxis. Objective of the study was to analyze effects of excessive exposure to dry and cold air of air conditioners on nose in terms of nasal itching and epistaxis.

Methods: This prospective cohort study carried out on 144 healthy Pakistani individuals working in United Nations Hospital in Nyala, Sudan from February 2014 to May 2014. Individuals spending less than 8 hours daily inside air conditioners were compared to those spending more than 15 hours daily. Chi square tests were applied to compare the proportions of incidence of nasal itching and epistaxis between these two groups as well as between two age groups.

Results: Mean age of all 144 subjects was 35.01 years (± 6.4). Chi square test results confirmed that there was statistically significant difference of both the symptoms (nasal itching p-value 0.021 and nasal bleeding p-value 0.044) between two groups. Those spending more time in air conditioners were significantly more affected by dry and cold air. As for as the age group is concerned significantly higher number of subjects of ages more than 40 years had nasal bleeding compared to the younger age group (equal or less than 40 years).

Conclusion: Effects of exposure of dry air of air conditioners on nasal mucosa in terms of nasal itching and nasal bleeding were found to be significantly higher when subjects were exposed 15 hours or more per day. Furthermore nasal bleeding was more commonly seen in elderly subjects (more than 40 years) due to such exposure.

Key Words: Dry air, Cold air, Air conditioners, Nasal itching, Nasal bleeding, Nasal mucosa.

INTRODUCTION:

Nasal mucosa is very sensitive when it is exposed to extreme dry and cold weather conditions. The frequency of primary epistaxis was seen to be higher during the cold period from October to March in Pakistan[1]. Indoor air quality in Brazilian universities was studied and they summarized that the indoor air quality in Brazilian university classrooms affects the health of students. Therefore, indoor air pollution needs to be considered as an important public health problem[2]. Persistent or recurrent nasal itching is usually followed by the epistaxis.

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Another study conducted in Kaduna, Nigeria mentioned in the findings that dry-hot and cold harmattan weather had the highest prevalence of epistaxis[3]. Dry and cold weather has the same effects as of dry and cold air of air conditioners without humidifiers. This public health issue which needs in-depth analysis of indoor working and living conditions to minimize different health problems. We found an appropriate group of people (by virtue of being placed in United Nations Hospital duties in Sudan) to study the effects of exposure of cold and dry conditions in air-conditioned rooms. All this study population was closely monitored and all of them did not leave that place during the study period because of official commitments. Objective of the study was to analyze effects of excessive exposure to dry and cold air of air conditioners on nose in terms of nasal itching and epistaxis.

METHODS:

This prospective cohort study carried out on 144 healthy Pakistani individuals working in United Nations Hospital in Nyala, Sudan from February2014 to May 2014. Non probability convenience sampling technique was adopted. All willing male and female adults were recruited in the study after obtaining written consent. All were medically examined by ENT specialist and those having significant intranasal pathology, past history of moderate to severe epistaxis or allergic rhinitis were excluded. Additionally those with cardiovascular disease, diabetes mellitus, asthma were also excluded. Subjects were followed for

three months and based on final data they were divided into following two groups. Those not fitting in either group (with 8 to 15 hours indoor time) were also excluded from study.

Group A: Spending more than 15 hours daily inside air-conditioned modules

Group B: Spending less than 8 hours daily inside air-conditioned modules

In addition of demographic data, data of daily time spent inside air conditioner rooms, occurrence of nasal itching and epistaxis was endorsed in pre-defined proforma. All subjects were questioned as well as examined by ENT specialist regarding these two variables (nasal itching and epistaxis). After exposure of three months subjects having developed these variables were endorced in proformas. The results were analyzed by using SPSS 19. Descriptive statistics (percentages) of demographical data (age, gender, weight) were performed. Chi square tests were applied to compare the proportions of frequencies of nasal irritation and epistaxis between groups. Prevalence of same two symptoms were also compared between two age groups. The two comparisons of groups were analyzed for the statistical significance of difference by applying chi-square tests. The p value of less than 0.05 was considered to be significant.

RESULTS:

Mean age of all 144 subjects was 35.01 years (± 6.4) and the age range was 24-53 years. There were 44(30.6%) subjects of the ages more than 40 years and 100(69.4%) had equal or less than 40 years of age. As for the gender distribution134 (93.1%) were male and 10 (6.9%) were female. There was no statistically significant difference of age, gender and weight between two groups (A and B).

After applying chi square tests the results confirmed that there was statistically significant difference of both the symptoms (nasal itching p value 0.021 and nasal bleeding p value 0.044) between Group A and Group B. Those spending more time in air conditioners (Group A) were significantly more affected by dry and cold air. We also compared the occurrence of these symptoms between age groups of more than 40 years and equal or less than 40 years. Only the difference of symptom of nasal bleeding was found to be statistically significant between these two groups (chi-square test, p value 0.002). Significantly higher number of subjects of ages more than 40 years had nasal bleeding compared to the younger group. Incidence rate of nasal bleeding in more than 40 years group was 20 per 100 subjects while in younger group 4 per 100 subjects. There was five times greater risk of having nasal bleeding in older subjects more than 40 years old. Based on results all the affected individuals were managed accordingly.

Symptoms	Symptoms Present / Absent	Group B Less than 8 hours in AC per day	Group B More than 15 hours in AC per day	P value (pearson chi - square test)
Nasal Bleeding	Absent	70	61	0.044
	Present	3	10	
Nasal Itching	Absent	66	54	0.021
	Present	7	17	

DISCUSSION:

Effects of dry and cold air of air conditioners on nasal mucosa are usually milder in nature but in rare situations these effects are moderate to severe where prolonged indoor stay becomes inevitable. Hot and dry as well as hot and humid conditions in different parts of the world make survival difficult without air conditioners. Moreover how close to air conditioner one is sitting is a significant factor. Humidifiers are useful to avoid damaging dry air but these are seldom used. Very few studies available in medical journals regarding research on effects of indoor air quality and air conditioners etc. Mostly environmental experts have been doing such analysis.

Different studies have been carried out to see the effects of dry cold air on human body in different parts of the world. A research was performed in Hazara division, Pakistan with objective to determine the frequency of primary epistaxis and its relationship with temperature and relative humidity[1]. A total of 460 patients were included, out of which 206 (44.8%) had primary epistaxis. The frequency of primary epistaxis was seen to be higher during the cold period from October to March. These are the winter season months with cold and dry climate. Another study in Brazil evaluated the indoor air quality in Brazilian universities by comparing thirty air-conditioned (AC) (n = 15) and naturally ventilated (NV) (n = 15) classrooms[2]. They concluded that the studied AC rooms show parameter values that did not comply with the standard Brazilian legislation for air quality suggesting that the performance of maintenance, housekeeping, and control of air conditioning activities affected the quality of indoor air. These parameters were directly related to public and occupational health and are excellent indicators of SBS (Sick building Syndrome).

A retrospective review of 101 patients seen with epistaxis at the National Ear Care Centre, Kaduna over 7years (January 2002– December 2008) dry-hot and cold harmattan weather had the highest prevalence of epistaxis[3]. Trauma and infections were the main aetiological factors identified but over 40% of cases are idiopathic in origin.

Pierre Fontanari concluded that the activation of cold

receptors or osmoreceptors in the nasal mucosa induces protective bronchoconstrictor responses in normal individuals[4]. Receptor level analysis would be far more accurate especially when symptoms are mild to moderate. We only adopted clinical assessment to assess effects on nasal mucosa.

Togias et all assessed the effect of cold, dry air (CDA) on the nasal mucosa in relation to the release of inflammatory mediators associated with mast cells[5]. They concluded that cold, dry air causes the release of inflammatory mediators possibly associated with mast cells and speculate that such a mechanism may be involved in the bronchospasm induced by cold, dry air in asthmatics. In our study dry cold air of air conditioners was effecting the nasal mucosa although we did not have the facility to assess exact pathological events at mucosal levels.

A literature review by Koskela in 2007 described the mechanisms and management of cold air-provoked respiratory symptoms[6]. The review included human epidemiological studies, human and animal experimental studies, as well as human studies about management of the cold air-provoked respiratory symptoms. He concluded that the mechanisms beyond cold air-provoked respiratory symptoms vary considerably and mainly depend on the individual`s susceptibility and the ventilation level during the cold exposure. About 90% of our time is spent indoors where we are exposed to chemical and biological contaminants and possibly to carcinogens. Reports of indoor moulds or dampness or both are consistently associated with increased respiratory symptoms but causality has not been established[7]. Mahmoud investigated IAQ (Indoor air quality) in 16 mechanically ventilated schools in Qatar during the winter season. Parameters such as temperature, relative humidity, carbon monoxide (CO), carbon dioxide (CO2) and particulate matters (PM10 and PM2.5) were measured indoors and outdoors simultaneously. According to results of this study, some recommendations were suggested to reduce exposure of school children to high indoor levels of these pollutants as well as to provide comfortable learning environments[8].

Various researchers have studied other aspects of cold and dry air effects on nose and respiratory system. Togias et al studied the effect of azatadine on preventing the release of histamine after nasal challenge with cold, dry air and its effect on antagonizing nasal challenge with histamine[9]. A couple of animal studies are also available in literatue, Baile studied effect of cold and warm dry air hyperventilation on canine airway blood flow, suggesting that drying may be a more important stimulus than cold for increasing airway blood flow[10]. While Van Oostdam evaluated effect of breathing dry air on structure and function of airways in guinea pigs and he concluded that breathing dry air produces an acute reduction of extravascular water of the loose connective tissue of the airways and an increase in the maximum response to histamine[12]. Giannetto et al studied effect of Calcination in Dry Air in terms of conversion of light alkanes into aromatic hydrocrbons VII aromatization of propane on Gallosilicates[11]. In another study on effect of a 5-lipoxygenase inhibitor on asthma induced by cold, dry air, Israel concluded that selective inhibition of 5-lipoxygenase by A-64077 is associated with a significant amelioration of the asthmatic response to cold, dry air, suggesting that 5-lipoxygenase products are involved in this response[13]. Reactivity of Spanish coal chars in dry air was evaluated and the effect of potassium was inhibited in a char because of the high silica content of its ashes[14]. Salah et al have found that dry air breathing results in excessive water loss by the nasal mucosa, which may in turn slow the nasal mucociliary transport in healthy subjects[15]. Similarly Naclerio have found that bidirectional nasal breathing of cold dry air results in a reaction that is qualitatively similar to that induced when air is only inhaled through the nose and exhaled through the mouth[16]. Osmolality of nasal secretions increases when inflammatory mediators are released in response to inhalation of cold, dry air[17]. While a research on reflex activation of nasal secretions by unilateral inhalation of cold dry air supports the importance of neural mechanisms in airway responsiveness to an environmental stimulus[18]. Braat et al concluded that the new standardized intranasal cold dry air provocation method seems to be more suitable than histamine for characterizing and assessing the presence and degree of nasal reactivity in non allergic non infectious perennial rhinitis[19]. A work on CPAP (continuous positive airway pressure) revealed that mouth leak with nasal CPAP increases nasal airway resistance and this response can be largely prevented by fully humidifying the inspired air[20]. Eleven subjects complaining of symptoms of rhinitis when exposed to cold and dry environments were challenged by nasal breathing, first with warm, moist air and then with cold, dry air. Leukotriene production in response to physical stimulus suggested possible role of inflammatory mediators in pathological conditions, such as exercise induced asthma, that involve causative factors[21]. Combined use of histamine and tryptase measurements can provide useful evidence regarding role of mast cell activation in the pathogenesis of inflammatory responses[22]. Contrary to many other studies Andersen evaluated human response to 78 hour exposure to dry air and concluded that there is no physiological need for humidification of the air because no discomfort was reported from the body surfaces, and skin resistance did not change[23]. Togias found out that epithelial cell shedding accompanies clinical responses to cold dry air in the human nose[24]. This supports the hypothesis that the airway mucosa of cold dry air sensitive individuals can not compensate for the water loss that occurs under

extreme conditions leading to epithelial damage. Togias also worked on relationship between sensitivity to cold, dry air, hyperosmolal solutions, and histamine in the adult nose and suggested that cold dry air responders may have increased nasal mast cell releasability to hypertonic stimuli but their end-organ reactivity is not enhanced[25].

We suggest further studies on the same subject with in depth symptom analysis. Likewise molecular level and microscopic research would be beneficial. Joint venture between medical and environmental experts are going to be extremely beneficial to evaluate these climatic effects on human body.

CONCLUSION:

Effects of exposure of dry air of air conditioners on nasal mucosa in terms of nasal itching and nasal bleeding were found to be significantly higher when subjects were exposed 15 hours or more per day. Nasal bleeding was more commonly seen in elderly subjects (more than 40 years) due to such exposure.

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Original Article

Frequency Of Post-operative Hypocalcaemia Following Thyroid Surgery At A Tertiary Care Hospital Of Sindh

Summaya Qazi, Khalil ahmed Almani, Rizwanullah Junaid Bhanbhro, Diya Ram Khatri

ABSTRACT:

Objective: The present study was conducted to determine the frequency of post-operative hypocalcaemia following thyroid surgery at a tertiary care hospital of Sindh

Study design: Observational study

Place and Duration: Department of surgery, Isra University Hospital from December 2014 to July 2017.

Materials and Methods: 100 cases of thyroid swellings were selected according to inclusion and exclusion criteria. Pre- operative patient history, physical examination, thyroid gland examination and laboratory investigations were performed. A serum calcium levels <8 mg/dl was taken as hypocalcemia. Data was analyzed on SPSS 21 version and P value (P< 0.05) was considered significant.

Results: Of 100 patients, 67% were female and 33% were male (P=0.0001). Female dominancy was noted with female to male ratio of 2.03:1. Age (mean± SD) was noted as 37.5 ± 9.5 years (19 – 48 years). Frequency of symptomatic hypocalcaemia was noted in 23% subjects post operatively. Mean± SD serum calcium and phosphate in post operative hypocalcemia subjects was noted as 7.31 ± 0.38 mg/dl and 2.95 ± 0.63 mg/dl respectively. Majority of symptomatic hypocalcemia were noted within 72 hours post operatively.

Conclusion: The present study reports 23% frequency of post thyroidectomy hypocalcemia noted within 72 hours post operatively. Goiters of long duration, recurrent goiters, hyperthyroidism and goiters with retro sternal extensions were found risk factors for the post thyroidectomy hypocalcemia.

Key words: Hypocalcemia, Phosphate, Post operative complications, Thyroid surgery.

INTRODUCTION:

Thyroid swelling and surgical procedures are now most common in life of a surgeon. Thyroid swellings are highly vascular and surrounding structures are always endangered. Parathyroid glands are pea shaped glands which lie within thyroid capsule, hence accidental resection is common. Post operative complications are frequent with the young surgeons. Post-operative hypocalcemia is an early complication following thyroid surgery[1]. Incidence of permanent hypocalcemia is least ranges from 0.5% to 2%, while transient hypocalcemia accounts for more incidences that range from 9.2% to 25%[2]. Fine tissue dissection to identify and spare the parathyroid glands is mandatory to prevent post-operative hypocalcemia. Resection of parathyroid glands usually follows the complete thyroidectomy. 9% frequency of parathyroid loss is noted in bilateral thyroid resection compared to 1.9% in unilateral[3]. Neuromuscular hyper excitability is the most immediate manifestation of hypocalcemia, followed by occasional symptoms of psychosis. In chronic conditions the cataract, skin eczema and alopecia occur. Ectodermal changes are evident as early as 6 months post operative. Cardiac arrhythmias and intracranial calcification lesions occur if persistent hypocalcemia ensues. These long term complications have negative impact on the health, and socio-economic status of patients with financial loss[4]. Early recognition of post-thyroidectomy hypocalcemia and prompt therapeutic measures may halt the long term complications. Many predictors are under study for establishing and implementing an effective protocol to prevent the post-thyroidectomy hypocalcemia complications successfully[5]. Testing for serum calcium and its supplementation is effective tool which must be available in the hospitals. Serum calcium must be estimated as soon as possible post operatively during postthyroidectomy period.

The present study hypothesizes the large size thyroid goiters, recurrent and retro-sternal goiters, hyperthyroidism and thyroidectomy are associated with increased incidence of post thyroidectomy hypocalcemia. The present study was conducted to determine the frequency of post-operative hypocalcaemia following thyroid surgery at our tertiary care hospital.

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MATERIALS AND METHODS:

The present observational study included 100 subjects from Department of surgery, Isra University Hospital from December 2014 to July 2017. Preoperatively patients were communicated for the purpose of study. They were reassured that the present study will cause no harm to them and no financial burden. Only blood samples will be collected for the biochemical tests. They were informed about that they have to sign the consent form voluntarily. A detailed medical and surgical history was taken from volunteers. The sample of 100 cases (both genders) was selected keeping the inclusion and exclusion criteria in view. The diagnosed cases went through bilateral surgical exploration. The cases with pre existing hypocalcemia, previous history of thyroid surgery, positive thyroid auto antibodies, thyroid cancers, lymphoma and nasopharyngeal malignancies were excluded. The patients reporting positive history of calcium, vitamin and mineral supplementations were in exclusion criterion. Pre-operative thyroid swellings were examined. Thyroid gland and cervical lymph node examination was performed pre operatively. Thyroid function tests, thyroid sonography, thyroid scanning (Tc^{99}), thyroid autoantibodies, serum calcium and phosphate were ordered. Fine needle aspiration cytology (FNAC) was performed for malignancy suspicious thyroid swellings. Hyperthyroid patients were treated pharmacology to make them Euthyroid before surgery. IDL (Indirect laryngoscopy) was performed for vocal cord mobility and normality. Upon completion of patient preparation, the thyroid surgery was planned under general anesthesia. Surgical procedures were performed by senior surgeon. Parathyroid glands and recurrent laryngeal nerves were preserved by lateral mobilization and fine capsular dissection technique. Post-operative vocal cords examination was performed after extubation. Blood samples were collected at six hours post-operatively for serum calcium estimation. Repeated blood samples were analysed for serum calcium till discharge of patients. Hypocalcemia was defined as serum Ca^{++} <8 mg/dl[6]. Post operative hypocalcemia was confirmed postoperatively and was treated as per standard protocol of intravenous calcium (1 mg/kg body weight) in 0.9% NaCl solution[6]. Post operative patients were asked for regular follow ups. Pre structured proforma and consent form were designed. Consent form was signed by volunteers. Data was entered and saved in the pre structured proforma. Confidentiality of data was maintained. Ethical approval was taken from institute. Statistical analysis was performed on Statistics 9.0 (IBM, incorporation, USA). Kolmorgov - Smirnov test checked the normality by Gaussian data distribution. Continuous and categorical variables were analyzed by Student t- test and Chi square test respectively. Analysis was performed at 95% CI (P <0.05) for statistical significance.

RESULTS:

Of 100 patients, 67% were female and 33% were male (P=0.0001). Female dominancy was noted with female to male ratio of 2.03:1. Age (mean ± SD) was noted as 37.5 ± 9.5 years (19–48 years). Baseline and post operative findings of patient's characteristics and biochemical tests are shown in table 1. Frequency of symptomatic hypocalcaemia was noted in 23% subjects post operatively. Mean± SD serum calcium and phosphate

	Baseline (Mean±SD)	Post operative (Mean±SD)	P-value
Age (years)	37.5 ± 9.5	-	-
BMI (kg/m^2)	28.9±7.5	27.8±8.45	0.09
Hemoglobin (g/dl)	12.67± 5.6	11.87± 6.31	0.04
RBC counts ($x10^9$ /µl)	4.8±1.31	3.98±1.51	0.03
WBC counts ($x10^3$/µl)	7.38±8.16	6.08±7.63	0.10
Platelets ($x10^9$ /µl)	4.81±1.13	3.71±0.93	0.09
Alkaline phosphatase (IU)	120.1±23.5	123.5±15.7	0.07
Serum Albumin	4.5±0.09	3.98±0.89	0.07
Serum calcium (mg/dl)	10.3±2.35	9.31±3.35	0.04
Serum phosphate (mg/dl)	2.35±0.76	2.05±1.76	0.05

Table. 1. Demographic characteristics and Biochemical findings of study population (n=100)

	Normocalcemia	Hypocalcemia	P-value
Serum Ca^{++} (mg/dl)	9.31±3.35	7.31±0.38	0.048
Serum PO^{4-} (mg/dl)	2.05±1.76	2.95±0.63	0.09

Table. 2. Post operative serum calcium and phosphate

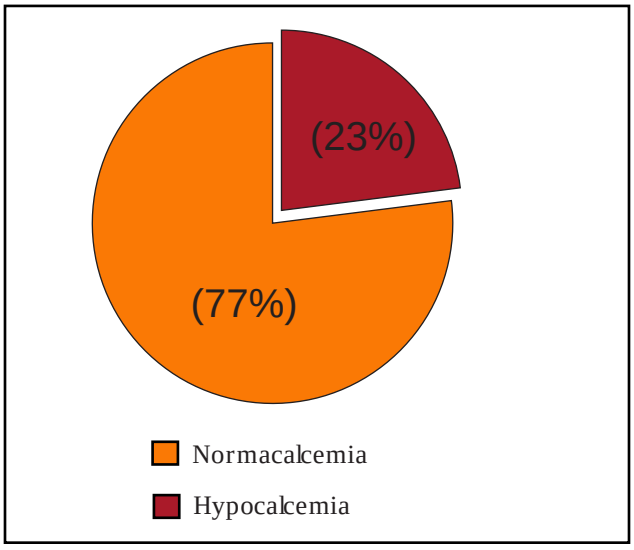

Fig.1 Frequency of Hypocalcemia

in post operative hypocalcemia subjects was noted as 7.31 ± 0.38 mg/dl and 2.95 ± 0.63 mg/dl respectively (Table 2). Majority of symptomatic hypocalcemia were noted within 72 hours post operatively fig. 1. Long term hypocalcemia was not noted in any of subjects in present study. Large thyroid goiters of long duration, recurrent goiters, hyperthyroidism and goiters with retro sternal extensions proved risk factors for the post operative hypocalcemia.

DISCUSSION:

The present study reported on the frequency of hypocalcemia in post operative thyroidectomy patients from our tertiary care hospital. The surgical wards and operation theaters were well equipped with modern facilities. The present study found young age (mean± SD) noted as 37.5 ± 9.5 years (19 – 48 years), this is in keeping with previous studies [2,3]. The female dominancy noted in present study with F: M ratio of 2.03:1 (P=0.0001 which) is consistent with findings with previous studies[1-6]. A previous study[6] reported 76% of thyroid surgeries which were performed on benign thyroid swellings which is consistent to present study as majority of cases were having benign thyroid lesions. The present study reports 23% frequency of hypocalcemia noted within 72 postoperative hours. A previous study[6] reported 23% frequency of hypocalcemia which is in line with present study. Long term hypocalcemia was not noted in any of subjects in present study. This decrease in post operative hypocalcemia has been attributed to improved surgical techniques in hands of senior surgeons with few complications in post operative thyroidectomy patients[8,20,21]. Transient post- thyroidectomy hypocalcemia is frequent complication noted in 0.5% to 75% of thyroid surgery cases[9]. Wide range of hypocalcemia frequency is because of surgeon expertise of parathyroid gland sparing techniques. Previous studies[10,11] had shown the post operative hypocalcemia observed during 24 to 48 hours post operatively, this supports the present study. In present study, all of hypocalcemia cases were noted during first 72 hours post operatively. Hypocalcemia is a serious life threatening complication[10,11] hence thyroidectomy worth to be performed by senior surgeons and should be taken as team work task. In present study, the mean± SD serum calcium and phosphate in post operative hypocalcemia subjects was noted as 7.31 ± 0.38 mg/dl and 2.95 ± 0.63 mg/dl respectively, this is in agreement with previous studies[6,10,11]. Previous studies[12,13] have reported 50% frequency of post thyroidectomy hypocalcemia which is in contrast to present and previous studies[6,10,11]. However, the hypocalcemia findings of present study is consistent with a previous study[14] that reported hypocalcemia frequency of 21.6% in post thyroidectomy patients. In present study, hypocalcemia was not noted in any of patients, this is in agreement with previous studies[6,14]. A previous study[15] reported transient hypocalcaemia in 26.7% of Euthyroid cases which is in high frequency compared to present study, however, transient nature of hypocalcemia is a consistent observation. Transient hypocalcemia of present study is in full agreement with another previous study[16]. In the present study, 23% hypocalcemia occurred within 72 post operative hours, this is consistent with previous studies[14,17]. Large thyroid goiters of long duration, recurrent goiters, hyperthyroidism and goiters with retro sternal extensions proved risk factors for the post operative hypocalcemia which is similar to previous studies[18,19]. From the evidence based findings of present study and review of literature, it is suggested that the hypocalcemia may be prevented by careful surgical exploration by expert senior surgeons. Present research had limitations of small sample size, and other laboratory investigations of serum cholecalciferol and parathyroid hormones were not available. However, the present study provides significant clinical experience of how hypocalcemia may be prevented by careful thyroidectomy, and mortality may be prevented by treating the transient hypocalcemia which may prove fatal otherwise.

CONCLUSION:

The present study reports 23% frequency of post thyroidectomy hypocalcemia noted within 72 hours post operatively. Long term hypocalcemia was not noted in any of subjects. Goiters of long duration, recurrent goiters, hyperthyroidism and goiters with retro sternal extensions were found risk factors for the post thyroidectomy hypocalcemia.

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Original Article

Responsiveness Of Pelvic Floor Distress Inventory (PFDI) And Pelvic Floor Impact Questionnaire (PFIQ) In Women With Pelvic Organ Prolapse, Undergoing Vaginal Reconstructive Surgery Versus Women With No Surgery

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ABSTRACT:

Objective: To determine the responsiveness of Pelvic Floor Distress Inventory (PFDI) and Pelvic Floor Impact Questionnaire (PFIQ) in women with pelvic organ prolapse, undergoing vaginal reconstructive surgery versus women with no surgery.

Methodology: This study was a cross sectional comparative study carried out in the department of Obstetrics and Gynecology, Pakistan Air Force Hospital, Mianwali in a period from January 2011 to December 2015. Prolapsed women with stage II or more and with willingness for surgery were included in the surgery group. Those willing for conservative management (pelvic floor exercises) were included in the non-surgical group. All patients in both groups completed the PFDI and PFIQ at baseline and 6 month follow-up.

Results: Mean (±SD) age, weight, and parity of the patients were 51.42 (±9.07) years, 58.60 (±6.8) kg and 4.00 (±2.14) respectively. More than half of the patients (61%) belonged to low socio economic status, followed by middle class 34% and upper class 5%. Majority of the patients (61%) were post-menopausal. Most of the patients (72%) had stage II prolapse, followed by stage III (27%) and stage IV (1%). Among the associated symptoms, voiding dysfunction (81%) was most commonly observed symptom. At baseline all the scores were found to be significantly high in surgical group as compared to non-surgical group however at follow-up significantly low scores were observed in surgical group than non-surgical group. Also, significant decrease in mean scores was observed in both the groups from baseline to follow-up.

Conclusion: The PFDI and PFIQ both are responsive to change in women undergoing surgical and non-surgical treatment for pelvic organ prolapse. But PFDI and PFIQ are more responsive to change in the surgical group. It was also concluded that PFDI is more responsive than the PFIQ in women with pelvic organ relapse.

Key Words: Prolapse, PFDI, PFIQ, POPIQ, UDI, CRADI, POPDI, UIQ, CRAIQ

INTRODUCTION:

According to World Health Organization (WHO), one of the most leading causes of ill health of women is utero-vaginal prolapse with global prevalence estimated to be 2-20% in women under 45 years of age[1]. It has been reported that it affects up to 50 percent of the women over 50 years of age[2]. The common symptom of vaginal prolapse is the displacement of tissues outside the vagina. Majority of the women undergoing vaginal prolapse describe the sensation as "something coming out of vagina". The most common symptoms associated with utero-vaginal prolapse includes pressure in the vagina or pelvis, painful intercourse (dyspareunia) and recurrent urinary tract infections. It has been estimated that 50 percent of parous women have some degree of uterovaginal prolapse, but only 20 percent of these are symptomatic[2]. Utero-vaginal prolapse is responsible for more than 200,000 surgical repair procedures each year[3]. Whereas urinary incontinence contributes about 13.1% in Asian population. As reported by Asian Society for Female Urology, its prevalence in Pakistan is about 11%[4]. Incontinence, either urine, faeces or flatus, is a distressing condition which affects all aspects of a woman's quality of life[5-7].

Surgical procedures are the mainstay in the treatment of female stress incontinence, pelvic organ prolapse or fecal incontinence[8-11]. The most important outcome of a surgical procedure is the relief of symptoms and improvement in quality of life[12-15]. The lifetime risk for a woman to undergo a single operation for prolapse or urinary incontinence has been estimated at 11 percent. Outcome measures for pelvic floor dysfunction procedures in the literature include the presence or absence of subjective symptoms, pad testing, urodynamic parameters and physical examination findings[16-18]. Over

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the past decade, several quality of life questionnaires have been introduced for assessment of outcome measures in pelvic floor dysfuntion[19]. The pelvic floor Distress Inventory (PFDI) and pelvic floor impact questionnaire (PFIQ) are two questionnaires intended for women with all forms of pelvic floor disorders including pelvic organ prolapse, urinary incontinence and fecal incontinence[12]. The use of these questionnaires serves as the dual purpose of screening for and assessment of severity of disease. Their use has been recommended by the international continence initiative[20, 21].

This study conducted to determine the responsiveness of Pelvic Floor Distress Inventory (PFDI) and Pelvic Floor Impact Questionnaire (PFIQ) in women with pelvic organ prolapse, undergoing vaginal reconstructive surgery versus women with no surgery.

MATERIALS AND METHODS:

This study was a cross sectional comparative study conducted in the department of Obstetrics and Gynaecology at Pakistan Air Force Hospital, Mianwali in a period from January 2011 to December 2015. A total of 120 patients were included in the study with 60 patients in Group A i.e. the surgical group and 60 patients in Group B i.e. the non-surgical group. Prolapsed patients with stage II or more, willing for surgery or conservative treatment were included in the study. Patients with mental illness (unable to answer the questionnaire) or with any pelvic pathology like fibroid uterus, malignancy etc. were excluded from the study.

Patients attending the gynecology OPD clinic, with complaints of something coming out of vagina or some associated symptoms, like voiding dysfunction, urinary incontinence or constipation were shortlisted and enrolled after the confirmation of prolapse through pelvic examination. Pelvic examination was performed in the lithotomy position and staging of prolapse was assessed according to the standards recorded by International Continence Society (ICS) with stage 0 – IV (POPQ). Per speculum examination was performed by inserting a Sim's speculum into the vagina and anterior and posterior walls were examined. After the decision for the type of vaginal surgery by a consultant, patient was referred to pre-operative room where informed consent was taken to participate in the study. Responsiveness of PFDI and PFIQ was assessed in two independent groups, one undergoing vaginal reconstructive surgery (group A) and the other (group B) with no surgical intervention, but was treated by pelvic floor exercises.

The two questionnaires PFDI and PFIQ were filled for all patients in both groups at baseline and 6 month follow-up. Patients in the group B were called for follow up after six months of the baseline visit and scores were calculated.

The PFDI and PFIQ assess the impact of pelvic floor disorders on health related quality of life. The PFDI contains 20 questions while PFIQ consists of 21 (7 in each scale) that assess the degree to which a subject's bowel, bladder, or pelvic symptoms impacts different activities of daily living, social relationships, or emotions. Each questionnaires further is divided into 3 scales i.e PFDI (POPDI, UDI, CRADI) and PFIQ (POPIQ, UIQ, CRAIQ). For the scales of both PFDI and PFIQ, a higher score indicates worse health status or poorer quality of life.

Data was analyzed using SPSS version 21.0. Mean ± SD were calculated for quantitative variables such as age, weight, and parity. Percentages/frequencies were calculated for qualitative variables such as socioeconomic status, menopausal status, previous pelvic procedure, stage of prolapse and associated symptoms like voiding dysfunction, urinary incontinence, fecal incontinence, and constipation. A paired T-test was used to compare pre and post treatment scores of PFDI and PFIQ for both Group A and Group B. Independent T- test was used to compare the scores of PFDI and PFIQ between the both groups. A repeated measure ANCOVA was applied to assess differences in PFDI and PFIQ scores between the groups adjusting for variables that were found to be significant in univariate analysis. P-value of < 0.05 was considered as significant.

RESULT:

Total number of patients enrolled in the study were 120 with equal allocation in both the groups out of which 9 were lost to follow-up (5 patients from surgical group and 4 from non-surgical group). Analysis was done on 111 patients i.e. 55 from surgical group and 56 from non surgical group. In the surgical group, 48 patients underwent vaginal hysterectomy with anterior repair(out of these 48 patients, 33 patients had posterior repair too). While 7 patients out of 55, had both anterior and posterior repair without hysterectomy.

There was significant difference in mean age between surgical and non-surgical patients. Mean (±SD) age of patients in surgical and non-surgical group was 51.42 (±9.07) years and 44.65 (±9.2) years respectively (p-value<0.0001, Table 1). Mean (±SD) weight of patients in group A and B was 58.6 (±6.8) kg and 59.93 (±7.10) kg respectively (p-value=0.295, Table 1). Mean (±SD) for parity was 4.5 (±2.14) in surgical group and 4.6 (±2.29) in non-surgical group (p-value=0.652, Table 1). Minimum parity was 0 and maximum parity was 13 in both groups. Majority of the patients (61%) belonged to low socio-economic class, followed by middle class 34% and upper class 5% (p-value=0.819, Table 1).

75% patients from the surgical group and 47% patients from non-surgical group were post-menopausal (p-value=0.001, Table 1). A significantly higher proportion of patients in non-surgical group had stage II prolapse as

compared to surgical group (85% vs 60%) whereas stage III and IV prolapse was found more in surgical group patients as compared to non-surgical group (38% vs 15%, 2% vs 0% respectively, p-value=0.004, Table 1).

Among associated symptoms; patients in surgical group were more likely to have voiding dysfunction (88.3%), followed by constipation (33.3%), urinary incontinence (26.7%), and fecal incontinence (5%). In non-surgical group voiding dysfunction (73.3%) was more prevalent followed by constipation (46.7%), urinary incontinence (20%) and fecal incontinence (1.7%, Table 1).

Significant decrease were found in mean pelvic floor distress inventory (PFDI) and pelvic floor impact Questionnaire (PFIQ) scores of both surgical and non-surgical patients from baseline to follow-up (Table 2). In PFDI, no significant differences in mean POPDI scores at baseline were found between surgical and non-surgical group (92.29 vs 91.25, p-value=0.223, Table 2) however, on average POPDI score was significantly low in surgical group as compared to non-surgical group at follow up visit (52.09 vs 74.54 p-value<0.0001, Table 2). Whereas, significant differences were observed in mean baseline and follow-up in UDI and CRADI score between surgical and non-surgical group (Table 2). In PFIQ, no significant differences in mean CRAIQ scores at baseline were found between surgical and non-surgical group (83.44 vs 83.27, p-value=0.850, Table 2) however, on average CRAIQ score was significantly low in surgical group as compared to non-surgical groupat follow up visit (58.76vs 67.36 p-value<0.0001, Table 2). Whereas, significant differences were observed in mean baseline and follow-up in POPIQ and UIQ score between surgical and non-surgical group (Table 2).

Also, adjusting for age, menopausal status, and prolapse stage significantly low PFDI and PFIQ scores were observed in surgical group as compared to non-surgical group, however in PFIQ no significant difference was observed in adjusted mean PFIQ score between surgical and non-surgical group (Table 3)

	Surgical group; n=60	Non-surgical group; n=60	Total	P-value
Age in years; Mean ± SD	51.42±9.07	44.65± 9.204	48.0±9.71	0.000*#
Weight in kg; Mean ± SD	58.60±6.8	59.93±7.10	59.27±6.95	0.295#
Parity; Mean ± SD	4.47 ± 2.14	4.65± 2.29	4.56±2.21	0.652#
Menopausal status; n (%)				
Pre-menopausal	15 (25)	32 (53)	47 (39)	
Post-menopausal	45 (75)	28 (47)	75 (61)	0.001*†
Socio-economic status; n (%)				
Low	37 (62)	36 (60)	73 (61)	
Middle	21 (35)	20 (33)	41 (34)	0.819 ~
High	2 (3)	4 (7)	6 (5)	
Prolapse stage; n (%)				
Stage II	36 (60)	51 (85)	87 (72)	
Stage III	23 (38)	9 (15)	32 (27)	0.004*~
Stage IV	1 (2)	0 (0)	1 (1)	
Symptoms				
Urinary Incontinence	16 (26.7)	12 (20)	28 (23)	0.388†
Voiding Dysfunction	53 (88.3)	44 (73.3)	97 (81)	0.037*†
Fecal Incontinence	3 (5)	1 (1.7)	4 (3)	0.619 ~
Constipation	20 (33.3)	28 (46.7)	48 (40)	0.136~
*P-value<0.05, **P-value<0.0001, # Independent Sample T-test, † Chi-square test, ~ Fisher-Exact test				

Table 1: Characteristics of study participants

	Surgical group		Non-surgical group		Between group
	Mean ± SD	P-value†	Baseline	P-value†	P-value#
PELVIC FLOOR DISTRESS INVENTORY (PFDI) SCORES					
Pelvic organ prolapse distress inventory (POPDI)					
Baseline	92.29 ± 5.45	0.000**	91.25 ± 4.44	0.000**	0.272
Follow-up	52.09 ± 3.9		74.54 ± 3.94		0.000**
Urinary Distress Inventory (UDI)					
Baseline	91.4 ± 4.49	0.000**	84.75 ± 4.24	0.000**	0.000**
Follow-up	52.22 ± 6.75		64.93 ± 4.73		0.000**
Colorectal anal Distress Inventory (CRADI)					
Baseline	87.2 ± 4.23	0.000**	80.98 ± 4.45	0.000**	0.000**
Follow-up	57.69 ± 4.7		70.64 ± 3.83		0.000**
PELVIC FLOOR IMPACT QUESTIONNAIRE (PFIQ) SCORES Pelvic Organ Prolapse Impact Questionnaire (POPIQ)					
Baseline	88.98 ± 3.88	0.000**	75.85 ± 4.32	0.000**	0.000**
Follow-up	53.29 ± 4.32		62.84 ± 2.84		0.000**
Urinary impact questionnaire (UIQ)					
Baseline	89.56 ± 3.57	0.000**	82.45 ± 4.03	0.000**	0.000**
Follow-up	53.09 ± 4.68		69.80 ± 3.75		0.000**
Colorectal anal impact questionnaire (CRAIQ)					
Baseline	83.44 ± 5.61	0.000**	83.27 ± 3.52	0.000**	0.850
Follow-up	58.76 ± 5.17		67.4 ± 3.39		0.000**
*P-value<0.05, **P-value<0.005, † Paired T-test, # Independent Sample T-test					

Table 2: Comparison of baseline and follow-up scores

	Surgical group	Non-surgical group	P-value
	Mean ± SE	Mean ± SE	
PELVIC FLOOR DISTRESS INVENTORY (PFDI) SCORES			
POPDI	74.25 ± 0.78	84.17 ± 0.71	0.000**
UDI	72.71 ± 0.91	75.29 ± 0.83	0.041*
CRADI	72.64 ± 0.80	76.98 ± 0.73	0.000**
PELVIC FLOOR IMPACT QUESTIONNAIRE (PFIQ) SCORES			
POPIQ	71.08 ± 0.65	69.86 ± 0.59	0.174
UIQ	73.38 ± 0.69	76.19 ± 0.63	0.000**
CRAIQ	71.61 ± 0.81	75.30 ± 0.73	0.001*
*P-value <0.05, **P-value<0.0001, Repeated measures ANCOVA (adjusting for age, menopausal status and prolapse stage)			

Table 3: Estimated marginal means

DISCUSSION:

The PFDI and PFIQ questionnaires were designed to provide a comprehensive evaluation of the extent to which lower urinary tract, lower gastrointestinal tract and pelvic organ prolapse symptoms affect the quality of life of women who have disorders of the pelvic floor[12].

This study showed that PFDI and PFIQ are responsive to change and are reliable to detect improvement in scores of patients undergoing surgical and non-surgical treatment for pelvic organ prolapse. Significant better improvement in the scores of all the 3 scales of PFDI as well PFIQ was found, in both study groups (P-value<0.0001). It was also concluded that patients in the surgery group showed significant improvement in the scores of PFDI and PFIQ, than the patients of non-surgical group (P-value<0.0001). This study also showed that PFDI is more responsive to change than PFIQ, except the CRADI which was significantly less responsive than PFIQ, in the non-surgical group (P-value<0.0001).

A study conducted by Barber et al. concluded that the PFDI and the PFIQ are reliable, valid, condition specific quality of life instruments for women with pelvic floor disorders[22]. They found each scale of the PFDI and PFIQ proved to be internally consistent and reproducible. The POPDI and the POPIQ correlated significantly with the stage of prolapse (P value<0.01) and the CRADI and CRAIQ significantly correlated with the number of fecal incontinence episodes per month and diagnosis of defecatory dysfunction (P value < 0.01). The mean age in their study was SD 56±15years; median parity was 2 range (0-5) and mean weight SD 78±21kg. The results of mean age and weight were similar to this study whereas median parity was quite different[22].

Wren conducted a study, and they also found that the condition-specific health-related quality-of-life measures i.e. PFDI and PFIQ are valid and reliable in women after surgical procedures for pelvic organ prolapse[23].

A similar study was conducted in which validation of telephone administration of 2 condition-specific quality-of-life instruments i.e. PFDI and PFDI, was confirmed. Study period was 9 months with a study population of 55 women, and they were recruited at their 6 weeks post-partum visit. They found PFDI and PFIQ reliable and accurate measure of the impact of pelvic floor disorders and may facilitate clinical and epidemiologic research by decreasing cost and improving access to research participants. Their findings also strengthen the results for validation of these instruments[24].

Barber et al. conducted a study in which they developed the short forms of these 2 condition-specific quality-of-life questionnaires for women with pelvic floor disorders from the previously used long forms of both questionnaires i.e Urinary Distress Inventory (UDI) and Incontinence Impact Questionnaire (IIQ). They studied data on 100 women, and observed the pre and postoperative scores at 6 months after surgery. They concluded that PFDI-20 and PFIQ-7 are valid, reliable and responsive short forms of 2 condition-specific quality-of-life questionnaires for women with pelvic floor disorders that matches the results of our study[25].

In this study it was found that both PFDI and PFIQ are valid and reliable questionnaires which are responsive to change in patients both with surgery and conservative management. These questionnaires should be used routinely in gynaecological outpatient clinic for subjective assessment of patients with pelvic organ prolapse.

CONCLUSION:

The PFDI and PFIQ both are responsive to change in women undergoing surgical and non-surgical treatment for pelvic organ prolapse but PFDI and PFIQ are more responsive to change in surgery group. It was also concluded that PFDI is more responsive than the PFIQ in women with pelvic organ relapse.

Our study has been done on a good strength of patients and follow-up period. However post-operative complications of surgery for POP, take much longer time to appear, at least 1 year. So studies require to be done with longer follow-up period to see the responsiveness of PFDI and PFIQ. As we have found both PFDI and PFIQ as valid and reliable questionnaires which are responsive to change in patients both with surgery and conservative management. So we think that they should be used as a routine in gynaecological outpatient clinic for subjective assessment of patients with pelvic organ prolapse.

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Thyroid Function Test, C- Reactive Protein And Blood Lipids In Subclinical Hypothyroidism Patients Reporting At Surgical Wards

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ABSTRACT:

Objective: To investigate the thyroid function, C-reactive protein (CRP) and blood lipid profile in the subclinical hypothyroidism (SH) patients in surgical wards and outpatient department.

Study design: Cross sectional study

Place and Duration: Department of surgery, Isra University Hospital from August 2014 to May 2017.

Materials and Methods: 100 subclinical hypothyroid cases and 100 controls were included according to inclusion and exclusion criteria. Serum TSH level > 6.2 (µIU /ml) with normal free T_4 and T_3 was considered as subclinical hypothyroidism. Venous blood was taken from ante cubital vein, centrifuged and processed. Sera were used for the assay of thyroid hormones, TSH, blood lipids and C-reactive protein. Data variables were analyzed by Statistix 8.0 (95% confidence interval) (P-value =0.05).

Results: Age in controls and cases was noted as 51.3±12.5 and 50.8±11.95 years respectively. SH cases show serum T_3, T_4 and TSH as 0.89±0.18 µg/dl, 4.96±0.85 µg/dl and 11.95±2.85 µU/ml respectively. Serum total cholesterol, triglycerides and LDLc were raised with concomitant low HDLc in SH cases. C- reactive protein in SH cases was 6.91±3.38 ng/ml compared to controls 2.56±1.51 ng/ml (P=0.0001). Serum TSH showed negative correlation with HDLc, serum T_3 and T_4.

Conclusion: The present study reports dyslipidemia with elevated inflammatory marker of C-reactive protein in subclinical hypothyroid patients.

Key words: Subclinical hypothyroidism, Dyslipidemia, C-reactive protein

INTRODUCTION:

Low normal thyroid function with minimal or no clinical symptoms is termed as subclinical hypothyroidism (SH).[1] It is biochemical rather than clinical diagnosis, characterized by raised thyroid stimulating hormone (TSH) levels, normal free T4 and asymptomatic patients. Raised TSH is a response to the decreased secretory capacity of thyroid gland this clinical entity is defined as SH[2] with few or no symptomatic characteristics of hypothyroidism. Absence of clinical symptoms is a hallmark of SH.[3] There are many cases of hypothyroidism which fall into the category of SH being very common among female subjects.[4,5] Thyroid function tests show normal free thyroxin (FT4) and triiodothyronine (T3) in the presence of raised serum TSH.[6] Dyslipidemia is a most common metabolic abnormality in hypothyroidism, similar may be the problem in the SH. Dyslipidemia is characterized by raised serum low density lipoprotein cholesterol (LDL-c), total cholesterol and triglycerides in the presence of low high density lipoprotein cholesterol (HDL-c), a condition which is considered as pro-atherogenic. It is speculated that the hypothyroid state causes low expression of LDLc receptors on liver cells. This casues defective removal of LDLc from blood, the result is a hyper-LDLc in blood.[7] This is still debatable and just a speculation. In SH, such metabolic abnormality does occur or not is debatable, as previous studies[8,9] reported no changed in blood lipids. However, other studies[10,11] reported dyslipidemia is evident in patients suffering from SH. Dyslipidemia is pro-atherogenic condition in itself with a tendency of ischemic coronary atherosclerotic disease. This needs further studies to gather the information. Dyslipidemia plays role in the pathogenesis of atherosclerosis and related vascular disorders, this may particularly be more dangerous in the SH patients.[11] C-reactive protein (CRP) is one of reliable inflammatory markers. CRP is known future predictors of atherosclerosis related vascular disease.[12] CRP has been used as risk factor for the coronary artery disease (CAD).[13] CRP with dyslipidemia may be more creative in predicting the vascular disorders in SH patients. However, some of previous studies[13,14] have produced conflicting results on the dyslipidemia and CRP in SH. Many cases of thyroid swellings present in the surgical wards and outpatient departments with abnormal thyroid function test.

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The present case control study was conducted to determine the lipid profile and C-reactive protein of subclinical hypothyroid cases at our tertiary care hospital.

SUBJECTS AND METHODS:

The present case control study was conducted at the Department of surgery, Isra University Hospital after ethical approval was taken. The study covered duration from August 2014 to May 2017. Over the study duration, many cases of thyroid lesions were evaluated for the inclusion and exclusion criteria. Finally, a sample of 100 cases of subclinical hypothyroidism (SH) was isolated for the study. Subjects were selected by non- probability purposive sampling. Subclinical hypothyroidism was defined as serum TSH > 6.2 µIU /ml (normal serum T_4 and T_3).[15] Age >20 and <50 years and both male and female were included. Diagnosed cases of overt hypothyroidism were strictly excluded. Patients taking thyroxine therapy, pregnant women, diabetics, systemic hypertension and those smoking were also excluded. Age and gender matched controls were also inducted. Cases and control subjects were interviewed. Confidence was taken by informing them about the purpose of study. They were informed that the study will cause no harm or financial burden on them. The participants were informed that the study needs biodata, physical examination and blood samples for biochemical analysis. Willing participants were further asked that they can ask any issue if they are thinking of it about any financial loss or physical harm. Volunteers were asked to sign the research consent form. Complete biodata and findings of physical examination were noted. Thyroid gland was examined. Systemic blood pressure was checked by mercury sphygmomanometer and body weight on weighing scale. Information was noted in a pre- structured designed proforma. This was followed by blood sampling. Ante-cubital fossa was sterilized with alcohol swab. Tourniquet was applied above cubital fossa to engorge the veins. 10 ml venous blood was taken from ante- cubital vein. Sera were separated by blood centrifugation (3000 rpm for 10 minutes). Thyroid function test (TSH, T_3 & T_4) and C-reactive protein (CRP) were assayed by ELISA assay kit. Lipids were analysed on chemistry analyzer using standard methods while LDLc was estimated by Friedewald's formula.[16] Signing consent form was mandatory. A structured proforma was used for data collection. Data variables were analyzed on Statistix 8.0. Continuous and categorical data variables were analysed by Student`s t-test and Chi square test respectively at 95% confidence interval (P-value =0.05).

RESULTS:

Mean ± SD age of controls and cases was 51.3±12.5 and 50.8±11.95 years respectively. Body weight, BMI, Systolic BP and Diastolic BP showed statistically non- significant differences between controls and cases. Cases showed serum T_3, T_4 and TSH as 0.89±0.18 µg/dl, 4.96±0.85 µg/dl and 11.95±2.85 µU/ml respectively. These were found statistically significant compared to controls (P=0.0001). Serum total cholesterol and triglycerides were raised in cases while HDLc was found low. C- reactive protein in cases was 6.91±3.38 ng/ml compared to controls 2.56±1.51 ng/ml (P=0.0001) (table 1). Serum TSH showed negative correlation with HDLc, serum T_3 and T_4 as shown in table 2.

	Controls	Cases	P-value
Age (years)	51.3±12.5	50.8±11.95	0.76
Body weight (kg)	76.3±10.89	71.4±14.53	0.108
BMI (kgm^{-2})	29.87±3.65	29.21±2.78	0.71
Systolic BP (mmHg)	120.9±10.5	120.5±9.80	0.83
Diastolic BP(mmHg)	76.6±11.5	77.5±10.55	0.96
Serum T_3 (µg/dl)	0.91±0.17	0.89±0.18	0.001
Serum T_4 (µg/dl)	5.45±2.35	4.96±0.85	0.0001
Serum TSH (µU/ml)	3.81±1.12	11.95±2.85	0.0001
Total Cholesterol (mg/dl)	193.5±16.5	237.5±11.5	0.0001
Triglycerides (mg/dl)	198.5±9.5	409.5±27.5	0.0001
LDL-cholesterol (mg/dl)	99.0±21.5	173.5±11.5	0.0001
HDL-cholesterol (mg/dl)	41.7±5.5	33.9±10.5	0.0001
C- reactive protein (ng/ml)	2.56±1.51	6.91±3.38	0.0001

Table 1. Demographic and laboratory findings of study subjects

	r-value	P- value
CRP (ng/dl)	0.616**	0.0001
Cholesterol	0.813**	0.0001
HDLc	-0.316**	0.0001
LDLc	0.671**	0.0001
Serum T_3	-0.275**	0.0001
Serum T_4	-0.339**	0.0001

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

Table 2. Pearson`s correlation of serum thyroid stimulating hormone (TSH)

DISCUSSION:

The present study observed statistically significant differences of T3, T4, TSH, blood lipids and CRP between controls and SH cases ($P < 0.05$). This is the first study being reported form Surgical wards of a tertiary care hospital. The null hypothesis was rejected as significant difference was noted between the controls and SH cases. Mean ± SD age of controls and cases was 51.3±12.5 and 50.8±11.95 years respectively. Body weight, BMI, Systolic BP and Diastolic BP showed statistically non- significant differences between controls and cases. These findings are in agreement with previous studies.[17-19] SH cases showed very high serum TSH (11.95±2.85 µU/ml) with normal T_3 and T_4, the finding is in keeping with a recent study.[20] Serum TSH showed negative correlation with total cholesterol, LDLc, HDLc, serum T_3 and T_4 and CRP (table 2) in SH cases. Serum TSH showed significant rise in SH cases with dyslipidemia. The CRP is a risk factor for the coronary artery disease (CAD) [17] myocardial infarction (MI)[18] and rheumatoid arthritis (RA)[19] which is found high in SH cases in the present study. High CRP has been reported in overt hypothyroidism[21] the finding is consistent with the present study. In present study, serum total cholesterol, triglycerides and LDLc were raised with low HDLc, this is in contrast to previous studies.[21,22] However, other studies[23,24] had reported dyslipidemia similar to the present study. A previous study[25] reported low HDLc in hypothyroidism that is in agreement to present study. In present study, the C- reactive protein in cases was raised i.e. 6.91±3.38 ng/ml compared to controls 2.56±1.51 ng/ml (P=0.0001) (table 1). CRP is raised in inflammatory conditions.[26,27] Raised CRP of present study is in agreement with a previous study.[28] The findings indicates the subclinical hypothyroidism (SH) is associated with dyslipidemia and raised CRP which is a marker of inflammatory process. Serum TSH reveals positive correlation with CRP (r=0.616, p=0.0001) which is agreement with a recent study.[20] The HDLc, serum T_3 and T_4 showed inverse correlation with TSH in subclinical hypothyroid cases (Table 2). These findings are in agreement with previous studies.[29-31] The finding of dyslipidemia with raised CRP in subclinical hypothyroid cases is consistent with another previous study[32] which had reported similar observations. A previous study[33] the dyslipidemia with raised levels of high sensitivity CRP (hs-CRP) is a consistent risk factor for coronary artery disease in subclinical hypothyroid cases. Raised CRP levels in subclinical hypothyroid patients of present study is in concordance with another previous study.[34] The present study shows the subclinical hypothyroid patients are at increased risk of developing coronary artery disease and related vascular complications. Hence it is suggested the subclinical hypothyroid patients presenting at surgical wards and outpatient departments should be screened for the dyslipidemia and C-reactive protein for timely intervention in order to halt atherosclerotic pathologies. This will help prevent atherosclerosis and related morbidities in subclinical hypothyroid patients.

CONCLUSION:

It is concluded that the subclinical hypothyroidism is associated with dyslipidemia and inflammatory process. These patients should be screened for timely intervention for preventing the atherosclerosis related coronary artery disease. Further large scale studies are warranted to make guideline on dyslipidemia in subclinical hypothyroid patients for future prevention.

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Association Of Serial Beta HCG And Progesterone Level With Outcome In Pregnancy Of Unknown Location

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ABSTRACT

Objective: To study the association of change in serial beta HCG level over 48 hours and serum progesterone with final diagnosis i.e. viable intrauterine pregnancy, ectopic pregnancy or failing pregnancy in cases initially labelled as pregnancy of unknown location.

Study Design: prospective population based study

Place and duration of study: Early Pregnancy Assessment unit of Homerton University Hospital London from December 2013 to February 2014

Methodology: Fifty patients were recruited in the study who presented to early pregnancy assessment unit and had positive urine for pregnancy test but no evidence of pregnancy on transvaginal scan. Initial beta HCG, progesterone and transvaginal scan were done in all cases. Patients were followed up with repeat HCG at 48 hour interval and repeat TVS until final diagnosis was established.

Results: Final diagnosis was miscarriage 58%, viable intrauterine pregnancy 24% and ectopic pregnancy 12%. 67% of patients with rise in HCG >60% had viable intrauterine pregnancy whereas all patients with >50% fall in HCG had a miscarriage. A highly significant association of >60% rise of HCG with viable intrauterine pregnancy and of >50% fall in HCG with miscarriage was observed with p-value<0.0001.

58% of patients with progesterone >30 had viable intrauterine pregnancy whereas 83% of patients with progesterone <10 were miscarriage and 17% had ectopic pregnancy. A highly significant association of final diagnosis of viable intrauterine pregnancy and progesterone level >30 was observed with p-value<0.0001.

Conclusion: Although there is high association of >60% rise in 48 hour repeat HCG and progesterone >30 with viable intrauterine pregnancy, ectopic pregnancy cannot be ruled out on the basis of biochemical test. Therefore a high index of suspicion is required to diagnose cases of ectopic pregnancy using clinical signs and symptoms, transvaginal scan as well as biochemical tests such as serial beta HCG and progesterone levels.

Key words: Pregnancy of unknown location, Ectopic pregnancy, serial beta HCG, Progesterone

INTRODUCTION

Bleeding and/or pain in early pregnancy is one of the commonest presenting complaints in gynaecology. Pregnancy of unknown location is defined as pregnancy in which urine for pregnancy test is positive but pregnancy, either intrauterine or extrauterine is not visible on transvaginal ultrasound scan[1]. 20% of pregnancies may initially be classified as pregnancy of unknown location (PUL). PUL is not a diagnosis, rather it is a clinical query that needs to be solved. The final outcomes may be a viable intrauterine pregnancy, failing pregnancy of unknown location (miscarriage) or ectopic pregnancy[1].

The commonest outcome of cases initially labelled as pregnancy of unknown location is failing pregnancy that may be intrauterine or extrauterine and resolves spontaneously. Another common outcome is viable intrauterine pregnancy. The most feared outcome is ectopic pregnancy. It may be tempting to diagnose a case of heavy bleeding with empty uterus as clear case of miscarriage but it can be misleading and there has been a case of maternal death with such presentation being managed as miscarriage which turned out to be ruptured ectopic in future[3]. Therefore careful follow up of pregnant women with empty uterus and positive pregnancy test is mandatory to avoid early intervention in case of viable intrauterine pregnancy and not to miss ectopic pregnancy. PUL is not synonymous with ectopic pregnancy but it should be considered as high risk of ectopic until and unless proved otherwise[4].

Serum HCG is merely an indicator of pregnancy while change in HCG over 48 hours is useful in distinguishing failing PUL from intrauterine and ectopic pregnancy. This is particularly the case when HCG is less than the discriminatory zone (HCG level above which it is expected to see an intrauterine pregnancy, taken to be 1000- 2400 depending on ultrasound equipment and sonographer expertise)[5].

The minimum rise for a potentially viable pregnancy that

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presents with vaginal bleeding and/or pain is 53% at 48 hour interval[6]. If HCG falls by at least 15% the most likely outcome is failing pregnancy. When the rise or fall in HCG is suboptimal, the most likely outcome is ectopic pregnancy. However some ectopics can mimic the rise as in viable intrauterine pregnancy and others can mimic the fall as in miscarriage[7].

Serum progesterone is a good predictor of viability of pregnancy but a poor predictor of location of pregnancy. Level <20nmol/l is most likely associated with failing pregnancy whilst levels >25 are likely to predict and >60 are strongly associated with viable pregnancy. A one off serum progesterone level may be a useful adjunct in the management of PUL[8].

PUL poses a diagnostic challenge. Every case should be managed according to clinical signs and symptoms. Transvaginal ultrasound is gold standard and cornerstone in diagnosis and serial HCG and serum progesterone are useful adjuncts in diagnosis and to guide management. Most cases can be managed conservatively. A high index of suspicion is required so that ectopic pregnancy is not missed. At the same time unnecessary intervention should be avoided should it be early case of viable intrauterine pregnancy or self resolving failing pregnancy[9]. Senior gynaecologist's involvement in decision making is of paramount importance.

METHODOLOGY:

The study was carried out in Early Pregnancy Assessment Unit (EPAU) of Homerton University Hospital London UK over 3 months period from December 2013 to February 2014. 50 patients were recruited who presented with abdominal pain or PV bleeding or both. Repeat HCG was done in 92% cases, 4% were diagnosed with miscarriage on the basis of history and very low initial HCG level and another 4% were lost to follow up. Repeat TVS was done in 46% of cases. Final diagnosis was established in light of signs and symptoms, scan findings, percentage rise or fall in HCG at 48hour interval and serum progesterone level. Final diagnosis was miscarriage, viable pregnancy or ectopic pregnancy. Data was analysed on SPSS and association of percentage change in serial beta HCG over 48 hours and serum progesterone level with final diagnosis was evaluated.

RESULTS:

In this study, the age of 34 (68.0%) patients was in 20-35 years age category, whereas 14 (28.0%) patients were >35 years old and only 2 (4.0%) patients were <20 years old. Among all 50 patients, 9 (18.0%) were nulliparous, 28 (56.0%) were multiparous and parity was not known for 13 (26%). The past history of ectopic pregnancy was present in 6 (12.0%) patients, absent in 35 (70.0%) patients and not known in 9 (18.0%) patients. The amenorrhea was reported to be for <5 weeks in 5 (10.0%) patients, 5-6 weeks in 22 (44.0%) patients, >6 weeks in 17 (34.0%) patients and was not surely known for 6 (12.0%) patients. Among all 50 patients, 15 (30.0%) presented with PV bleeding, 14 (28.0%) with abdominal pain, 17 (34.0%) with both PV bleeding and abdominal pain, 3 (6.0%) came for reassurance scan and 1 (2.0%) patients presented with pre TOP. The initial abdominal scan was done in 46 (92.0%) patients, pseudosac was seen in 14 (28.0%) patients and significant free fluid was observed in only 1 (2.0%) patient.

The level of progesterone was observed to be <10 in 24 (48.0%) patients, 10-30 in 7(14.0%) patients, and >30 in 19 (38.0%) patients. The initial beta HCG level was <1000 in 36 (72.0%) patients, 1000-2000 in 10 (20.0%) patients and >2000 in 4 (8.0%) patients. Percentage rise or fall in 48 hour interval HCG is shown in table 2,

The diagnosis on repeat scan was PUL in 4 (8.0%) patients, viable in 7 (14.0%) patients, ectopic and miscarriage in 3 (6.0%) patients each and uncertain viability in 6 (12.0%). The final diagnosis was PUL in 3 (6.0%) patients, viable in 12 (24.0%) patients, ectopic in 3 (6.0%) patients, miscarriage in 29 (58.0%) patients and uncertain viability in none of the patients whereas 3 (6.0%) patients were lost to follow up.

Final diagnosis was miscarriage 58%, viable intrauterine pregnancy 24% and ectopic pregnancy 12%. 33% had more than 60% rise on repeat HCG of which 67% were finally diagnosed with viable pregnancy, 13% with miscarriage, 7% with ectopic pregnancy and 13% were lost to follow up. All (26%) patients with more than 50% fall in repeat HCG were diagnosed with miscarriage. 22% of total patients had <50% fall in HCG, of those 80% had miscarriage while 20% had ectopic. 20% had <60% rise of which 11% were viable intrauterine pregnancy, 44% had miscarriage, 33% ectopic and 11% were lost to follow up. A highly significant association of >60% rise of HCG with viable intrauterine pregnancy and of >50% fall in HCG with miscarriage was observed with p-value<0.0001.

58% of patients with progesterone >30 had viable intrauterine pregnancy. 16% ectopic and 11% miscarriage, 15% lost to follow up. 83% of patients with progesterone <10 were miscarriage and 17% had ectopic. 88% of patients with progesterone between 10 and 30 had miscarriage and 12% had viable pregnancy.

A highly significant association of final diagnosis of viable intrauterine pregnancy and progesterone level >30 was observed with p-value<0.0001.

DISCUSSION:

Diagnosis of a woman who initially presents with PUL may involve multiple visits to the hospital, blood tests, ultrasound and possible surgical procedures before definitive diagnosis can be made[10]. Initial Ultrasound is inconclusive in 40% of cases because pregnancy may be

		Frequency	Percent
Progesterone	<10	24	48.0
	10-30	7	14.0
	>30	19	38.0
Initial Bhcg	<1000	36	72.0
	1000-2000	10	20.0
	>2000	4	8.0
Percentage rise or fall Repeat bhcg at 48 hours	<60% rise	9	20.0
	< 50% fall	10	22.0
	> 50% fall	12	26.0
	>60% rise	15	33.0
	NA	4	8.0

Table-1: The Level of Beta HCG and Progesterone Among Patients

	Diagnosis Repeat Scan		Final Diagnosis	
	Frequency	Percent	Frequency	Percent
PUL	4	8.0	3	6.0
Viable	7	14.0	12	24.0
Ectopic	3	6.0	3	6.0
Miscarriage	3	6.0	29	58.0
Uncertain viability	6	12.0	0	0
NA	27	54.0	0	0
Loss to follow up	0	0	3	6.0
Total	50	100.0		

Table-2: Repeat Scan and Final Diagnosis

Final diagnosis		Viable	Ectopic	Miscarriage	Lost to followup	P value
Percentage rise or fall on first repeat Beta HCG	>60%rise	67%	7%	13%	13%	<0.0001
	<60% rise	11%	33%	44%	11%	
	>50% fall	0%	0%	100%	0%	
	<50% fall	0%	20%	80%	0%	
Progesterone	<10	0%	17%	83%	0%	<0.0001
	10-30	12%	0(0%)	88%	0%	
	>30	58%	16%	11%	15%	

Table-3: Association of Percentage Rise or Fall of Beta HCG and Progestrone Levels with Final Diagnosis

too small to be seen or gestational sac may have collapsed before being visualized. In the event of making diagnosis, an ectopic can rupture leading to intraabdominal haemorrhage. It is imperative to differentiate between ectopic, viable intrauterine pregnancy and failing pregnancy because treatment strategies differ and could impact on future fertility[11]. A serum biomarker can help in this differentiation, and the most commonly used biomarkers used in clinical practice are serial HCG and serum progesterone.

Single measurement of serum HCG is poor predictor of outcome of PUL. A recent meta analysis by Van Mello et al has confirmed this[12]. In contrast serial measurement of serum HCG offers good test for predicting viability. Kadar and Romero suggested in 1981 that minimal rate of increase in HCG over hours was 66% in a viable intrauterine pregnancy[13]. A subsequent study by Barnhart et al showed the minimum rise in HCG at 24 hours to be 24% and at 48 ours to be 53%.[14] Seeber proposed minimal rise of 35% consistent with viable pregnancy.[15] Most units in UK use rise in HCG 50-66% to indicate increase in HCG compatible with viable pregnancy. Some ectopic pregnancies also demonstrate a normal rise in HCG.

A decrease in HCG of >13% has a sensitivity of 92.7% and specificity of 96.7% for predicting a failing PUL[16]. Unfortunately there is no single method to characterize the pattern of HCG change over48 hours in cases of PUL subsequently diagnosed as ectopic pregnancy. Majority would have serum HCG rise slower than would be expected in intrauterine viable pregnancy or decline slower than expected in a failing pregnancy. However 15-20% show rise similar to IUP and 10% show pattern like failing PUL[17].

Serum progesterone measurement at initial visit helps to reduce number of follow up visits. It is a marker of corpus luteum function and therefore will be high in viable pregnancies whether intrauterine or ectopic[18]. Progesterone >25nmol/l is likely to predict and >60 is highly associated with viable pregnancy[19,20]. Serum progesterone <20 is likely failing pregnancy and follow ups can be reduced[21,22]. Whether the failing PUL is ectopic or intrauterine is not of clinical importance. Hence progesterone is useful in identifying viability of pregnancy but not its location[23,24]. However its role is crucial in guiding the management of PUL and differentiating cases needing high or low level of suspicion[25].

CONCLUSION:

Pregnancy of unknown location poses a diagnostic challenge. Most cases end up as failing pregnancy but it is important not to miss ectopic pregnancy that might rupture and at the same time not to rush to treat a self resolving pregnancy or terminate a normal pregnancy. Serial HCG and progesterone are useful biomarkers that can be used as adjuncts to clinical judgement to guide the management of PUL.

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Original Article

Prevalence Of Partial Edentulism, Complete Edentulism And Single Complete Opposing Partial Edentulism In Relation To The Age Groups And Gender In The Local Population Of Hyderabad

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ABSTRACT:

Objective: This study was carried out to evaluate the prevalence of partial edentulism, complete edentulism and complete edentulous arch opposing the partial edentulous arches in relation to the various age groups and gender in local population of Hyderabad.

Materials and Methods: A cross-sectional study was conducted at the Department of Prosthodontic, Isra Dental College, Hyderabad. Duration of the study was 6 months, from January 2016 to June, 2016. A total 504 patients were selected for this study on the basis of history and clinical examination. The selected subjects were divided into six age groups. Data was statistically analysed by SPSS statistics software version 21. Descriptive statistics such as frequencies, percentages, mean and cross tabulation were applied to test the variables. The level of statistical significance was set to 0.5%.

Results: The results showed that out of 504 selected subjects 426 (84.5%) subjects were partially edentulous, as compared to completely edentulous patients who numbered only 66 (13.1%) whereas 7 (1.4%) subjects had complete edentulous upper ridge and partially edentulous lower ridge, only 5 (1%) subjects had complete edentulous lower ridge and partially edentulous upper ridge. Partially edentulous jaws were more prevalent in females and in middle aged patients ranging from 31-40 years and completely edentulous jaws were more prevalent among male subjects in old age subjects who were above 60 years of age. Single complete denture opposing partially edentulous ridges were more common in females and in patients who were above 30 years of age.

Conclusion: This study concluded that the partially edentulous jaws were more prevalent as compared to completely edentulous jaws. Partially edentulous jaws were more prevalent in females and in middle aged patients while completely edentulous jaws were more prevalent among male subjects and in old age subjects of either age, whereas single complete denture opposing partially edentulous ridges were more common in females and in patients who were above 30 years of age.

Key words: Partial edentulism, complete edentulism, prevalence, age, gender.

INTRODUCTION:

Dentition is a blessing and an asset to human's face. Without teeth, humans are considered to be a handicapped. An individual feels handicapped in terms of esthetics and oral functions like speech and mastication.

Inadequate dentition can cause difficulties in food intake; it may affect mastication and masticatory abilities which play important role in digestive system and general health of an individual. Completely edentulous patients are found to be at a higher risk of malnutrition due to weak and limited chewing ability.

Edentulism may affect confidence level of an individual in society[1]. Less number of remaining natural teeth not only diminishes the quality of life but general health and oral functions as well[2,3]. Teeth either natural or artificial are very essential for human health to provide satisfactory function[4,5,6]. Therefore, patients need replacement of their lost teeth as soon as possible.

Edentulism is associated with low education level and poor family income[7,8]. Other multiple factors inclue: dental caries, periodontal diseases, trauma, poor oral hygiene, poor nutrition, tobacco smoking, alcohol intake, degenerative systemic diseases, unfavourable medication and abnormal oro-dento-facial anatomy. The lower socio economic condition, socio demographic situation, cultural misbelieves and unfavourable environment may further aggravate the factors for tooth loss[9-16]. Many patients may prefer extractions over conservative treatments influenced

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by their lower socio-economic and demographics factors.

The prevalence and distribution of complete edentulism might be related with a multifarious interrelationship between individual, traditional, health and socioeconomic influences in the developed and less developed countries[17].

World Health Organization record specifies that in majority of countries worldwide, dental carries is more prevalent with some nations recording 100% incidence in their populations[10]. According to World Health Organization, an adult should have minimum of 21 functional teeth to provide the ability to experience a good dietary intake without any prosthesis[18] but edentulism considerably reduces the quality of life[19].

Several cross sectional studies on the prevalence of edentulism show consistently that edentulism has direct associated with age, gender and living areas in most countries[20].

Edentulism rates among the elderly people of European countries have been reported as relatively high such as England (74-79%), Scotland (85%), Ireland (72%), Northern Ireland (69%), Netherlands (83%), Denmark (68%), Finland (67%) and Norway (57%). In Australia, 68% of people aged 65 or more were edentulous. Edentulism is consistently increased with the age, females having higher rated of edentulism as males[21].

This study was carried out to evaluate the prevalence of the partial edentulism, complete edentulism and single complete opposing the partial edentulism in relation to the age groups and gender in the local population of Hyderabad.

MATERIALS AND METHODS:

An epidemiological cross-sectional study was conducted in the Dept. of Prosthodontic at Isra Dental College Hyderabad, over duration of 6 months, from January, 2016 to June, 2016. To determine the frequency of partial edentulous, complete edentulous and single complete opposing partially edentulous ridges among the patients visiting in the Dept. of Prosthodontics at Isra Dental College welfare OPD.

Total 504 patients of both genderswere selected for this study on the basis of history and clinical examination.

The selected subjects were within the age range from 10 years to 80 years. They were divided into 6 age groups: Group 1: 10-20 years, Group 2: 21-30 years, Group 3: 31-40 years, Group 4: 41-50 years, Group 5: 51-60 years, Group 6: 60+ years.

The data was analysed by SPSS statistics software version 21. Descriptive statics such as frequencies, percentages, mean and cross tabs etc. were applied to test the variables. The level of statistical significance was set to 0.5%.

RESULTS:

Our study included 504 patients, of which 249 (49.4%) were males and 255 (50.6%) were females(Fig: 1). Subjects chosen ranged in age from 13- 80 years with mean age of 44.93 years. Subjects were divided into 6 age groups according to their age. 3.2 % subjects belonged to group 1, 17.9 % subjects belonged to group 2, 23.4 % individuals belonged to group 3, while group 4, 5 and 6 constituted 25.2%, 17.1 % and 13.3 % subjects respectively.

Out of 504 selected subjects 426 (84.5%) subjects were partially edentulous, as compared to completely edentulous patients who numbered only 66 (13.1%) whereas 7 (1.4%) subjects had complete edentulous upper ridge and partially edentulous lower ridge while only 5 (1%) subjects had complete edentulous lower ridge and partially edentulous upper ridge(Fig:1).

Out of the 426 partially edentulous subjects, 199 (46.7%) were males and 227 (53.3%) were females.

Majority of the partially edentulous patients 109 (25.6%) and 105 (24.6%) were from age group 3 and 4 respectively, while only 16 (3.8%), 87 (20.4%), 67 (15.7%) and 42 (9.9%) subjects belonged to age group 1, 2, 5 and 6 respectively (Fig:2).

Thus, indicating that partially edentulous jaws were more prevalent in females and in middle age pt. ranging from 31-40 years.

From 66 completely edentulous patients, 46 (69.7%) subjects were males and 20 (30.3%) were females. Majority of the completely edentulous patients 24, 17 and 15 subjects were from age group 6, 4 and 5 respectively. While only 0, 3 and 7 subjects were from age group 1, 2 and 3 respectively.

Hence, the result of this study demonstrates that completely edentulous jaws are more prevalent among male subjects and in old age pt. that are above 60 years of age.

Of the 7 subjects who had complete edentulous upper ridge and partially edentulous lower ridge, 3 were males and 4 were females (Table:1). Majority (4 subjects) belonged to age group 4, while 2 and 1 subject were from group 5 and 6 respectively.

Thus, the result of this study demonstrates that completely edentulous upper ridge and partially edentulous lower ridges are more prevalent among female subjects and in patients who range from 41 to 50 years of age.

Out of 5 subjects who had complete edentulous lower ridge and partially edentulous upper ridge, 1 was male while 4 were females and 2 subjects belonged from each group 3 and 5 while only 1 subject belonged to group 4.

DISCUSSION:

This study evaluated the frequency of the partial edentu-

Gender	Partially Edentulous	Completely Edentulous	Upper Partial and Lower Complete Edentulous	Upper Complete and Lower Partial Edentulous	Total
Male	199 46.7%	46 69.7%	01 20.0%	03 42.9%	249 49.4%
Female	227 53.3%	20 30.3%	04 80.0%	04 57.1%	255 50.6%
Total	426	66	05	07	504

Table 1: Distribution of the Edentulism according to the Gender

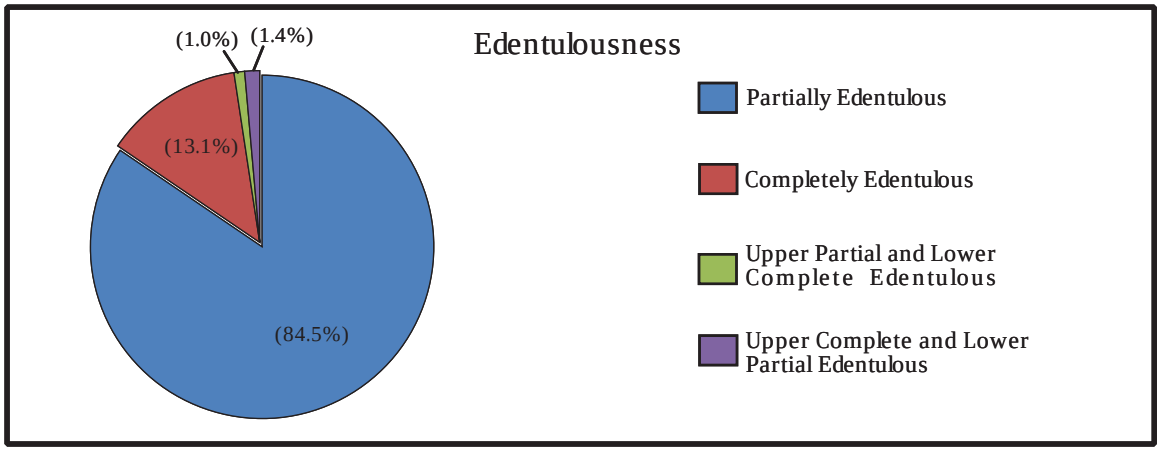

Figure: 1 Prevalence of Edentulism

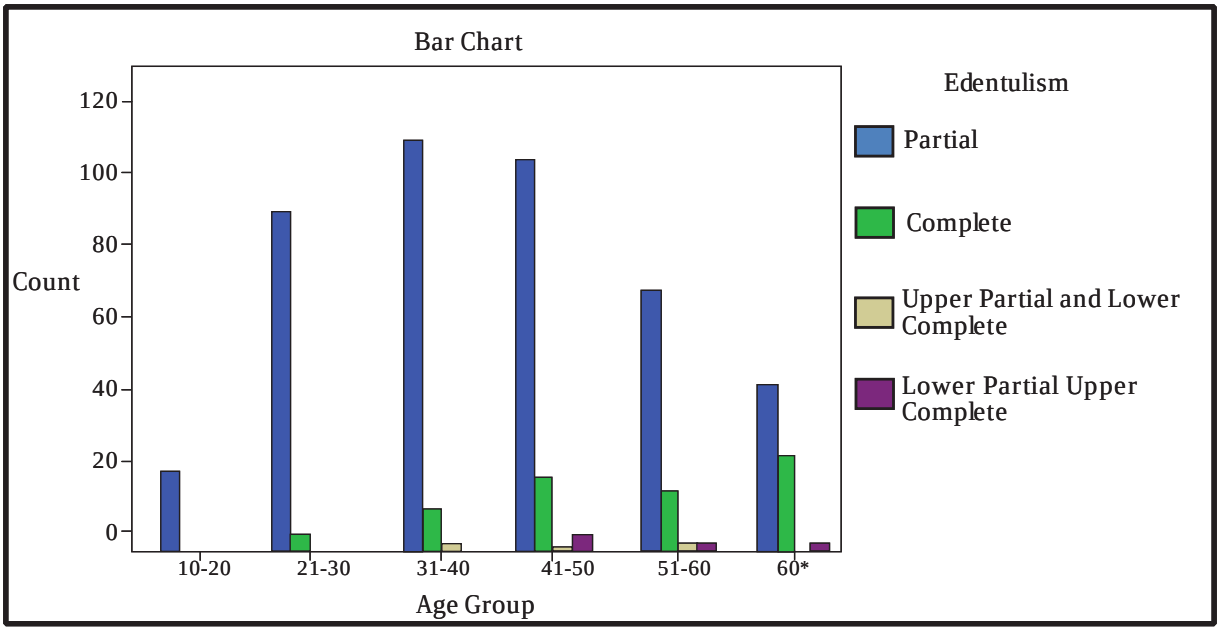

Figure: 1 Prevalence of Edentulism and the Age Group

lism, complete edentulism and single complete opposing the partial edentulism in relation to the age groups and gender among patients visiting the dental OPD of Isra Dental College Hyderabad.

The results of this study show that there is a significant relationship between the edentulism with the age groups selected and the gender.

The rate of edentulism is estimated at 30% for Africans, Americans, American Indians or Alaska Natives, 26% for Causians and 24% for Hispanics12. Complete edentulism is an international problem, particularly in the age group of 65 years and older. The condition do not seem to be focused in developing countries, as Ireland (48.3%), Malaysia (56.6%), the Netherland (65.4%) and Iceland (71.5%) report some of the highest levels12, 22. While women have been losing all their teeth at 3% higher rate in the USA than men12.

According to the gender, this study showed that the complete edentulism were most common in males and partial edentulism in females. Kaira Singh et al10 was conducted study in rural and urban population of Udaipur district of Rajasthan, he observed in his study that out of 524 completely edentulous subjects, 323 subjects were male and 201 subjects were females. This tendency for more number of male than female subjects is consistent with the study of Sakkiet al23 and Sonkesariya9.

Khazaeiet al18conducted community based study, he observed that tooth loss and edentulism is more prevalent in males. Same results were found by Muller et al6, Hessari et al24 and Okoro et al25 as well.

According to age wise distribution of subjects, this study showed that the partial edentulism were more common in age group 3 (31-40 years) and complete edentulism in age group 6 (60+ years).

Kaira Singh et al10 conducted study in rural and urban population of Udaipur district of Rajasthan, he observed in his study that higher percentage of complete edentulism was found in female subjects in the age group of 30-50 years and 51-70 years in rural (52.3%) and urban (47.8%)regions, respectively. Highest percentage of male subjects was found in the age group of 51-70 years in both rural (53.8%) and urban (55.1%) regions. This result showed that female subjects were becoming edentulous at an early age than male subjects14, 22, 26.

Various prevalence rates of tooth loss have been reported around the world. Based on Swiss Health

Survey among 14326 subjects, the prevalence of edentulism was 0.3% and 26.8% in 15-24 and 65-

74 years old subjects, respectively27. A systemic review conducted in Iran, the prevalence rate of tooth loss varied from 0.3% in 3-5 years old children to 70.7% in adults older than 65 years28. A systemic review of 73 studies in Europe showed that edentulism is already rare among people of working age or up to 60 years of age in many European countries, whereas there are still many edentulous subjects in the age group above 65-in studies from the 1990s, the prevalence varied between 15% and 72%6.

Ariga and Bridgitte4 conducted study in rural South India; he observed that 27.9% of an elderly in the 70-79 years of age group were completely edentulous. This estimate was higher than the WHO national estimate of 19% in this age group29. Ariga and Bridgitte4 were also observed that proportion of partially edentulism in an elderly subjects were 64.8%. this proportion were increased with age. It was 59.7% in the age group of 60-69 years and 83.7% in the age group of 70-79 years. Other studies were consistent with this observation that edentulousness increases with age30, 31.

Additional prospective studies are required to evaluate the possible association between metabolic syndrome and tooth loss. Community programs directed towards promoting the oral health and multidisciplinary efforts are suggested for prevention of tooth loss. Further researches are needed to determine the main risk factors of tooth loss and its possible consequences among local population.

CONCLUSION:

The results of this study demonstrate that partially edentulous jaws are more prevalent as compared to completely edentulous jaws.

It is very essential to provide the local dental health education and treatment to the entire local population of Hyderabad in future and educate them the importance of edentulism and its overall impact on the health.

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Frequency Of Awareness And Practice Of Stethoscope Hygiene With Regards To Guide Line Among Medical Students, Residents And Doctors In Karachi

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ABSTRACT:

Objective: The objective of the study was to identify "implications" of guidelines provided to participants at the end of a survey for improvement in stethoscope hygiene.

Methodology: A cross sectional survey was conducted from January to March 2016 in which a questionnaire was designed to know the awareness of stethoscope hygiene among health care practitioners. The questionnaire was distributed to 150 consented participants, out of which 138 complete (92%) responses [49, (32%) attending physicians, 50(33%) residents and 39(26%) medical students]; comprising of 84 (61%) females and 54 (39%) males was acquired. The responses included following consulting clinics (n=30, 22%), wards (n=41, 30%), intensive care units (n=41, 30%) and acute care units (n=26, 18%). At the end of the survey practicing guidelines were discussed and hard copy given to respondents. They were then asked to tell about to the impact of these guide lines on their measures to maintain stethoscope hygiene

Results: It was observed that health care practioners consented to start stethoscope cleaning at the start of every clinic, 33.3% showed their intentions for educating others by verbal instructions, and 66.7% were said they will recommend alcohol swab for cleaning of stethoscope.

Conclusion: The survey on stethoscope hygiene with practicing guidelines reflects the awareness generated in the respondents. It is further expected that they will disseminate the information and educate others to consider importance of stethoscope sanitation and practice its hygiene

Key words: Mediations, HAIs, Hygienic, Swab

INTRODUCTION:

Stethoscope, one of the most important used and universally recognized tool for assessment of patients is a symbol of health care experts. This clinical and significant instrument was described to be the potential vector for spreading infections in the hospital atmosphere in various parts of the world [1]. It is assessed that more than 1.4 million people worldwide are suffering from hospital acquired infections (HAIs)[2], have been linked to devices like surgical gloves, blood pressure cuffs, laboratory coats, electronic thermometer and stethoscopes[3]. Rate of HAIs varies between 3% to 21% in numerous hospitals around the world and it tend to be as high as 39% resource-poor countries like Pakistan[4] Several studies have revealed that stethoscopes can carry antibiotic resistant pathogenic bacteria such as Methicillin resistant staphylococcus aureus (MRSA)[5] and Micrococcus luteus[6] that are capable of spreading bacteria to patients. Good hygiene practices can reduce the risk of infection and improve the quality of life [7,8] The Pakistan hygiene team is working with an aim to expand "save lives: clean your hands" , part of major global effort led by WHO to support health care workers to improve hand hygiene and to prevent from life threatening hospital acquired infection. Multi faced approach including interventions like educational programs, provision of hand hygiene facilities and promotion of hand rubs as an alternative to soap lead to an increase in compliance[9,10]

In addition to inappropriate hand disinfection, clinical tools such as stethoscopes can also potentiate a risk of contamination[9] Stethoscope should be inspected periodically for air leaks and for defective parts that need replacement[11,] Studies from developed countries revealed that a major proportion of health care professionals do not maintain the hygiene of stethoscope and found an association between hand washing and stethoscope cleaning [11] Pittet et al conducted this study to identify the obstacles on the compliance of an infection control program. They found that when health care facilitators,

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were aware, prevalent and preventive measures were taken, the HAIs decreased significantly by more than 70%[12].

Previous studies revealed that there is a significant reduction in colonies and growth of bacteria while using alcohol based preparations and washing the head of stethoscopes with soap and water [13]. 90% ethanol is very effective in decontaminating stethoscopes [14].

The aim of this study was to identify the impact of awareness generated by the survey in terms of maintenance of stethoscope hygiene. At the end of this survey of stethoscope, practicing guide lines were distributed to all the respondents

MATERIAL & METHODS:

A cross sectional survey was conducted from January to March 2016 in which a questionnaire was designed to know usefulness of guidelines distributed to health care practioners. The questionnaire was distributed to 150 consented participants, out of which 138 complete (92%) responses [49, (36%) attending physicians, 50 (36%) residents and 39 (28%) medical students]; comprising of 84 (61%) females and 54 (39%) males. The responses included from the following hospital areas: consulting clinics (n=30, 22%), wards (n=41, 30%), intensive care units (n=41,30%) and acute care units (n=26,18%). At the end of the survey practicing guidelines were discussed and hard copy given to respondents. They were then asked to respond to the impact of these guide lines on their measures to maintain stethoscope hygiene. Stethoscope hygiene training should be instituted in healthcare training to potentially increase compliance in the healthcare environment.

Data was entered in SPSS version 15, means and standard deviations were calculated for all the items.

RESULTS:

The survey concluded that frequency of stethoscope cleaning varies among medical professionals. Only 15.95% (22/138) had maintained the hygiene of stethoscopes and only 10.87% (15/138) cleaned it after every examination. Table 1 show that greater number of females participated in the study. The response rate from residents was maximum and largest numbers of responses were obtained from wards and intensive care units. Only 5 cases (3.63%) has the practice of cleaning all parts of the stethoscope while 5 persons(3.63%) has the practice of cleaning only diaphragm and ear piece. 27 persons(19.5%) did not responded about the measure for maintaining stethoscope hygiene at all, so a huge number of medical personals are unaware about the stethoscope hygiene.

Alcohol swabs was found to be the commonest agent for sterilization of the stethoscope (51.45%) followed by ethanol (19.51%) in this study. At the end of the survey after discussing practical guide lines, 78 persons (56.53%) agreed that they will communicate with verbal instructions others while 27 (19.57%) agreed that they will practically demonstrate the technique to others.

DISCUSSION:

The frequent usage of stethoscope with reference to monitoring and inspection of patient has a vast effect on not only on the patients but for the practitioners as well. This is because of the fact that clinical environment is assumed to be more predisposed to transmission of infections with use of different equipments like stethoscope. Nevertheless, stethoscope asepticism is infrequently reflected or accomplished by consultants, residents and medical students[15]. This habit adds to bacterial contamination of stethoscope and further promotes hospital acquired infections[4]

This survey has highlighted the influence of strategies on awareness about stethoscope sanitization. It was found that only 4.35% consultants, residents and medical students had ever cleaned their stethoscopes at the start

Characteristics		n	%
Gender	Male	54	39.1
	Female	84	60.9
Designation	Consultant	49	35.5
	Resident	50	36.2
	Medical Student	39	28.3
Place of collection	Consulting clinic	30	21.7
	Wards	41	29.7
	Intensive Care Unit	41	29.7
	Acute Care Unit	26	18.8

Table 1: Distribution of respondents from different hospital settings

Questions Asked		Total n (%)
Measures taken for maintenance of stethoscope hygiene	Clean stethoscope at the start of every clinic	
	Cleaning of ear piece	6(4.35)
	No response	27(19.57)
	Disinfection with swab once	12(8.70)
	Use alcohol swab more than once	6(4.35)
	I will maintain hygiene of stethoscope	22(15.95)
	Using sanitizer	6(4.35)
	Regular cleaning	6(4.35)
	Cleaning stethoscope at the end of the day	16(11.6)
	Cleaning it after every examination	15(10.87)
	Cleaning diaphragm and ear pieces	5(3.63)
	Cleaning the entire stethoscope	5(3.63)
Education about hygiene by:	Verbal instructions	78(56.53)
	Practical demonstrations	27(19.57)
	No response	6(4.35)
	Both verbal and practical demonstrations	22(15.95)
	Verbal instructions and role modeling	5(3.63)
Types of disinfectant to be used	Alcohol swab	71(51.45)
	Purell	6(4.35)
	Ethyl Alcohol	27(19.57)
	Practically cleaning my own stethoscope	6(4.35)
	Hand sanitizer	6(4.35)
	No response	11(7.98)
	Various disinfectants available	6(4.35)
	soap, washing material and ethyl alcohol	5(3.63)

Table 2: Response of questionnaire

of every auscultation which is supported by other groups[16, 17]. We have observed that health care professionals who practiced cleaning, had least contamination. The habit can be inculcated only when users know the significance of stethoscope hygiene as well as follow their role models[18] a strong management would thus play a pivotal role in influencing the attitude of coming generations for prevention of infection[16, 19.]

Proper use of stethoscopes is an essential part of clinical practice, however it appears that instrument care has not been usually addressed[20] One hundred thirty eight study respondents (84 females & 54 males) expressed the strongest negative attitude for the practice of stethoscope hygiene[21]. Cleaning of stethoscopes on regular basis has been shown to decrease bacterial contamination by 94% in studies done in department of microbiology at hammer smith hospital, UK[22,23]. There are studies in which education about stethoscope hygiene is provided by reminder flyers to house staff, medical students as well as attending physicians[24,25]. It is expected that circumstances inhibiting stethoscope cleaning will be identified from our study and used for targeted interventions to improve cleanliness in the clinical environment.

CONCLUSION:

The survey on stethoscope hygiene with practicing guide lines reflects the awareness generated in the respondents. It is further expected that they will disseminate the information and educate others to consider importance of stethoscope sanitation and practice its hygiene. We further recommend visual reminders in all clinical settings to reinforce the concept till the time; it becomes a well-established practice.

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Original Article

Concomitant Use Of L-arginine With High Butter And Corn Oil Diet Prevent Their Harmful Effects On Adrenocortical Cells Of Albino Rats

Iram Quddus, Farhana Samir, Humera Waqar, Sarwer Qureshi

ABSTRACT:

Objective: To compare the bichemical and morphological effects of L -Arginine against the changes caused by butter and corn oil supplementation

Study design: A prospective experimental study

Place: Department of Anatomy BMSI, JPMC

Duration: August to October 2008.

Methodology:Male Albino rats weighing 200 - 240gm were selected and divided into 5 groups. Group 'CL' received standard laboratory diet. Group 'Bu' received 20% added unsalted butter in diet. Group 'Co' received 20% added corn oil in diet. Group 'BuAr' received 20% Butter with L-Arginine 300mg /kg body weight /day orally .Group'CoAr' received 20%corn oil along with L-Arginine 300mg/kg body weight/day orally. On completion of study period that is 4 weeks, animals were sacrifised. Blood was drawn for hormonal assays. Adrenal glands were removed and fixed in buffered neutral formalin. Right adrenals were processed and sectioned at4 µm thickness to be stained with Mallory trichrome stain to visualize blood vessel. Left adrenalswere sectioned with cryostat in 10µm sections and stained with Oil red O to visualize fat in cells.

Results:Highly significant and moderately significant decrease observed in ACTH (Adrenocorticotrophic hormone)levels in Group BuArand CoAr when compared to Bu and Co respectively; insignificant difference was found between BuAr&CoAr. Moderately significant and significant decrease observed in corticosterone levels in Group BuAr and CoAr when compared to Buand Co respectively. Insignificant difference was found between BuAr and CoAr . Mallory trichrome stained section showed less dilated blood vessels in BuAr&CoAr compared to Bu & Co respectively, while difference among the former two was not remarkable. Oil red O stained sections showed less densely packed fat globules in group BuAr&CoAr compared to Bu and Co respectively. Difference between BuAr&CoAr was not marked.

Conclusion: Butter has more stimulatory effect on adrenal cortical cells but the comparison with corn oil is not statistically significant except for ACTH levels. L Arginine seems to be effective in lowering the levels of stress hormones, fat accumulation and vasodilatation when given along with corn oil and butter oil.

Key words: Adrenal gland, Butter, Corn oil, L-arginine.

INTRODUCTION:

In Pakistan the second ranking source of calories is edible oil[1]. Butter and butter oil (Desi ghee which is formed by heating butter and removing solids) were more comonly used raw and for cooking food . Share of butter oil in total consumable oil dropped drastically from 58% in 1972 to about 3.8 % in 1990. Different types of vegetable oils and vanaspati ghee (hydrogenated vegetable oil) gradually replaced butter and butter oil due to various reason; one among them being the increased awareness of health benefits of vegetable oils (polyunsaturated fat proportion). Among these oils, corn oil and soybean took the lead[2]. Beneficial effects of corn and soybean oil are over emphasized that these oils used in whatever quantity are totally safe[3]. Butter despite of claims of being hazardous to cardiovascular system is a good source of natural vitamin D, A and calcium. The synthetic vitamins added in different oils are by no means a match to natural vitamins[4]. Fat in excess whether in form of butter, lard or vegetable oil has adverse effects on whole body, but it affects each system and organ in different way[5].

Fat acts as a substrate for steroidogenesis in adrenal gland which belongs to body's stress system that is Hypothalamo -pituitary- adrenal axis (HPA axis), captures attention because of its involvement in the pandemics of metabolic syndrome which ends up in type 2 diabetes and coronary heart disease[6].The proposed mechanism underlying increased steroidogenesis in response to fatty foods is

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adrenal hyperplasia and hypertrophy by increased expression of multiple genes involved. One among these was elevated sonic hedgehog signaling, as a result of obesity due to fatty diet in Gli 1 – positive progenitor cells which give rise to steroidogenic cells and thus increased hormone levels[7].

L arginine which is a known negative modulator of steroidogenesis by nitric oxide formation, is normally present in body and considered semi- essential amino acid[8]. Supplementation of L -Arginine has been done for many other form of stress or sand in other systems of body[9].

Present study compares the effectiveness of L Arginine in attempting to maintain the normal morphology and function of adrenal gland when excess of two different types of commonly used fatty diet were given.

METHODOLOGY:

This study was conducted in the department of Anatomy, BMSI, JPMC from August to October 2008. The study sample included 25 male adult Albino rats aged around 90-120 days ,weighing 200-240gm .They were kept on standard laboratory diet for a week for observation, with 12hours dark and light cycle, before commencement of study period. Animals were divided into five groups according to the diet they received, each comprising of 5 animals. Group 'CL' received normal laboratory diet. Group 'Bu' received 20gm unsalted dairy butter in 100gm of diet representing saturated fat. Group 'Co' received20 ml corn oil in 100 gm of diet as unsaturated fat. Group 'BuAr' received Butter along with 300mg L-Arginine /kg body weight/day orally (General Nutrition Corporation, Pittsburg, USA) .Group 'CoAr' received Corn oil along with 300mg L-Arginine /kg body weight .Animals were housed in cages under standard laboratory conditions of 12 hours day and night cycle. After completion of 4 weekstudy period animals were dissected after giving ether anesthesia. Blood samples were taken at the time of dissection through intra-cardiac puncture. Each sample(4ml) shifted to lavender tube containing EDTA and centrifuged for 15 minutes at 3500 Hz to get plasma, which was stored at -20°C for analysis. Plasma ACTH (Adrenocorticotrophic hormone) and Corticosterone levels were determined by Elisa method .Adrenals were removed and fixed in 10% buffered neutral formalin for 24 hours. Right adrenals were processed in ascending grades of Alcohol and were cleared with Xylene and infiltered in paraffin to be sectioned at 4µm thickness. The sections were then stained with Mallory trichrome stain to observe the blood vessels. Left adrenals after fixation in 10% buffered neutral formalin were sectioned by cryostat to 10 µm sized sections which were stained with Oil Red O to demonstrate lipids in cell. Statistical analysis was done by students't' test and P value less than 0.05 was considered as significant. Calculations were done by utilizing computer software SPSS version 13.

RESULTS:

Highly significant($P<0.001$) increase found when values of ACTH hormone of Bu and Co groups were compared with Cl. Highly significant ($P <0.001$) and moderately significant ($P<0.01$) decrease observed in group BuAr and CoAr when compared to Bu and Co respectively. Insignificant ($P>0.05$) difference was found when BuAr and CoAr groups were compared with each other. (Fig,1)

Significant ($P<0.05$) and insignificant ($P>0.05$) differences were seen in plasma Corticosterone levels of group Bu and Co when compared to CL. Moderately significant ($P<0.01$) and significant ($P<0.05$) decrease in corticosterone levels were observed in BuAr and CoAr when compared to Bu and Co, while insignificant ($P>0.05$) difference was seen in levels among BuAr and CoAr. (Fig,2)

In Mallory trichrome stained sections of adrenal cortices of Bu and Co groups increased number of dilated blood vessels were seen when compared with CL group. In sections of BuAr and CoAr less numerous and less dilated blood vessels were seen compared to Bu and Co respectively. (Fig, 3 and 4). Comparison of the sections from group BuAr and CoAr did not show any marked difference.

Sections of adrenal cortices of group Bu and Co stained with Oil red O stain showed more densely packed and densely packed fat globules respectively when compared to CL group. Less densely packed globules were seen in both BuAr and CoAr groups when compared to Bu and Co groups respectively. (Fig, 5 and 6) Comparison of BuAr and CoAr did not show much difference.

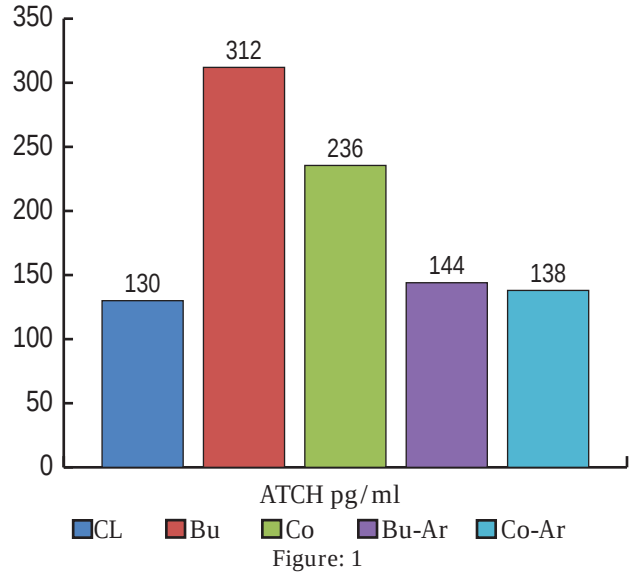

Figure: 1
Mean Plasma Levels of Adrenocorticotropic Hormone in different groups of albino rats

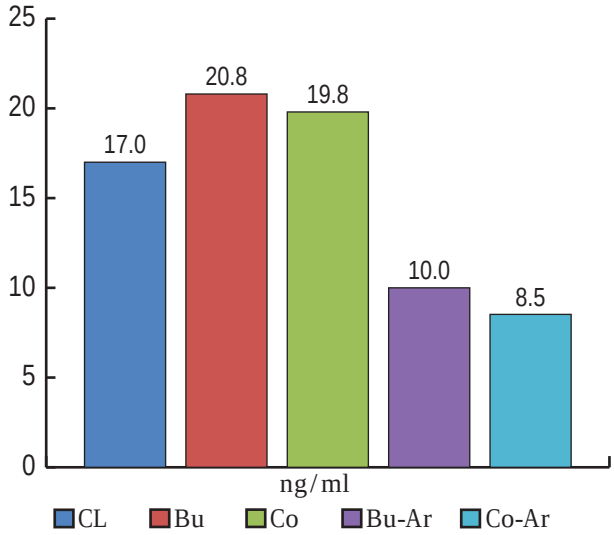

Figure: 2
Mean Plasma Levels of Corticosterone in different groups of albino rats

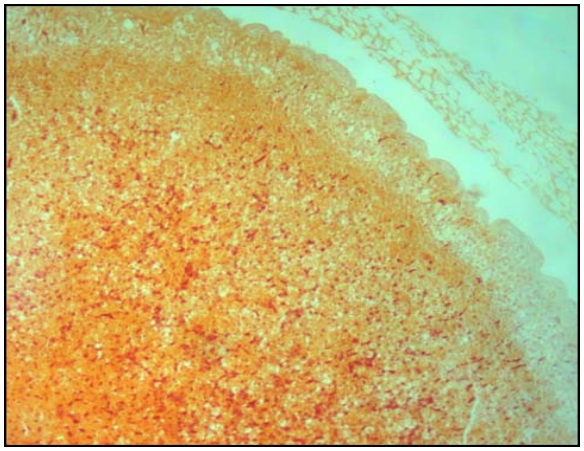

Figure-3
Mallory trichrome stained ,4µm thick sections of rat adrenal cortex showing less dilated blood vessels after 4 weeks treatment with Butter and L-Arginine. (X 100)

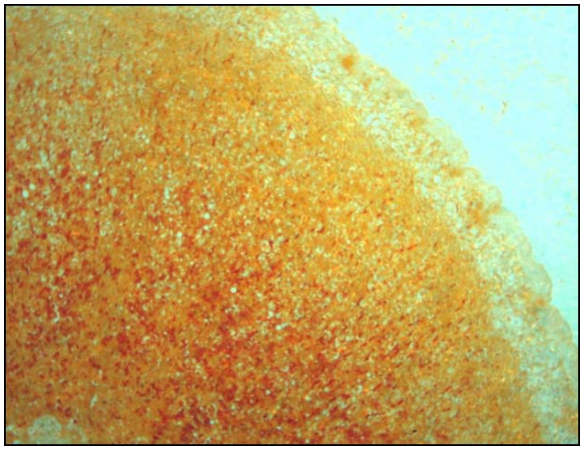

Figure-4
Mallory trichrome stained ,4µm thick sections of rat adrenal cortex showing less dilated blood vessels after 4 weeks treatment with Corn oil and L-Arginine. (X 100)

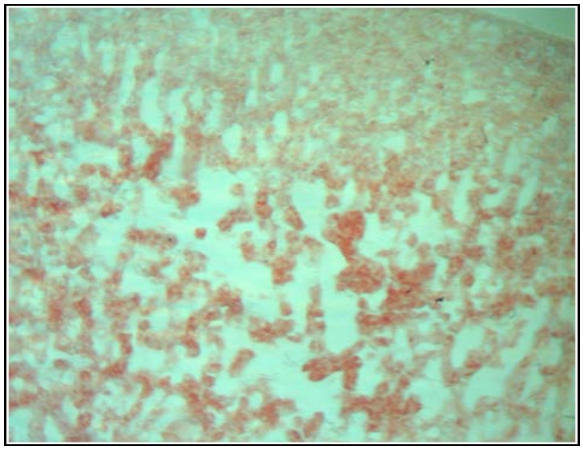

Figure-5
Oil red O and Hematoxylin stained ,10µm thick frozen sections of rat adrenal cortex showing less densely packed distribution of fat globules after 4 weeks treatment with Butter and L-Arginine. (X 100)

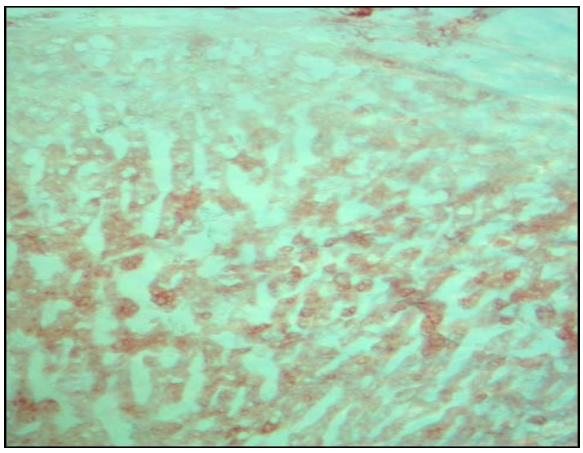

Figure-6
Oil red O and Hematoxylin stained ,10µm thick frozen sections of rat adrenal cortex showing less densely packed distribution of fat globules after 4 weeks treatment with Corn oil and L-Arginine. (X 100)

DISCUSSION:

Debate on saturated and unsaturated fat sources in diet has been going for many years, the comparison mostly is done in relation to blood levels of LDLs ,HDLs ,cholesterol and triglycerides ; coronary artery disease and liver accumulation. Effects of excessive fat consumption on other organs with different types of fat are comparatively less studied.

Present study compared Butter and corn oil effects on adrenal while Manna et al[10] compared the effects of ustard oil and Ghee on serum lipids. Sharmaet al [11] observed no effect with 10% Ghee on serum cholesterol in fischer inbred rats. Mohammadi and Aziz [12] found increased expression of Apo lipoprotein B in intestine with cow derived Ghee. Nirmalaet al [13] observed that serum cholesterol levels were lowered with 5% cured Ghee(made by cultured butter) compared to cream ghee (clarified butter). Silvaet al [14]used butter with sugar to produce

obesity under controlled temperature and that elevated the serum lipids also.

Results of hormonal essays clearly depict triggering effect of both butter and corn oil on secretion of ACTH and corticosterone. Both corn oil and butter treated groups showed highly significant increase in ACTH levels .Birem[15] et al found 202% higher levels of ACTH in palm olive receiving animals compared to control in study of 7 months ,they found a positive correlation between ACTH levels and HDL –cholesterol. Another study[16] (EL-Feky etal, 2010) also observed that fat which enter the adrenal gland causes increase in lipid rich cells in zona fasciculata and reticularis. L Arginine used along with butter and corn oil was able to decrease the levels of ACTH but the difference was not significant among the two types of fat. Mahar[17] et al found L Arginine effective in lowering the raised stress hormone levels induced by streptozotocin.

Corticosterone levels are direct indicators of stress level in body. Any agent which cause a decrease in its level is actually decreasing the stress on the body. Although corn oil seems to have less stressful effects as the levels of corticosterone indicates in present study, but its comparison with butter showed insignificant difference. Swierczynskaet al[7] also observed increased levels of corticosterone in response to high fat feeding. Liu et al[6] found increased corticosterone levels after giving 19.4% added fat in diet. L-arginine presumably prevented excessive increase in corticosterone level triggered by both butter and corn oil by nitric oxide formation. L -arginine has been used to decrease the cortisol levels in chronic stress in turbots by Costas and his fellows [9].Diazet al observed inhibitory effect of vitamin C on adrenal gland with down regulation of steroidogenesis, which was given to prevent obesity [18].

Mallory stained sections of butter and corn oil with L Arginine showed reduction in dilatation of blood vessels which was caused by both edible oils. Milovanovic et al[19] found increased size of capillaries and hyperemia in Azan stained sections of adrenal gland exposed to acute ethanol damage. While Saleh and Demerdash discovered during their study that L arginine ameliorates the vascular changes in kidney cortex caused by cisplatin[20] . Saad et al. also augmented that L-arginine significantly attenuated the oxidative stress and nephrotoxic effect of carbon tetrachloride induced renal toxicity [21].

Mansour et al. observed that oral administration of L-arginine before cyclosporine (CsA) injection produced a significant protection against nephrotoxity induced by CsA.[22]Fat which is a substrate for steroidogenesis can be seen in excessive amount in both butter and corn oil group sections stained with Oil red O stain. L- arginine caused decreased accumulation in both butter and corn oil groups by formation of nitric oxide as mentioned earlier[8].

Email et al. also observed localized effects of steroidogenesis and NO synthesis from L-arginine. on liver sinusoids in AZA-treated mice[23].Nitric oxide is important for the modulation of vascular tone, inflammation, immune function, endothelial function[24]. Vitamin C was used by Campion et al[25] who found that vitamin C down regulates steroidogenic genes in adrenal gland.

CONCLUSION:

When comparing the effects of butter and corn oil and the prevention by L Arginine on hormonal levels and histological findings, it is obvious that L Arginine prevents the fat induced changes but statistically insignificant difference was present in the protection provided by L-arginine, the mechanism is still to be explored. Both types of fat in excess appears to be harmful.

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Knowledge, Attitude and Practices of Pregnant Women regarding Benefits of Breast Feeding and Immunization in newborns.

Kumail Sajjad, Nafeesa Batool Kazmi, Raheela Rafique, Shakeel Ahmed

ABSTRACT:

Objectives: To study the knowledge attitude and practices of pregnant women regarding benefits of breastfeeding and immunization.

Study design: Descriptive cross-sectional study

Material and Method: This study was conducted at Department of Obstetrics of P.N.S. Shifa Hospital Karachi over a period of six months. All pregnant women admitted in the obstetric ward were included. After obtaining informed consent participants were administered questionnaire, which was filled in by the researcher. The questions were in the native language. Performa includes questions pertinent to knowledge, attitude and practices regarding benefits of breast feeding and immunization to achieve the millennium development goal 4.

Results: Despite of the level of education out of 235 participants at most of them (97%) were aware of role of immunization and breast feeding. But 14.5% lack knowledge of frequency of breast feeding. 42.11% participants said doctor advise her to breast feed while 52.2% counseled by the family lady, midwife and friends. 45.96% participants never got advice by the doctors against use of un-prescribed drugs during pregnancy.

Conclusion: The knowledge attitude and practices of pregnant women regarding benefits of breastfeeding and immunization are not upto the mark. There is a need to increase the education of the mothers to ensure better understanding regarding breastfeeding and immunization to achieve the Millennium Development Goal 4.

Key words: Breast feeding, Immunization, Pregnant women.

INTRODUCTION:

Early marriage, lack of education, large family size and lack of family support leads to increase in burden of child illness which can be prevented. Of annual four million neonatal deaths, majority in the developing world, approximately three-quarters die within the first week of life[1,2]. Pakistan has one of the highest newborn mortality rates[3]. Teenager girls, the future mothers do not have proper knowledge regarding the benefits of breast feeding for her as well as for the baby, optimum breast feeding practices and disadvantages of top feeding[2,4]. Globally only half of infants under 5 month of age and 30% of infants aged 1–5 months are exclusively breastfed[6]. Prevalence of exclusive breast feeding (EBF) was 41.5% in Pakistan. Also there is a significant lack of knowledge of women[7]of child bearing age about immunization their benefits and consequences of non-immunization to the child[7]. Certainly health education regarding these matters plays a key role to the care of their own health as well as the baby[8,9]. Breastfeeding and counseling with emphasis on correct technique can improve the EBF/FBF rates[10]. World health assembly in 2001 urged the member states to strengthen activities and develop new approaches to protect, promote and support exclusive breastfeeding for six months as a global public health recommendation, taking into account the findings of the WHO expert consultation on optimal duration of exclusive breastfeeding, and to provide safe and appropriate complementary foods, with continued breastfeeding for up to two years of age or beyond, emphasizing channels of social dissemination of these concepts in order to lead communities to adhere to these practices[11]. It is well documented fact, immunization directly increased the life expectancy by reducing mortality[12]. Benefits are being observed throughout the world. Maternal tetanus toxoid vaccination is recommended to prevent maternal neonatal tetanus deaths.United Nations Children's Fund (UNICEF), the World Health Organization (WHO) and the United Nations Population Fund (UNFPA)jointly established the goal to reduce the deaths from 6.7 Neonatal tetanus deaths per 1000 live births to 1 neonatal death in 1980s[13,23]. Unfortunately, Pakistan is among those countries those could not achieve the target [14]In a study conducted in Peshawar district of North West Frontier Province of Pakistan, 65% of women in urban areas were vaccinated, while in rural areas 60% were vaccinated. Females in the

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urban area were older and had more knowledge regarding TT vaccination than females in the rural areas. More women in the urban areas had made antenatal care visits (79%) than those in rural area (50%) [15]. Immunization and breast feeding are key component to enhance infant life expectancy and reduce maternal and neonatal child deaths per year.

The study was conducted to assess knowledge of married pregnant women admitted in gynae/obsward regarding advantages of breast feeding and immunization. Their attitude and practices about breast feeding and immunization for the benefits of the baby as well as their own health. We also want to know the hurdles in their way to practice if they are acknowledged. Results of the study can help to improve the hospital counseling techniques regarding the breast feeding and immunization at antenatal checkup for the improvement of Maternal and Child Health (MCH).

MATERIAL & METHODS:

This cross-sectional descriptive study was done in the gynae/obs department of PNS Shifa Hospital, Karachi over a period of six months. All married women admitted in the gynae/obs ward were included in the study. Participants were administered a detailed printed questionnaire, which was filled in by the researcher. The questions were in the native language. Performa includes questions on basic demographics and questions pertinent to knowledge, attitude and practices regarding benefits of breast feeding and immunization to achieve the millennium development goal 4. Data analysis was performed through SPSS version 19.0. Frequencies and percentages were computed to present all categorical variables.

RESULTS:

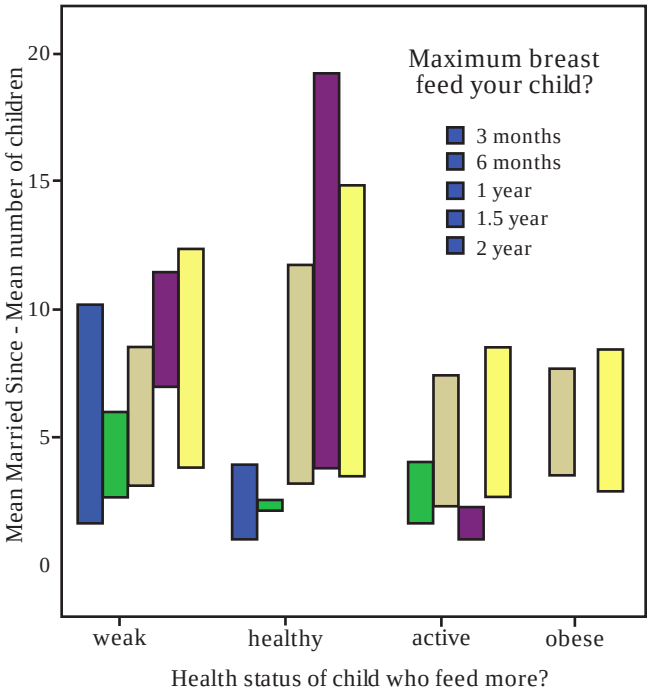
With the method of convenient sampling, 235 women were included in the study at confidence interval of 95%. About 78% of the respondent was less than 40 years out of that 40% were less than 30 years of age. Mean age of the respondents' was 33 years. Regarding the educational status of women 32% participants are totally uneducated while 38% were only educated to the level of metric. Hardly 18% of women were graduate and above. More or less same level of education was observes in the husbands as well. As far as awareness about vaccination role on health is concerned, 97.4% of women had awareness about the benefits of vaccination, and 93.5% of their children were vaccinated according to EPI schedule while 90% of the mothers have been vaccinated for tetanus toxoid.

As far as breast feeding is concern 99% women gave positive response to prefer breast feeding for their babies, while 97.4% and 96% of women were aware about the benefits and duration of breast feeding respectively. But it has been found that only 85.5% women were aware about the frequency of breast feeding. Only 82% women think that breastfeeding is a successful method of contraception, 90.5% child who fed more than others are healthy and active. Only 9.5% of women ever faced problem during feeding with 55%, 5% and 40% experienced pain, cracked nipple and other problems respectively.60.43% participants were booked and regularly visited for antenatal checkup but only 42.11% said that doctor counseled her on breast feeding and 52.2% were counseled by family lady, midwife or friends. 45.96% participants never got advice by the doctors against use of self-medication during pregnancy. As there is no contraindication to stop breast feeding during pregnancy, surprisingly only 10.7% women know that breast feeding should be continued during pregnancy. Figure illustrates link between feeding, health status, years of marriage and number of children. Firstly, it is

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	07	3.0	3.0	3.0
Family Lady	92	39.1	39.1	42.1
Friends	10	4.3	4.3	46.4
Obstetrician / Pediatrician	96	40.9	40.9	87.2
Dai/Midwife	17	7.2	7.2	94.5
Literature	8	3.4	3.4	97.9
Internet	5	2.1	2.1	100.0
Total	235	100.0	100.0	

Table: 1 Indicates the mother's source of awareness

evident that as we move from left to right i.e. week to obese duration of feeding increase. Empirically, 3 month duration tends to disappeared while 2 years duration gradually dominated in successive health stages. This shows that feeding is necessary for good health. Secondly,



vertical overview of graph shows mean number of children and means years of marriage indicated by upper and lower tips of bars respectively. On an average families having more number of children enjoyed healthy status of their children while having lower number of children have obese child. Apparently this shows that more the number of child, more it would be difficult to maintain child heath, but critical view shows that this fact is attributed to feeding as obese children enjoyed maximum duration of feeding followed by active, healthy and week respectively. As far as years of marriage is concern, it can be seen that as on average years of marriage increased, duration of feeding tend to increase. But effect of marriage years on health status of children is inconclusive. In short, duration of feeding is important determinant of health status of children.

DISCUSSION:

In this study we identify the awareness level regarding immunization and breast feeding, their major source of knowledge about EBF. We also know the understanding of the mothers about the breast feeding as a contraception and child health who fed for long duration over other siblings.

The knowledge of breast feeding and vaccination was adequate and most of the women continued breast feeding for more than a year. These results match with the study by Ali S et al [16] and Kilafunda JK et al [17]. Most of the respondents were aware of frequency and period of exclusive breast feeding; these results are higher than study by Ali S et al [16] according to WHO recommendation [18]. Despite of, great difference between level of education of respondents and socioeconomic background. This study result shows 67.7% think breastfeeding as successful contraception method. Labbok MH [19] stated in his study "The high efficacy of the lactational amenorrhea method is confirmed". The number of participants had ever faced problem during breastfeeding. Results of practice of Tetanus vaccination were more consistent with the results of S. Hasnain and N.H. Skeikh[20] than RubeenaGul stated 73% in her study[21,25] but below the WHO expected level of vaccination at 100%[22,24]. Their major source of information was family lady, mid wife or friend. Regrettably, many of the pregnant women on regular antenatal visit in hospital never get advice by doctor or hospital for the use of un-prescribed drugs and breastfeeding techniques. The findings illustrate the positive impact health workers can have, as well as the need to raise the awareness of the benefits of exclusive breastfeeding among both health workers and mothers. Furthermore, continued counseling of mothers is required on how to handle with the stressful situation during prolong exclusive breastfeeding and family and community support requires to assist during this period.

CONCLUSION:

Despite the efforts of health policy makers, the results show a situation that is not getting better. Women were aware of the advantages and disadvantages of breast and bottle feeding but a disparity was observed between their perception and practices.

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Supernumerary Tooth: A Common Odontostomatologic Anomaly Of Number Of Teeth

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INTRODUCTION:

Supernumerary tooth (ST) is a developmental disturbance of number of teeth characterized by teeth present in excess of normal dental formula of deciduous or permanent dentition.[1,2,3,4] It may occur in either dental arch, maxillary or mandibular.[5] Literature has shown marked predilection in maxilla over mandible.[6,7] The first documented report of supernumerary teeth has been revealed in human fossils that are approximately 11,000 years old.[8]

Keywords: Supernumerary teeth, Hyperdontia, Mesiodens, Paramolars, Distomolars

METHODOLOGY:

Search engine of Google was utilized with various keywords and phrases to search articles related to supernumerary teeth from 2000-2018. Key words and phrases as supernumerary teeth, history of supernumerary teeth, etiology of supernumerary teeth, prevalence of supernumerary teeth, types of supernumerary teeth, diagnosis of supernumerary teeth, complications of supernumerary teeth and management of supernumerary teeth etc. were used. A total of 45 articles including reviews, original articles, case reports and textbooks were selected.

LITERATURE REVIEW:

Etiology:

The exact etiology of ST is unknown but, three main theories are proposed by researchers, in addition to the combination of genetic and environmental factors:

a) The first theory is of phylogenetic reversion, which states that ST may be an atavistic appearance of fourth molar of primitive dental formula and signifies evolution.

b) Second is dichotomy theory, which focuses on third tooth bud arising from dental lamina near permanent tooth bud or by splitting of permanent bud itself.

c) Finally, there is theory of hyperactivity which is considered to be the most widely accepted. According to this theory, ST appear because of the independent hyperactivity of dental lamina that is localized in nature. Rudimentary form of tooth arises from proliferation of epithelial remnants of dental lamina induced by presence of complete dentition.[9,10]

Prevalence:

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a. At International level:

The prevalence of ST varies around the world, study conducted in Spanish population showed its prevalence from 0.3% to 3.8%in their study subjects.[11] A Hungarian study conducted by Gabris on 2,219 patients reported prevalence of 1.53% in indigenous subjects.[12] Nayak and colleagues reported the prevalence of ST was 0.09-0.29% among Indian population.[13] No significant sex distribution is seen in the primary dentition but males are affected approximately twice as compared to females in permanent teeth.[14,15,16,17]

b. At National level:

In Pakistan, few extensive researches have been presented on the topic of ST. Prevalence of ST in orthodontic patients was 3.9% as reported by Farhat Amin at University of Lahore. Mesiodens were present in 0.87%, paramolars in 2.6% and distomolar was present in only in 0.43%. Gender wise, females were more affected than males by the ratio of 2:1 and left to right side ratio was found to be 5:2. [16,17,18]

Diagnosis:

The ratio of ST in terms of impacted to erupted is 3:1.[19] They are mostly diagnosed by clinical examination and routine radiographs of oral cavity. Often, clinical signs such as wide diastema, ectopic or eruption failure of permanent tooth, persistence of deciduous dentition and obvious visual presence of additional tooth aid the clinician in its diagnosis. Detailed history taking, proper clinical examination, thorough investigation, early diagnosis and appropriate treatment plan is essential for its management.[20, 21]

Classification:

A range of classification standards are used to categorize ST.[22] According to chronology, ST are classified as predeciduous, past permanent, or complementary. On the basis of morphology they can be odontoma, supplemental or eumorphic and rudimentary or dysmorphic (subdivided into conical, tuberculate, and molariform types) and according to orientation they can

be vertical, inverted, and transverse. [24,25] On the basis of location, supernumerary teeth that occur between or posterior to the maxillary central incisors are referred as "mesiodens".[26,27] Supernumerary structures found in molar region can be grouped as paramolars and distomolars Distomolars are located distal or distolingually to wisdom molars.[28] Paramolars are usually smaller in size and dysmorphic in form, being located either buccally or lingually to one of the molar teeth.[5] Mostly the occurrence of paramolars is unilateral and they are rarely observed bilaterally.[29]

Complications:

Numerous complications accompany ST. Some of these complications can be crowding, malocclusion, delayed eruptions, localized periodontitis, caries, root resorption, dentigerous cyst and abnormal root development.[30,31,32] Not only they are a source of complications but also interfere in alveolar bone grafting and and implant placement.[33] According to the report by Parolia and Kundabala, adjacent molar is most likely to be affected with caries incase of maxillary paramolars, that are bilateral in nature.[5]

Association with syndromes:

ST are often associated with syndromes. Some of these are Cleidocranial Dysplasia, Gardener's syndrome, Fabry-Anderson syndrome, Ellis-van Creveld syndrome, cleft lip and palate. Less common associated syndromes involve Gorlin-Chaudhry-Moss syndrome, Willaim's syndrome, Hallermann-Streiff syndrome, orofaciodigital syndrome etc.[34,35]

Management:

The management of ST involves endodontic therapy, retention of the additional tooth or extraction. The removal of ST is advised when:

a. There is associated pathology
b. Permanent tooth eruption has been delayed due to the presence of ST
c. Increased risk of caries due to the presence of ST which makes the area inaccessible to maintain oral hygiene
d. Altered eruption or displacement of adjacent tooth is evident
e. There are severely rotated teeth leading to further complication
f. Orthodontic treatment needs to be carried out to align the teeth
g. Its presence would compromise alveolar bone grafting and implant placement
h. There is compromised esthetic and functional status.[36,37,38]

Conclusion:

ST is a pervasive developmental anomaly among the world populace. The etiology of this anomaly still remains unclear. Various tooth complications are part and parcel of supernumerary teeth therefore, on diagnosis each case should be managed appropriately in order to mitigate the aesthetic and functional compromise to the dentition. The condition demands an efficient and effective treatment by the clinician.

Figure 1: Intraoral view showing mesioden [25]

Figure 2: Intraoral view showing fractured maxillary left permanent central incisor and mesiodens (arrow)[26]

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Prosthetic Stage Of Anterior Maxillary Implant- A Case Study

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ABSTRACT:
One of the greatest challenges for implant placement in the maxillary anterior zone is not only the restoration of function but also the esthetics. The reestablishment of a normal alveolar contour after implant placement is a critical step in esthetic success. This important aspect consists of replacing the lost portion of the alveolar process and associated soft tissue. It can be onerous to establish a balance between the tooth and the surrounding apparatus at prosthesis - soft tissue interface. This case presents the implant placement aspect with an in-depth consideration of positional parameters and post implant placement with consideration of soft tissue management and manipulation. Thus, the final restoration fitted precisely and harmoniously with the natural and esthetic contours of the gingiva and provided the esthetic results which both the practitioner and the patient were aiming to achieve. Hence, validating use of this technique for suitable patients.

Keywords: Anterior implant, Esthetic zone, Prosthetic stage, Immediate loading, Restoration guided.

INTRODUCTION:

Determining the correct position of implant to provide the patient with a restoration that creates the illusion of a natural tooth comes with numerous challenges including the position of gingival papillae, gingival symmetry and emergence profile of the restoration that replicates the natural tooth.

To provide the patient with an esthetic restoration the most important part is a detailed workup including history and examination. The data collection must focus on patient's medical and dental history, extra and intra oral examinations, radiographic analysis, patient's expectations and implant failure risks (esthetic or functional). For a functional and esthetic implant, a facial, dental and periodontal examination should be conducted including periodontal charting and radiographic analysis. The gingival biotype should be assessed by classifying it into thick or thin accordingly as this will help assessment of postsurgical recession. Also determine the vertical height of the interproximal bone and the edentulous site as the presence of bone will influence establishment of overlying soft tissue.

The two major aspects of this case are immediate loading implant and the tissue manipulation after implant placement. According to Wohrle's data, if an immediate implant was placed the soft tissue loss never exceeded 1.5 mm for any restoration and Wohrle considered that the harmony and continuity of the hard and soft tissues were predictably achieved in all cases. Wohrle reported the success of 14 consecutive cases in which he extracted non restorable teeth, placed tapered implants with various surfaces and restored them with provisional restorations on the same day. It should be noted that none of the restorations had any occlusal contacts and patients were instructed to avoid using the implants and restorations for periods up to six months postoperatively. The second most important aspect of this case is to provide with a provisional restoration so that the tissue is not left unsupported. With the help of a provisional restoration we can manage and manipulate the healing soft tissue collar around the implant. A provisional restoration helps to develop a gingival tissue form of a tooth, as the implant restoration emerges from the sulcus.

This article presents a case of immediate dental implant placement into fresh extraction socket in the esthetic zone followed by the prosthetic management and final restoration. The case selection, treatment planning, surgical protocol and restorative outcomes are presented and discussed.

CASE REPORT:

A thirty-eight year old male patient was referred to our clinic to replace mobile maxillary left central incisor. Patient's chief complaint was his compromised esthetics. He had no systemic medical problems and no parafunctional habits. Oral hygiene was maintained. He was previously under treatment of another dentist where he reported with complaint of mobility in upper anterior teeth and halitosis. He was diagnosed with generalized periodontitis and the treatment was started immediately. His teeth were stabilized by splinting the grade II mobile maxillary left central incisor with the right maxillary central incisor. Regular visits of periodontal therapy were done for three months. When there were no signs of active progression of periodontitis, patient was referred to our clinic for replacement of mobile maxillary left central incisor. To make sure that the patient was a candidate for implant, a detailed workup was done which

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included the extraoral and intraoral examination. Patient had an adequate lip support, low smile line but a thin gingival biotype which is a challenge to restore as it is less resistant to trauma and more prone to recession.

Fig 1 Pre-operative radiograph

Fig 2(A) Pre-operative model lateral view

Fig 2(B) Pre-operative model frontal view

Fig 1 shows the diagnostic radiograph with a generalized bone loss due to a previous history of periodontitis. Splinting of both central incisors can also be seen. Patient was advised removal of maxillary left central incisor followed by immediate implant placement. Impressions were taken, models were duplicated Fig 2(A & B) and mock-up was done for the tooth to be replaced by implant with an acrylic tooth. Keeping in mind the vertical and horizontal parameters of implant placement initial drill was used and surgical template was fabricated. An atraumatic extraction was performed. Due to resorbed buccal cortical plate, the surgical site needed bone as well as soft tissue augmentation due to the presence of thin

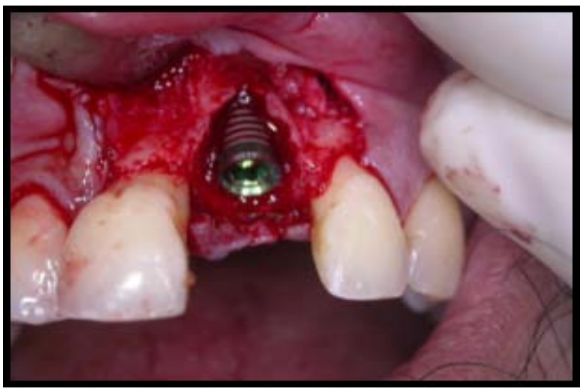

Fig 3 Implant placed (size 4.0x12mm)

Fig 4 Clinical view after 12 weeks

Figure-: 5 Final Crown Cemented

gingival biotype as mentioned earlier.

The vertical aspect (depth contour and implant angulation) and horizontal aspect (amount of bone available bucco lingually and mesio distally) are significant parameters which should be considered for implant placement, so that a sufficient amount of bone on all sides of the implant is available.

After implant placement 'freeze dried cortical bone allograft' FDBA (SureOss) was placed. It promotes bones regeneration through osteoconductive and osteoinductive actions and retains the growth factors, proteins and minerals. Site was then covered by skin graft (SureDerm).

It is natural human skin tissue. It is a dermal allograft that has been freeze-dried, after the cells that cause immune response have been removed from the epidermis and the dermis.

The patient was recalled at regular intervals to observe the healing process. Fig 4 shows the clinical picture of the site after 12 weeks, depicting nicely healed implant collar. Percussion test was also performed before proceeding to the prosthetic stage.

As the implant healed and the surrounding tissue was also healed, we removed the healing screw. The abutment was placed and necessary crown preparation was done. Then by placement of screw and transfer coping all the hard and soft tissues were recorded with the impression material (IMPREGUM) without any discrepancies.

During the laboratory stages of fabrication, the crown margins were adapted to the cast so that the crown fitted the gingival tissue perfectly once placed inside the patient's oral cavity, leaving no open margins and matching the emergence profile of the patient's adjacent teeth. Fig 5 shows final restoration in place, with no black triangles and the gingival contours matching that of the adjacent teeth.

DISCUSSION:

Considering the restoration as the coronal extension of implant, this case is handled on the principal of restoration guided implant placement rather than conventional bone guided implant placement. This procedure mandates that the implant is placed where it can be properly restored. If the site is lacking the bone or soft tissues, then, augmentation procedures must be employed to create an acceptable site. Prosthesis designing is also a major step in implant placement as the esthetic outcome is dependent on it. Systematic reviews of the survival and complications of implants and associated prostheses identified 6 categories of complications: surgical complications, implant loss, bone loss, peri-implant soft-tissue complications, mechanical complications and esthetic/phonetic complications. Even if implant is properly osteointegrated, failure of managing soft tissues properly can lead to esthetic failure of implant.

Following the implant placement, if recession of the soft tissue margin is observed and attributed to bone and soft tissue remodeling, the connective tissue and the junctional epithelium will migrate apically beyond the implant-abutment interface. In a 5-year multicenter study, Henry and colleagues reported an implant success rate of about

96% for single-tooth replacements in the anterior maxilla. However, they also reported an esthetic failure rate of about 9% for implant placement in this area. Vertical (apicocoronal) bone loss is usually the result of periodontal disease and represents a particularly difficult challenge for implant placement. No surgical approach is available to predictably augment the ridge height. Some case reports suggest a surgical approach using nonresorbable membrane. When a horizontal defect in the socket buccal wall is present, the size should be determined. If this defect is less than 5 mm in the apicocoronal direction or less than one third of the mesiodistal dimension between the adjacent teeth, immediate implant placement at the time of extraction can be accomplished. Depending on the size of the dehiscence, lateral bone augmentation or guided bone regeneration maybe performed as needed.

CONCLUSION:

This case report presents implant placement protocols and parameters to improve esthetic outcomes of implants in anterior maxillary region. It further emphasizes on soft tissue management after the implant placement to prevent gingival recession leading to black triangles and esthetic failures. The procedure mentioned here for prosthetic stage management of dental implant in anterior maxilla can reduce the percentage of aesthetic failures in implant candidates and provide them with best possible outcome.

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Biceps Brachii Rupture In An Elderly Male

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ABSTRACT:

The biceps is the supinator and secondary flexor muscle of the forearm. Injury to the long head of the biceps occurs in the middle aged and elderly; most commonly due to trauma and sudden eccentric contraction of the biceps whilst lifting a weight. It can be diagnosed clinically and further confirmed by sonography and Magnetic Resonance Imaging (MRI). Treatment is conservative in the majority of cases and involves activity modification, pain relief, range of motion and strengthening exercises, physical therapy and weight lifting precautions. Surgical management, which includes tenodesis and tendon transfer, is reserved for individuals who are active, involved in sport and for those preferring cosmesis. Conservative management has good results with little loss in supination and flexion power, complete independence in activities of daily living and complete resolution of symptoms. Clinical suspicion, early clinical diagnosis and conservative management can prevent morbidity/complications and assist in early recovery.

Keywords: Proximal biceps; Tendon rupture; Shoulder pain; Conservative management

INTRODUCTION:

The Biceps muscle crosses two joints, acts as secondary flexor at the elbow joint, and is a major supinator of the forearm. It has two proximal origins and one distal attachment. The proximal long head is intra capsular, arising from the supra glenoid tubercle, and passes through the bicipital groove, whilst the short head is extra capsular arising from the coracoid process. The two heads unite around mid-forearm and the distal combined tendon inserts into the radial tuberosity. Due to the proximal long heads' unique location, proximity of rotator cuff and glenoid labrum, along with mobility of the shoulder joint, it is considered to be one of the causes of pain around the shoulder. Injury to the biceps tendons occurs mostly in the proximal part (>90%) and rarely in the distal tendon (3%). The injury occurs most commonly in the middle aged and elderly, resulting from trauma or sudden eccentric contraction of biceps during weight lifting[3]. The patient usually feels a sudden 'pop' followed by pain and swelling in the middle of the upper arm on flexion, due to bunching together of the muscle belly, also called "Popeye sign". Complete rupture of the proximal head can be diagnosed clinically on inspection and by performing Yergason's test, speed test ,supination pronation tests and coil test[1]. Ultrasound can be used to confirm diagnosis and to differentiate between partial and complete tears. Magnetic resonance imaging (MRI) is rarely used in cases of complex injuries and suspicion of associated lesions to structures nearby. The treatment is conservative in the majority of cases and depends upon age, physical activity, and patient expectation. Conservative treatment involves non steroidal anti inflammatory drugs(NSAIDs), physical therapy, range of motion exercises, as well as precautions in weight lifting and performing overhead repetitive activities. Surgical repair is reserved for young patients, high activity athletes and those carrying out manual labour using their dominant hand and patient's preference. The authors report on a case relating to rupture of the long head of the biceps in an elderly male following heavy weight lifting, that was successfully managed conservatively. Verbal consent for the presentation and publication of the case was obtained from the patient.

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CASE PRESENTATION:

A 65 years old previously healthy male, presented with a three month history of a bulge on his left upper arm. There was no history of direct trauma and he was right hand dominant. He was not having diabetes or any other co-morbidity. He had attempted to lift a heavy bucket with his left hand and felt a "pop ", followed by severe pain, in his upper arm close to the left shoulder. He developed bruising and was unable to lift the bucket thereafter. The pain responded well to analgesics and the local application of a hot poultice as advised by his local GP however the bulge did not disappear and he complained of mild weakness of the left arm. Neurological and musculoskeletal examination was unremarkable except for mild weakness (MRC grade 4) in the left Biceps Brachii. Shoulder impingement signs were negative. On elbow flexion, a round swelling appeared in the upper arm (Fig 1). The swelling was firm, non –tender and became prominent on resisted elbow flexion (Fig 2). A diagnosis of proximal rupture of the long head of the biceps brachii was made and confirmed on musculoskeletal ultrasonog-

raphy (USG). On USG the long head biceps tendon was not seen within the bicipital groove and there was 'bull nosing' of the muscle belly fibers. As there was no evidence of shoulder impingement associated injury, MRI of rotator cuff was not deemed necessary. The patient was given the option of surgical repair however he opted for conservative treatment, as his symptoms were minimal at that stage .He was not troubled by the abnormal bulge and was happy with the functional status of the elbow. Respecting the patient's desire, he was advised regarding analgesics and given a home based exercise plan. Unfortunately he was lost to follow up, and the authors were unable to establish the longterm outcome of the conservative approach.

Figure: 1

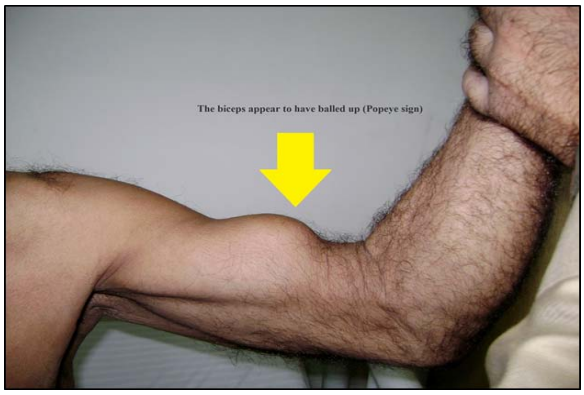

Figure: 2

DISCUSSION:

Rupture of the proximal biceps tendon comprises 90-97% of all biceps ruptures and almost exclusively involves the long head. The incidence of distal biceps tendon ruptures is 1.2 per 100,000 patients. It can be either partial or complete. Risk factors include old age, chronic inflammatory diseases, (for example rheumatoid arthritis), hypothyroidism, heavy overhead activities and repetitive overhead sports (such as swimming or tennis). In addition, impairment of physiologic repair mechanisms by medications (particularly statins) has been proposed as a potential risk factor for tendon rupture. It can also be secondary to age related degenerative processes around the shoulder, including calcification and tendinopathy of the biceps tendon, as well as associated previous injury to the shoulder rotator cuff mechanism. The most frequent precipitating factor is trauma. In the majority of cases the cause is related to lifting heavy weight and is described as a sudden pop followed by pain and weakness. It occurs mostly in the elderly as in the case described. Occasionally patients ignore symptoms, as there is no significant loss of function because the short head of the biceps remains attached to the coracoid process. Its diagnosis is mainly clinical and further confirmed and associated injuries can be ruled out by musculoskeletal ultrasound and MRI.

The reason to seek medical advice is either due to pain or the bulge that appears in the upper arm during flexion. The majority of the patients can be managed conservatively and this is preferable because patients can return to work earlier, avoiding cost and complications of surgery. Other considerations for this management is that there is only up to 20% loss of supination power and elbow flexion with no loss of grip strength, elbow extension and pronation and usually no major affect on activities of daily living.5 However operative treatment may be indicated for cosmetic reasons or if shoulder reconstruction is required for other reasons.

Surgical treatment involves transfer of the tendon to the coracoid process and involves extensive dissection. Other treatment options includes tenodesis with keyhole, screws and sutures.

It is interesting to note that in the majority of cases the injury is not an isolated rupture of the biceps tendon, but is associated with rotator cuff tears; particularly the subscapularis, Labral tears and osteophytes.3 In the case described, there was an isolated tear of the long head of the biceps only, and the authors were mindful that ignoring associated injuries can lead to continued pain and complications associated with increased morbidity and poor patient satisfaction.

Usually there are no gross complications related to this condition apart from weakness, loss of range of motion and appearance. There are few case reports in the literature relating to the development of compartment syndrome secondary to bicep tendon rupture. The rupture is usually unilateral however, although rare, bilateral simultaneous rupture of the long head of biceps has been reported in the literature.

CONCLUSION:

In majority of the cases, when diagnosed early and managed conservatively, rupture of the long head of the

biceps, has good functional outcomes and increased patient satisfaction. Associated injury to the rotator cuff and labrum should be ruled out and the treating physician should be aware of the need for surgical management in specific cases

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Case Report

A Giant Asymptomatic Submandibular Salivary Gland Calculus Reported At Bahria University Dental Hospital.

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ABSTRACT:

Sialolithiasis is a common salivary gland disease which has highest predilection rate in submandibular followed by parotid and sublingual glands. It results in mechanical obstruction of the salivary gland duct. The unique anatomy of the submandibular gland duct facilitates the deposition of mineral salts and leads to the formation of stones. We are presenting a unique case of submandibular calculus which was completely asymptomatic. On 2nd day after a mandibular incisor tooth extraction, patient presented with some hard object in her mouth. The stone was removed intraorally through the duct opening under local anaesthesia.

Key Words: Sialolith, Submandibular gland, Calculus, Stay suture

INTRODUCTION:

Salivary gland calculus (stone) also known as Sialolith, is the second most common salivary gland pathology which accounts for 30% after mumps. The incidence rate varies with respect to gender, but higher predilection is seen in males as compared to females[1]. According to an estimate, sialolithiasis affects 12 in 1000 among elderly individuals and it is rarely seen in children[2,3]. The sialoliths in vast majority of cases are frequently found in submandibular glands that constitute 92% of overall cases. It is due to its unique anatomic position and long tortuous duct with a narrow orifice compared to the main portion of the duct[4]. Along with these factors, alkaline nature of saliva which is rich in mucin may also contribute to the formation of salivary stones. On the other hand, the parotid and sublingual salivary gland sialolith accounts for 6% and 2% respectively.[1,5,6,7] Salivary stones may vary in size ranging from few millimetres to several centimetres. Giant salivary stones are those calculi that are greater than the size of 15 mm and also are an extremely rare finding[8,9,10].

The present case report describes a patient presenting with unusual and long submandibular sialolith and highlights the diagnostic and current treatment modalities.

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CASE REPORT:

A 65 year old female presented to the Oral & Maxillofacial Surgery (OMFS) department of Bahria University Dental Hospital, Karachi with complaint of pain in lower incisor tooth. Medical history was taken which revealed patient was hypertensive and diabetic. Both systemic conditions were in control level. Oral examination revealed that tooth 31, 35, 16, 45, 46, 47 was already extracted due to periodontal disease. However, tooth 41 was extracted a day before because of tooth mobility. On the next day, patient came up with the perception of a tooth portion left, that was impinging on the dorsum of tongue. Again thorough clinical examination was done which showed palpable calculus was attached with the orifice of submandibular duct behind the lingual aspect of extracted 41 tooth as shown in Figure 1. Furthermore, the patient did not report of any pain during meal timings nor she was aware about the calculus.

The periapical x-ray was taken but this radiographic view was least helpful in determining the presence of remaining calculi in the duct. Also, it had already been emerging from the orifice of submandibular gland duct (Figure 2). Consent was taken from the patient for the removal of calculi. After taking consent, local anaesthesia (Lidocaine 2%, 1: 100,000) was administered in the area at the floor of mouth. A stay suture was passed in the distal portion of the duct and a horizontal incision was given on the dorsal surface of the duct, along the long axis of the duct, in the floor of mouth. The calculus was removed from the orifice which was later measured with the help of measuring scale. It was 25 mm in length (2.5 cm) as demonstrated in Fig: 4 and 5. No bleeding was encountered. Stay

Figure 1: Submandibular calculi in the duct

Figure 2: Calculi removed from the orifice

Figure 3: Measurement of calculi

suture was removed and the sub-mandibular gland was milked to observe unobstructed salivary flow. The patient was instructed to maintain oral hygiene. Analgesics were prescribed and follow-up was advised.

DISCUSSION:

Sialolithiasis is a pathological condition of salivary gland which is more frequent in males as compared to females[24]. Literature has shown the peak incidence between the age of 3rd to 6th decade of life. Salivary stones are rare occurrence in children[25]. The exact etiology is unknown and various theories have been proposed to understand the mechanism behind sialothiasis[11]. The first theory states that the presence of excreted intracellular micro-calculi becomes a nidus for calcification. The repeated calcification leads to the formation of stone[12,13]. The second theory holds that, the retrograde migration of microbes, food debris and other substances from the oral cavity into the duct of the salivary glands is the main cause for calculi production[14]. The calculi are made up of a mixture of different calcium phosphates (mainly hydroxy-apatite and carbonate-apatite) together with an organic matrix, mucin bacteria and desquamated epithelial cells. Once a small amount of calculi is formed, it allows lamellar crystallizations to occur due to precipitation of calcium salts. With passage of time it gradually increases in size. A small size sialolith can expel in mouth due to salivary secretions. Thorough history and clinical examination plays vital role in the diagnosis of submandibular sialolithiasis. Other signs and symptoms like pain and swelling, increases particularly during meal timings. Complete obstruction due to sialolith causes constant pain and swelling; pus may be seen draining from the duct and signs of systemic infection may be present[2,5,16,17,18,19]. Other methods which can be used is bimanual palpation of the floor of the mouth in a posterior to anterior direction, that reveals a palpable stone in a large number of cases of submandibular calculi formation[6]. Other imaging technique, also useful for the diagnosis of sialolithiasis is occlusal radiograph that reveals radiopaque stones[20]. Sialography is effective in patients showing signs of sialadenitis related to radiolucent stones or deep submandibular/parotid stones. The clinician should keep in mind that sialography is contraindicated in those patients who have acute infection or insignificant patient contrast allergy[6, 9].

The treatment modalities of sialolith vary from patient to patient depending upon the involved gland, size and location of the stone. Generally, conservative techniques are advised for small sialoliths, while the surgical removal is indicated for giant calculus[21, 22, 23]. Ultrasonography should be considered first choice examination in diagnosis of salivary calculi. Sialo-magnetic resonance imaging is a recent, non-invasive diagnostic procedure for the accurate anatomical position of gland and its duct[26].

CONCLUSION:

Salivary gland calculus with enormous size in our case report is rarely found in individuals. It was asymptomatic in our case. Surgical procedure has been used to restore salivary flow from the duct to make the patient comfortable. Investigation was done in order to avoid misdiagnosis. The patient should be educated to stay hydrated as well as maintain oral hygiene to avoid the recurrence.

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Step Forward To Inculcate The Knowledge And Practice Of Nutritional Course In Undergraduate Medical Curriculum

Rehana Rehman, Rabiya Ali, Fatima Syed, Rakhshaan Khan

INTRODUCTION:

World Health Organization has recognized the importance of nutrition as an indicator in the Millennium Development Goal (MDG) focusing on the reduction of maternal and under-5-years mortality, especially in the developing countries[1]. Maternal dietary micronutrient intake is associated with neonatal anthropometry even in women not at risk of malnutrition hence further research is necessary to determine optimal micronutrient intake in all pregnant women with different body mass indices[2].

Appropriate information regarding nutrition promotes healthy eating[3]. Poor or deficient knowledge about health and nutrition on the part of health professionals is reflected in lack of identification of risk factors for nutritional deficiency diseases. This also plays an important role in insufficient use of dietary component while managing patients recovering from illness, leading to increased morbidity and mortality[4].

It has been proposed that by improving nutritional knowledge and dietary practices of population in general and vulnerable groups in particular, would encourage the people to change their health behavior and dietary habits[5]. With the recognition of disease burden due to nutritional factors deficiency and perspective of its correction, comes the demand that physicians update their knowledge of health and nutrition and improve their counseling skills related to diet, nutrition and healthy life styles[6].

The prevalence of micronutrient deficiencies in both pregnant and non-pregnant women continues to be endemic [7]. The National Nutrition Survey (NNS), discovered the following micronutrient deficiency levels in pregnant women: anaemia 50.4%, iron deficiency anaemia 24.7%, vitamin A deficiency 42.5%, zinc deficiency 47.6%, hypocalcaemia 58.9% and vitamin D deficiency 68.9%. The prevalence of micronutrient deficiencies in non-pregnant women were as follows:

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Anaemia 51%, iron deficiency anaemia 19%, vitamin A deficiency 42.1%, zinc deficiency 41.3%, hypocalcaemia 52.1% and vitamin D deficiency 66.8%[7]. Among children under 5, 43.7% were stunted in 2011 as compared to 41.6% in the 2001 NNS, 15.1% were wasted as compared to 14.3% in 2001 and 31.5% were underweight. These indicators have not changed much since 2001[8]. The anthropometric indices were however, relatively better in urban areas [7].

According to Shams et.al, about 38 percent of children less than five years of age are underweight and 12 percent are severely underweight, reflective of wide spread malnutrition among women during adolescence[9]. Under-nutrition is a recognized health problem that plays a substantial role in elevated maternal and child morbidity and mortality and has lifelong negative effects on skeletal growth and cognitive development of children[8]. Infant mortality (95/1000 live births) is a major cause of death due to infections coupled with malnutrition in nearly 80% of the infant deaths[10] which is enhanced with a high incidence (25-40%) of diarrhoea in the malnourished babies.

OBJECTIVE: To introduce knowledge regarding nutrition in undergraduate medical curriculumRationale for selection of task. The problem needs to be addressed in terms of national requirements; social needs, institutional missions and accreditation requirements.

National Requirement: Pakistan is a developing South Asian country, which faces nearly the same problems as the rest of the developing countries. In order to enter the 21st century in a more respectable way, we need to improve the health indicators of the country. Nutrition Survey (NNS 2011) states that very little has changed over the last decade in terms of core maternal and child-hood nutrition indicators, reflecting a lack of coordination to formulate a coherent nutrition strategy[7,8].

Requirement of accreditation Bodies: As per requirement of Pakistan Medical & Dental Council (PMDC), graduating doctors need to work in health teams, communicate with patients and their caregivers effectively and use their critical thinking and problem-solving approach to apply evidence based medicine for health promotion, disease prevention, curative and rehabilitative care. The competencies of a doctor as a scholar, scientist, practitioner and professional, demand training of doctors so that they are able to cater the prevalent health problem[11].

General needs assessment: The situation analysis will

comprise of:

I. Review of existing curriculum: It will be acquired through Informal discussions with Director Maternal & Child Health (MNCH), faculty members, GIT, Head & Neck, and Endo Repro module representatives, curriculum co-coordinators from pre-clinical and clinical years. Information will be acquired by observations in clinical wards, exit interviews with mothers, portfolio of faculty members and relevant desk records.

II. Health Care Professionals: It is a general observation that doctors spend little time with patients to discuss the role of nutrition. Dissatisfaction with the quality of nutrition education in primary care [12] is evident from literature as well.

III. Society: Lack of; awareness of selection of right foods (due to high illiteracy rate), optimal child and maternal care and preventive measures for nutritional deficiency disorders in the community has been observed. Use of DACUM Chart for development of Curriculum: It will be developed with the help of DACUM (Development of Curriculum) chart with allocation of duties and tasks to bring changes in the thematic curriculum so as to sequence the objectives of nutrition and health in order to achieve the desired outcomes. The following steps will be undertaken

Targeted Needs Assessment (TNA)

The following objectives will be catered in approximately two months' time period by the curriculum developers.

Objectives:

- To explore knowledge, ability, interest and attitude of medical students for "Nutrition and Health component" introduction in longitudinal theme of UGME.
- To assess knowledge, attitude and nutritional practices of general public
- To identify willingness of stake holders to accept the innovation
- To search mind set of medical educationist to implement the change

METHODS:

TNA from targeted learners will be conducted following ERC approval and informed consent through a cross sectional survey (Figure 1) by both qualitative and quantitative methods. Awareness about concept of nutrition from public; patients and their care takers will be acquired. Response from students (fourth, final year) and interns will be obtained through a self-reported validated questionnaire or Focus Group Discussions (FGD) as an alternative strategy (Semi-structured interviews will be employed to collect data from primary health care providers, dieticians, community health workers, health care professionals, Director MNCH and medical educationists.

Expected outcomes:

With the revised outcome based curriculum of Nutrition and Health, we expect that with innovations like the use of research oriented capstone projects the graduates will be able to update their knowledge regarding dietary requirements of nutrients in health and disease (Figure 2). They will get an opportunity to critically appraise relevant diagnostic and prognostic tests and methods for appropriate diagnosis, treatment and prevention of disease. The communication and counseling skills learnt during the course of curriculum will enhance the element of compassionate care improving doctor patient relationships. Support from relevant departments during the projects will empower them to exhibit professionalism and refer them to nutrition specialists and dieticians whenever required.

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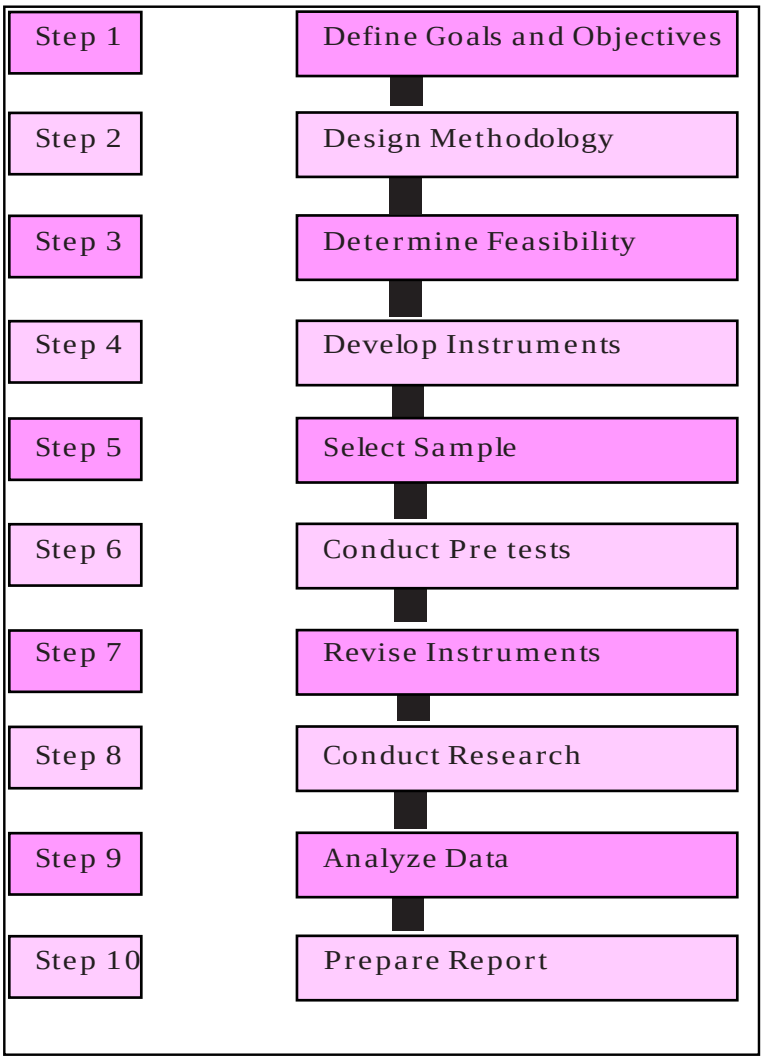

Fig 1: Tna Flow Sheet

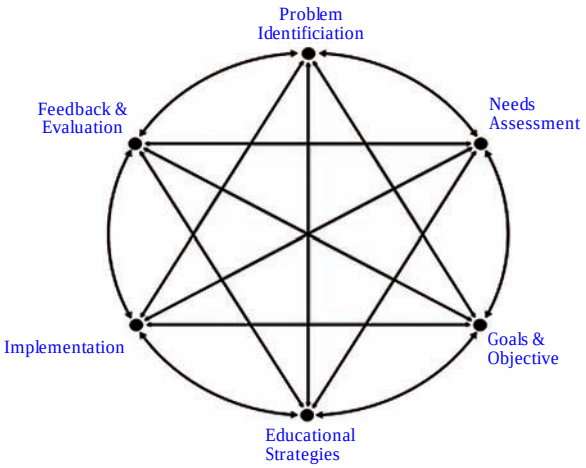

Figure 2: Steps to introduce nutrition in undergraduate medical curriculum

A short report on Dengue Fever

Mahwish Fatima, Subia Jamil

Dear Sir

Dengue fever is a deadly mosquito-borne viral infection. It is caused by the bite of female mosquito by Aedes aegypti and in some cases also by Aedes albopictus, infected with the virus. Dengue virus is RNA virus, which is single-stranded. There are 4 types of viruses that cause dengue, named DEN-1, DEN-2, DEN-3, and DEN-4. Yet not all four types are found in particular region like Indian sub-continent is mainly restricted by the type 2 and 3. It has been documented that the Pakistan, Sri Lanka, India and Bangladesh are among those countries that are severely affected by the Dengue. In Pakistan, dengue is considered now one of the major health burdens with numerous incidences of complicated cases.[1,2]

People suffering from dengue infection are asymptomatic in 80% of the cases or present with fever and chills. Some cases come up with the extreme conditions that can be life-threatening to some extent. The incubation period is considered to be 3-14days or usually 4-7days. Abrupt fever, cerebral pain, muscle pain and joint misery are considered the classical manifestations of Dengue fever. Since this condition originates from the muscle and joint pain, it also referred as Break bone fever. Dengue fever course can be categorized into three phases febrile, basic and Recovery.

Diagnosis is based on numerous factors like clinical features, hematological abnormalities and positive IgM antibody test. They all play a significant role in making the diagnosis. Apart from it, virus isolation, viral nucleic acid detection by PCR, virus serotypic/genotypic characterization can be done to confirm the diagnosis.[3]

Currently, no medicines are available for Dengue fever. It has been documented that majority of the patients recover from it. Timely rest, a good proportion of oral fluids and antipyretics show remarkable improvement in out-patients. Yet strong monitoring needs to be done for warning as well as vital signs. Patients, requiring ICU care, blood products, inotropic support and IV fluids are usually in small number. Platelets transfusion seems to be indicated in few cases. Investigation for the use of anti-viral drugs in dengue fever is still in pipe line.[2,3]

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It is strongly needed to isolate vaccines for dengue fever effective against all strains. Presently, after numerous randomized trials, dengue vaccine named, Dengvaxia, (CYD-TDV) has been licensed, yet hasn't approved for use. Moreover, some radical measures to minimize the incidence of dengue fever like mosquito control should be done. Awareness programs should be planned in small areas to create awareness regarding this infection. Misconceptions related to dengue fever have created havoc among people. To address such issues, health care providers need to join their hands at all levels.[4]

Following key points has been documented that claim to be of great help in patients with dengue fever or as preventive measures:

- Dengue can be suspected in patients having fever more than three days, regardless the presence of other clinical symptoms
- Avoid prescribing Aspirin/Ibuprofen to Dengue patients for fever control
- Go for other laboratory investigation to rule out the cause of fever, if the present syndrome doesn't comply with the Dengue
- Never go for medicines like steroids, antibiotics or antiviral agents
- Don't let the serious patient go home, without observing absences of fever for 24-hrs, improving platelet count, overall improvement in appetite and clinical features
- Don't need to isolate Dengue fever patients. They are not prone to transfer infection to others. All you have to do is to maintain standard precautions like screening hospital windows, and use of mosquito nets in the ward/room
- Never go for platelet transfusion or other blood product until find platelet count less than 10,000 and significant bleeding
- Make sure the use of mosquito repellents, full covered clothes as preventive measures
- Health awareness program should conduct to minimize the incidence of dengue[5]

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Instructions to Author

The Journal of Bahria University Medical and Dental College abbreviated as JBUMDC is a peer reviewed quarterly multidisciplinary biomedical journal of basic and clinical health sciences. It accepts manuscripts prepared in accordance with the "Uniform Requirements for Submission of Manuscripts for Biomedical Journals, updated December 2015", adopted by International Committee of Medical Journal Editors (ICMJE) & PMDC guidelines for medical & Dental journals. The Journal will encompass manuscripts from all fields of biomedical sciences in the form of Editorial (Invited/Editor), Original Article, Review Article (narrative reviews and systematic reviews), short communication, (Commentary), specical communication, brief report, recent advances, book review, personal views, case study, clinical images/visual vignette and letter to edtior.

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Submission items include a Covering letter, Letter of undertaking duly signed by all authors, Ethicel Review Committee (ERC) Letter, Title page and the Manuscript [Abstract, Key words, Introduction, Methodology, Results, Discussion, Conclusion, Acknowledgement, Authorship, Conflict of interest, References, Tables , Figures]. Title page should have complete title of the manuscript, the names of all authors with qualifications, their department, affiliation, telephone number, e-mail, corresponding author, address for correspondence, short running title, source of funding (grant/equipment/drugs), number of figures and tables, total word count, total number of pages.

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It should have no more than 150 words for unstructured abstracts or 250 words for structured abstracts. The abstract should state the purpose of the study(objective), basic procedures (methodology with study design, subjects/animals, place & duration of study, drug/chemical/equipment, procedure or protocol), main findings (results) and conclusion. It should emphasize new and important aspects of the study. Below the abstract provide, 3-10 key words that will assist indexers in cross-indexing the article and may be published with the abstract.

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Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction

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6. Acknowledgment

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

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Majority of the references must be from last five years. Local references must also be included. Vancouver style should be followed. Examples are:

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II) More than six authors:

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b) Organization as author

The Cardiac Society of Australia and New Zealand. Clinical exercise stress testing. Safety and performance guidelines. Med J Aust 1996; 164: 282-4

c) No author given

Cancer in South Africa [editorial]. S Afr Med J 1994;84:15

d) Chapter in a book

Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. Hypertension: pathophysiology, diagnosis, and management. 2nd ed. New York: Raven Press; 1995. p. 465-78

e) Newspaper

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