

## **20<sup>th</sup> Annual Post Graduate Medical Education Conference- Aga Khan University, Karachi, Pakistan**

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### **Shoulder Dysfunction after Neck Dissection in Patients with Head and Neck Cancer: A Tertiary Care Experience**

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**BACKGROUND:** Head and neck cancer is the 6<sup>th</sup> most common cancer worldwide. Neck dissection is performed in patients with head and neck cancer to remove lymph nodes harboring cancer cells. Accessory nerve travels through the neck and is encountered during neck dissection. Damage to this nerve causes shoulder dysfunction. Shoulder dysfunction after neck dissection has been reported in studies. Head and Neck cancer surgery is a common procedure that we are performing at our institute, and it is very common of patients to complain of shoulder pain after neck dissections. We did this study to find out how significant the problem of shoulder dysfunction is in our patients after neck dissections so that necessary steps can be taken to overcome this problem

**OBJECTIVES:** To describe the changes in shoulder function scores after neck dissections at 12 weeks and 24 weeks. To see the association of different types of neck dissections with shoulder dysfunction

**METHODS:** This was a prospective cohort study conducted at section of Otorhinolaryngology and Head and Neck Surgery, Department of Surgery, Aga Khan University Hospital with a sample size of 19. Our primary outcome was shoulder dysfunction. This was measured using the Constant Murley Shoulder Score. The score was assessed at baseline and 12 weeks post operatively. The mean baseline scores were compared to those at 12 weeks. One observer assessed all the patients for the score to eliminate inter observer variation. Data analysis was done using SPSS 19. Wilcoxon signed rank test was applied to compare the median scores at baseline and 12 weeks. Mann-Whitney test was applied to compare shoulder dysfunction in different types of neck dissections.

**RESULTS:** We had a sample size of 19. Median age was 52 years. 12 patients were male and 7 patients were female. There were 8 modified radical neck dissections and 11 selective neck dissections. Median Constant score at baseline was 96 with interquartile range of 3. Median Constant score at 12 weeks was 78 with interquartile range of 19. This was statistically significant with p-value of 0.00. There was significantly more dysfunction in patients with modified radical neck dissection as compared to selective neck dissections and this was also statistically significant.

**CONCLUSION:** This shows that there is a significant shoulder dysfunction at 12 weeks after neck dissections. There was less shoulder dysfunction in patients undergoing selective neck dissections.

**Key words:** Shoulder Dysfunction; Neck Dissection; Head and Neck Cancer

## **Hypercapnia as a Marker of ICU Admission and Prolonged Hospitalization in Patients with Community-Acquired Pneumonia**

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**BACKGROUND:** Hypoxemic respiratory failure is well known prognostic marker in community acquired pneumonia (CAP) while a PaCO<sub>2</sub> level is not considered as a prognostic indicator.

**OBJECTIVES:** To examine the association between abnormal PaCO<sub>2</sub> and ICU admission, length of stay and in-hospital mortality in patients with CAP.

**METHODS:** A prospective study was conducted in hospitalized patients with CAP at tertiary care hospital in Karachi, Pakistan. Arterial blood gas analyses were obtained on admission. Multivariate analyses were performed using in-hospital mortality and ICU admission and length of stay as the dependent measures.

**RESULTS:** Total 115 patients enrolled. The mean age was 60.20 ± 17.0 years and 61 (53%) were male. Hypocapnia (PaCO<sub>2</sub> < 35 mm Hg) was found in 71(61.7%) and hypercapnia (PaCO<sub>2</sub> > 45 mm Hg) in 22(19.1%) patients. Overall mortality was found in 16 (13.9%) and there was no statistical difference among groups (p: 0.74). After adjusting for severity of illness, hypercapnic patients had greater length of hospital stay (OR: 1.13; 95% CI, 1.01-1.27; p: 0.01), higher need for Noninvasive ventilation (NIV) on admission (OR: 3.07; 95% CI .07-8.75; p: 0.04) and ICU admission/ mechanical ventilation (OR: 0.45; 95% CI, 0.16-1.41; p: 0.23) as compare to hypocapnic patients. When COPD were excluded from the analysis, the differences persisted.

**CONCLUSION:** In hospitalized patients with CAP, hypercapnia was associated with an increased need for NIV use and prolonged length of stay as compared to hypocapnic patients. Therefore, hypercapnia should be considered as important severity criteria to identify patients who will require a higher level of care and prolonged hospitalization.

**Key words:** Hypercapnia; ICU; Community-Acquired Pneumonia

## **Pulmonary Aspergillosis; Clinical Features and Outcomes in a Tertiary Care Hospital**

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**BACKGROUND:** Pulmonary aspergillosis has variable course of illness severity and outcomes. Its incidence and outcomes in tertiary care hospital is not completely known especially in this part of world.

**OBJECTIVES:** To determine the frequency, clinical features and outcomes of pulmonary aspergillosis in a tertiary care hospital, Karachi Pakistan.

**METHODS:** A retrospective study was conducted in hospitalized patients in last 10 years from 2004 to 2014 with pulmonary aspergillosis at tertiary care hospital in Karachi, Pakistan.

**RESULTS:** Total 280 cases were reviewed with aspergillosis but only 69 met the inclusion criteria. The mean age was  $45 \pm 15.7$  years. 48 (69.6%) were male and 43 (62.3%) were nonsmoker. The average length of stay LOS was  $10.61 \pm 9.08$  days. The most commonly isolated specie was *Aspergillus fumigatus* 29 (42.0%) followed by *Aspergillus flavus* 20 (28.9%), commonly seen in patients with diabetes DM 21 (30.43%). Majority of patients had previous history of tuberculosis TB 27 (39.13%). Commonest symptoms were Fever, cough and hemoptysis. Mortality rate was 14 (20.2%) ICU admission and ventilation required in 18 (26.08%) and Pneumothorax 10 (14.5%) is the most common complication noted in these patients.

**CONCLUSION:** *Aspergillus fumigatus* is the most frequent species found especially in patients with Prior history of TB. Mortality rate is higher in patients who admitted in ICU and require mechanical ventilation. Diabetes, steroids therapy and patients with underlying hematological malignancies are associated with poor prognosis and mortality is significantly high if these patients developed respiratory failure.

**Key words:** Aspergillosis; Outcomes; Tuberculosis

## **Determinants of Under Nutrition among Pakistani Women of Reproductive Age Group: PDHS Secondary Data Analysis**

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**BACKGROUND:** Malnutrition is one of the significant underlying factors contributing towards maternal and childhood mortality in Pakistan. According to National Nutritional Survey of Pakistan 2011, 50% of pregnant women in Pakistan are anemic, 46% are suffering from Vitamin A deficiency, 47% are Zinc deficient and 68% are vitamin D deficient. Cultural factors, socioeconomic factors and fertility related factors can predict the nutritional status of women. Thus, there is a need to understand the relationship between these factors and nutritional status of women in Pakistan.

**OBJECTIVES:** To assess the effect of socio-demographic, cultural and fertility related factors on the nutritional status of the women in Pakistan.

**METHODS:** Secondary data analysis of Pakistan Demographic and Health Survey (PDHS) 2012-13 was done. PDHS survey gathered information on health of married women of reproductive age group including fertility preferences, family planning knowledge and practices and nutrition. All married women between the ages of 15-49 were included (n = 11321). Nutritional status was determined by Body Mass Index by making categories including undernourished (< 18.5kg/m<sup>2</sup>), well –nourished (>18.5 kg/m<sup>2</sup>). Logistic regression was done to analyze the data.

**RESULTS:** Women of 25 to 34 years were more likely to be undernourished [OR=1.59; 95% CI (1.06-2.38)] as compared to younger (15 to 25 years) and older women (35 and above). Less educated women [OR=2.50; 95% CI (1.03-6.10)] from rural areas [OR=1.96; 95% CI (1.26-3.08)] were more likely to be undernourished as compared to their counterparts while adjusting for other factors.

**CONCLUSION:** Middle aged women with primary or no education and women from rural areas were found to be more undernourished as compared to their counterparts. Thus, this group of women needs to be educated and sensitized for the importance of adequate nutrition especially in the reproductive age.

**Keywords:** Under Nutrition; Body Mass Index; Secondary Data; Reproductive Age

## **Storage of Medicines in Pharmacies in Rural District of Sindh, Pakistan**

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**BACKGROUND:** Medicines are the essential tools for preventive, curative and control of diseases. If these medicines are ineffective then its aftermath can cause wastage of resources. Medicines lose their required effectiveness due to inadequate storage on required temperature.

**OBJECTIVES:** The objective was to estimate the proportion of pharmacies with high temperature (>25°C) inside pharmacy outlets in two talukas (sub-districts) of district Thatta, Sindh and to explore perceptions of pharmacy owners and drug inspectors about the storage of medicines on required temperature (<25°C) in rural areas of Sindh.

**METHODS:** An exploratory cross sectional study design was conducted from August 2013 to August 2014. All pharmacies of two talukas were approached by doing a census and perceptions of 16 pharmacy owners and 7 drug inspectors were explored. Descriptive and thematic analysis was done for quantitative and qualitative components respectively.

**RESULTS:** All pharmacies (n=62) were having a temperature of >25°C inside the pharmacies. Medicines were exposed to sunlight in 39 (63%) of the pharmacies and 39 (63%) of pharmacies had refrigerators to keep insulin and vaccines. Median duration of electricity shut downs was 12 hours per day and 11% of the pharmacies had back up power supply. Pharmacy owners mentioned that required temperature is not maintained due to dearth of resources. Drug inspectors are reluctant to take any action due to political influences.

**CONCLUSION:** More than a quarter of pharmacy owners were aware about maintaining the required temperature of < 25°C but none of them was maintaining required temperature. Considering the electricity shut down, it is important to make cost effective and long term strategies to maintain the efficacy of medicines. Proper legislation need to be enforced with continuing training programs for pharmacy owners. Further research is required to explore different ways of maintaining required temperature to ensure the adequate efficacy of medicines.

**Keywords: Pharmacy; Temperature; Storage; Medicines**

## **Serum Leptin Levels and its Association with Body Mass Index (BMI) and Waist Circumference in Patients Presenting at AKUH**

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**OBJECTIVES:** To determine the relationship between serum leptin, body mass index (BMI) and waist circumference in patients presenting at AKUH.

**METHODS:** This study was conducted at Section of Chemical Pathology, Department of Pathology and Laboratory Medicine, AKU from March 2014-June 2015. Subjects without known cardiac disease history, coming to Radiology Department for non-contrast CT scan for abdominal indications were included. The study was approved by ethical review committee. After informed consent a predesigned questionnaire was filed. Waist circumference was considered high if >90cm in males and >80cm in females (International Diabetes Federation cut-off points for South Asians). Serum leptin levels were measured by Enzyme immunoassay, using DIAsource Leptin-EASIA Kit. Leptin levels were characterized into high and low according to BMI and gender. Data analyzed by SPSS version 20.

**RESULTS:** Total 111 subjects were included in study with mean age  $41.82 \pm 13.43$  years and 76.6% were males. Median serum leptin levels were 8.16 with range of 0.1-60.9. Leptin was significantly high in female 15ng/ml (26.79-7.28) vs. 2.42ng/ml (4.92-1.24) in males (p value < 0.001). Mean BMI was  $26.71 \pm 5.13$  (kg/m<sup>2</sup>). Out of 111 subjects, 27% were in obese category and 54% had high waist circumference ( $99 \pm 7$ cm). Leptin levels were significantly higher in subjects with higher waist circumference (mean levels  $12.7 \pm 3.8$ ) (p value < 0.001) than subjects with normal waist. Leptin was positively correlated with BMI (r 0.51, p < 0.05) with higher leptin levels noted in subjects with obesity (7.5ng/ml (3.9-18.7) than overweight (3.4 ng/ml (1.7-9) and normal BMI (1.4 ng/ml (0.9-2).

**CONCLUSION:** Our results show that leptin levels were significantly high in females and in subjects with obesity and increased waist circumference, which are important constituents of metabolic syndrome.

**Key words: Leptin; BMI; Obesity; Waist Circumference**

## **Assuring Good Laboratory Practices: An Audit on Awareness of Quality Control Rules**

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**BACKGROUND:** About 70% of medical decisions are based on laboratory results and good quality practices are necessary for accurate results generation. Effective quality system implementation depends upon the knowledge and practices of laboratory personnel.

**OBJECTIVES:** Aim of this study was to assess the knowledge of Medical Laboratory Technologists (MLTs) regarding the Westgard rules as quality control (QC) monitoring tool.

**METHODS:** This clinical audit was conducted in the Department of Pathology and Laboratory Medicine from January-March 2015. All MLTs working in the Section of Chemical Pathology, Department of Pathology and Laboratory Medicine were included. A pre-test was conducted using a questionnaire designed to monitor MLTs knowledge and concepts regarding the six Westgard rules, their application and interpretation. After identifying the deficiencies from this audit, sessions on QC applications and interpretation were held. A post-test was taken using the same questionnaire to close the audit cycle. Both pre and post tests were executed under supervision of principle investigator. Data was analyzed using SPSS version 19. Results were stratified on the basis of scores as: poor <50%, good 51-70% and excellent >70%. MLTs were categorized in three groups based on work experience: juniors <2 years, seniors 2-10 years and senior-most >10 years.

**RESULTS:** The study population consists of 52% males and 48% females. The mean age of MLTs was 34.20±7.16 (range 25-59) years and their mean working experience was 8.5±5.9 (range 1-30) years. Out of 50 MLTs, 47 responded to both tests (94% response rate). Mean score was 48.54±19.45% (range 6.6-86.6%) and 68±22.7% (range 46-100%) for pre-test and post-test respectively (p-value < 0.001). On the basis of work experience 0% juniors, 11% seniors and 2% senior-most were scored excellent in the pretest. The improvement was noted in the post test which showed 4% juniors, 45% seniors and 6% senior-most were scored excellent. Statistical significant improvement was noted between the pre and post test results of MLTs on the basis of experience ( $p < 0.05$ ).

**CONCLUSION:** The results showed a significant increase in the posttest scores compared to pretest. The findings also reflect that senior group showed the most improvement following sessions. Regular academic sessions for MLTs on QC should be encouraged.

**Key words:** Clinical Audit; Knowledge; Laboratory Personnel; Quality Control

## **Mean Changes in Serum Follicle Stimulating Hormone After Laparoscopic Ovarian Cystectomy**

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**BACKGROUND:** Laparoscopic ovarian cystectomy is currently considered the first line treatment for benign ovarian tumors and cyst. However, the safety of a laparoscopic cystectomy has been questioned with respect to damage to the operated ovary. A great deal of evidence supports that the removal of ovarian cysts is associated with injury to the ovarian reserves. There are various tests and markers of assessing ovarian reserves. The serum level of follicle-stimulating hormone (FSH) is a predictor of functional ovarian reserve and has vast acceptance among gynecologists worldwide for assessing ovarian reserves in general practice. In our study Serum follicle stimulating hormone (FSH) was measured pre and post operatively to assess ovarian reserves.

**OBJECTIVES:** To determine the changes in serum Follicle Stimulating hormone (FSH) pre and post operatively in women of reproductive age group undergoing laparoscopic ovarian cystectomy.

**METHODS:** This was a Quasi experimental study conducted at the Aga Khan University hospital among thirty women with ovarian cysts. All patients undergone laparoscopic ovarian cystectomy were included with serum FSH measured preoperatively and 3 months postoperatively. Specimens were analyzed histopathologically & structured performas were filled for each patient regarding information for Age, BMI, size, site and type of ovarian cysts. The primary end point was to assess the ovarian reserve damage based on alterations of FSH which was measured as mean change in serum FSH. Data was entered in a database file on SPSS version 19. The mean change in serum FSH was analyzed by paired t-test.

**RESULTS:** Serum follicle stimulating hormone significantly increased post operatively (mean change 4.15 +/- 5.157 <p=0.000>)

**CONCLUSION:** The FSH level increased after laparoscopic cystectomy for benign ovarian cysts, especially in older patients and those with bilateral and larger cysts indicating significant ovarian damage post operatively.

**Keywords:** Follicle Stimulating Hormone; Ovarian Cystectomy; Ovarian Reserve



## **Empowering Staff by Continuing Education (CE) in Mental Health Setting**

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**BACKGROUND:** Continuing education (CE) in Evidence Based Practice (EBP) plays a pivotal role in promoting professional's interest to gain personal enrichment, to achieve career advancement, to satisfy individual curiosity, to fulfill an employer's requirements and to qualify for licensure. Evidence-based practice (EBP) enables nursing staff to make effective clinical decisions by applying the paramount research evidences accessible to them. It endeavors to improve delivery of health care. However, there is no other study that demonstrates the impact of CE on nurses in Pakistan.

**OBJECTIVES:** For this purpose a study was conducted to objectively assess the CE practice that has an impact on health care provider especially nurses' in changing their practice and to drive future needs for planning effective CE activities.

**METHODS:** A questionnaire incorporated four core items, designed and administered on nurses in psychiatric unit AKUH, Pakistan in order to assess impact of CE on nurses. The respondents rated based on their competency, performance, quality care delivery and management.

**RESULTS:** A total of 80 nurses completed the questionnaire, 55% of the responses were from female health care providers including nursing assistants and registered nurses. A majority of respondents in their replies ranked that they have not taken any formal training on evidence based practice. More than half of the respondents rated impact of CE as good or very good.

**CONCLUSION:** The data generated from the survey encouraged us to involve nurses' perception related to CE. The limitation was single ward setting and time constraint in applying knowledge. The methodology can be thus applicable and adaptable to other health service units in improving nurse's competence, professionalism and in designing effective academic activities for future.

**Keywords:** Continuing Education; Nurse's Competency; Performance; Quality Care Delivery; Management

## **ART Score is Valuable in Decision Making for Repeat Session of TACE in Patients with HCC**

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**BACKGROUND:** High ART score indicates advance disease and doubtful benefit of subsequent TACE procedure.

**OBJECTIVES:** Our aim was to assess the value of sequential ART score in decision making for repeat TACE procedure.

**METHODS:** A cohort of patients with intermediate stage HCC with two or more TACE sessions included. The ART score prior to each TACE session assessed. Overall survival of patients after TACE assessed. Survival analysis was compared by grouping patients with ART score of  $\geq 2.5$  into groups with two and more than two TACE sessions.

**RESULTS:** A total of 100 patients with HCC were assessed, there were 82 males. Mean CTP and MELD score were  $6.1 \pm 0.95$  and  $9.4 \pm 2.3$  respectively. ART score was  $<1.5$  in 63 patients and  $> 2.5$  in 37 patients. Patients with ART score 0-1.5 points (n=63) before TACE-2 had median survival of 29 months [95% CI: 26.21-31.78], compared to patients with ART score  $\geq 2.5$  points (n=37) who had survival of 25 months [95% CI: 11.10-22.89]  $p$  value  $<0.001$ . A subgroup analysis of patients who had ART score  $\geq 2.5$  showed no survival benefit among patients with 3rd or 4th TACE session compared to those who had only 2nd TACE; survival was 18 months vs. 21 months  $p=0.47$

**CONCLUSION:** Low ART score is associated with better survival after TACE in HCC patients. An ART score of  $\geq 2.5$  demonstrated no benefit of subsequent TACE session in this study. ART score is valuable in decision making for subsequent TACE procedure.

**Key words: ART Score; TACE; HCC**

## **Gastrointestinal Amyloidosis- A Case Report**

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**INTRODUCTION:** Amyloidosis refers to the extracellular deposition of fibrils composed of low molecular weight subunits identified on biopsy specimens by their characteristic appearance and ability to bind Congo red leading to green birefringence under polarized light. The three most common causes of systemic amyloid deposition are primary or AL amyloidosis, Reactive (secondary) or AA amyloidosis and Dialysis-related amyloidosis. Gastrointestinal (GI) disease is present in as many as 60 percent of patients with reactive amyloidosis. GI involvement is less common in AL amyloidosis. Hepatic involvement is more common, being seen in as many as 70 percent of patients.

**CASE REPORT:** 59 years old gentleman known case of DM, HTN admitted with complaint of abdominal pain, generalized weakness, decreased appetite and weight loss of about 18 kg for one year. Examination and Ultra sound abdomen showed hepatomegaly. Abdominal pain was not getting better so underwent liver biopsy. Liver tissue showed massive deposition of amyloid in the spaces of disse. Features were consistent with Amyloidosis. All the workup for secondary amyloidosis was negative, so the diagnosis of primary (AL) amyloidosis was made. Patient had progressive renal failure so required regular hemodialysis.

**CONCLUSION:** High index of suspicion is required to diagnose GI amyloidosis. Once diagnosed, patients usually have progressive disease and ultimately develop complications like nephrotic syndrome and renal failure and require hemodialysis followed by liver and or kidney transplantation.

**Key words:** AA Amyloidosis; AL Amyloidosis; Gastrointestinal Amyloidosis

## **To Evaluate the Outcomes of Drug Associated Acute Pancreatitis and to Compare with Gall Stone and Alcohol Induced Acute Pancreatitis**

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**BACKGROUND:** The most common causes of acute pancreatitis are gall stones and alcohol abuse, accounting for 70-80% of case. Drugs are a rare cause of acute pancreatitis; however 525 different drugs are listed in the World Health Organization (WHO).

**OBJECTIVES:** Our aim was to determine the frequency of the etiological risk factors of acute pancreatitis (gall stones, alcohol, drugs and others), associated complications and poor prognostic factors.

**METHODS:** All patients with acute pancreatitis admitted in Aga Khan University Hospital during the period of last 15 years (From 1<sup>st</sup> January 2001 to 30<sup>th</sup> June 2015) included in the study. Risk factors and common drugs associated with pancreatitis evaluated and outcomes assessed for the development of complications, length of stay, any surgical intervention and mortality. The outcomes compared between drugs and other risk factors associated with acute pancreatitis.

**RESULTS:** We evaluated 251 patients with acute pancreatitis, the causative agents found, Gallstones 200 (79.7%), Alcohol 16 (6.4%), Drugs 07 (2.8%), and unknown cause 28 (11.2%). Among them 228 patients (91%) recovered completely, 09 patients (3.6%) developed pseudocysts, 12 patients (4.8%) developed sepsis and 02 patient (0.8%) expired. All patients with drug induced pancreatitis recovered completely.

**CONCLUSION:** Gall stones are the leading cause of acute pancreatitis while drugs are the rare cause, however in significant number of patients cause remained obscure. Based on the above results patients with drug induced pancreatitis have good outcome as compared to gall stones and alcohol induced acute pancreatitis, however further studies warranted.

**Keywords:** Drug Induced Pancreatitis; Gall Stone Pancreatitis; Alcohol Induced Pancreatitis

## **Low Rectal Cancer, its Management and Prognostic Predictors: An Institutional Audit**

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**BACKGROUND:** Colorectal cancer is the third most common cancer in US and 2nd leading cause of death. Rectal cancer accounts for 30 % of CRC and surgical excision is predominant treatment modality with NAC. Despite advances in surgical technique (TME) and NAC, low rectal cancer still pose a great challenge.

**OBJECTIVES:** The aim of this study was to review the outcome of APR\* for low rectal cancers at AKUH and its various predictors.

**METHODS:** A retrospective chart review of 62 patients with low rectal cancer who underwent APR, over a span of 13 years from 2000 to 2012, at the Department of Surgery, AKUH. Demographic data, clinical findings, investigations, procedure findings and follow up were recorded. Data entry and analysis was done using SPSS version 19. Various predictors were assessed to look for overall recurrence free survival after the treatment, including CRM status, lymph node yield, tumor biology, extent of resection, NAC, TNM staging, AJCC staging and TME. Kaplan Meier curve was used to plot recurrence free survival using Log rank test. Kappa statistics were used to find agreement b/w imaging modality used for pre op T staging.

**RESULTS:** 62 patients met the inclusion criteria; mean age was 49.06 +/-15 with slight male preponderance of 58 % (40). 74 % (40) underwent sigmoidoscopy and majority of the patients had adeno Ca with moderate differentiation 77.4 % (48) and 68 % (42) respectively. Almost 70% of patients had locally advanced Ca (T3-T4). 23% patients had +ve circumferential margins after APR. 34% of patients had received NAC. Mean lymph node yield was 15.21 +/-8 post operatively and 66% of patients had adequate lymph nodes i.e. 12 or more. Mean follow up was 39.63 +/-30 months at which an overall recurrence free survival of 72% noted at 36 months and 67% at 60 months. CRM negativity and adequate lymph node dissection was strongly correlating with recurrence free survival.

**CONCLUSION:** Circumferential margin negativity, adequate lymph node dissection and NAC following surgery for (T3-T4) tumors has proven to be good prognostic factors for recurrence free survival after APR (TME) for low rectal cancers. MRI and EUS can be incorporated for pre op staging in identifying patients for NAC followed by surgery.

**Key Words:** Abdomino Perineal Resection; Colorectal Cancer; Neo Adjuvant Chemotherapy; Total Mesorectal; Excision; Circumferential Resection Margin

## **Diagnostic Accuracy of CT Scan in Staging Esophageal Cancer**

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**BACKGROUND:** CT scan is an important tool in staging of esophageal cancer. Survival can be improved by providing neoadjuvant treatment which depends on stage of esophageal cancer. So it is very important to stage the disease accurately.

**OBJECTIVES:** The objective of this study is to determine diagnostic accuracy of CT scan to stage esophageal cancer.

**METHODS:** CT scans of 62 patients included in study were reviewed by a Consultant radiologist who was blinded for the final stage of tumor. Diagnostic accuracy measured by comparing with histopathological staging.

**RESULTS:** Accuracy, sensitivity and specificity of CT for T2 and T3 are 50%, 61%, 68% and 69%, 67%, 56% respectively. Accuracy, sensitivity and specificity of CT for nodal disease are 83%, 59% and 75%.

**CONCLUSION:** CT scan alone has low diagnostic accuracy for staging Esophageal Cancer.

**Keywords: CT Scan; Esophageal Cancer; Diagnosis**

## **Paucity of Trauma Literature from a Highly Burdened Developing Country**

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**BACKGROUND:** Trauma is the leading cause of death among young population not only in USA but Pakistan as well. The high prevalence of disease should result in larger amount of data and larger number of publications resulting in exploring room for improvement in the field.

**OBJECTIVES:** We aimed to review trauma literature generated from Pakistan in journals indexed with PubMed from January 2010 to December 2014.

**METHODS:** Search using term “Trauma AND Pakistan” filtering for relevant dates and species human was done on Pubmed. The abstracts and articles were reviewed by the authors to collect data on a preformed performa.

**RESULTS:** 114 articles were published from Pakistan during these 5 years. 64% articles were published in international journals. 63% articles were published in journals with impact factor less than 1. 54% articles were published from one of the four provinces of Pakistan. 64% of articles provided level 4 while 14% articles provided level5 evidence on the topic. 55% articles discussed epidemiology in non-representative populations.

**CONCLUSION:** Trauma literature from Pakistan is not only lacking significantly but is also of poor quality and is unable to offer conclusions on this particular subject. There is a lot of space for improvement in the upcoming years.

**Keywords: Trauma; Literature; Pakistan; Level of Evidence**

## **Knowledge about Postoperative Pain and its Management in Patients undergoing Major Abdominal Surgery**

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**BACKGROUND:** Despite the use of several strategies for postoperative pain management, it is estimated that approximately 50 to 75% of patients have insufficient pain relief. Insufficient postoperative pain relief leads to several pathophysiological and psychological changes. One of the barriers to attaining optimal pain relief is patient's lack of knowledge regarding the options available for pain management and the potential side effects. In this study we evaluated patient's preoperative knowledge about postoperative pain and its management in major abdominal surgeries.

**OBJECTIVES:** To determine level of knowledge about postoperative pain and its management in patients undergoing major abdominal surgery at a tertiary care hospital in Karachi, Pakistan

**METHODS:** This was a cross sectional observational study. A total of 155 patients (18 to 60 years old) scheduled to undergo elective major abdominal surgery with upper abdominal incisions were included. Preoperatively, patients were interviewed through a questionnaire regarding knowledge about postoperative pain and its management.

**RESULTS:** The average age of the patients was 42.97±13.05 years. Excellent and good knowledge was observed in 11.61% and 21.94% patients respectively, while fair and poor knowledge was seen in 42.58% and 23.87% respectively. Inadequate knowledge was more marked in areas of side effects, doses and addiction risk. Education level, history of previous surgery and patients who received adequate information about their pain management plan from the surgeon during preoperative visit were significantly associated with a higher level of knowledge about pain and its management with p-value of 0.0005, 0.002 and 0.0005 respectively.

**CONCLUSION:** Patients have inadequate knowledge about their postoperative pain and its management plan particularly in areas of side effects, doses and addiction risk.

**Key Words:** Pain; Postoperative Pain; Postoperative Pain Management; Patients Knowledge; Major Abdominal surgery



## **A Survey on Oral Implantology Education in the Dental Colleges of Pakistan**

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**BACKGROUND:** Oral Implantology is a rapidly evolving area of dentistry which needs to be taught to the undergraduate students.

**OBJECTIVES:** The objectives of this study were to explore the status of Implantology teaching at BDS level education in Pakistan and to assess topics/areas in Implant dentistry curriculum being overlooked at the undergraduate level.

**METHODS:** A questionnaire was distributed to faculty of Operative Dentistry, Prosthodontics, Oral Surgery and Periodontics in various dental institutions of Pakistan. The questionnaire gained information on: year of introduction, departments involved in teaching and format of teaching implantology etc. Data was analyzed using SPSS 19.0. Descriptive statistics and frequency distribution were computed.

**RESULTS:** Out of the 33 forms received, 22 faculty members were fellows of College of Physicians and Surgeons of Pakistan or Royal College of Surgeons UK. Oral Surgeons were reported to be responsible for teaching by 19 of the faculty. In majority of the dental colleges, Implantology was introduced after the year 2005. Out of the 23 respondents who placed implants, 17 reported that they frequently allowed students to observe implant surgeries. Lectures (64%) are the mainstay of teaching Implantology at undergraduate institutions.

**CONCLUSION:** Oral Surgeons are primarily responsible for implant education at undergraduate level; hence the subject teaching is Surgery oriented. Implant education started in most institutions in last 5-10 years. Topics such as implant prosthetics, bone regeneration and grafting are poorly covered in implant teaching.

**Keywords:** Oral Implantology; Education; Dental College

## **Evaluation of Micro Leakage of Root Canals filled with Different Sealers and Obturation Techniques: An In Vitro Study**

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**BACKGROUND:** Over the years many core materials, sealers and obturation techniques have been introduced in an attempt to fill the root canal uniformly to decrease chance of microleakage and canal re-infection. A plethora of studies have been carried out but there is no consensus as to which obturation technique and sealer would result in a 'better' sealing of root canal space

**OBJECTIVES:** To compare the mean apical micro leakage in root canals of extracted teeth obturated with cold laterally compacted gutta percha and thermoplasticised injectable gutta percha using calcium hydroxide versus resin based sealer.

**METHODS:** Access cavities were prepared in 140 teeth that fulfilled the inclusion criteria. Canals were prepared with ProTaper rotary system and randomly divided into 4 groups per group. They were filled by a combination of two different obturation techniques (cold lateral condensation/ thermoplasticised injectable gutta-percha) and two different sealers (Sealapex/ AH plus). The teeth were placed in 2.0% methylene blue solution, were sectioned longitudinally, observed under stereoscopic microscope (magnification x4) and images captured using microscope attached camera. The amount of dye penetration was measured in millimeter from the apex to the most coronal part to which the dye had penetrated.

**RESULTS:** According to the measurements done, obturation done with Obtura and Sealapex was the leakiest with a mean dye penetration of  $1.91 \pm 1.15$  mm. The cold lateral condensation and AH plus group demonstrated the least leakage with a mean dye penetration of  $0.92 \pm 0.75$  mm. There was a statistically significant difference in dye penetration among the four study groups.

**Keywords:** Endodontic Filling Materials; Obturation; Microleakage

## Usefulness of Procalcitonin For Diagnosis of Sepsis in the Critically Ill Patients

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**BACKGROUND:** Sepsis is the leading cause of mortality in critically ill patients. The diagnosis of sepsis is challenging, because clinical signs of sepsis and traditional markers of infection are often misleading. Procalcitonin (PCT) is a promising marker for identification of bacterial sepsis.

**OBJECTIVES:** To determine the diagnostic accuracy of serum procalcitonin concentration in patients with suspected sepsis.

**METHODS:** Patients suspected of having sepsis, admitted to the ICU of AKUH from Jan-Dec 2014 were included in the study after informed consent on day one of admission. Suspected sepsis was defined based on the 1991 ACCP/SCCM Sepsis Directory and the diagnostic criteria advanced by the 2001 International Sepsis Definition Conference. Serum PCT cutoff  $\geq 0.5$  ng/ml was taken for diagnosing sepsis. Diagnostic accuracy was measured in terms of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) taking blood culture as gold standard. Different cutoffs were compared by using receiver operating characteristic curves (ROC).

**RESULTS:** Mean age of the study group (n=103) was  $46 \pm 13$  years, 60% being males. Mean PCT were  $57.1 \pm 35.9$  ng/ml. Using a cutoff of 0.5ng/ml PCT exhibited a 93.75% sensitivity, 43.59% Specificity with 73.17%, and 80.95% PPV and NPV respectively.(p-value < 0.001). With respect to agreement with bacterial culture results PCT (72.8%) markedly exceeded WBC (69.9%) as a marker of sepsis.

Applying ROC curve at a cutoff of 1.5ng/ml, PCT yielded sensitivity and specificity of 62.5% and 70% respectively. AUC was calculated to be 0.7.

**CONCLUSION:** Elevated PCT concentrations appear to be a promising indicator of sepsis in newly admitted, critically ill patients capable of complementing clinical signs and routine laboratory parameters suggestive of severe infection.

**Keywords: Procalcitonin; Blood culture; Sepsis**

## **Knowledge Regarding Diabetes Mellitus among Non-Medical University Students Of Gulshan Town Karachi**

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**BACKGROUND:** Diabetes is emerging as an epidemic of 21<sup>st</sup> century. WHO ranks Pakistan 7<sup>th</sup> on diabetes prevalence list. Type2 Diabetes is now increasingly being diagnosed in adolescents. Diabetes education with consequent improvements in knowledge and attitudes will lead to better control of the disease. Colleges and universities are the best places to implement programs which will increase awareness about life-style related diseases including diabetes.

**METHODS:** This was an analytical cross sectional study conducted from July-December 2014. A sample of Bachelor's degree program in different departments (n=450) enrolled in Government and Private Universities (n=3) of Gulshan Town Karachi aged 18-23 years participated. Participants were questioned regarding their knowledge through a questionnaire that covered the basic concepts of diabetes, its risk factors, symptoms and complications. Scoring of 60% and more was marked as adequate knowledge and below 60% as having inadequate knowledge.

**RESULTS:** Inadequate knowledge was found in 34.7% of participants i.e. 70.5% males and 29.5% females (p=0.001) and 61.5% of government students and 38.5% of private sector students (p=0.067). Frequency of inadequate knowledge was more among those who don't have family history of diabetes i.e. 75.6% as compared to 24.4% who have family history of diabetes(p=0.000)

**CONCLUSION:** Knowledge is inadequate regarding diabetes which is causing high economic burden for our health system. Measures should be taken to increase awareness among youngsters to adapt healthy life-style to prevent development of diabetes in future.

**Keywords: Diabetes Knowledge; Non-Medical University Students; Karachi; Pakistan**

## **Intra-thecal Antibiotics for Post-Operative Gram Negative Meningitis and Ventriculitis**

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**BACKGROUND:** Postoperative meningitis is a growing cause of concern especially with the evolution of multidrug resistant organism.

**OBJECTIVES:** The authors evaluate the use of intraventricular/intrathecal antibiotics for postoperative Gram-negative meningitis in patients whom intravenous antibiotics were ineffective

**METHODS:** Adult consecutive patients with cerebrospinal fluid (CSF) culture proven Gram-negative postoperative meningitis/ventriculitis, in which intravenous antibiotics were ineffective were included from January 2008- December 2012.

**RESULTS:** From January 2008 to December 2012 there were 94 reported cases of post-operative meningitis/ventriculitis at our institution. Of these, 63 were culture proven Gram positive and were treated accordingly. Thirty one patients either had isolated Gram negative meningitis/ventriculitis or mixed Gram positive/negative, infection, of which 21 patients required treatment with IVT/IT antibiotics. Of these 21 patients, 16 were male and 5 were female. Mean age was 41.7 + 11 years (range 26 to 58 years). All except one of these patients had cranial surgery. Of the 21 patients in our study, 8 were admitted with a GCS of >12 while the remaining had a GCS < 12. Acinetobacter was the most common organism isolated on CSF culture (n=14) followed by Klebsiella (n=3), Pseudomonas (n=1) and Enterobacter (n=1). 1 patient had polymicrobial growth. Three antibiotics were used in the IVT/IT treatment group; Amikacin, Polymixin B and Colistin. The indication was primarily based on the sensitivity of pathogenic organisms cultured on CSF of individual patients; table 2 shows the resistance pattern of the organism. Amikacin was used in 7 patients, Polymixin B in 9 patients and Colistin in 5 patients. A combination of 2 IVT/IT antibiotics, Polymixin B and Amikacin was used in 1 patient. An EVD was used as the route of administration in 13 cases (62%) while a lumbar drain was used in 8 (38%) patients. Median duration between starting of IT/IVT after being diagnosed with post neurosurgical meningitis/ventriculitis was 3 days (Range 0-7days). Median duration of IVT/IT therapy was 15 (9-25) days. CSF sterility was achieved in all of the patients with a median time to sterility being 7.1 + 3.8 (Range 2-16) days (EVD 7.08 + 3.37 days vs. LD 7.1 + 4.6 days, p-value 0.176). Only two patients achieved CSF sterility within 48 hours.

**RESULTS:** Discharge GCS improved in 2 remained the same in 7 and deteriorated in 12 patients. Median hospital stay was 38 days (20-257days) with the EVD group [46 (29-72)] having a longer stay than LD group [32.5 (20-76) days] p-value 0.07. At 6 months follow up favorable outcomes were seen in 14 (66.7%) patients and 7 (33.3%) patients remained in an unfavorable state. One patient died during treatment and although the patient had Acinetobacter species infection, the cause of death was found to be a massive pulmonary embolus. No adverse effects attributable to IVT/IT therapy were noted in the study.

**CONCLUSION:** The findings of this study suggest that IVT antibiotic therapy is a useful option especially in patients who are non-responsive to standard intravenous therapy with little or no side effects.

**Keywords:** Intraventricular/Intrathecal antibiotics; Postoperative Gram-Negative Meningitis; Ventriculitis

## **Rehabilitation of Functionally Dependent Patients: Challenges Faced By a Tertiary Care Neurosurgery Centre**

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**OBJECTIVES:** To identify the need of nursing care in functionally dependent neurosurgical patients and to evaluate the difference in outcome of care provided by Professional Nurses (PN) and Trained Family Member (TFM).

**METHODS:** This is retrospective cohort study conducted at Aga Khan University Hospital for period of two years (2012-2014). Forty patients met the selection criteria. They were divided into 02 groups: Group 01 taken care by TFM and group 02 by PN. Data regarding demographics including age, mode of injury, severity of head injury, radiological findings, procedure performed and Glasgow Outcome Score (GOS) at discharge and follow-up was documented. Patient requiring nursing care were identified by the primary attending or the patient care coordinator (PCC) and was placed either in one of the groups according to their desire/financial status. Nursing needs were identified for each patient and care givers were assessed for providing these nursing needs by PCC. Outcomes assessed included mortality, GOS, new bed sore development and time to de-cannulate. Patients were followed for a median follow-up of one year. Data was collected on structured Performa and analysis was performed on SPSS version 22. Descriptive analysis, including means and standard deviation for continuous data with normal distribution and median (range) for skewed data was done. Chi-square test was use to compare categorical data and Student T-test for numerical data. Significance of  $p < 0.05$  is taken as significant.

**RESULTS:** Forty patients were included in this study. Twenty three patients were taken- care by trained family member while seventeen were managed by professional nurse. The mean age of patients taken care by trained family members was  $34.65 \pm 17.43$  years while mean of professional nurse group was  $44.27 \pm 17.24$ . Mode of injury, severity of head injury, injury on CT scan, procedure performed and GOS (at discharge) were comparable among the two groups. Eighteen patients had undergone tracheostomy nine in each group requiring tracheostomy care. PN handled nine PEG tubes while TFM managed four PEG tubes. Log Rolling was identified as nursing need of 29 patients including seventeen in PN and twelve in TFM. PN managed care of 6 PICC line while TFM. The nursing requirements among the two groups were also found to be comparable. Outcomes assessed between the two groups included GOS (At median follow-up of 1 year) which showed better outcome in PN group but was not statistically significant. Similarly on follow-up nine patients taken care by TFM had develop new bed sores while only three bed sores were present in PN. Out of eighteen patients with tracheostomy only nine got de-cannulated with majority six in PN group. Seven patients expired on follow-up with five patients in the TFM group. Outcomes assessed between the two groups including median time to de-cannulation, bed sore development, GOS and mortality though showed better outcome in PN group but did not show any statistical significance.

**CONCLUSION:** In our study it was observed that patient taken care by PN, seems to have better outcomes though not satisfactorily significant which could be due to small sample size. Prospective studies with larger sample size are required

**Keywords: Rehabilitation; Functionally Dependent Neurosurgical Patients; Professional Nurses (PN); Trained Family Member (TFM)**

## **Synopsis Effect of Oral Dydrogesterone on Mean Neonatal Birth Weight in the Treatment of Idiopathic Intra Uterine Growth Restriction- A Synopsis**

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**BACKGROUND:** Intrauterine growth restriction (IUGR) is a decrease in fetal growth rate that precludes an infant from gaining his or her complete growth potential. The incidence of IUGR is estimated as 3% to 7%. Although fetal, placental or maternal factors can be identified in certain cases, most of the cases do not have any known cause when it is termed as Idiopathic IUGR. IUGR is associated with increased risk of intrauterine death, pre-term delivery, increased need for NICU admission as well as increased need for surgical intervention to terminate the pregnancy. It not only results in significant morbidity and mortality in neonatal period but long term sequel in later life as well. At the moment, no definitive treatment is known other than to treat the underlying cause in cases when it is identified. In cases of Idiopathic IUGR, complete bed rest, high protein diet, iron and folic acid supplementation and steroids have been tried without any promising results. Dydrogesterone is synthetic progesterone which has been used as a part of hormone replacement therapy to minimize the side effects and in early pregnancy to reduce risk of pregnancy loss. The purpose of the current study is therefore to repeat this trial and further confirm its results. The results of this study will enable better management of IUGR patients in future practice with consequent decrease in neonatal morbidity and mortality. It will also add to the existing evidence and will provide statistical data for future research in this regard.

**OBJECTIVES:** To compare mean neonatal birth weight in patients with idiopathic intrauterine growth restriction treated with oral dydrogesterone versus controls.

**METHODS:** This is a Randomized Controlled Trial done at the Department of Obstetrics and Gynaecology Unit-I, Sandeman Provincial Hospital, Quetta for a period of 6 months. The sample size of 46 (23 cases in each group) was calculated with 80% power of test and 95% confidence interval while taking expected mean neonatal birth weight to be 2.03±0.4 Kg among patients on oral dydrogesterone and 1.71±0.37 Kg among patients receiving conventional treatment. Using non probability, consecutive sampling; pregnant women of any parity aged between 18-35 years with singleton pregnancy (ultrasound scan) presenting at 28-34 weeks of gestation (as per dating scan) suffering idiopathic IUGR (as per operational definition) were included while women with congenital fetal anomalies (ultrasound evidence), hypertension (B.P ≥140/90mmHg on at least 2 occasions at least 4 hours apart), diabetes (Fasting blood sugar ≥110mg/dl), renal disease (raised urea and creatinine for age and sex limit), cardiovascular (history of chest pain, dyspnea, ECG changes and echocardiographic evidence) disease were excluded. These 46 patients were then randomly divided into following two groups using lottery method:

Group A: Conventional Treatment (in the form of iron, folic acid, rest and high protein diet)

Group-B: Conventional Treatment + Oral Dydrogesterone (as per operational definition)

Patients will be followed in outdoor till delivery. Upon delivery neonatal birth weight will be noted and recorded into the attached performa along with demographic details of the patients. All the patients will be managed by a single resident and all the weight measurements will be done by a single staff nurse on a single machine to eliminate bias and confounding variables will be controlled by exclusion. All the collected data will be entered into SPSS version 10. Numerical variables i-e age, gestational age, neonatal birth weight will be presented by mean ±SD and range. T-test will be applied for comparison of mean neonatal birth weight between the two groups taking  $p \leq 0.05$  as significant. Categorical variables i-e parity will be presented as frequency. Data will be stratified for age, gestational age and parity. Post stratification t-test will be applied taking  $p$  value  $\leq 0.05$  as significant.

**Keywords: Intrauterine growth restriction; Dydrogesterone**



## **Frequency and Predictors of Oral Lesions in Women with Habitual Smokeless Tobacco Use: A Study done in two Small Squatter Settlements in Suburbs of Karachi**

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**BACKGROUND:** Oral cancer is a frequent encounter in Pakistan. Its rising incidence particularly in women has been largely attributed to the increasing trend of smokeless tobacco use. Despite government ban, it is sold in different combinations namely Ghukta (areca nut, tobacco, catechu, slaked lime ,flavourings), Mawa (areca nut, processed tobacco ,slaked lime), Naswaar (Powdered tobacco) and Paan(Betel leaf,areca nut, tobacco). Oral malignancy is usually preceded by a pre-malignant lesion such as leukoplakia, erythroplakia, oral melanosis and submucous fibrosis. Increased incidence of such lesion in women would indicate a further rise in oral malignancy in future.

**OBJECTIVES:** To determine the incidence and independent predictors of oral lesions in women with habitual use of smoke-less tobacco associated with patterns of use.

**METHODS:** A cross-sectional survey was done in two squatter settlements in suburbs of Karachi namely Dhabeji and Abdullah Goth (combined approximate population 10,000) on women aged 15-75 years. 102 women who used smokeless tobacco and consented to participate were recruited. A questionnaire were filled inquiring the forms of smokeless tobacco used, the starting age, the frequency of use in 24 hours , the duration of contact with oral mucosa with each use in hours and total duration of use in years. The oral cavities of each subject were examined after rinsing the mouth with water and pre-malignant lesions, if any were noted.

**RESULTS:** Of the 385 women who were approached, 277 (72%) admitted to have been using smokeless tobacco however only 102 consented to take part in the study. The average age was 36.6±12.4 years and 88(73.3%) were married. 19.6%(n=20) were working as housemaids. The average starting age was 20.5±10.9 . About 47%(n=48) were found to have oral lesions, the most common being oral ulcers 41%(n=42), leukoplakia 21%(n=22), melanotic macules 18%(n=19) , clinically evident submucous fibrosis 4%( n=5) with inability to completely open the mouth and erythroplakia was observed in 2%(n=3) . Two patients were found to have large irregular oral lesions suspicious of malignancy and were advised further workup. 8 had 3 lesions,22 had 2 lesions and 48 had atleast 1. 42% (n=43) women had gingivitis and loosening of teeth. The highest frequency of oral lesions were found in ghutka users 57.4% (n=27/47), followed by Naswaar 53.3%(n=8/15), Paan25.9% (7/27) and Mawa25%(3/12). 97% (n=98) reported atleast one of the family members using some forms of tobacco. 43 women reported atleast 1 child below 10 using smokeless tobacco. 82 women reported withdrawal symptoms, most frequent being headache(n=62), followed by 'low' mood(n=32), vertigo(n=22), bodyaches(n=22) and decreased appetite(n=4). The frequency of use greater than 3times /day (OR 2.62, 95% CI(1.17-5.86), the age of initiation below 20(OR 4.173, 95%CI(1.74-10.01) and duration of use greater than 10 years(OR 4.917, 95%CI (2.07-11.67) were independent factors associated with increased incidence of oral lesions.

**CONCLUSION:** A high incidence of oral lesions including the pre-malignant ones among women with habitual use of smokeless tobacco is a cause of concern as it is an indicator of increased morbidity and mortality in Pakistan in the future due to oral cancer. Appropriate measures are required to address this issue.

**Keywords:** Oral Lesions; Women; Smoke-less Tobacco



## **The 30-Day Mortality of Pneumonia in Adult Patients with Neutropenia at a Tertiary Care Hospital in Karachi, Pakistan**

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**BACKGROUND:** Despite advances in antibiotic therapy, pneumonia remains a major cause of mortality and morbidity worldwide. Patients with neutropenia are at a high risk of developing pneumonia with life threatening complications and carry a poor prognosis.

**OBJECTIVES:** To determine the 30-day mortality of pneumonia in patients with neutropenia and the independent factors associated with the outcome

**METHODS:** A cross-sectional retrospective study was done on patients aged between 18 and 75 years admitted between 1<sup>st</sup> July 2012-30<sup>th</sup> June, 2015, who had pneumonia with neutropenia. Data on 100 patients was collected.

**RESULTS:** The average age was 46.84±17.85 years. 65 were male. The average length of hospital stay was 11±8 days. 19 required mechanical ventilation. 24 had mild, 18 had moderate and 58 had severe neutropenia. 71 were discharged and 29 expired (mortality being 29%). 9 out of the 19 mechanically ventilated patients expired making mortality in mechanically ventilated patients 47.3%. The independent factors associated with mortality were multiorgan dysfunction (OR 3.53, 95% CI 1.37-9.12, p=0.009) and requirement of mechanical ventilation (OR 2.75, 95% CI 0.98-7.71, p=0.05). Severity of neutropenia did not influence the outcome.

**CONCLUSION:** Pneumonia in the presence of neutropenia carries a high mortality despite optimum therapy. It is higher in those requiring mechanical ventilation.

**Keywords: Pneumonia; Neutropenia; Mortality**

## **Health Risk Assessment of Lead and Arsenic among Urban and Rural Women: Foods Duplicate Study**

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**BACKGROUND:** Exposure to lead (Pb) and arsenic (As) during pregnancy and early life adversely affect the neuropsychological development of the children. The exposure levels and the dose at which adverse health effects occur are not known for Pb and As in developing countries to set population based standards and policies.

**OBJECTIVES:** Health risk assessment for Pb and As among lactating mothers, newborns and young children (1-3 year old) by estimating provisional tolerable daily intake (PTDI) and provisional tolerable weekly intake (PTWI).

**METHODS:** Total of 100 triplets comprising of mother, newborn and young child are being enrolled, 50 from Karachi (urban) and 50 from Gambat (rural) sites in Sindh. Exposure assessment will be the the level of Pb and As from mother's blood, hair and nails, placenta and cord blood for the newborn, and child's blood. In addition, environmental samples of air, house dust and water, and food duplicate samples for 3 days is being collected. Outcome assessment will be the maternal and newborn DNA (CD 34 cells) will be extracted to assess changes in epigenes. Bayley's III assessment will be done for assessing child development.

**CONCLUSION:** Provisional Tolerable Weekly Intakes (PTWIs) and Provisional Tolerable Daily Intakes (PTDIs) recommended by the FAO/WHO Joint Expert Committee on Food Additives (JECFA) will be compared and standards and policies will be devised based on available information.

**Keywords: Lead; Arsenic; Health Effects; Epigenes**

## **Determinants of Antenatal Care Utilization in Pakistan: Pakistan Demographic Health Survey 2012-2013**

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**BACKGROUND:** Antenatal Care (ANC) utilization is associated with better maternal, newborn and child health. There is strong evidence that ANC utilization influences maternal behavior and increases skill birth attendance, postnatal care and improves newborn care. Around 74% of maternal deaths can be averted if all women have access to maternal health care services.

**OBJECTIVES:** To determine the factors affecting ANC utilization in Pakistan.

**METHODS:** Pakistan Demographic and Health Survey (PDHS 2012-13) is a representative population based random cluster survey. Using PDHS a total of 7443 ever married women of reproductive age (15-49 years) with a live birth in five years preceding the survey were included in the analysis. Andersen's conceptual framework was adapted to examine predisposing and enabling factors affecting ANC utilization at individual and systems level by using multivariate logistic regression analysis.

**RESULTS:** Only 37% women had 4 ANC visits during pregnancy. Most important predisposing factors for ANC utilization were women's education (aOR: 3.62, 95% CI: 2.86-4.59), husband's education (aOR: 1.25, 95% CI: 1.03-1.52), having first child (aOR: 5.87, 95% CI: 4.47-7.69). Living in urban areas (aOR: 3.20, 95% CI: 2.90-3.52), and wealthiest health quintile (aOR: 1.25, 95% CI: 1.03-1.52) enabled females for ANC utilization. Women in Balochistan province were less likely to utilize ANC (aOR: 0.14, 95% CI: 0.10-0.19).

**CONCLUSION:** This is the first study focusing on factors affecting ANC utilization on a nationally representative data. ANC utilization is low in Pakistan. Significant improvement can be achieved through addressing education and providing access to services across all provinces.

**Key words:** Antenatal Care; Enabling and Predisposing Factors; Pakistan

## **Performance of Research Journals of Pakistan in Terms of their Impact Factor**

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**BACKGROUND:** Impact factor is a tool to identify the quality of research conducted. Research papers published in high impact factor journals shows worth of their work.

**OBJECTIVES:** To summarize the performance of Pakistani Research Journals in terms of their impact factor.

**METHODS:** Pakistani Research Journals were analyzed for their Impact Factor (IF) from 2011-2013. Journals Citation Report (JCR) published by Thomas Router and Impact Factor list of Journals published by Higher Education Commission Pakistan was used to retrieve data electronically. Study was conducted from June-August 2015.

**RESULTS:** A total of 10 Pakistani Research Journals have their Impact Factor in the year 2013. Highest Impact Factor of any Pakistani Research Journal was 1.365 of Pakistan Veterinary Journal in 2013. Out of 8411 Research Journals published worldwide, only 10 Pakistani Journals have their Impact Factor which shows less participation of Pakistan in terms of Quality research.

**CONCLUSION:** Pakistani Journals are contributing very low in terms of ISI indexation. Reasons behind the low performance may be lack of resources and awareness among the young graduates. Conferences, Seminars, Symposiums, workshops and such events at undergraduate level need to be conducted in order to increase the interest of students towards research and publication.

**Key words:** Thomas Router; ISI Indexation; Journal Citation Report (JCR)

## **A Review of the Failed Dental Implants at a Teaching Hospital**

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**BACKGROUND:** The overall five year success of implants reported in dental literature is 95-97%. Since, the volume of dental Implantology is on the rise, thus the failed 3-5% implants constitute a large number cases.

**OBJECTIVES:** Our study objective was to assess the implants that were placed at a teaching hospital in last five years but later got failed and to explore the factors associated with the implant failures.

**METHODS:** A retrospective charts review was done from June 2010-June 2015. Record of all the implants placed in the hospital was retrieved. The implants that got failed were thoroughly investigated. Variables such as patient age, gender and systemic status, length and diameter of implants, bone grafting, type of definitive prosthesis (crown or bridge or over denture), nature of retention (cement versus screw retained), loading strategy (immediate versus delayed loading) etc. were analyzed. Frequency distribution was computed. Chi square test was applied to compare the association between categorical variables. The unit of analysis was implant. Level of significance was kept at <0.05.

**RESULTS:** Out of 215 implants placed, 6 implants failed to integrate when assessed for prosthetic phase. One more implant failed after six months of loading. The seven failed cases had following common variables: deficient bone volume in maxilla (or placement of bone graft), non-submerged placement protocol, early loading with prosthesis and presence of diabetes.

**CONCLUSION:** The five year failure rate of implants was 3.25%. Factors affecting outcome of implant success include atrophic maxilla, premature loading, and medical co-morbid.

**Keywords: Dental Implants; Success; Implant Prosthetics**

## **Assessment of Root Caries in Patient's Reporting to AKU Dental Clinics**

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**BACKGROUND:** Root caries has become an important dental problem because people are living longer and keeping their teeth longer. As patients grow older, their gums recede and root surface are exposed, making them susceptible to root caries. An increased retention of natural teeth means more adults at risk of dental caries (coronal and root), and the complexity of these restorations may require additional skills as well as involving medical considerations when treating older adults.

**OBJECTIVES:** To determine the frequency of root caries among patients visiting AKUH dental clinic and to determine the association of root caries with gender, xerostomia, smoking, betel nut and sugar intake.

**METHODS:** A cross-sectional study was conducted at Aga Khan University Hospital from December 2013 to January 2014. Patients above 30 years of age who visited dental clinics with gum recession or root surface caries with or without root filling were included. We excluded subjects who visited for braces or who did not consent for the participation. Data was entered in a Performa. Information included age, sex, brushing habits, malocclusion, use of systemic medications, xerostomia etc. Intraoral examination was done on all teeth excluding third molars for occlusion, gum recession and root surface assessment for caries etc. SPSS 19.0 was used. Frequency distribution of all the variables was determined. The unit of analysis for root surface caries was the tooth while for demographics, habits and occlusion the data was analyzed at patient level. The variables of interest were the frequency of root surfaces exposed, carious and restored.

**RESULTS:** A total of 4080 root surfaces of 40 subjects (25 males and 15 females) were examined. Mean age was 55.6 years ( $\pm 11.4$  SD). About 805 (19.7%) surfaces were exposed. Around 137 (3.35%) surfaces were carious and only 18 (0.44%) were restored. Eighteen subjects had root caries on less than 2 surfaces; fourteen subjects had root caries on 3-5 surfaces and there were eight subjects with more than 5 carious surfaces. The most common brushing technique was horizontal and combination strokes with manual brushing twice daily using medium brush. Nine subjects (22.5%) reported use of paan and chalia. There were 7 (17.5%) smokers and 3 (7.5%) alcoholics in the sample. Class I occlusion was most frequently found (95%). Bruxism was observed in 13 subjects (32.5%). Most common type of gum recession found was Miller's Class III (60%). Xerostomia was observed in 16 (40%) subjects. Diabetes, hypertension and other comorbid were observed in 17 subjects.

**CONCLUSION:** The most common gum recession pattern observed in our study was deep and wide (Miller's Class III). One fifth of the subjects had extensive root caries (> 5 surfaces). Root surface exposure was found to be associated with smokers (p 0.01) while root surface caries was associated with high sugar intake (p 0.02).

**Keywords: Root Caries; Dental Clinics, Pakistan**

## **Validation of the Screening Tool and Estimation of Depression among Community Children (7-17 years, Karachi, Pakistan)**

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**BACKGROUND:** In Pakistan, child mental health is a neglected area and under recognized as a priority public health issue. To the best of our knowledge no community based study has determined the prevalence of depression among children in Pakistan. Lack of research also has resulted in unavailability of any validated research tool particularly for the screening of depression among children.

**OBJECTIVES:** To determine the prevalence of depression with the Child's Depression Inventory (CDI) and concurrent validity of the CDI with gold standard DSM-IV for depression assessment among children in 7-17 years in Karachi Pakistan

**METHODS:** A two-stage community-based representative cross-sectional survey was conducted in Karachi from October 2014 to March 2015 comprising 454 children aged 7–17 years. Of 7500 clusters, 30 were randomly selected, and of these, 15 children per clusters were enrolled randomly. A translated and pre-tested version of CDI questionnaire was administered. A subgroup of children (n=384) were reassessed for depression at the same time, by a trained psychologist using DSM-IV criteria for the clinical diagnosis of depression.

**RESULTS:** The mean age of the study participant was 11.5 + 2.9 years with the age category of 7-10 (41.6%), 11-14 (39.4%), and 15-17 (19.9%). Among children, 53.7% were boys and 46.3% girls. Ethnic distribution was 41.9% Urdu speaking, 25.8% Punjabi 13.9 % Sindhis and 18.4 % others. The prevalence of depression among children on CDI was 21.1% (n=454) while prevalence on DSM-IV criteria was 19.5 % (n=384). Maternal depression was found to be 7.3%. The Kappa Agreement of CDI and DSM-IV was 0.654 (p<0.001). The sensitivity and specificity of CDI were 82.6 (CI: 72.5- 89.5) and 89.0 (CI: 85.3- 92.2). The ROC curves constructed from CDI for diagnosis of depression among children. The optimum cut-off score for CDI by using criteria value and coordinates of receiver operating curve (ROC) was >18 and area under the curve was 91.9 (CI: 88.7-94.4).

**CONCLUSION:** Recognition of the high amount of mental health disorders' burden can help in raising awareness and can make child depression a priority issue along with other important child health indicators at national level.

**Keywords: Validation; Prevalence; Child Depression; Pakistan**

## **Short Term Impact of Stoves in Reducing Household Air Pollution and Improving Health among Rural Women: Comparison of Two Programs.**

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**BACKGROUND:** Efficient stoves reduce household air pollution (HAP) due to solid fuel use. Two stove intervention programs were evaluated and compared for short term impact on respiratory and eye symptoms, lung function, blood pressure and burns.

**METHODS:** A total of 83 and 134 improved and 209 and 179 traditional stoves in Sindh and Punjab provinces of Pakistan, respectively, were evaluated after 3 months of implementation, during June to September, 2014. 24-hour particulate matter (<2.5 µm) (PM<sub>2.5</sub>) and carbon monoxide (CO) levels were measured in the kitchens in a subsample. Multivariate logistic regression and general linear model were used to determine health impact of stoves.

**RESULTS:** PM<sub>2.5</sub> and CO were significantly less among improved stoves kitchens. Among women in Sindh program, significant reduction occurred for cough (aRR: 0.27, CI: 0.20, 0.38), phlegm (aRR: 0.27, CI: 0.18, 0.40), shortness of breath (aRR: 0.16, CI: 0.11, 0.22), chest tightness (aRR: 0.23, CI: 0.17, 0.31), attack of asthma (aRR: 0.33, CI: 0.22, 0.49) (p<0.001), sandy eyes (aRR: 0.63, CI: 0.47, 0.97) and itching in eyes (aRR: 0.62, CI: 0.41, 0.95 (p<0.050)). While in Punjab program, risk reduction for phlegm (aRR: 0.60, CI: 0.45, 0.81) and protection from burns (aRR: 0.56, CI: 0.34, 0.91) was observed. Mean peak expiratory flow was higher among improved stoves users in Sindh program (31.58, CI: 17.90, 45.25 L/min).

**CONCLUSION:** Stove interventions can have favorable health impact among women. However, variation in health gains were noted among programs with more pronounced impact among closed kitchen users.

**Key words: Intervention; Stove; Health impact; Pakistan**



## **Determining the Stress Level, Contributing Factors and Buffer Mechanisms among Women from Two Rural Districts of Pakistan: An Area of Severe Unmet Need for Action**

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**BACKGROUND:** Globally, literature reported that women living in remote or rural areas are the most high-risk group for developing stress. There is a discernable gap in available literature from the rural women in Pakistan regarding stress and anxiety.

**OBJECTIVES:** Therefore the aim of this study was to assess the burden of stress and anxiety and associated risk factors among rural women in Pakistan.

**METHODS:** A total of 380 married women in Sindh and Punjab provinces of Pakistan, respectively, were recruited, during June to September, 2014. AZ scale was used to assess the prevalence and multivariate linear/logistic regression were used to determine associated factors of stress among women.

**RESULTS:** The mean age of the participants was 33.2 + 10.9. Among ethnic groups, 48.7% were Sindhi while 43.2% were Punjabi. 67.9% of women were uneducated and 94.5% of the women were housewives. Most of the women have their monthly household income (<10 thousand PKR) 70.3%. 87.9% of the husbands' were doing blue-collar jobs. 48.2% of the women were found to be stressed while only 11.8% were using productive ways to buffer their stress. Linear regression for AZ stress shows among Sindhis ( $\beta$ : 2.03, 95% CI: 1.28, 2.78) uneducated women ( $\beta$ : 1.44, 95% CI: 0.67, 2.21) and monthly household income < 10,000 PKR ( $\beta$ : 1.59, 95% CI: 0.53, 2.65) ( $p < 0.05$ ).

**CONCLUSION:** Household financial deficits, lack of education among rural women in Sindh were the major contributing factors leading to high stress level. We propose the need to understand the context in which coping takes place and to enhance resilience strategies used by women in developing countries such as Pakistan to manage the multiple stressors associated with confronting life's challenges.

**Key words:** Stress; Anxiety; AZ scale; Women; Pakistan

## **Impact of Quality of Family Planning Services on Contraceptive use among Married Women of Sindh, Pakistan: Does Client`s Perspective of Quality Really Matter?**

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**BACKGROUND:** Sindh is a province with considerably low Contraceptive Prevalence Rate (CPR) i.e. 30%, compared to national average of CPR (35%). Among many reasons for low CPR, one is high discontinuation rate for contraception. Evidence supports that effective and continued use of family is directly linked with the quality of family planning services. The famous Bruce-Jain framework for quality of family planning services proposed that quality of family planning services have substantial impact on the client`s acceptance as well as continuation of contraceptive use.

**METHODS:** This research is the secondary data analysis of the provincial data (Sindh data) from most recent Pakistan demographic and health survey (PDHS) 2012-2013. For the purpose of this study we included elements of service quality as main exposure variables. The outcome variable was a binary variable i.e. current family planning use/ current users and discontinued use/ discontinues users. Data were analyzed using SPSS version 19. Descriptive statistics were run for socio-demographic and main exposure variables. Binary Logistic Regression was applied to assess possible association between client`s perspective regarding service quality attributes and contraceptive use.

**RESULTS:** Among women (n=651) included in the analysis 190 women were the discontinued users and 461 women were the currents users of contraception. This study found that current users were more satisfied with all the service quality elements as compared to discontinued users. Women who were currently using contraception were 1.84 times more likely to be satisfied with the family planning counseling provided at the facility level as compared to women who discontinued contraceptive use (CI: 1.03; 3.27, p<0.05). Moreover, women who were currently using contraception were 1.72 times more likely to be satisfied with the attitude of facility staff or service provider as compared to women who discontinued contraceptive use (CI: 1.02; 3.02, p<0.05).

**CONCLUSION:** This study highlights substantial roles of adequate counseling and appropriate attitude of facility staff as important determinants of current contraceptive use. Factors related to staff motivation, improved counseling skills and appropriate attitude can make a considerable difference in CPR of a country. Moreover, service quality elements proposed by Bruce-Jain framework must be considered to develop interventions for control of staff s/ service providers` accountability for performance at facility, district and provincial level.

**Keywords: Family Planning Services; Contraceptives; Married Women; Sindh**

## **Influence of Education on Seeking Family Planning Methods and Antenatal Services among Women in Sindh: PDHS 2013 Analysis**

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**BACKGROUND:** Despite the fact that contraceptive usage has increased over a period of time, there exists a Knowledge Attitude and Practice -gap regarding contraception. Literature reports that married women who attained primary and secondary plus level of education show increase probability of using family planning practices.

**OBJECTIVES:** The aim of this study was to determine the impact of education on the family planning and reproductive health indicators among the women in Sindh.

**METHODS:** A Secondary data analysis of Pakistan demographic and health survey (PDHS) 2012-013 was performed on the data set consisted of 3133 ever married females aged 15-49 years of age, representing from Sindh Pakistan. Multivariate logistic regression model were applied to see the association of education and related factors.

**RESULTS:** The mean age of the women were 32.5 years and mean age at marriage at 19 years. 41.7 % of the women were educated. The current contraception method used by women was 28.2% among them 83% were using modern methods and 17% were using traditional methods. The unmet need for family planning is 52.8%. 43.2 % of the women seek antenatal care. The contraception use among educated women were (aOR: 1.96, CI: 1.45, 2.64), unmet need for family planning (aOR: 1.69, CI: 1.24, 2.30), antenatal visit (aOR: 3.22, CI: 2.16, 4.78) and wanted last child (aOR: 1.83, CI: 1.06, 3.17).

**CONCLUSION:** The support and encouragement for women to complete formal education is essential in bringing about a socio-cultural change in attitude towards the social value of family planning. This study suggests that education can address the imbalance in decision making about family planning methods choices among women.

**Keywords: Family Planning; Education; Sindh**

## **Prevention of Postoperative Nausea and Vomiting (PONV) using High Oxygen Concentration Intraoperatively in Patients Undergoing Elective Laparoscopic Cholecystectomy**

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**BACKGROUND:** There are many benefits associated with the laparoscopic surgery including faster recovery, shorter hospital stay and prompt return to normal activities. Although laparoscopic surgery is minimally invasive in nature but high incidence of postoperative nausea and vomiting (PONV) remains a major cause of morbidity. To prevent PONV, multimodal techniques are helpful, but not any one technique is idea to deal with this problem. This study was carried out to compare the efficacy of intraoperative high oxygen concentration in prevention of postoperative nausea and vomiting in patients undergoing laparoscopic cholecystectomy.

**OBJETCIVES:** The objective of this study is to observe the effectiveness of high oxygen concentration in prevention of postoperative nausea and/ or vomiting in adult females undergoing elective laparoscopic cholecystectomy. Patients were observed for 24 hours postoperatively for nausea and vomiting. High oxygen will be considered effective, if no nausea or vomiting occurred in the 24hrs period.

**METHODS:** This study was conducted in the Department of Anesthesiology at Aga Khan University and Hospital, Karachi from June 2013 to May 2014. Design of the study was Prospective observational study 74 ASA I and II adult female patients undergoing elective laparoscopic cholecystectomy were included in this study. All the patients who fulfill the inclusion criteria were included in this study. Postoperatively patients were observed for 24 hours for any episode of nausea or vomiting, or whether the patients required any rescue antiemetic.

**RESULTS:** High intraoperative oxygen concentration has not significantly affected the incidence of PONV in adult female patients underwent laparoscopic cholecystectomy. During the 24 hr period, out of 74 patients, 30patients (40.54%) experience PONV and required rescue antiemetic medication and 44 patients (59.46) experience no PONV.

**CONCLUSION:** This study has demonstrated that high intraoperative oxygen was not effective in prevention of postoperative nausea and vomiting in adult female patients undergoing elective laparoscopic surgery.

**Keywords:** Intraoperative High Oxygen Concentration; Laparoscopic Cholecystectomy; PONV

## **In Vitro Assessment of the Accuracy of Extraoral Method of Root Length Determination**

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**BACKGROUND:** Radiographic examination is one of the primary diagnostic tools used in dentistry. In some patients, obtaining a correct intraoral periapical radiograph can be very difficult. These include individuals with severe gag reflex, pediatric patients who are reluctant to intraoral film placement, patients with macroglossia or microstomia, post radiation therapy patients with trismus or patients with limited sulcus depth etc. For such patients, recently an alternative technique was suggested in which periapical radiographs were taken by using extraoral approach. The purpose of our study is to evaluate the accuracy of extra oral periapical radiograph for determining working length by comparing it with two other sets of radiograph obtained with intraoral approaches.

**OBJECTIVE:** To determine the accuracy of extra oral periapical radiography in obtaining root length by comparing it with the radiographs obtained from standard intraoral approach and extended distance intraoral approach.

**METHODS:** It was an in-vitro, comparative study conducted at the dental clinics of AKUH. ERC exemption was obtained for this work, ref # 3407Sur-ERC-14. We included premolars and molars of a standard Phantom head mounted with metal and radiopaque teeth. Radiation was exposed using three radiographic approaches: standard intraoral, extended length intraoral and extra oral. Since, the unit of analysis was individual root, thus, we had a total of 36 images. The images were stored in VinWix software already installed in our clinic setup. The length of the roots was determined using the scale function of the measuring tool inbuilt in the software. Data was analyzed using SPSS version 19.0 and Graph Pad software. Pearson correlation coefficient and Bland-Altman test was applied to determine whether the tooth length readings obtained from three different approaches were correlated. A p-value of 0.05 was taken as statistically significant.

**RESULTS:** The correlation between standard intraoral & extended intraoral was 0.97; correlation between standard intraoral & extraoral method was 0.82 while correlation between extended intraoral & extraoral was 0.76. The results of Bland Altman test showed that the average discrepancy between these methods is not large enough to be considered as significant.

**CONCLUSION:** It appears that the extra oral radiographic method can be used in root length determination in subjects where intraoral radiography is not possible.

**ACKNOWLEDGEMENT:** Dr Khabir Ahmed, Surgery.

**Keywords:** Root Length; Extraoral, In Vitro Assessment

## **Outcome of Dental Implantology in a Tertiary Care Hospital**

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**BACKGROUND:** A dental implant (also known as an endosseous implant or fixture) is a surgical component that interfaces with the bone of the jaw to support a dental prosthesis. Osseointegration occurs when bone cells attach themselves directly to the titanium surface, essentially locking the implant into the jaw bone. An implant is tested between 8 and 24 weeks to determine if it is integrated. The overall success of implants reported in literature is 95-97%. Since, the local data is lacking on success of this treatment modality; therefore, it was decided to explore the outcome of implant services in our centre.

**OBJECTIVES:** To assess the outcome of dental implants placement Aga Khan University hospital.

**METHODS:** It was a retrospective charts review which included 223 implants. Duration of our study was from 2010-2015 placed within AKUH. Variables such as length and diameter of implants, most common type of implant used, type of prosthesis, immediate and delayed loading were analyzed. Descriptive statistics and frequency distribution were computed. Chi square test was applied to compare the difference between categorical variables. The unit of analysis was implant. Level of significance was kept at <0.05.

**RESULTS:** A total of 223 implants were placed out of which 7 implants failed. Analysis was done on those dental implant in which successful osseointegration was achieved. The follow up range was 2 months to 63 months. Surgical and prosthetic data was analysed on 120 implants that were loaded with prosthesis while 97 units are yet to be loaded so only surgical data was available for the latter. The predominant implant used was Zimmer tapered screw vent, most of the patients who received dental implants were partially edentulous, most common length was 11.5mm, most frequent diameter was 4.7 mm. Straight abutment was used for most of the cases, most commonly replaced tooth was lower right first molar. The predominant final prosthesis was cementing retained fixed bridges. A small fraction of surgeries receive bone grafts along with the implant. The 7 failed cases had three common variables: deficient bone in maxilla, early loading with provisional prosthesis and placement of bone graft.

**CONCLUSION:** We were able to achieve a success rate of 97.3% which is in agreement with the studies conducted worldwide and internationally accepted standards. Factors affecting outcome of osseointegration including atrophic maxilla, premature loading, medical comorbid, bone grafting should be dealt with caution.

**Keywords: Dental Implants Success; Dental Implant Prosthetics**

## **Remaining Dentine Thickness after Preparation with Different Rotary Systems- An In Vitro Study**

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**BACKGROUND:** Nickel titanium rotary instruments are particularly helpful for successfully preparing and maintaining the shape of curved root canals due to their high elasticity and shape memory. The purpose of this study was to compare remaining mean dentine thickness (RDT) of root canals prepared with protaper with K-3 rotary systems in extracted human teeth.

**OBJECTIVES:** The primary objectives of the root canal treatment are the removal of the debris, micro-organisms and smoothening of the canal irregularities to facilitate subsequent filling of the canal space with a biocompatible material.

**METHODS:** The root canal preparation was carried out in each intervention group according to the rotary file manufacturer's instructions. A pre and post -operative radiograph using digital radiograph and scanning system will also be taken in order to compare pre and post-operative results.

**RESULTS:** The pre and post instrumentation RDT were more on the outer wall at 10mm level, and the least was found on inner wall at 1mm from the apex for both the groups namely, K3 and protaper. Both the groups of files removed an equal amount of dentine i.e 1.1mm in both the groups( K3 and protaper system). The incidence of fracture was found to be equal in both the groups. However the incidence of file fracture increases 5.65 folds if file is used > 3 times (odds ratio: 5.65).

**CONCLUSION:** There was no difference in both K3 and protaper system for the remaining dentine thickness. Both systems used in RCT resulted in instrument fracture in apical 3<sup>rd</sup> of root canal. Thus, rotary instrumentation should be employed esp. in curved canals.

**Keywords:** Endodontic Treatment; K3 Files; Protaper; Remaining Dentine Thickness

## **Amount of Tooth Substance Gained with Crown Lengthening: A Systematic Review**

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**BACKGROUND:** Extensive caries, short clinical crown, traumatic injury, or severe para-functional habits may limit the amount of tooth structure available to properly restore an affected tooth. The restoration of an adequate biological width and the creation of an adequate space for proper placement of crowns prosthetic margins on a compromised tooth can be achieved surgically (crown lengthening procedure) or orthodontically (forced eruption), or by a combination of both.

**OBJECTIVES:** The purpose of this systematic review was to find out which crown lengthening procedure is the most commonly used and provides best results in terms of amount of tooth substance gained.

**METHODS:** Search engines like Pub med and CINAHL plus (Ebsco) were used to search articles related to our review question using the key terms and different permutations: Surgical crown lengthening, Gingivectomy/gingivoplasty, Biologic width, Orthodontic extrusion, Sub-gingival restoration and Ferrule. We registered our protocol with Prospero (systematic review registry, ID# CRD42014013266. Our initial search results yielded 412 articles which were narrowed down to final 8 articles after a strict eligibility of including clinical trials on crown lengthening surgery with the amount of tooth structure gained as an outcome, conducted on human permanent teeth only.

**RESULTS:** The total number of teeth assessed in all 8 studies was 321 (range 20-84 per study). The surgical site was mentioned in 2/8 studies which made a total of 73 from the 321 teeth assessed. Only 80 of the 321 teeth assessed in the 8 studies were affected because of subgingival caries and another 53 had a fracture going subgingivally and the remaining studies did not mention the clinical presentation. The radiographic evaluation was assessed in only 1/8 studies which had 30 teeth. In 7 out of the 8 studies, (total of 291 teeth), did not mention which jaw maxillary or mandibular, they belonged to. The most common indication for crown lengthening in these 8 studies was for proper restorative treatment.

**CONCLUSION:** The number of clinical trials on CLS (crown lengthening surgery) was limited. The quality of the studies which report data on CLS was mostly inadequate because basic demographics like the surgical site, the type of jaw (mandibular/ maxillary), radiographic evaluation and clinical presentation were missing from most of the studies evaluated. APF (apical re-positioning of flap) with bone reduction was the most commonly used technique (7/8 studies) for CLS. The mean amount of tooth structure gained initially was 2.46mm which decreased to 1.49mm after 6months.

**Keywords:** Surgical Crown Lengthening; Gingivectomy/Gingivoplasty; Biologic Width; Orthodontic Extrusion; Sub-Gingival Restoration; Ferrule



## **Turn Around time of Reporting Acute Leukemia on Bone Marrow Specimens**

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**BACKGROUND:** Acute myeloid leukemia and acute lymphoblastic leukemia are medical emergencies and remain devastating diseases. Delay in their diagnosis is associated with high mortality. Although curing the leukemia is always the most formidable challenge, complications from the disease is associated with significant morbidity and mortality. Morphological features on bone marrow aspiration remains a useful diagnostic tool in developing countries and with the timely reporting the risk of complications like neutropenic sepsis, hyperleukocytosis and thrombohemorrhagic syndrome in acute promyelocytic leukemia can be reduced.

**OBJECTIVES:** To determine the turnaround time of reporting acute leukemia on bone marrow specimens.

**METHODS:** It is cross sectional study performed at section of haematology from October- December 2014. Cases of acute leukemias reported in this duration were reviewed. Age, gender, location and reporting time of acute leukemias was analyzed.

**RESULTS:** 1100 bone marrow specimens were received in the study duration. Out of these 1100 specimens, acute leukemia was reported in 95 (8.6%) cases. The mean age of patients was  $24.7 \pm 15.7$  years comprising of 29 (30.5%) pediatric and 66 (69.5%) adult population. There were 73 (76.8%) males and 22 (23.2%) females. 69 (72.6%) cases of acute leukemia were reported on the next reporting day. Delayed reporting was observed in 26 (27.3) % cases with median delay time of 3.5 days. 6 (23%) cases were already diagnosed cases of acute leukemia, in 7 (26.9%) cases the specimen of aspirate was diluted while in rest of the cases (n=18, 69.2%) cases further workup like immunohistochemical staining were required to made the final diagnosis.

**CONCLUSION:** Turnaround time of reporting acute leukemia within 24 hours in our laboratory was found to be 72.6 % (n=69). In 27.3% cases (n=26) delayed reporting was observed, which in most of the cases was due to requirement of additional workup like immunohistochemical staining.

**Keywords:** Acute Myeloid Leukemia; Acute Lymphoblastic Leukemia; Turnaround Time; Bone Marrow

## **Indications for Transfusing Blood Products- Are these Rational?**

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**BACKGROUND:** Blood transfusion is a life-saving therapeutic option in many conditions. However, blood transfusion is never safe and is associated with risks of transfusion transmitted infections (TTI). To minimize the risk of TTI, all blood donations are screened for infectious diseases as per W.H.O standard. In emergency situation where blood products are required urgently and screened products are unavailable, it may be necessary to transfuse unscreened or partially screened blood products. Some of the indications where use of such products can be justified include: Critical Laboratory Results (defined as Hb < 7gm/dl and platelets < 20 x 10<sup>9</sup>/L), active bleeding, emergency surgical/ radiological intervention and sepsis. Irrational transfusion of unscreened blood puts a patient at risk of acquiring an infectious disease which can cause severe long term complications. So it is very important they must only be transfused in dire need when screened products are not available and transfusion is the only life-saving option. In our hospital all products are serologically tested and then all seronegative samples undergo molecular testing known as Nucleic acid testing (NAT). The rate and indications of dispensing NAT untested blood products in our hospital is unknown

**OBJECTIVES:** The aim of this study is to recognize the indications for transfusing NAT untested blood products and assess whether these are rational or not.

**METHODS:** This was a clinical audit conducted by Blood Bank, Section of Haematology, Department of Pathology and Laboratory Medicine, The Aga Khan University Hospital. The Study duration was from May-July 2015. All the request forms received to Blood bank requesting release of NAT untested blood products were reviewed. Additional information regarding the need and indication was extracted from the online integrated laboratory data and medical record chart of patients. Data was recorded on a predesigned proforma. Statistical package for social sciences version 19 was used for data analysis.

**RESULTS:** During the study period, 254 requisition slips were received to blood bank for 234 patients. Six hundred and seventy two NAT untested blood products were released during study period. The products released included: 154 packed red cell, 493 random donor platelets and 25 whole blood units. Most of the cases where blood bank was not able to provide screened blood were from Section of Clinical Haematology (n=61, 24%) followed by General Surgery (n=46, 18%) and Internal Medicine (n=40, 16%). The location of patients was Emergency room (n=58, 23%), Operating room (n=46, 18%), Wards (n=45, 18%) and special care units (n=28, 11%). In 224 out of 254 (88.2%) requests, the indications for transfusion were rational. The most common indication for the release of NAT untested products was Critical Laboratory results (n=106, 42%) followed by Surgical/Radiological Intervention (n=65, 26%) active bleeding (n=53, 21%) and sepsis (n=12, 5%). Seven percent (18/254) of the requests were not fulfilling any of the indication and transfusion in these cases was not justified. Majority of these requests (n=14, 77.8%) were from oncology day care transfusion area.

**CONCLUSION:** Majority of the indications for transfusion of NAT untested products were rational (93%). Few cases of irrational transfusion of NAT untested products were identified. The audit identified the areas in the hospital which need re-enforcement on the rational use of NAT untested blood products.

**Keywords:** NAT Untested; Nucleic Acid Testing; Transfusion

## **Frequency of Peripheral Smear Review in Era of Automation**

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**BACKGROUND:** With the advent of automated haematology analyzer providing complete blood count with differentials, flags, cell plots and distributional histograms, the use of traditional microscopic examination of blood film has now become limited. Reviewing peripheral blood smear and performing differential counts manually when automated determinations yield identical results may undermine efficiency and lower productivity in a medical laboratory. However, relying on the findings of automated analyzer alone can result in exclusion of findings which may have significant impact on clinical decisions.

**OBJECTIVES:** To determine the percentage of manual peripheral blood smear review in our institution in the era of automation and to identify reasons of manual review.

**METHODS:** This was a prospective audit carried out from 1<sup>st</sup> January till 7<sup>th</sup> January 2015. Consecutive CBC samples and peripheral smear requests made up the sample size. All age groups and genders were included. Complete blood counts were performed on Sysmex XE-5000™ Automated Haematology System. The variables to be analyzed included inpatient and outpatient samples, frequency of peripheral film review, identifying reasons of smear review and addition of information missed by the automated analyzer.

**RESULTS:** During the review period, we analyzed n=1200 consecutive CBC samples. Peripheral smear was review in n=500 (42%) of the cases. Out of these n=500 samples, n=241 were inpatient and n=259 were outpatient samples. In 384/500, the findings of hematology analyzer correlated with peripheral smear review. Additional information was provided in n=243 (49%) of the cases. The main reasons for review included NRBC (n=155), immature WBC precursors (n=129) and atypical lymphocytes (n=47).

**CONCLUSION:** Peripheral smear review was performed in 42% of the cases. The analyzer identified NRBC, immature WBC precursors and atypical lymphocytes as the most common abnormality. The information correlated in 77% of the cases. In 23%, the analyzer missed abnormal findings which were verified by peripheral smear review.

**Keywords:** Peripheral Smear; Complete Blood Counts; Automation

## **Neonatal Purpura Fulminans – A Rare Life Threatening Entity**

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**BACKGROUND:** Neonatal purpura fulminans is a rare, life-threatening condition, caused by congenital or acquired deficiencies of protein C or S. The clinical presentation is that of acute disseminated intravascular coagulation resulting dermal and soft-tissue hemorrhage and necrosis. Concurrent deep soft-tissue necrosis may be extensive and require disabling limb amputations. The management includes an acute phase of replacement therapy with fresh frozen plasma or protein C concentrate and a maintenance therapy.

**CASE REPORT:** A 7 month old child presented to haematology clinic with history of purpura over face few hours after birth. Initially it was considered iatrogenic and parents were reassured and sent home. But on the same day he developed similar lesion over back which was progressive. He was managed with IV antibiotics and FFP in the lines of necrotizing fasciitis. A week later similar lesion appeared and hemostatic defect was suspected but unfortunately his blood samples were labelled unsatisfactory for coagulation workup. Many local physicians as well as specialist were consulted and various treatment options were considered and tried. He also underwent repeated surgical debridement of various necrotic lesions as well. The child is also bilaterally blind due to persistent hyperplastic primary vitreous. His protein C and S levels were repeated on fresh sample at our laboratory and protein C levels were found to be undetectable. Samples of his parents were tested and both of them were found to be heterozygous. Patient was started on anticoagulation with heparin as monitoring with oral anti-coagulation was cumbersome owing to difficult venous access. He is currently doing well with no new skin lesions and hospital admission.

**CONCLUSION:** We diagnosed a case of protein C deficiency which is often a fatal condition unless there is early recognition of the clinical symptoms, prompt diagnosis, and judicious anticoagulation and replacement therapy is initiated and maintained lifelong.

**Keywords:** Neonatal Purpura Fulminans; Rarity; Protein C Deficiency

## **Knowledge and Practices of Mothers regarding Diet during Diarrhea and Respiratory Tract Infections among Children under Five years Attending Family Medicine Clinics of a Teaching Hospital, Karachi**

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**OBJECTIVES:** To determine the knowledge and practices of mothers regarding diet during diarrhea and respiratory tract infections among children under five years attending family medicine clinics of a teaching hospital, Karachi.

**METHODS:** Three hundred and thirty two mothers were interviewed from Family medicine clinics of Aga Khan University Hospital, Karachi during June 2013 to December 2013, through non-probability convenient sampling using a structured questionnaire. The selected mothers were those who were having children under five years of age who had suffered from diarrheal or respiratory tract infections in the last three months. Descriptive, univariate and multivariate analyses was performed on SPSS 19.

**RESULTS:** A total of three thirty two mothers were included in the study out of which approximately 29.8% of the mothers were less than 25 years of age and majority of them had a high educational status. It was seen that out of 332 mothers, 98 (29.5%) of the mothers had adequate dietary knowledge and 234 (70.4%) had inadequate dietary knowledge during diarrheal infections. Regarding dietary practices during diarrhea, 89 (26.80%) mothers had adequate practice while 243 (73.19%) had inadequate practice.

In dietary knowledge during respiratory infections 30 (9.0%) mothers had adequate knowledge while 302(90.9%) had inadequate knowledge. Regarding their practices only 6 (0.001%) mothers had adequate dietary practices and 326 (98.19%) had inadequate practices.

**CONCLUSION:** The study indicates that there is a need of adequate dietary awareness amongst mothers during diarrheal and respiratory tract infections in children under five years and as a family physician we can fill in the dietary knowledge gaps of the mothers and change their practices thus reducing the overall disease burden in our country.

**Keywords:** Diarrhea; Respiratory Tract Infections; Dietary Knowledge; Dietary Practice

## **Vitamin D Deficiency: Is Vitamin D Binding Protein Polymorphisms its Determinant?**

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**OBJECTIVES:** Several single nucleotide polymorphisms linked to Vitamin D binding protein (GC) gene have been associated with blood levels of 25-hydroxyvitamin D (25OHD). The study objective was to estimate frequency of rs4588 and rs7041 polymorphism and its association with circulating levels of 25OHD.

**METHODS:** Our study includes 85 apparently healthy adults of diverse ethnicity recruited from Medical College of AKUH. Demographic information and clinical history was recorded from all. Total 25OHD was measured on ADVIA Centaur; Siemens. Genomic DNA was extracted from whole blood samples of the subjects by means of the Wizard Genomic DNA Purification Kit (Promega) and genotyped for GC rs4588 and rs7041 polymorphisms using polymerase chain reaction-based restriction fragment length polymorphism assay.

**RESULTS:** Mean age of the group (n=85) was 20±0.9 years, 61.2% were females. 87.1% had Vitamin D deficiency (VDD). The frequency of rs7041 (GG, TT, GT) was 23.5%, 28.2% and 48.2%. For rs4588, 9.4% were genotyped as AA, 42.4% as AC and 48.2% as CC. Mean 25OHD (15.9±10.9ng/ml) was comparatively high in individuals with the AC genotype followed by CC (14.1±6.5ng/ml) and AA (12.8±5.7ng/ml) amongst rs4588 genotypes (*p*-value>0.05). As for rs7041, the mean 25OHD (15.6±10.7ng/ml) was raised in individuals with GT compared with GG genotype (14.5±6.7ng/ml) and TT genotype carrying individuals (13.3±5.0ng/ml) (*p*-value >0.05). The population was observed to be in Hardy Weinberg Equilibrium (*p*-value>0.05).

**CONCLUSION:** The most frequently occurring genotypes for rs7041 and rs4588 are GT and CC respectively. Highest mean 25OHD levels were noted in heterozygote individuals while the lowest levels were observed in homozygotes. With prevalent VDD in our population, it is vital to correct this deficiency and conduct further studies in larger cohorts, to identify relationship between SNPs of genes involved in the Vitamin D metabolism.

**Keywords:** Vitamin D Deficiency; Vitamin D Binding Protein; Polymorphisms

## **Research Trend, Career Preferences and its Effective Factors among Undergraduate Medical Students in Jinnah Sind Medical University, Pakistan**

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**BACKGROUND:** Research at under graduate and graduate level is important in deciding career fields. The undergraduate experience is greatly enriched by attaining knowledge of research and leads to a successful career.

**OBJECTIVES:** To evaluate the research trends and research career preferences among undergraduate students of Jinnah Sindh Medical University in Karachi, Pakistan

**METHODS:** It was a cross sectional study on the students of Jinnah Sindh Medical University. Total 256 Students were enrolled from 1<sup>st</sup> year to final year after giving verbal consent. An organized questionnaire was used to collect the data about student's research involvement, trends, and research career preferences.

**RESULTS:** Out of 256 students, majority of the students (59.4%) had decided to do both clinical practice and research practice. Least response came for research in biomedical sciences (1.56%) and clinical research (1.17%). We assessed that very few students got their paper published. However, 23.83 % of students had done research work, 9.38% were involved at that time and majority (66.80%) had no research experience. The first four chosen specialties for the future research work were surgery, gynae, internal medicine and neurology. It was observed that highest percentage of students (63.84%) wanted to do research to explore the knowledge about various scientific aspects, some students (23.73%) were interested in research and few (10.73%) were more concerned about publications while only 1.69% selected less competitive field.

**CONCLUSION:** Our study suggested that students of pre-clinical years are more inclined towards research along with clinical practice. Trends of Research are increasing with time due to enhanced competency.

**Keywords:** Research Trends; Undergraduate Research; Future Research Career Interests

## **Spectrum of Heart Disease in Children Presenting for Pediatric Cardiac Surgery at NICVD**

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**OBJECTIVES:** To determine gender distribution and relative frequency of cardiac defects in children who underwent palliative or corrective cardiac surgery at paediatric cardiac surgery department at NICVD Karachi.

**METHODS:** This retrospective cross sectional descriptive study was conducted in Department of Paediatric Cardiac Surgery at National Institute of Cardiovascular Diseases (NICVD), Karachi October 2013 till September 2015. One thousand and four patients up to age group of 14 years admitted for Cardiac Surgery at Paediatric Cardiac Surgery at National Institute of Cardiovascular Diseases (NICVD) were included.

**RESULTS:** Out of 1004 patients, there were 683 males (68%) and 321 females (32%). Patients presented with cyanotic heart disease were 578(57.5%) while acyanotic patients were 426 (42.4%) Tetralogies of Fallot (TOF) followed by Ventricular Septal Defect (VSD) were the commonest congenital heart lesions, 42.8% and 20% respectively.

**CONCLUSION:** Majority of patients with paediatric heart disease had cyanotic CHD with the commonest lesion being Tetralogy Of Fallot (TOF). Most of the patients were more than one year 70% with significant difference in sex distribution with male predominance.

**Keywords:** Congenital Heart Disease; Cyanotic and a Cyanotic Heart Disease; Ventricular Septal Defect; Tetralogy of Fallot



## **A Case of Anesthesia Mumps after Sacral Laminectomy under General Anesthesia**

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Acute transient parotid gland enlargement in association with general anesthesia is a rare complication and has also been called anesthesia mumps. Unilateral or bilateral parotid or submandibular swelling usually develops during surgery under anesthesia or, a few hours later and usually resolves in a few days with no sequelae. It has been reported as a complication after general anesthesia in patients undergoing spinal surgeries in prone and lateral decubitus position, even after cesarean section in the supine position and also reported in Intensive Care Unit patients. We present a case of a unilateral parotid swelling noticed in immediate postoperative course, in a patient who underwent spine surgery.

**Key words: Anesthesia; Mumps; Pain**

## **A Survey of Postoperative Pain in Patients Undergoing Elective Craniotomy**

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**BACKGROUND:** In recent years, the focus on the treatment of postoperative pain following craniotomy has increased. In addition to humanitarian reasons pain after craniotomy can also increase postoperative complications.

**OBJECTIVES:** This longitudinal survey aimed to find out the incidence, severity and duration of pain after intracranial surgery in patients undergoing elective craniotomy at Aga Khan University Hospital.

**METHODS:** During a six months period 50 patients undergoing elective craniotomy were prospectively included in the survey. Intensity of pain was evaluated postoperatively by one of the authors and/or the pain nurse at 1, 6, 12, 24, 36 and 48 hours after extubation using a Numeric Rating Scale (NRS). The intensity was graded as light (NRS 1 – 3), moderate (NRS 3 – 7) or severe (NRS 8 – 10). The site and the quality of pain was also noted, routine perioperative and postoperative pain management was not influenced by the investigators. All statistical analysis was performed using Statistical Packages for Social Science version 19 (SPSS Inc., Chicago, IL).

**RESULTS:** The average age of patients was 41.06 ±15.16 years, 58 % were male and 42 % females. Intraoperatively 76% of the patients received fentanyl and 54% received paracetamol, with mean 3.3 (± 1.4) mcg/kg and 15.4(± 4.4)mg/kg respectively. The quality of postoperative pain was superficial, steady and stabbing. Majority of patients received tramadol and paracetamol for postoperative analgesia.

**Keywords:** Postoperative Pain; Craniotomy

## **Noise Induced Hearing Loss (NIHL) in Textile Workers of Karachi**

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**BACKGROUND:** Noise is considered to be an important industrial pollutant involving every industry and contributing to hearing loss in every country of the world. Worldwide, 16% of the disabling hearing loss in adults is attributed to occupational noise, ranging from 7 to 21% in the various sub regions. Majority of textile workers in Pakistan are also exposed to high noise produced by machines. Review of available literature shows that information regarding hearing loss due to noise exposure is scarce. Identification of the actual burden of noise induced hearing loss (NIHL) in textile workers will help in recognition of this important public health issue and will help in advocating related stakeholders to formulate guidelines for this important segment of population.

**OBJECTIVES:** This study aimed to assess the frequency of hearing loss in textile workers of Karachi and association between different factors with NIHL. A questionnaire based cross sectional survey along with audiometry was conducted in the six textile factories of different industrial areas of Karachi.

**METHODS:** A total of 264 workers were assessed for hearing loss with audiometric and otoscopic examination conducted by audiologist. Sample size was calculated using 95% confidence level, 5% bound on the error. Effect modifier was controlled through stratification of age, household income, marital status, and educational level to see the effect of these variables on outcome. Chi square was applied for the categorical variables. Univariate regression applied for calculating ORs with 95% CIs. All variables (age, duration of work, sound level, educational status, income, mill, ethnicity, symptoms on otoscopic examination) having significant p-value <.05 and those having biological plausibility were included in multivariate models.

**RESULTS:** Mean noise level in these factories was  $97.6 \pm 2.05$  dB. About 79% workers had hearing impairment on audiometric assessment having hearing loss  $\geq 25$  dB. Out of these 19% of the workers had conductive deafness and 71% reports to have mixed hearing loss. Of them, 75% of these workers had symmetrical hearing loss in both ears. 63% of the workers in age group of 18-34 years reported to have hearing loss. Mean job duration of these workers was  $5.6 \pm 5$  years. After adjusting for age, monthly income and smoking status, noise was associated with hearing loss with OR 1.16 (95% CI 1.03-1.69) with  $p < .05$ .

**CONCLUSION:** Hearing impairment affects a large proportion of the workers in Pakistan. There is a need for screening of workers exposed to occupational noise and and guidelines to limit this exposure.

**Keywords:** Noise Induced Hearing Loss; Textile Workers; Determinants NIHL

## **Clinical Manifestations of Adult Celiac Disease: An Experience from Pakistan.**

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**BACKGROUND:** Celiac disease is a systemic autoimmune disorder triggered by dietary gluten in genetically susceptible persons. Celiac disease affects 0.6 to 1.0% of the population worldwide. The prevalence of celiac disease in Pakistan is not known.

**OBJECTIVES:** The objective of this cross sectional study was to evaluate the presentation of celiac disease in adults.

**METHODS:** This is a cross sectional study of patients presented to the Jinnah Postgraduate Medical Centre and National Medical Center between August 2013 to and February 2015. All adult patients 18 years and above of either gender diagnosed as celiac disease on the basis of history, clinical presentation, positive serology (i.e Ttg A & Ttg G) (value >12 IU/ml detected by ELISA), histological findings compatible with celiac disease, obvious clinical and serological response to a gluten-free diet, and exclusion of other clinical conditions mimicking Celiac disease. The data obtained was analyzed on the statistical software SPSS version 19. Descriptive statistics were obtained by frequencies and percentages.

**RESULTS:** Two hundred patients suspected cases of celiac disease were evaluated. Forty two patients age less than 16 years were excluded from the study. One hundred and fifty eight patients were diagnosed as the case of celiac disease, 106 (55.5%) were female and 53 (33.5%) were male. The mean age at diagnosis was 29±12 years, with a range of 16 to 67 years. Classical presentation with gastrointestinal symptoms was seen in 99 (62.7%) patients, atypical presentation with extra intestinal complaints in 50 (31.6 %) and silent presentation with no symptoms in 9 (5.7 %). Duodenal biopsy, done in all patients, revealed Marsh type 1 in 01 (0.6%), Marsh type 2 in 30 (19%), Marsh type 3a in 95 (60%), Marsh type 3b in 25 (16 %), Marsh type 3c 07 (4.4%).

**CONCLUSION:** In conclusion, celiac disease is one of the most common causes of chronic malabsorption in adults and has diverse presentations. Adults with unexplained extra intestinal symptoms should be investigated for celiac disease.

**Keywords: Celiac Disease; Prevalence; Pakistan**

## **Body Weight Perception of Secondary School Adolescents of Gulshan Town Karachi**

**BACKGROUND:** Weight perception is an important determinant of diet and lifestyle. Overweight and obese individuals who believe that they are healthy will not be motivated towards healthy life style. While the adolescents who misperceive themselves to be overweight and obese develop self-body dissatisfaction and unhealthy weight control measures

**OBJECTIVES:** To determine the frequency of body weight misperception among secondary school adolescents of Gulshan Town Karachi.

**METHODS:** This is an analytical cross sectional study. A sample of 9<sup>th</sup> and 10<sup>th</sup> graders (n=300) enrolled in Government and Private school (n=4) of Gulshan town Karachi participated. They were asked about their perception of being overweight, obese, underweight or normal weight. Measurements of height & weight were taken and BMI was plotted on CDC growth charts.

**RESULTS:** 39.3% of the participants misperceived their weight status. Over all frequency of misperception was more among males than in females 36.4% vs 63.6% p value 0.016, and more among government 59.3% vs private school adolescents 40.7% ( p value 0.009) .Misperception was highest among obese and underweight 92.3% and 64.8% respectively whereas only 1/4<sup>th</sup> of overweight and normal weight adolescents misperceived their weight status (p value <0.01). More females perceived to be obese and overweight while more males perceived to be under weight.

**CONCLUSION:** There is marked discordance between actual and perceived weight of our youth. Awareness campaigns should be implemented to prevent future complications of obesity and unhealthy lifestyle.

**Keywords: Adolescents; Body Mass Index; Perceived Weight**

## **Age Estimation of Pakistani Population by using the Coronal Pulp Cavity Index in Premolars and Molars on OPG**

**BACKGROUND:** Various methods are described in literature for determining accurate age, one of which is coronal pulp index by using dental radiograph.

**OBJECTIVES:** The purpose of present study is to check the validity of coronal pulp index in estimation of age in Pakistani population.

**METHODS:** Cross-sectional study was conducted in AKUH dental clinics in two months period in which a total of 397 teeth (210 females and 187 males) of Pakistani individuals were analyzed on panoramic radiographs using non-probability convenient sampling technique. Coronal pulp chamber heights and crown height were measured in unrestored mandibular right and left first and second premolars, and first and second molars. These measurements were then used to calculate the tooth coronal index (TCI). Data was analyzed by using SPSS version 19. Paired sample t-test was used to assess bilateral symmetry of TCI for premolars and molars. Pearson correlation was used to assess association between chronological age and tooth coronal index.

**RESULTS:** The correlation coefficient between chronological age and tooth coronal index was found to be 0.05. The correlation coefficient in males ranges from -0.049 (for tooth# 34) to 0.03 (for tooth # 46) whereas in females the correlation coefficient ranges from -0.19(for teeth # 36 and 47) to 0.25(for tooth # 35). However, tooth # 47 in males showed some degree of negative correlation( $r = -0.43$ ) but is not statistically significant.

**CONCLUSION:** This study shows that there is no association between age and TCI of any tooth in Pakistani population so coronal pulp index cannot be used for age estimation of Pakistani population. Other methods should be used for accurate age estimation.

**Keywords:** Tooth Coronal Index; Chronological Age; Coronal Pulp Chamber Height; Crown Height

## **Frequency of Adequacy of Cuff Pressure after ETT Cuff Inflation by Conventional Method**

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**BACKGROUND:** Cuffed endotracheal tubes (ETT) have improved upon the safety of mechanical ventilation yet this inflatable cuff is not without its inherent risks. The problems range from trivial sore throat to threatening situations like pulmonary aspiration, tracheal rupture, tracheal stenosis and acquired tracheo-esophageal fistulas. This study was aimed at determining the frequency of different levels of cuff pressure after cuff inflation by conventional method as data regarding the magnitude of inadequate cuff inflation in our region is scarce.

**OBJECTIVES:** To determine the frequency of different levels of cuff pressure after ETT cuff inflation by conventional technique. The secondary objectives were to determine the impact of nitrous oxide on ETT cuff pressure and to determine the incidence of postoperative sore throat (POST) and postoperative hoarseness (PH) as a function of ETT cuff pressure adequacy

**METHODS:** The study was conducted at the operating rooms of Aga Khan University Hospital for 6 months from September 2014 to March 2015. This was cross-sectional descriptive study where all patients between 18 to 60 years with ASA status I and II scheduled to undergo elective surgical procedures requiring general anesthesia with cuffed endotracheal intubation were recruited in this study. After induction of general anesthesia and successful orotracheal intubation, the ETT cuff pressure was measured at end expiration using a handheld pressure monitoring device (Portex<sup>TM</sup>, Germany) with the patient supine, the head in neutral position and the ventilator turned off with no inspiratory flow. A second measurement was taken at the conclusion of the surgical procedure before antagonizing neuromuscular blockade. All participants were followed for postoperative sore throat (POST) and postoperative hoarseness (PH) before signing off from the post anesthesia care unit.

**RESULTS:** The ETT cuff pressure was found adequate in 7.73% of the patients (n=16) while 4.35% patients (n=9) had under filled values and 87.92% of the patients (n=182) had overfilled values of cuff pressure. The use of nitrous oxide was associated with higher cuff pressure values with a mean value of  $44.3 \pm 10.4$  cm of H<sub>2</sub>O. Overfilled cuff pressure values were associated with a statistically significant incidence of POST (p=0.0005).

**CONCLUSION:** Endotracheal tube cuff inflation by conventional technique is associated with a high percentage of overfilled cuff pressures and may predispose our patient population towards a high incidence of POST.

**Keywords:** Endotracheal Tubes; Cuff Pressure; Sore Throat

## **Predictors of Poor Outcome in Hospitalized Chronic Liver Disease Patients**

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**BACKGROUND:** The tremendous global burden of Chronic Liver disease has been well documented with high mortality rate. Many prognostic models have been developed over the years to help classify the severity of Liver disease and direct the aggressiveness of medical care, (including CTP and MELD scores) but the subjectivity of the variables (ascites and encephalopathy), inter-laboratory variability, and lack of inclusion of comorbid conditions and complications of CLD limited their accuracy. Yet there is much to explore about the impact of comorbid conditions on the course and outcome of chronic diseases.

**METHODS:** This retrospective study analyzes patients who were admitted with decompensated chronic liver disease during January 2013 to December 2014 at The Aga Khan University Hospital, Karachi identified from medical record by using ICD coding, with an objective to assess patient factors predicting a higher risk of mortality, prolonged hospital day (>5days) and early readmission (within 7 days) in hospitalized Chronic Liver Disease Patients

**RESULTS:** Giving the interim analysis of a total of 164 patients (215 admissions), 64% were male with mean age of cohort was  $56.24 \pm 10.57$  years, with a mean duration of CLD of  $4.55 \pm 4.05$  years. Most common underlying cause for CLD was HCV (65.2%). HCC was found in 23.9% of patients. Multivariate analysis showed that BMI (odd ratio: 1.32, 95%CI: 1.05-1.66, p value: 0.01), Charlson index (odd ratio:1.49, 95%CI: 1.05-2.13, p value: 0.02) and presence of diabetes (odd ratio:4.21, 95%CI: 1.24-1.81, p value: 0.02) were associated with mortality, prolong stay and readmission respectively.

**CONCLUSION:** Although Child and MELD scores are used conventionally to prognosticate liver disease patients for long time, however there is a need to design a scoring system which can classify the severity of chronic liver disease in hospitalized patients, and predict the risk of poor clinical outcome based upon parameters such as comorbidities, malnutrition, patient clinical characteristics on admission as well as lab values.

**Keywords:** Chronic Liver Disease; Poor Outcomes; Child and MELD Scores



## **Meckel's Diverticulum: A Case Report of Overt Obscure GI Bleed with Combine Gastric and Pancreatic Heterotopic Tissues**

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Meckel's diverticulum is congenital anomaly of gastrointestinal tract that affect 2% of general population. It occurs due to incomplete obliteration of omphalomesenteric duct during embryonic period of life. It may remain asymptomatic or can manifest with lower GI bleeding or intestinal obstruction. Usually it presents before the age of 2 years and contain gastric ectopic tissue. We report here a case of young male with meckel's diverticulum who came in massive lower GI bleeding and contained both heterotopic gastric and pancreatic tissue in it. A healthy 16-year-old boy, with no personal or family history of actual interest, arrived in ER with history of bleeding per rectum. He had history of such episodic bleeding P/R during 1 year. After initial resuscitation, a CT abdomen with GI bleed protocol was done followed by conventional angiography, both of which were negative for any active bleed. Colonoscopy revealed altered blood throughout the colon as well as in terminal ileum. An upper GI endoscopy ruled out active bleeding source when examination was done up to jejunum. A meckel's scan was done which was positive for ectopic gastric mucosal uptake. Patient underwent surgical resection and histopathology confirmed the presence of both gastric and pancreatic tissue within the meckel's diverticulum.

**Keywords: Meckel's Diverticulum; GI Bleed; Gastric and Pancreatic Heterotopic Tissues**

## **Metastatic Cutaneous Crohn's Disease: A Case Report**

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Crohn disease is a chronic granulomatous inflammatory bowel disorder involving any segment of the gastrointestinal tract. Besides gastrointestinal manifestations, Crohn disease may also present with extraintestinal involvement, mucocutaneous being the most frequent (22-44%). Most common site of cutaneous involvement include the areas which are contiguous with the gastrointestinal tract i.e. perianal, peristomal and perifistular inflammatory lesions. Presence of sterile, noncaseating, granulomatous lesions of the skin at sites noncontiguous with the gastrointestinal tract in patients with Crohn disease was first described by Parks et al, and this entity was labeled as metastatic Crohn disease first in 1970 by Mountain. We report here a case of a young lady with cutaneous CD mostly involving the perineum without direct extension with bowel lesions. A healthy 25-year-old woman, with no personal or family history of actual interest, was referred to our department from the dermatology department, where she had been visiting for considerable inflammation and deformity of the perineal region and labia which she had for last 3 years. A tentative diagnosis of hidradenitis suppurativa was made and treatment with antibiotics resulted in mild improvement. When seen in GI clinic she presented with dramatic edema of the genitals that caused considerable deformity, along with ulcerations and discharges from inguinal region. In the groin, induration papules and pustules were found. Few small skin tags were observed in the perianal region. The patient reported no fever, diarrhea, or weight loss. Although she had few episodes of small bleeding P/R separate from stools during last 3 years, which she was told to have because of fissure in ano. Histological examination of skin revealed chronic granulomatous inflammation without necrosis. Adjacent dermis has dense plasma cell infiltrate. Colonoscopy was performed which showed mild patchy erythema and aphthoid ulcers in the sigmoid colon and internal hemorrhoids. Biopsy revealed Mild active colitis with epithelioid granuloma formation; differential diagnosis includes Crohn's disease and Tuberculosis. Overall, the features favor the former (Crohn's disease). Her MRI abdomen/Pelvis doesn't reveal any fistulous tract between gastrointestinal tract and perineal/perianal skin, while her p-ANCA was positive.

**Keywords: Crohn's Disease; Metastasis; Cutaneous**

## **Diagnostic Characteristics and Management Outcome in Patients with Acromegaly: A 10 year Experience at a Tertiary Care Hospital in Pakistan**

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**BACKGROUND:** Acromegaly is due to excess Growth hormone (GH) production, usually as result of pituitary adenoma. The diagnosis is often preceded by around 5 years of active but unrecognized disease. Clinical expression of the disease in each patient depend on the levels of GH and Insulin-like Growth Factor-1 (IGF-1), age, tumor size, and the delay in diagnosis. Successful remission after Trans-sphenoidal surgery (TSS) is reported to be found in 52.5% of cases in the developed countries.

**OBJECTIVES:** This study was designed primarily for the evaluation of diagnostic characteristics of acromegaly and establishment of its management outcomes over a span of 10 years at a tertiary care hospital in Pakistan.

**METHODS:** It was a Descriptive cohort study. Total 53 patients with biochemical and radiological diagnosis of Acromegaly were included in study between October 2004 to September 2014. Patients' medical record files were reviewed & data recorded.

**RESULTS:** Of the 53 subjects, with mean age of  $39.68 \pm 14.35$  years, 33 (62.3%) were male while 20 (37.7%) were female. The patients presented at a mean duration of  $5.90 \pm 4.12$  years after onset of symptoms. The most frequent complaint was somatic growth features in the form of enlarged hands & feet noted by 51 (96.2%) pts. Overall, 50 (94.3%) patients underwent TSS for removal of pituitary adenoma while 3 (5.7%) patients refused to opt surgical option. Only 3 (6%) patients achieved biochemical & radiological remission after 6 months of surgery. Among 47 patients with persistent disease after TSS, 26 (55.3%) were treated with radiosurgery/radiotherapy, 12 (25.5%) underwent repeat TSS and 9 (19.1%) opted for medical treatment, mostly with Cabergoline.

**CONCLUSION:** TSS is followed by the documentation of a high rate (94%) of failure to achieve remission and majority of patients have to opt radiotherapy/repeat TSS for the persistent disease. With the continuously improving surgical skills, we expect that the figures attaining remission after primary TSS will rise in the decades to come.

**Keywords:** Acromegaly; Characteristics; Management Outcome

## **Malignant Ectopic Thyroid Tissue with Distant Metastasis-A Case Report**

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**BACKGROUND:** Ectopic Thyroid Tissue is the most common form of thyroid dysgenesis. But primary malignant transformation in ectopic thyroid tissue is quite a rare entity, with follicular malignancy being the dominant form at ectopic sites. Very infrequently, malignant ectopic thyroid tissue can present with metastasis to lymph nodes. But we report a case of malignant ectopic thyroid tissue over manubrium sterni with distant metastasis.

**CASE REPORT:** A 42-year-old Pakistani female presented to us in Endocrine clinic with gradually increasing swelling on anterior aspect of manubrium sterni for last 6 months. She had no goitre & was clinically and biochemically euthyroid. Rest of systemic exam was also unremarkable. CT chest showed a circumscribed soft tissue density mass arising from sternum, measuring 3.9 x 3.9cm, causing erosions of anterior, right lateral & posterior walls of sternum. Trucut biopsy of the sternal mass proved it to be thyroid tissue with follicular differentiation and occasional mitotic figures. Multiple nodules were also noted in Thyroid gland in US Neck. She underwent total Thyroidectomy & excision of ectopic thyroid tissue over manubrium sterni. Extensive histopathological examination of primary thyroid gland showed benign nodular hyperplasia with no evidence of malignancy. Ectopic thyroid tissue showed minimally invasive follicular thyroid carcinoma with tumor size of 3.2 x 2.3cm. Her postoperative 21-day biochemical profile showed TSH 22.345  $\mu$ IU/ml (0.4 to 4.2), Serum Thyroglobulin 88.3ng/ml, Anti-TG antibodies <20.0IU/ml. Based on the histopathological diagnosis, she went through 30mCi RAI131 ablation. The post-ablative whole body scan showed good uptake of ablative dose over thyroid bed and evidence of multiple well-defined rounded areas of abnormally increased tracer accumulation over mid and lower dorsal spine, lumbar region and right iliac bone, representing bone metastasis. It was followed by MRI spine which showed foci of metastatic deposits in T1-T3 and L2 vertebral bodies & abnormal signals showing post-contrast enhancement in superior mediastinum with invasion of medial ends of both clavicles, more marked on right side. So patient was found to have malignant ectopic thyroid tissue with distant bone metastasis.

**CONCLUSION:** To the best of our knowledge, we describe the first case of its kind having malignant ectopic thyroid with metastasis to spine & ilium. Such cases appear difficult to manage and may impose difficulties in making their treatment decisions.

**Keywords: Malignant; Ectopic Thyroid Tissue; Distant**

## **Clinical Profile and Treatment Outcome In Patients With Cushing Syndrome**

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**BACKGROUND:** Cushing Syndrome (CS) results from chronic exposure of body to excessive production of glucocorticoids. Etiology of CS may lie in the adrenal gland, pituitary gland (Cushing Disease, CD), exogenous glucocorticoid administration or ectopic ACTH production by certain malignancies. Surgical excision of culprit lesion is the most effective procedure for the treatment of CS. To the best of our knowledge, this important endocrinal entity of CS had never been researched in Pakistan.

**OBJECTIVES:** This study was designed primarily for the establishment of the prevalence of different etiologies of Cushing Syndrome other than iatrogenic hypercortisolism, evaluation of the clinical, biochemical and treatment profile of patients with CS.

**METHODS:** It was a Descriptive cohort study. Total 44 patients with biochemical and radiological diagnosis of Hypercortisolism were included in study between October 2004 to September 2014. Patients with history of intake of Glucocorticoids were excluded. Patients' medical record files were reviewed & data was recorded.

**RESULTS:** Of the 44 subjects, with mean age of  $34.86 \pm 14.64$  years, 29 (66%) were female while 15 (34%) were male. The mean duration of presentation was found to be  $2.19 \pm 2.05$  years after onset of symptoms. Weight gain was the most common presenting complaint. Pituitary lesion was the culprit source in 33 (75%) cases, ectopic ACTH source in 7 (16%) cases and adrenal lesion in only 4 (9%) cases. Among the 33 patients with Cushing's disease, 32 (97%) underwent TSS and 17 (53.1%) attained remission. Among the 7 patients with Ectopic ACTH source, 6 (86%) underwent surgical excision and 3 (50%) attained remission. Out of the 4 patients with Adrenal source, 3 (75%) underwent uni/bilateral adrenalectomy and all (100%) attained remission.

**CONCLUSION:** Pituitary lesion is the most common source of endogenous hypercortisolism. TSS is followed by a relatively low remission rate of 53.1% as compared to the developed world. This figure is expected to rise in the years to come with the improved surgical techniques and expertise.

**Keywords:** Cushing Syndrome; Clinical Profile; Treatment Outcome

## **Rabson Mendenhall Syndrome-A Dilemma to Treat in a Resource Poor Country**

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**BACKGROUND:** Rabson Mendenhall Syndrome (RMS) is a rare genetic syndrome that is caused by the mutation in the insulin receptor gene. Such mutation consequently results in severe insulin resistance. Patients suffering from RMS develop constant hyperglycemia from a progressive decline of endogenous insulin secretion. Drug therapy for RMS includes metformin, pioglitazones, large doses of insulin along with recombinant human methionyl leptin or IGF-1. Here we describe a case of RMS who management poses a big dilemma due to unavailability of these treatment options in a low income country like Pakistan.

**CASE PRESENTATION:** A young Pakistani girl of 16 years of age presented in our Endocrine clinic with uncontrolled blood glucose levels. She was diagnosed as case of Type I Diabetes Mellitus (DM) at the age of 4 years due to the complaints of polyuria, polydipsia and weight loss. She was being treated with insulin since then. Initially she attained a good diabetic control but later on, her diabetes worsened. She was never admitted to a hospital as a case of Diabetic Ketoacidosis (DKA). At the time of her visit to our clinic, she was taking 70 units of Humulin-70/30 twice a day. Her fasting insulin level was 589 $\mu$ U/ml, HbA1C was 16.8% with self-monitoring of blood glucose levels being always recorded as "High" at home. Examination showed her body mass index of 17, short stature (less than 5<sup>th</sup> percentile), severe acanthosis nigricans, coarse facial features, broad nose, thick lips, dental dysplasia, prognathism, hirsutism, small hands with thick fingers nails and abdominal distension. As genetic testing for RMS is not available in Pakistan, so she was diagnosed as a case of RMS with severe insulin resistance on clinical grounds only. Her insulin dosage was increased gradually to 520 units/day & Metformin + Pioglitazone were added (as insulin sensitizers) to the regimen, but still her blood glucose levels were uncontrolled. At last, she was admitted to hospital for diabetic control. There she received Metformin + Pioglitazone + 420 units/day of insulin (regular + NPH) along with continuous insulin infusion @30units/hr but still her blood glucose levels ranged between 400-600mg/dl. As the 500U/ml insulin is not available in a resource poor country like Pakistan along with the unavailability of latest treatment options like recombinant leptin or IGF-1, so it becomes a big dilemma for Endocrinologists about how to treat such patient with RMS. Currently the patient is having poorly controlled DM and has started developing multiple bullous, ulcerated lesions all over the body due to poor diabetic control.

**CONCLUSION:** Several challenges are encountered by healthcare professionals while treating patients of RMS in resource poor countries of the world. Concentrated insulin (U-500) is not available everywhere to ease the pain of several daily insulin injections and to improve compliance. We hope that future will hold promising horizon for such patients and the global equal access to its available treatment options will result in their better quality of life.

**Keywords: Rabson Mendenhall Syndrome; Genetics; Rare, Poor countries**

## **Knowledge, Attitude & Practices of Oral Polio Vaccine among Families Old Gadap Town, Karachi, Sindh**

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**BACKGROUND:** In the early 20th century, polio was one of the most feared diseases in industrialized countries; however it was brought under control and practically eliminated as a public health problem there. In 2014, only 3 countries including Pakistan remains polio-endemic, down from more than 125 in 198. Last 1% of polio cases have still proved to be difficult. Each country offers a unique set of challenges which require local solution. In Pakistan reportedly, social resistance and religious opposition to OPV has been the biggest hurdle.

**METHODS:** This cross sectional study was comprised of 900 families who were interviewed by vaccination staff during door-to-door campaign at Gadap Town Karachi bearing 10 out of 30 total cases in Sindh during 2014.

**RESULTS:** Overall frequency of vaccination found 99.9% in our target population. Two third of respondents 59.3% believing that polio is a curable disease. Majority of population agreed that vaccination is important 90.6% while out of those who denied its importance when asked about the reason most were unable to assign any particular however 3 (3.6%) referred to religious restrictions while 2.4% said it can harm medical. All respondents were received OPV whenever approached except one family who refused with fear of infertility.

**CONCLUSION:** Study revealed highest concern of rural population for infertility while religious beliefs or other social pressure were not confirmed to be as considerable hindrance. Although majority population getting OPV every time but overall knowledge about disease is very poor underscoring the need for mass education.

**Keywords: Polio; Vaccine; Knowledge; Attitude; Gadap Town**

## **Acute Promyelocytic Leukemia: A Single Center Study from Southern Pakistan**

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**BACKGROUND:** Acute promyelocytic leukemia (APL) is a distinctive clinical, biological and molecular subtype of acute myeloid leukemia. However, data from Pakistan is scarce. So we reviewed the demographic and clinical profile along with risk stratification of APL patients at our center.

**METHODS:** In this descriptive cross sectional study, 26 patients with acute promyelocytic leukemia were enrolled from January 2011 to June 2015. Data were analyzed with SPSS version 22.

**RESULTS:** The mean age was  $31.84 \pm 1.68$  years with the median age of 32 years. The female to male ratio was 2:1.2. Majority of our patients had hypergranular variant 65.4%; while 34.6% had microgranular type. The major complaints were bleeding (80.7%); fever (76.9%); generalized weakness (30.7%) and dyspnea (15.38%). Physical examination revealed petechial rashes as a predominant finding detected in 61.53% followed by pallor in 30.76%. The mean hemoglobin was  $8.04 \pm 2.29$  g/dl with the mean MCV of  $84.68 \pm 7.72$  fl. The mean total leukocyte count of  $5.44 \pm 7.62 \times 10^9/l$ ; ANC of  $1.08 \pm 2.98 \times 10^9/l$  and mean platelets count were  $38.84 \pm 5.38 \times 10^9/l$ . According to risk stratification, 15.3% were in high risk; 65.38% in intermediate risk; while 19.23% in low risk group.

**CONCLUSION:** Clinico-epidemiological features are appearing comparable to published data. Haemorrhagic diathesis is the commonest presentation. Risk stratification revealed predominance of intermediate risk disease in Pakistani patients with APL.

**Keywords:** Acute Promyelocytic Leukemia; Southern Pakistan; Hemorrhagic Diathesis



## **Chronic Lymphoid Leukemia: Clinical Spectrum of 60 Patients**

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**BACKGROUND:** B-Chronic lymphoid leukemia (CLL) is not an uncommon hematological malignancy which primarily affects elderly individuals. The rationale of this study was to determine the demographical and clinico-pathological profile in Pakistani patients.

**METHODS:** In this prospective cross-sectional study, 60 patients with B-CLL were enrolled from January 2011 to June 2013.

**RESULTS:** Mean age was 59.0±9.2 years and the male to female ratio was 2.1:1. Peak age group was 60-70 years (38.3%) and 18.3% were under 50 years. Major complaints were weakness (51.7%), fever (18.3%) and abdominal discomfort (13.3%). Main clinical findings were splenomegaly (46.6%), lymphadenopathy (36.6%) and pallor (26.7%). Anemia and thrombocytopenia were seen in 26.7% and 21.7%, respectively. High LDH and hyperuricemia were detected in 15% each and elevated serum creatinine was seen in 11.6%. According to Rai staging 11.6% were in stage 0, 13.3% stage 1, 26.7% each for stage II and stage III while 21.7% patients were in stage IV. The frequency of ZAP-70 positivity was found to be 11.6%. ZAP-70 positivity was significantly correlated with stage III disease and high absolute lymphocytic count ( $P<0.05$ ). The frequency of direct antiglobulin test (DAT) positivity was found to be 23.3%. DAT positivity also demonstrated a positive association with Rai stage III disease ( $P<0.01$ ).

**CONCLUSION:** CLL in our patients, unlike in the West, is seen in a relatively young population. DAT positivity appears relatively high, indicating significant autoimmune hemolytic anemia in our setting. DAT positivity can be considered as a surrogate marker for advanced clinical disease, which we came across in most of these patients.

**Keywords:** Chronic Lymphoid Leukemia; Pakistan; Young Population

## **Medical Error Reporting and Analysis System: An Initiative**

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**BACKGROUND:** Whenever National needs pertaining to healthcare are discussed, various kinds of pathologies come up which contribute to the overall disease burden in our still developing part of the world. There are many organizations working on regional and national level to ease the disease burden, but not many address the burden of medical errors, their consequences or future prevention. Medical errors contribute significantly to morbidities and cost of health care. Keeping in view the systems in existence currently at this 200 bedded tertiary care facility, the Ethics committee of the hospital recommended formulation of a Medical Error Reporting System and Analysis Committee.

**METHODS:** A policy and mechanism for reporting medical errors was devised; awareness regarding medical errors and significance of reporting while ensuring anonymity was communicated across the board. Medical error analysis Committee was established in May, 2014, comprising of representatives from various disciplines like Medicine, Surgery, Critical care, Nursing, Administration and Quality Assurance. The objective of this committee was to filter & identify medical errors, analyze and suggest measures that contribute in system improvement and prevent them from repeating in future.

**RESULTS:** The very first year of the committee, 293 cases were reported out of which 215 were actual medical errors, rest were either incidents or not errors. Significant issues were identified and many of them were resolved with preventive measures.

**CONCLUSION:** The objective was indeed achieved, which is a “system based” approached focusing on “how” and “why” rather than “who”. The committee continues to function for minimization of medical errors and improvement in healthcare system.

**Keywords:** Medical errors; Reporting; Error Analysis; Root Cause

## **South Asian Burden of Poisoning- Mortality Trends from 1990 and 2013**

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**BACKGROUND:** A comprehensive and systematic assessment of the South Asian burden of poisoning has been lacking. Therefore, we estimated the poisoning regional deaths in South Asia for 1990 and 2013.

**METHODS:** We used the GBD (Global Burden of Disease) 2010 study causes of death database and the cause of death ensemble modeling approach to assess levels and trends of poisoning deaths by age, sex, and GBD region.

**RESULTS:** In 1990 as per the Global Burden of Disease data we have 6 low-middle income countries as per the economic boundaries that were reclassified in 2013 as lower middle-income countries (Bhutan, India and Pakistan) and low-income countries (Afghanistan, Bangladesh and Nepal). In people who were less than 19 years in 1990 constituting the percentage of population 87.8% in the low middle-income countries the South Asian poisoning death rate per 100,000 populations was 1.1 with 95% CI 1.7 to 2.6, similarly in 2013 in lower middle income countries it was 0.9 and in low income countries it was 0.5 per 100,000. In patients who are 19 years and above in 1990 most cases were reported by India with the annual cases of 455544362 followed by Pakistan 51590950 with a average rate per 100,000 populations was 2.1 with 95% CI 0.8 to 1.2 where as average poisoning rates per 100,000 population in lower-middle income countries was 2.3 and in low-income countries 0.7 in 2013. The mortality trends for 2013 in patients less then 19 years and 19 years and above were 0.8 and 2.3 respectively.

**CONCLUSION:** The observed pattern in South Asian regions suggests increasing poisoning burden, which portends future health system challenges in these regions.

**Keywords: Poisoning; South Asia; Burden**

## **Emergency Department Visits with Heat Stroke in the Largest Metropolitan City of Pakistan-A Single Center Cross Sectional Study**

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**BACKGROUND:** Global climate changes are increasing the average temperatures and direct heat exposures in many places. We aim to examine the factors that resulted in heat illnesses in patients who presented to the emergency department in Karachi Pakistan.

**METHODS:** We analyzed data from June 20 to 25, 2015 that were the days when the ambient temperature was declared high in the city as heat wave and it is the time when the emergency department receives a number of patients who were either brought dead or died during their emergency department stay with heat stroke or were admitted with heat illnesses. The data was taken from the Health Information & Medical Record Systems of the Aga Khan University Hospital and the Emergency Department Triage data sheets. The recorded diagnoses were screened using the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code 992.0, identified emergency department visits for heat stroke. A correlation between demographic, physical characteristics and laboratory investigations with mortality and morbidity was done through Pearson's Correlation.

**RESULTS:** A total of 125 patients received in the emergency department with heat stroke in the 5 days. The majority were males 73(58) followed by females 52 (41). The majority of the patients were of age between 70-79 years 27(21) with a mean 63(15). Stroke was the predominant comorbid in 59(47) patients. Drowsiness was the most common presenting complains 83(67) and 30(24) patients were intubated because of low Glasgow Coma Score. 17(13) of the patients were brought dead and 22(17) died during their stay in the emergency department. Electrolyte imbalance was the most common laboratory abnormality 23(19) that includes hyponatremia and acute kidney injury.

**CONCLUSION:** Recent heat waves had a substantial effect on heat illness mortality and morbidity. Relevant active well-organized public health initiatives should be implemented to reduce the adverse effects of heat extremes on the illnesses in the future.

**Keywords:** Emergency Medical Service; Epidemiology; Global warming; Heat stroke; Public health

## **Remission of Psychosis in Treatment Resistant Schizophrenia Following a Seizure: A Case Report**

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**BACKGROUND:** Schizophrenia is a serious psychiatric disorder which carries significant burden of care and disability for patients and their families. The diagnosis of treatment resistant schizophrenia (TRS) is made after failure of multiple optimum medication trials. Clozapine, a dibenzodiazepine atypical anti-psychotic is indicated as the drug of choice for TRS. However, the side-effects of clozapine, including increased risk of seizures, pose major hindrance to its use. Paradoxically, there is evidence that seizures (including electro-convulsive therapy-ECT) improve the symptoms of schizophrenia.

**OBJECTIVES:** To examine role of seizures in remitting positive symptoms in TRS.

**METHODS:** Ms U, a 22 years old lady suffered from schizophrenia for the last 1.5 year. Despite multiple trials of anti-psychotics, she did not respond to the treatment. Her symptoms as well as her functionality continued to deteriorate over time. This required further management to maintain her quality of life and it was decided to start her on clozapine. In an in-patient setting she suffered a seizure followed by tapering of clozapine dose and addition of Epival. Her symptoms remitted and functionality turned to baseline.

**RESULTS:** Ms U had TRS that did not respond well to multiple trials of antipsychotics. She was therefore started on Clozapine and paradoxically one of its side-effects improved psychotic symptoms and she continued her routine activities as before.

**CONCLUSION:** Seizure is a form of natural ECT. There is extensive evidence of the beneficial effects of seizures (including those induced by ECT) in patients suffering from TRS. Our patient's symptoms remitted after she had a seizure as a side-effect of Clozapine. This case illustrates the importance of considering ECT in patients suffering from TRS.

**Keywords:** Treatment Resistant Schizophrenia (TRS); Electroconvulsive therapy (ECT); Clozapine; Seizure

## **Quality Versus Quantity: Nurses Workload and Patient's Safety**

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**BACKGROUND:** Patient safety is an essential component of quality nursing care and health care system. One of the major problems associated with health care system is intense workload of hospital nurses, and there are serious consequences related to excessive workload on nursing staff. One of the major issues associated with this is increased risk of making an error, which eventually affects patient's safety.

**OBJECTIVES:** The purpose of this paper is to examine the work patterns of hospital staff nurses and to determine underlying relationship between intense nurses workload and patient's safety.

**METHODS:** An integrative review of the literature was done based on 15- 20 peer reviewed articles.

**RESULTS:** High nursing workload is inversely related to patient's safety. Literature suggests that increased workload of staff nurses creates a communication gap between nurses and physicians, which affects the quality of nurse-physician collaboration negatively. Factors associated with excessive workload of staff nurses affect the rate of medication errors and nosocomial infections. These studies further suggest that high workload is key job stressor in nurses. In various health care settings; such as ICU this will have negative impact on patient care protocol and their safety.

**CONCLUSION:** Staffing levels, patient's condition and the design of nurses work system are the major determinants of nursing workload. There should be proper measurement of workload on nurses and identification of work system factors that contribute to workload. Increasing nursing staff and proper nurse-patient ratio is an essential step towards increasing patient's safety.

**Keywords: Patient Safety; Nursing Care; Workload**

## **Workplace Environment: Are We Safe from Violence?**

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**BACKGROUND:** We have conducted an online cross sectional survey in 2012 to highlight various parameters related to workplace violence at AKUH. The objective of the study was to determine awareness regarding workplace violence, attitude towards violence reporting, violence affectees, and violence perpetrators among residents and faculty at AKUH.

**METHODS:** An anonymous, self-administered electronic questionnaire (recommended by WHO) was used for data collection. Total 185 physicians (121 trainees, 61 faculty members) participated in this survey.

**RESULTS:** Based on the WHO definition on various parameters (verbal abuse, bullying/mobbing, threat, racial and sexual harassments & physical abuse) that encompass the workplace violence, survey participants were in compliance with each definition. 27% of the faculty-members and residents respectively have experienced a type of workplace violence. 14% & 36% of the faculty-members and residents respectively have faced bullying, 24% & 25% of the faculty-members and residents respectively have faced threats, 2% & 11% of the faculty-members and residents respectively have experienced racial harassments, 2% & 3% of the faculty-members and residents respectively have experienced sexual harassments, 4% residents have faced physical abuse, and overall 38% & 63% of the faculty-members and residents respectively have experienced workplace violence. Racial harassments were statistically significant among the male residents while sexual harassment was statistically significant among female residents.

**CONCLUSION:** According to our data, various forms of workplace violence are prevalent at AKUH and this provides us an opportunity to address these issues through an integrated and participatory approach.

**Keywords: Workplace; Violence; Pakistan**

## **Trauma Work Load of Surgical Intensive Care Unit (SICU) of a University Hospital in Pakistan- A Six Month Retrospective Study**

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**BACKGROUND:** Trauma is the fourth leading cause of death globally and constitutes a huge burden to limited critical care resources.

**OBJECTIVES:** The aim of this study was to identify trauma work load of surgical intensive care unit (SICU) of a university hospital, and to compare the characteristics and outcome of trauma and non-trauma patients.

**METHODS:** All adult (>16 years old) admissions to SICU from 1<sup>st</sup> January till 30<sup>th</sup> June, 2014 were reviewed retrospectively.

**RESULTS:** One hundred and forty one SICU cases were reviewed and 22.7% (32/141) trauma patients were identified during the 6 month study period. Road traffic accidents (43.8%), gunshots (43.8%) and blasts (6.3%) were the most common causes of trauma. Average age of the trauma cases was significantly lower than non-trauma cases [35.81±13.11 vs. 49.04±18.67; p<0.01]. Male to female ratio was 7:1 in trauma cases and 2:1 in non-trauma cases (p=0.019). There was no statistically significant difference in mortality [31.3% vs. 42.2% p>0.05] and median length of stay [Median (IQR); 5(8) vs. 4(7); p>0.05] between trauma and non-trauma patients.

**CONCLUSION:** Trauma constitutes a significant workload for SICU of Aga Khan University, Pakistan. Trauma victims are predominantly young males in whom gunshot injuries are as common as road traffic accidents.

**Key-words: Trauma; Intensive Care; University Hospital**



## **Reliability of Overbite Depth Indicator (ODI) and Antero-Posterior Dysplasia Indicator (APDI) in Assessment of Different Vertical and Sagittal Dental Patterns: A Receiver Operating Characteristic (ROC) Analysis**

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**BACKGROUND:** Differential diagnosis of skeletal and dental relationship is fundamental for planning an orthodontic treatment. ODI and APDI had been introduced in past for assessment of vertical and sagittal jaw relationship. Hence the objectives of this study were to evaluate the reliability of ODI and APDI in vertical and sagittal dental patterns and its diagnostic validity in gender and age groups.

**METHODS:** Dental cast and lateral cephalogram were selected. Ninety subjects were equally divided for ODI into three groups based on incisor over-bite (open-bite, deep-bite and normal over-bite). Likewise, same subjects were divided for APDI into three groups based on Angle's Classification of malocclusion (dental Class I, II and III). Almost equal members of adolescent and adult and male and female subjects were inducted in each group. A Mann-Whitney U test was applied for comparison of study parameters between the gender and age groups. Multiple comparisons was done among ODI and APDI study groups using post hoc Dunnett's T3 test. ROC curve was applied to test diagnostic validity.

**RESULTS:** Significant inter-group differences were found in vertical and sagittal dental patterns according to ODI and APDI respectively. Insignificant differences were found in gender and age groups in study parameters. ROC curves showed 91% and 88% constancy with dental pattern in ODI and APDI respectively.

**CONCLUSION:** A low value of ODI represents skeletal open-bite tendency and vice versa. Similarly a high value of APDI represents skeletal Class III pattern and low value shows skeletal Class II pattern.

**Keywords:** Overbite Depth Indicator; Antero-Posterior Dysplasia Indicator; Dental Patterns

## **The Improvement in Peer Assessment Rating (PAR) Scores after Non-Extraction, Pre-molar Extraction and Lower Incisor Extraction Treatment**

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**BACKGROUND:** Malocclusion is the lack of harmonious contacts between the upper and lower teeth and the deviation of teeth from the line of the arch. Class I malocclusion is defined as the mesio-buccal cusp of the upper first molar occluding in the buccal groove of the lower first molar. It may present with malocclusion traits such as crowding, spaces, rotations, openbite, deepbite, and crossbite. The study aims to compare the percentage improvement in the Peer Assessment Rating (PAR) scores with three different treatment protocols i.e. non-extraction treatments, lower incisor extraction and premolar extractions in the treatment of orthodontic patients with Class I malocclusion.

**METHODS:** A total of 108 subjects' pre-treatment and post-treatment dental casts were evaluated using the PAR index at Dental Clinics, AKUH, during the month of August to September 2015 after ERC approval.

**RESULTS:** Mean pre-treatment and post-treatment PAR scores were compared in males and females which showed a significant association, however percent improvement was insignificant. A lower mean pretreatment PAR score in females indicated that they seek orthodontic treatment with a lower degree of malocclusion as compared to males. PAR improvement of 75.8% in non-extraction treatment, 73.1% in premolar extraction, and 70.5% in lower extraction cases was recorded.

**CONCLUSION:** Overall, there was an insignificant PAR improvement amongst the three treatment modalities which suggests that each modality has the potential to effectively correct malocclusion. However, the PAR percentage improvement represents a high standard of orthodontic treatment conducted at AKUH.

**Keywords: Peer Assessment Rating; Extraction; Treatment**

## **Identification of Sagittal Hard Tissue Parameter that Correlates Best with the Soft Tissue Angle of Convexity for Assessment of Facial Profile**

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**BACKGROUND:** Angle's paradigm had ruled the orthodontic diagnosis and treatment planning for the past several decades, but the recent introduction of the soft tissue paradigm has significantly changed the dynamics of orthodontic practice. This study was designed to identify skeletal analyses that best correlate with the parameter use to assess facial soft tissue profile. This may result in a soft tissue oriented approach for the diagnosis of the underlying sagittal skeletal discrepancy, which may subsequently lead to the development of a treatment plan that may give better soft tissue outcome.

**METHODS:** A sample of 198 subjects (99 males and 99 females; mean age =  $23.6 \pm 4.6$  years) was uniformly divided into Class I, II and III sagittal groups on the basis of soft tissue angle of convexity. Various sagittal parameters including ANB angle, AB plane angle, Down's angle of convexity, Wits appraisal, Beta angle and W angle were assessed on pretreatment lateral cephalograms. Correlation between various skeletal analyses and the soft tissue angle of convexity was determined using Spearman's correlation.

**RESULTS:** The ANB angle showed the highest correlation with the soft tissue angle of convexity ( $r = 0.907$ ), whereas W angle showed the least correlation ( $r = 0.744$ ). Amongst the sagittal groups, no significant correlation was present in Class I group. Down's angle of convexity showed a moderate positive correlation in Class II ( $r = 0.514$ ) and Class III ( $r = 0.533$ ) sagittal groups with the soft tissue parameter.

**CONCLUSION:** ANB angle and Down's angle of convexity were found to be reliable skeletal indicators in assessing the facial soft tissue profile. Hence, the number of cephalometric analyses for evaluating the sagittal skeletal jaw discrepancy may be reduced to few analyses of higher diagnostic performance, which are more reliably related to the overlying facial pattern.

**Keywords:** Soft tissue; Cephalometry; Sagittal Dimension

## **The Association between the Frontal Sinus Morphological Variations and the Cervical Vertebral Maturation for the Assessment of Skeletal Maturity**

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**BACKGROUND:** The assessment of skeletal maturity is important for planning dentofacial orthopedics or orthognathic surgery for the treatment of different skeletal malocclusions. Cervical vertebral maturation is widely used method to evaluate skeletal maturity of patients undergoing orthodontic treatment. In the past decade, another method is being proposed which is based on frontal sinus morphology.

**OBJECTIVES:** The aim of this study is to evaluate the association between frontal sinus morphological variations and cervical vertebral maturation for the assessment of skeletal maturity.

**METHOD:** Lateral cephalograms of 252 subjects aged 8-21 years were collected from the dental clinics of AKUH. The sample was divided into six groups based on cervical vertebral maturation stages. The frontal sinus index was calculated by dividing frontal sinus height and width and the cervical vertebral maturation stages were evaluated on the same radiograph. Data were analyzed using SPSS (version 19). Kruskal-Wallis test was applied to compare frontal sinus index at different cervical stages and Post hoc Dunnett t3 test was applied to compare frontal sinus index between adjacent cervical stage intervals in males and females. A *p*-value of  $\leq 0.05$  was considered as statistically significant.

**RESULTS:** The frontal sinus height and width were significantly associated with the individual cervical vertebral maturation stages in males and females. However, frontal sinus index wasn't significantly associated with the individual cervical vertebral maturation stages in males and females.

**CONCLUSION:** Frontal sinus index cannot differentiate between pre-pubertal, pubertal and post-pubertal adolescent growth stages therefore; it cannot be used as a reliable maturity indicator.

**Keywords:** Frontal Sinus; Skeletal Maturity; Cervical Vertebral Maturation

## **Beliefs And Experiences About Faith Healing Amongst Patients Visiting Family Practice Services Of Two Teaching Hospitals In Sindh Pakistan**

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**BACKGROUND:** Literature review reveals that practice of faith for healing is widely used all over world including Pakistan. Faith healing is a therapy, offered in the shadow of religious & cultural beliefs by adapting traditional ways. Patient using faith healing also visit physicians, and the extent to which our patients are involved in faith healing, is not fully known. There is scanty medical literature available over this topic so far.

**METHODS:** A cross sectional study (sample size 410) is underway in two teaching hospitals of Sindh, Pakistan, where patients' perceptions and experiences regarding faith healing are recorded by a self-administered questioner. A data analysis of 200 patients from Aga Khan Hospital Karachi is presented here

**RESULTS:** 92% patients revealed that their physicians didn't discuss their faith healing practices during consultation, 56% wanted their doctors to discuss spiritual and religious beliefs with them in context of their health issues, 44% were involved in faith healing practices and 24% called their such experiences satisfactory, 68% said that modern day medicine should give due importance to faith healing & 84% believed that combining medicine with faith healing gives better outcomes.

**CONCLUSION:** The present data of this ongoing study highlights this point that Physicians should be sensitive to patients' faiths and beliefs, and should know the extent to which his/her patients are involved in faith healing and how their experiences are affecting their health.

**Keywords: Faith Healing; Beliefs; Experiences; Pakistan**

## **Frequency of Tuffier's Line above L4-5 in Full Term Pregnant Females; A Cross Sectional Descriptive Study**

**BACKGROUND:** The radiological intercrystal line (Tuffier's line) usually intersects the spine at the L4-L5 interspace. The intercrystal line determined by palpation may be used erroneously as a surrogate for the true radiological Tuffier's line.

**OBJECTIVES:** To determine the frequency of Tuffier's line above L4-5 in Pakistani full term pregnant females coming for elective lower segment cesarean section (LSCS) with the help of ultrasound.

**METHODS:** 89 Full term patients admitted for elective LSCS consented and were included in this study. Sitting position made in pre-op area. Primary anesthetist marked iliac crest with marker. Marks covered patient's gown. This investigator left the room. The primary investigator marked L4 & L5 vertebra in the midline using ultrasound machine. The primary anesthetist was allowed in, iliac markings were uncovered and joined by a horizontal line using a scale. It was noted whether the Tuffier's line is crossing the midline at or above L4-5. This was the primary end point of the study.

**RESULTS:** Frequency of Tuffier's line above L 4-5 in full term pregnant females for elective lower segment cesarean section with the help of ultrasound was observed in 42.7%.

**CONCLUSION:** In pregnant women at term, the intercrystal line determined by palpation does not correspond to the Tuffier's line determined radiologically.

**Keywords: Pregnant Females; Tuffier's Line; Spine L4-5**

## **Stability of Palatal Rugae as a Forensic Marker in Orthodontically Treated Cases**

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Palatal rugae are unique to an individual, highly resistant to environmental insults and have irreversible characteristics making them a potential identification marker. However, the possible variations in the morphology of palatal rugae after orthodontic treatment require further investigation. This study evaluates the stability of palatal rugae after three major types of orthodontic treatments i.e. non-extraction, extraction and maxillary expansion. The lengths and shapes of palatal rugae were evaluated on the pre-treatment and post-treatment dental casts of 168 subjects using Thomas and Kotze classification. Extraction treatment significantly reduced the lengths of the second and third rugae; whereas, the length of third rugae was significantly increased after palatal expansion. The shape of rugae remained consistent in all the study groups which may be used as a reliable forensic marker in subjects undergoing orthodontic treatment. However, the use of the lengths of palatal rugae in forensic odontology must be made with caution.

**Keywords: Palatal Rugae; Forensic**

## **The Onset and Duration of Pubertal Growth Spurt among Three Skeletal Malocclusions**

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**BACKGROUND:** Growth modification appliances are routinely used in the growing patients to treat different skeletal malocclusions. Treatment with these appliances is only successful if commenced at the right stage of the adolescent growth spurt. Cervical vertebral maturation (CVM) method is highly reliable for the assessment of adolescent growth spurt.

**OBJECTIVES:** The aim of the present study was to determine and compare the mean age of CVM among three skeletal malocclusions in the growing orthodontic patients.

**METHODS:** A retrospective cross-sectional study was conducted on the lateral cephalograms of 440 subjects aged (9-17 years) at the Aga Khan University Hospital, Karachi. Subject were categorized into three malocclusion groups (Class I = 187, Class II = 169, Class III = 84) according to the sagittal relationship between the maxilla and the mandible. The age of each subject was recorded to the nearest month while the cervical vertebral maturation stage was recorded using Baccetti's method. The mean age at each stage of CVM was compared between male and female sample using Mann-Whitney U test and across the three malocclusion groups using Kruskal-Wallis and post-hoc Scheffe tests. A p value < 0.05 was taken as statistically significant.

**RESULTS:** The sample consisted of 203 boys and 237 girls. Adolescent growth spurt occurred on average 1.5 years earlier in girls than boys (p < 0.001). The mean difference in the ages of CVM between Class II girls and Class I girls was of 7.5 months (p = 0.026) and between Class III boys and Class I boys was 10.5 months (p = 0.022). A statistically significant (p < 0.05) mean difference of 13.4 years and 14.5 years in the timing of CVM was found between the Class II and Class III boys and girls, respectively. All boys older than 16.5 years and girls older than 16.0 years were found to be in Cervical Stage 6.

**CONCLUSION:** Girls experience adolescent growth spurts on average one and a half year earlier than boys. Adolescent growth spurts starts on average 7½ months earlier in Class II girls as compared to Class I girls while Class III boys mature on average 10½ months later than Class I boys. Adolescent growth spurt completes on average 15 months earlier in girls than boys while there is no significant difference among different malocclusions.

**Keywords: Pubertal Growth Spurt; Malocclusions; Girls**



## **Why are We Losing our Precious Blood Donors? A Systematic Review from Pakistan**

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**BACKGROUND:** Worldwide, a great majority of blood donors are deferred and many of these deferrals are for temporary reasons. This may cause loss of precious blood donors. This is also a common practice in Pakistan. Given the limited number of blood donors in our setting it is undesirable to defer a significant number of blood donors. This systematic review was conducted to document the various reasons for temporary deferral in Pakistan.

**OBJECTIVES:** To carry out a systematic review of the surveys addressing the reasons of temporary blood donor deferral in Pakistan.

**METHODS:** PAKMEDINET, GOOGLE SCHOLAR , PUB MED, CINAHL and EMBASE search engines were used for literature search by using following terms “ pre donation deferrals Pakistan”, “temporary reasons for blood donation deferrals” , “questionnaire related deferrals in Pakistan” and “ temporary blood donor deferrals Pakistan” from January 2010 to December 2015. Studies which addressed transfusion transmitted infections and permanent causes of donor deferrals were excluded. Case reports were also excluded. Finally 4 relevant studies were selected and reviewed and results were analyzed by using SPSS version 21. Forest plot was made to analyze these studies and p value < 0.05 was taken significant.

**RESULTS:** The search generated 8459 records for the year 2010 to 2015. 4 relevant studies were selected and reviewed. These studies were carried out in various blood banks located in different provinces of Pakistan. Based on the collective findings of these studies; anemia 31% , low blood pressure 21%, medications 8%, donation in last 3 months 8% and low weight for age 5 % were identified to be the commonly observed factors for temporary blood donor deferral.

**CONCLUSION:** Anemia was found to be the most frequent cause of temporary blood donation deferral in our population. It is important to provide donors with a clear message regarding their deferral status. They should be encouraged to come again after their deferral period. Public awareness and education regarding blood donation may decrease deferral rates and can prevent an unfavorable impact on the donor as well as on blood donations.

**Keywords: Blood Donation; Donor Deferral; Pakistan**

## **Possible Effect of Ambient Temperatures in Transmission of Malaria During Off Season**

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**BACKGROUND:** Malaria is a serious health problem. It is endemic in Pakistan & imposes a huge burden on health care system. Approximately 1.6 million cases are reported annually and most of them are reported during warm, humid and rainy season but some severe cases with high parasitemia were found in low temperatures in our study. It is postulated that mosquitoes in endemic areas undergo adaptation as vector's microenvironment changes are closely dependent upon human behavior.

**METHODS:** Retrospective study done between 1st & 4th quarter of year 2014 (January, February, March & October, November, December) at the Section of Haematology, Department of Pathology & Laboratory Medicine, Aga Khan University Hospital Karachi. All positive cases diagnosed via thick and thin smear during these six month period were included in the study.

**RESULTS:** Total 352 cases were positive for malarial parasite. Among them 241 were males & 111 were females with age range between 20 days to 75 years. Plasmodium falciparum was found in 10.6% cases (n=37) with maximum Parasitemia of 23% which was seen in the month of December when the average temperature was 22°C & approximately 7 wet days. Plasmodium Vivax was seen in 89.4% of cases (n=315). Majority of cases were reported in the month of October where the average temperature was 28°C which is highest among these six months.

**CONCLUSION:** P. Vivax constitutes a significant health hazard and P. falciparum also led to severe Parasitemia. Our findings suggest that malaria transmission in temperate areas is highly dependent on climate factors, with a transmission occurring throughout the year.

**Keywords: Temperatures; Transmission; Malaria**

## Comparison of Anxiety Score in Children With and Without Parental Presence

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**BACKGROUND:** Anxiety at induction of anesthesia in children is associated with distress on awakening and postoperative behavior problems. Different techniques have been used to decrease this anxiety includes parental presence at anesthetic induction, behavioral preparation programs and premedication.

**OBJECTIVES:** To compare the mean anxiety score in children at time of induction of anesthesia with two different techniques of parental presence and a control group with no parent present.

**METHODS:** This randomized controlled trial conducted at the Aga Khan University, Karachi, Pakistan. One hundred and twenty three ASA I and II patients, aged 1 to 8 years undergoing elective day care surgery were randomly allocated to following groups by the sealed opaque enveloped technique. :

A: Control group: In which only child went to operating room alone.

B: One parent accompanied the child to the OR, where they sat or stood near the operating table. The child sat on the operating table.

C: One parent came in OR with child .Parent sat on a chair, child sat on their lap with his mother/father's left arm wrapped around the child.

mYPAS score was calculated and recorded at induction of general anaesthesia before application of face mask. A value of less than 30 on the scale indicated low anxiety.

**RESULTS:** The mean anxiety score was significantly high in group A as compared to group B and C ( $50.38 \pm 13.90$  vs.  $43.50 \pm 10.43$ ; diff =  $6.88 \pm 2.42$   $p=0.016$ ) and ( $50.38 \pm 13.90$  vs.  $41.17 \pm 7.64$ ; diff =  $9.21 \pm 2.42$   $p=0.001$ ) respectively. Difference in mean anxiety score between group A and group C was highly significant ( $p=0.001$ ) whereas mean anxiety score was not significant between group B and group C ( $p=1.00$ ). Comparison among age groups regarding anxiety score showed a statistically significant difference in group aged between 5 to 8 years ( $p=0.001$ ) compared to group aged between 1 to 4 year old ( $p=0.06$ ).

**CONCLUSION:** Parental presence during induction of anaesthesia is an effective technique in reducing children anxiety.

**Key Words; Parental presence; Children Anxiety; mYPAS**

## **Comparison of Ease of I-Gel Insertion with Two Different Techniques in Adult Patients: A Randomized Controlled Trial**

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**BACKGROUND:** I-gel is a relatively new supraglottic airway device but the success rate on first attempt varies between 78% to 93%. Multiple attempts cause trauma. Various techniques have been used to improve the success rate. A modified jaw thrust technique has been recently described.

**OBJECTIVES:** We hypothesized that the *modified jaw thrust technique* would improve insertion by reducing resistance.

**METHODS:** This randomized controlled observational study was conducted in the operating rooms of AKUH. One hundred and eighty adult patients admitted for elective surgery, where a supraglottic airway device was indicated were included. After randomization and a standardized induction, ninety patients had I gel inserted with the standard technique (Group S) and 90 with a modified jaw thrust technique (Group J). Our main outcome measures were, number of attempts for I-gel insertion, time required for insertion, resistance on insertion and, complications like laryngospasm, desaturation and airway trauma during or following insertion.

**RESULTS:** Patients in two groups were comparable in age, gender, ASA, Mallampatti class, and co-morbidity. I-gel was successfully inserted in the first attempt in 96.7% in group J compared to 70% in group S with mean time for insertion 10.9 sec and 18 sec in the two groups respectively (p=0.0005).

Rate of complication i.e blood staining and resistance during I-gel insertion was higher in group S compared to group J (p=0.0005).

**CONCLUSION:** This investigation demonstrated that I-gel insertion with modified jaw thrust technique resulted in an increased first attempt insertion, less insertion time and less pharyngeal mucosal trauma.

**Keywords: I-Gel; Jaw Thrust; Technique**

## **Clinical and Biochemical Characteristics of Children with Juvenile Idiopathic Arthritis**

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**OBJECTIVES:** To determine the clinical and biochemical characteristics of children with Juvenile Idiopathic Arthritis (JIA) at a tertiary care centre in Karachi, Pakistan.

**METHODS:** This was a descriptive study conducted in the Paediatric Rheumatology Clinic of The Aga Khan University Hospital (AKUH), Karachi from January 2008 to December 2011. Clinical and laboratory profile and outcome of children less than 15 years of age attending the Paediatric Rheumatology Clinic of the Aga Khan University, Karachi with the diagnosis of Juvenile Idiopathic Arthritis according to International League against Rheumatism were studied. These children were classified into different types of JIA; their clinical and laboratory characteristics, response to therapy and outcome were evaluated.

**RESULTS:** Sixty eight patients satisfying the criteria of International League against Rheumatism (ILAR) for Juvenile Idiopathic Arthritis were enrolled during the study period of four consecutive years, their age ranged from 9 months to 15 years. Mean age at onset was  $6.45 \pm 4.03$  years while mean age at diagnosis was  $7.60 \pm 3.93$  years. Polyarticular was the most predominant subtype with 37 (54%) patients, out of these, 9 (24%) were rheumatoid factor positive. An almost equal gender predisposition was observed. Fever and arthritis were the most common presenting symptoms, with only 2 patients presenting with uveitis.

**CONCLUSION:** The clinico-biochemical characteristics of JIA at the study centre showed a pattern distinct with early onset of disease, high frequency of polyarticular type and a higher rheumatoid factor (QRA) and ANA positivity in girls.

**Keywords: Children; Juvenile Idiopathic Arthritis; Pakistan**

## **Celiac Disease with a Double Burden – Complicated with Intestinal Tuberculosis and Seizures – A Case Report**

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**BACKGROUND:** Celiac disease (CD) is combination of an autoimmune disorder and food intolerance that occurs in genetically susceptible individuals following ingestion of gluten. CD is also associated with a number of immune mediated associations.

**CASE REPORT:** We present a case of a 12 year old child, known case of Celiac disease, presenting with complaints of leg swelling, decreased oral intake and intermittent abdominal pain. Clinical examination revealed bilateral pedal edema and ascites. She was managed as Protein Calorie Malnutrition. During her first week of stay she developed issues of fresh bleeding per rectum followed by melena and hematemesis. CBC showed anemia and thrombocytopenia. An upper GI and lower GI endoscopy was done which showed diffuse oozing from terminal ileum, ulceration and edema of illeocecal valve. Due to suspicion of Tuberculosis, specimens were sent for Expert MTB/RIF assay, AFB culture, and Histopathology. TB was confirmed based on a positive GeneXpert and granuloma formation on biopsy, and patient was started on Anti-Tubercular therapy. The child developed seizures during stay, which was diagnosed as partial cerebral venous thrombosis. She was discharged home seizure free on Levetiracetam and ATT.

**CONCLUSION:** Both intestinal tuberculosis and CD can cause malnutrition and failure to thrive, and a high index of suspicion is required to diagnose intestinal tuberculosis in CD. The effect of malnutrition as well as a common genetic association could play an important part in the increased risk of TB. There may be an autoimmune mechanism for celiac disease associated cerebral venous thrombosis as well.

**Keywords; Intestinal Tuberculosis; Celiac Disease; Malnutrition**

## **Effectiveness of Interventions to Screen and Manage Infections during Pregnancy on Reducing Stillbirths: A Review**

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**BACKGROUND:** Infection is a well acknowledged cause of stillbirths and may account for about half of all perinatal deaths today, especially in developing countries. This review presents the impact of interventions targeting various important infections during pregnancy on stillbirth or perinatal mortality.

**METHODS:** We undertook a systematic review including all relevant literature on interventions dealing with infections during pregnancy for assessment of effects on stillbirths or perinatal mortality. The quality of the evidence was assessed using the adapted Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach by Child Health Epidemiology Reference Group (CHERG). For the outcome of interest, namely stillbirth, we applied the rules developed by CHERG to recommend a final estimate for reduction in stillbirth for input to the Lives Saved Tool (LiST) model.

**RESULTS:** A total of 25 studies were included in the review. A random-effects meta-analysis of observational studies of detection and treatment of syphilis during pregnancy showed a significant 80% reduction in stillbirths [Relative risk (RR) = 0.20; 95% confidence interval (CI): 0.12 - 0.34] that is recommended for inclusion in the LiST model. Our meta-analysis showed the malaria prevention interventions i.e. intermittent preventive treatment (IPTp) and insecticide-treated mosquito nets (ITNs) can reduce stillbirths by 22%, however results were not statistically significant (RR = 0.78; 95% CI: 0.59 - 1.03). For human immunodeficiency virus infection, a pooled analysis of 6 randomized controlled trials (RCTs) failed to show a statistically significant reduction in stillbirth with the use of antiretroviral in pregnancy compared to placebo (RR = 0.93; 95% CI: 0.45 - 1.92). Similarly, pooled analysis combining four studies for the treatment of bacterial vaginosis (3 for oral and 1 for vaginal antibiotic) failed to yield a significant impact on perinatal mortality (OR = 0.88; 95% CI: 0.50 - 1.55).

**CONCLUSION:** The clearest evidence of impact in stillbirth reduction was found for adequate prevention and treatment of syphilis infection and possibly malaria. At present, large gaps exist in the growing list of stillbirth risk factors, especially those that are infection related. Potential causes of stillbirths including HIV and TORCH infections need to be investigated further to help establish the role of prevention/treatment and its subsequent impact on stillbirth reduction.

**Keywords: Infection; Pregnancy; Stillbirth**

## **Association between Obesity and Life Style Factors in Children Presenting to the Outpatient Clinics of a Tertiary Care Hospital in Pakistan: A Case Control Study**

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**BACKGROUND:** The rising prevalence of childhood obesity continues to be of concern, with an estimated ten percent of school-aged children being overweight and a quarter of these being obese globally. Pakistan is a country in transition and now faces double burden of coexistent over nutrition and under nutrition. This study will be conducted to determine the associated risk factors of obesity among children presenting to outpatient clinics of a tertiary care hospital of Karachi so that recommendations for controlling these risks can be formulated. By doing so, the study shall serve the purpose of primordial prevention by identifying the risk factors earlier in childhood and thus help prevent the health consequences later in life.

**OBJECTIVES:** To determine the association between life style factors (unhealthy diet, lack of sleep and physical inactivity) and obesity in children aged 5 to 16 years presenting to outpatient clinics of a tertiary care hospital in a case control study. Hypothesis: Null hypothesis: There is no significant association between obesity and at least two of the life style factors (unhealthy diet, physical inactivity and lack of sleep) in cases and controls.

**METHODS:** This study is being conducted in the Pediatric outpatient clinics of The Aga Khan University Hospital, Karachi.

**RESULTS (Still in progress):** Amongst the eating habits, eating vegetables less than twice a week, skipping breakfast, and eating between meals was significantly associated with obesity in children ( $p < 0.05$ )

**CONCLUSION:** There is significant association between obesity and at least two of the life style factors (unhealthy diet, physical inactivity and lack of sleep) in cases and controls.

**Keywords: Obesity; Lifestyle factors; Children**



## **Atypical Kawasaki Disease or Evolving Systemic Juvenile Idiopathic Arthritis – Different Entities with Similar Presentations: A Case Series of Two Patients**

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Kawasaki disease (KD) is an acute febrile condition seen in children. However, it is also well recognized that some patients do not fulfill the classic diagnostic criteria for the diagnosis of Kawasaki Disease. The incomplete form of Kawasaki Disease is termed as 'Incomplete KD' or 'Atypical KD'. We present a case series of two patients with JIA (Juvenile Idiopathic Arthritis), both of whom were initially treated as Kawasaki, however showed no improvement, and improved drastically when given methylprednisolone. Patient 1, a six year old girl, who initially presented with fever and a maculopapular rash, was refractory to two doses of intravenous immune globulin and therefore was started on methylprednisolone, to which she responded dramatically. Patient 2, a two year old boy, presented with cracked lips, periungal skin peeling and swollen palms and feet. The left anterior superior cervical lymph node was palpable was refractory to a single dose of IVIG, along with aspirin, and just like patient 1, also showed great improvement on methylprednisolone. Patient 2 had lack of tapering of coronary vessels on echocardiogram, suggestive of Atypical KD. In both the cases, the patients presented with joint pain after being initially treated for Kawasaki disease. So, were these cases of incomplete Kawasaki refractory to intravenous immuno globulin therapy or systemic juvenile idiopathic arthritis? We suggest that physicians should be cognizant of the fact that they must individualize every patient's management to the best of their knowledge and judgment, rather than merely going by the guidelines.

## **Effect of Body Composition, Diet and Lifestyle Factors on Bone Mineral Content of Young Adults**

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**OBJECTIVES:** To determine bone mineral status of young Pakistani adults and its relation with socioeconomic factors, dietary intake, physical activity and 25-hydroxyvitamin D (25OHD).

**METHODS:** Socio-demographic factors of healthy medical students were assessed; validated food frequency and physical activity questionnaires were filled. Quantitative heel ultrasound was done using Osteosys Sonost-3000. Total 25OHD was measured on ADVIA-Centaur; Siemens. Multiple regression analysis was performed and the model was adjusted for age and sex whereas T-score, Z-score, bone quality index (BQI) and speed of sound (SOS) was studied as independent variables.

**RESULTS:** Mean age was 20.03±0.99 years (n=97), 58.4% being females. Mean BMI was 22.16±3.45 kg/m<sup>2</sup> and 13.9% of the subjects were underweight, 47.5% normal, 19.8% overweight and 18.8% obese. Daily mean energy, protein and fat intake of females were lower than males (p value <0.001). Daily mean calcium intake was 862.8±457.8 mg/day and was also significantly lower in females (p value <0.001). In 64.3% subjects average calcium intake was below *Recommended Dietary Allowance (RDA)* (1000 mg/day for 19-50 years). Inactivity was more amongst females than males (20.3% versus 16.7%), with 18.9% of the students being inactive. Mean 25OHD levels were 15.02±8.63 ng/ml, 86% of the group being Vitamin D deficient. No significant association was found between z-scores and 25OHD levels. Out of the total students, 20.6% had z-scores 2SD below the age and gender matched mean bone mineral density. The males had significantly higher BQI and SOS than females (p-value <0.001). BQI and SOS both correlated positively with weight, height, waist circumference (p-value <0.001). Mean calcium and protein intake were lower in subjects with low z scores (p-value 0.07 and 0.02 respectively). Regression revealed students living in apartments/small houses were significantly associated with z-scores, SOS and BQI.

**CONCLUSION:** A significant number of students had low z-scores, low calcium intake and physical inactivity. Only housing seems to affect z-score of otherwise healthy Pakistani adolescents. Confirmation of our findings with DXA and further research on a larger group is needed to clarify the bone health status of adolescents living in this part of the world where there is high prevalence of Vitamin D deficiency.

**Key words: Housing; Vitamin D; Lifestyle; Diet**

## **Identifying Novel or Rare Mutations in G6PD Deficient Patients in Pakistan**

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**BACKGROUND:** G6PD is the first and the most crucial enzyme of the hexose monophosphate pathway producing NADPH. The latter is significant for the survival of red cells as unchecked production of glutathione and hydrogen peroxide results in loss of red cell membrane integrity. G6PD deficiency results in hemolysis following oxidative challenges such as infection, ingestion of fava beans and administration of certain drugs. Additionally, this enzyme deficiency is also known to be associated with severe neonatal jaundice.

**OBJECTIVES:** To identify novel or rare mutations in G6PD deficient Pakistani subjects

**METHODS:** This study is an extension of the research carried out by Bushra moiz et al in 273 G6PD deficient patients which identified common mutations i.e 573 C-T, 1003 A-G and 131 C-G mutations in 78%, 5% and 0.7% Pakistani subjects respectively by RFLP-PCR and sequencing exons 9-11. However in 43 samples, no mutations were identified. Hence we performed DNA sequencing of exon 6, 7 and 8 in those 43 samples in which no mutation was found. The amplified DNA samples were sent to Macrogen, Souel Korea for DNA sequencing. And the results were interpreted by the software mutation surveyor (Dongal)

**RESULTS:** Out of 43 samples, two of them showed rare mutation in exon 6. One of which is 544 C>CT resulting in amino acid change from arginine to tryptophan at position number 182. This individual was a 4 days old male child belonging to an Urdu speaking family with the baseline Hemoglobin of 14.9gm/dl, Bilirubin:12 mg/dl and a reticulocyte count of 7%. Whereas, another sample showed 592 C>CT, resulting in an amino acid change from arginine to cysteine at position 198. He was a five months old child, who belonged to a Pathan family. His baseline hemoglobin was 8 gm/dl, Bilirubin was 7mg/dl and reticulocyte count was 5%.

**CONCLUSION:** We concluded that identification of these two rare mutations may be due to the different ancestral contributions to the present gene pool in multi-ethnic Pakistan or they could have arisen independently, as in various other populations. However out of 43 samples only two of them revealed rare mutations in G6PD deficient subjects. Hence the complete spectrum of G6PD deficiency in Pakistani population is yet to be determined by sequencing remaining exons ( i.e exon 2-5 ) to identify rare mutations in remaining 41 samples.

**Keywords:** Novel; Rare; Mutations; G6PD Deficient; Pakistan

## **Neutrophil Gelatinase-Associated Lipocalin (NGAL): An Emerging Biomarker for Acute Kidney Injury**

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**BACKGROUND:** In current clinical practice serum creatinine is the commonly used marker for diagnosis of acute kidney injury (AKI). Unfortunately due to delayed increase in serum creatinine, it is unable to accurately estimate timing of injury.

**OBJECTIVES:** The purpose of this study was to assess the ability of plasma Neutrophil Gelatinase-Associated Lipocalin (NGAL) to predict AKI in critically ill adult patients.

**METHODS:** This cross sectional study was done at Section of Chemical Pathology, Department of Pathology and Laboratory Medicine at Aga Khan University Hospital Karachi, from December 2014-August 2015. Subjects from intensive care unit (ICU) diagnosed with sepsis were included in study after written informed consent. Blood samples were collected on day one of ICU admission (within 12hours) then at 24 and 48 hours. Plasma NGAL was analyzed using a kit from Triage, and NGAL cutoff of >150ng/ml was used to identify AKI. The primary outcome measure was occurrence of AKI as per Risk-Injury-Failure (RIFLE; based on >0.3mg/dl rise in Creatinine in 48 hours) criteria on 48 hrs of ICU stay.

**RESULTS:** The mean age of patients (n=33) was 43.9±15.7years, 72.7% were males. Duration of hospital stay ranged from 2 to 36 days (mean10.3±8.96 days). Mean serum creatinine were 0.96±0.3mg/dl, 1.22±0.46mg/dl, and 1.38±0.61mg/dl and NGAL was 269.91±190.5ng/ml, 451±290ng/ml and 670.27±337.52ng/ml at 12, 24 and 48 hrs post admission respectively. Based on RIFLE criteria 79% developed AKI at 48hrs of ICU admission. Of them NGAL was able to correctly identify 52%, 70% and 100% after 12, 24 and 48 hrs respectively. On ROC analysis, plasma NGAL (>150ng/ml) at 24 hrs for diagnosing AKI showed AUC 0.6, with sensitivity and specificity of 65% and 45% respectively.

**CONCLUSION:** Results shows that pNGAL is earlier predictor of AKI in a heterogeneous adult ICU population, in which the timing of renal insult is largely unknown. It allows the diagnosis of AKI up to 48 h prior to a clinical diagnosis based on RIFLE criteria for AKI. Early identification of high risk patients may allow potentially beneficial therapies to be initiated early in the disease process before irreversible injury occurs.

**Key Words:** Acute Kidney Injury; Plasma Neutrophil Gelatinize Associated Lipocalin; Sepsis; Intensive Care Unit

## **To Describe the Frequency, Clinical Profile and Outcome of Neurological Complications in Children with Acute Lymphoblastic Leukemia, Admitted in a Tertiary Care Hospital**

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**BACKGROUND:** The neurological disorders are not uncommon in children with acute leukemia. It can be a presenting symptom or later on develop during management of disease. It may cause permanent disability in children with prolonged leukemia free survival. These disorders can be recognized early and if treated promptly save children from life threatening situation. Few papers have been published from developed countries but scant of information available.

**OBJECTIVES:** To describe the frequency, clinical profile and outcome of neurological complications in children with acute lymphoblastic leukemia, admitted in a tertiary care hospital

**METHODS:** This was a descriptive retrospective study conducted at Aga Khan Hospital, Karachi, comprising data related to children with acute lymphoblastic leukemia, below 16 yr. of age, with acute neurological complications admitted between October 2009 to December 2014. Data was analyzed by using SPSS version 19.

**RESULTS:** During a 5 year period, we retrospectively collected 42 neurological events (17%), from 242 children with acute lymphoblastic leukemia treated on BFM based COG protocol. Of the total 42 children with neurological complications 25(59.5%) were male, 32 (76%) were between 1-10 year of age. 32(76.2%) had precursor B & 10(23.8%) had T-cell ALL. 15 patients (35.7%) developed neurological complications during induction of remission. 11(26.2%) had altered level of consciousness, 27 (64.3%) had convulsions & 8 (19%) had motor weakness/ hemiplegia. Systemic chemotherapy (including high dose methotrexate, vincristine & L-asparaginase) & intrathecal methotrexate (19%) seems to be the most common predisposing factor. Intracranial bleed was present in 2 (4.8%) and peripheral neuropathy in 1 patient. Radiological findings suggestive of PRES were present in 4 (9.5%), leuco-encephalopathy in 8(19%), acute infarct in 7(16.7%) & venous thrombosis in 2 (4.8%) patients respectively. Most of the patients had gross / full recovery by hospital discharge, 4 (9.5%) expired & 2 (4.8%) had neurological deficit at hospital discharge.

**CONCLUSION:** Although most patients had gross/ full recovery of neurological deficit, neurological complications are frequent events during ALL therapy, and require rapid detection and prompt treatment to limit permanent damage

**Keywords:** Neurological Complications; Acute Lymphoblastic Leukemia; Children

## **Screening Parathyroid Hormone Metabolism Disorders by Bone Health Panel Testing**

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**BACKGROUND:** Parathyroid hormone (PTH) metabolism disorders are not uncommon and patients may be asymptomatic in early stages. Diagnosis is challenging in asymptomatic stage due to variable/atypical presentation, lack of awareness and difficulty in interpretation of findings. So aim of this study was to assess PTH disorders using bone health screening panel.

**METHODS:** We reviewed laboratory results of 534 subjects and medical records of 111 subjects tested with bone health screening panel (comprising of serum 25OHD, calcium, phosphorus, magnesium, alkaline phosphatase, creatinine, albumin and plasma PTH) from Jan 2011-Dec 2013 in identifying disorders of parathyroid gland secretion. Subjects were classified into following clinical groups, primary hyperparathyroid (PHP), Hypercalcemia with inappropriately normal PTH (HIN-PTH) (Ca>10.2mg/dl, PTH >25pg/ml, 25OHD>20ng/ml), Normocalcemic hyperparathyroidism (NCHP) (Ca 8.6-10.2mg/dl, PTH>87pg/ml, 25OHD>20ng/ml), Secondary hyperparathyroid (sHPTH), functional hypoparathyroidism (FHP) (25OHD<20ng/ml, Ca<10.2mg/dl, PTH 16-87pg/ml), and primary hypoparathyroidism (HPP). PTH nomogram by Harvey et al was applied to calculate max PTH in subjects with atypical presentations (NCHP and HIN-PTH) to determine primary high PTH secretion.

**RESULTS:** Majority of study subjects were females (65%) with mean age 44.5±17 years. Mean iPTH of the study group (n=534) was high and mean 25OHD was 22.2±5.2ng/ml. PTH disorders were classified after excluding subjects with high creatinine (7%). The compensatory response of parathyroid gland (sHPTH) to vitamin D deficient group was seen in 17.7% while 39%, 8%, 1% and 0.4% had FHP, NCHP, PHP and HPP respectively. Symptoms of generalized myalgia, bone and joint pains were predominant findings in 111 cases reviewed. Parathyroid adenoma, osteopenia/osteoporosis, fractures, proximal myopathy and renal stones were seen with deranged PTH levels. All subjects with NCHP had higher PTH levels than calculated maxPTH. In subjects of HIN-PTH, 6 had low, 2 had equal and 2 had high measured PTH than calculated maxPTH.

**CONCLUSION:** A significant number of patients presents with biochemical variables that do not fit the classic description of primary and secondary disorders of PTH secretion and may present a diagnostic dilemma. In such cases PTH-nomogram can enhance diagnostic accuracy by distinguishing between normal and disease phenotypes.

**Keywords:** Primary Hyperparathyroidism; Secondary Hyperparathyroidism; Hypoparathyroidism; Parathyroid Hormone; Vitamin D

## **High Prevalence of Subclinical Lead Toxicity in Pakistani Children: A Major Public Health Concern**

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**BACKGROUND:** In Pakistan, there is paucity of data regarding blood lead levels (BLL) after phasing out of lead petroleum. Previous study from our center in 2001 (before phase out of lead in petroleum) reported 25.2% of children had toxic BLL. So this study was planned to evaluate the burden of subclinical lead toxicity in our population.

**METHODS:** Laboratory data analysis of patients tested for blood lead from January 2011 to December 2014 was done. Exemption was sought from institutional ethical review committee. Lead levels were determined by Atomic Absorption Spectrophotometry. In children they BLL cutoffs were <2ug/dl (desirable lead levels), 2-10ug/dl (subclinical lead toxicity) and >10ug/dl (toxic lead levels). Cutoffs in adults for BLL were <10ug/dl (desirable), 10-70ug/dl (subclinical toxicity) and >70ug/dl (toxicity).

**RESULTS:** Out of the total 524 subjects, 26.5% (n=139) were children with mean age of 6.3±4.2yrs. Mean BLL in children were 5.3±4.2ug/dl. Only 16% children had desirable BLL while most had either subclinical lead toxicity (76%) or toxic lead levels (8%). Mean BLL in adults were 19.8±22.8ug/dl. Amongst adults 55% had desirable BLL, 40% had subclinical lead toxicity and 4.9% toxic levels. An increase trend in the BLL was observed with increasing age; higher levels in age range 21-40yrs of subjects (mean lead level 23.8±24.5 ug/dl) and lowest levels (5.2±3.8ug/dl) in children <10yrs of age.

**CONCLUSION:** We report high burden of lead toxicity in children which is 8% and the overall mean BLL in children are elevated, even after phasing out of lead petroleum. This is a major public health concern and demonstrates that public awareness and targeted intervention to eradicate potential sources of lead exposure should be implemented at public health level.

**Key words:** Lead; Toxicity; Subclinical Lead Toxicity; Blood Lead Levels

## **Assessing Iodine Status of Pakistani Population utilizing Neonatal Thyroid Stimulating Hormone**

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**BACKGROUND:** Iodine deficiency constitutes a leading cause of preventable intellectual impairment. In Pakistan salt iodination programs were started in 1989, but the reported use of iodized salt for cooking was (39.8%) across Pakistan, according to national nutrition survey 2011.

**OBJECTIVES:** We aimed to evaluate iodine status in neonates tested at our center using the 'consensus criteria' for iodine deficiency of a population by World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), and the International Council for Control of Iodine Deficiency Disorders (ICCIDD).

**METHODS:** An observational study was conducted at the Section of Clinical Chemistry, Department of Pathology and Laboratory Medicine. Analysis was done for serum neonatal TSH performed from January-December 2013. Serum TSH was analyzed on ADVIA Centaur (Siemens Diagnostics, US) using chemiluminescence immunoassay. According to the 'consensus criteria' more than 3% prevalence of serum TSH  $\geq 10$  mIU/l in a population is taken as an indicator of iodine deficiency. A frequency of 3%–19.9% indicates mild iodine deficiency. Frequencies of 20%–39.9% and above 40% indicate moderate and severe iodine deficiency, respectively.

**RESULTS:** In a period of one year a total of 11570 neonatal serum TSH were analysed, mean age of neonates was  $2.0 \pm 0.5$  days. The overall mean TSH were  $4.5 \pm 4.4$  mIU/L with optimal levels in 93% and  $< 1$  mIU/l in 6.3% of the neonates. While 7.9% (n=916) of the neonates showed TSH  $\geq 10$  mIU/l which is higher than the recommended WHO/UNICEF/ICCIDD criteria for mild endemicity for iodine deficiency in the population.

**CONCLUSION:** These results suggest that there is need for effective intervention programs and increasing awareness among all regarding use of iodized salt. We also recommend iodine supplementation to be given before pregnancy in reproductive age women.

**Keywords:** Iodine; Congenital Hypothyroidism; Neonates; Hyperthyroidism; Thyroid stimulating hormone



## **Compliance of using Vaginal Dilator after Educational Intervention in Patients treated with Pelvic Radiotherapy for Gynecologic Cancers, Experience at a Tertiary Care University Hospital.**

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**OBJECTIVES:** To report the compliance of using vaginal dilator and reduction in the development of vaginal adhesions in patients receiving pelvic radiotherapy after providing an effective education of using a vaginal dilator.

**METHODS:** A total of 287 patients receiving radiation therapy for gynecological malignancies from January 2008 to December 2014 were enrolled in the study. These patients were divided in two cohorts. In first cohort (Jan 2008 – Dec 2011), 111 patients were given verbal instructions and prescription of vaginal dilator to be purchased from market. In second cohort (Jan 2012 – Dec 2014), 176 patients were given a suitable sized dilator along with a written educational material and counseled by the nursing staff. Three months after completion of radiation, patients were called for vaginal examination by physician. The compliance of using the dilator was determined by interviewing the patient and the degree of development of vaginal adhesions were recorded according to RTOG Toxicity scale.

**RESULTS:** Out of 287 patients, 195 (68%) had endometrial cancer, 90 (31%) had cervical cancer and 2 patients had vaginal melanoma and leiomyosarcoma of uterus. In first cohort 33 out of 111 patients (30%) followed the provided instructions and 55 out of 111 (50%) developed vaginal adhesions. All 55 patients had grade 3 vaginal adhesions. In second cohort 158 out of 176 patients (90%) were using vaginal dilators and 35 out of 176 (20%) developed vaginal adhesions. Only 9 out of 176 (5%) were found to have grade 3 adhesions.

**CONCLUSION:** Effective patient education regarding the use of dilator after pelvic radiation is an important tool not only for better quality of life, but also for easy subsequent pelvic examination for early detection of recurrence.

**Keywords: Vaginal Dilator; Education Intervention; Adhesions**

## **Epidemiologic Surveillance of Device-Associated Healthcare-Associated Infections in a Pediatric Intensive Care unit of a Tertiary Care Center in Pakistan: A retrospective study**

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**BACKGROUND:** Infection prevention and control policy has significantly reduced the rate of device Associated infections (DAI) in several intensive care units (ICUs) particularly Central line associated blood stream infections (CLABSI), Catheter associated urinary tract infections (CAUTI) and Ventilator associated Pneumonia (VAP). But limited data is available from Pakistan using international Benchmarks.

**OBJECTIVES:** To assess the rate of DA-HAI in a pediatric intensive care unit of a developing country according to CDC-NNIS and current NHSN definitions and guidelines(1)

**METHODS:** This was a retrospective cross-sectional study conducted at the PICU of Agha Khan University Hospital from January 2012 to December 2014 after approval from Ethical review committee. All children aged from one-month to 16 year admitted in PICU were included in the study. Data Collected include demographic profile of patient, rate of DAI, microbiological profile and outcome. Diagnosis of DAI was based on CDC-NNIS and current NHSN definitions and guidelines.

**RESULTS:** A total of 1050 patients were admitted in PICU during the study period for a total of 3293 patient days. The mean age was  $4.02 \pm 4.29$  year and 69% were male. There were total 18 episodes of DAI reported with incidence rate of 0.54/1000 patient's days. Rate of central line associated blood stream infections was 4.9/1000 central venous lines days. Rate of Ventilator associated pneumonia was reported in 1.55/1000 ventilator days and rate of catheter associated urinary tract infection was 0.32/1000 urinary catheter days. Most frequently isolated organisms included Acinetobacter (22%), Enterococcus (16%) and Klebsiella Pneumoniae (16%). MDR rate was 22%. Mortality rate with DAI was 15.08%.

**CONCLUSION:** There was a significant improvement in VAP and CAUTI but CLABSI remain unchanged. IPC Program is a quality improvement program with low-cost interventions that can decrease the rate of DA-HAI in resource-limited setting. It may be a cost effective strategy.

**Keywords:** Device Associated Infections; ICU; Central Line Associated Bloodstream Infections; Catheter Associated Urinary Tract Infections; Ventilator Associated Pneumonia

## **Comparison of Microleakage between Nanoparticle and Microhybrid Light Cure Composite Resins in Posterior Class V Cavities**

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**BACKGROUND:** Class V cavities can develop due to caries, erosion, abrasion or abfraction at the cervical margin of buccal and/or lingual surfaces of teeth. Due to increase in the esthetic demands, bonded composites are the common choice for esthetic restoration of class V lesions. The main disadvantage of all light cure composite resins is the polymerization shrinkage resulting in the microleakage at tooth restoration interface. This causes marginal discrepancies and consequently sensitivity, secondary caries, pulpal involvement, loss of retention leading to dislodged restoration or loss of esthetics due to marginal discoloration. Since, some microleakage is inevitable, the restorative aim for such lesions is to create the best possible seal at the tooth-restoration interface.

**OBJECTIVES:** To compare microleakage values at the tooth-restoration interface in millimeters (using dye penetration method) between a nanofilled and a microhybrid light cured composite resin in class V cavities using the total etch technique.

**METHODS:** Sixty teeth were subjected to class V cavity preparation at coronal to the cemento-enamel junction (3mm x 2mm x 1.5mm) using a custom made casted stencil. These were then randomly divided into the following two study groups:

Group A: total-etch and then filled with P-60 (microhybrid) n= 30

Group B: total-etch and then filled with Z-350 (nanofilled) n= 30

The teeth were subjected to thermo-cycling (150cycles) at 5°C-55°C ± 2°C with a 30 seconds dwell time. After air drying and covering with two layers of nail polish, except around the prepared cavity, they were be immersed in 2% methylene blue at 37°C and 100% humidity for 10 minutes, followed by washing and drying. After sectioning the teeth bucco-lingually with a slow speed diamond saw, the split segments (two equal halves) were examined using a stereo microscope (magnification X 4) along the restoration and three tooth surfaces (occlusal, axial, gingival) labeled as 'O' 'A' & 'G' respectively. The outcome variable (micro-leakage around the tooth restoration interface) was assessed by the primary investigator using the degree of dye penetration in millimeters

**RESULTS:** A maximum microleakage of 2.92 with a mean of 0.41(± 0.61) was seen in the samples assessed.

The most microleakage was seen at the gingival surface 74% followed by the occlusal surface 55.5%.

Z-350 (nanocomposite) exhibited a lower amount of microleakage 40% when compared to the P-60 (microhybrid composite) 49%. In the etching protocol, 30% of the samples assessed in the total etch technique showed microleakage, when compared to the self-etch technique which had a value of 62%.

**CONCLUSION:** With respect to microleakage in class V cavities, Z-350 was found to be a better restorative material compared to P-60. Around 49% of the cavities restored P-60 showed microleakage whereas only 40% of Z-350 restorations showed the same.

**Keywords: Microleakage; Class V; Nanofilled**

## **Atrial Fibrillation in Hospitalized Patients with Uncontrolled Hypertension**

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**BACKGROUND:** Hypertension is a growing epidemic and an important risk factor for atrial fibrillation due to its increasing prevalence. This study is designed to assess the magnitude of atrial fibrillation in patients with uncontrolled hypertension in our population.

**OBJECTIVES:** To determine the frequency of atrial fibrillation in hospitalized patients with uncontrolled hypertension.

**METHOD:** A prospective study was conducted in hospitalized patients with uncontrolled hypertension from January to July, 2014 in Aga Khan University Hospital, Karachi, Pakistan.

**RESULTS:** The mean age of the study population was  $63.18 \pm 8.99$  years. Out of 119 patients, 40 (33.6%) patients had atrial fibrillation. There were 13 males (32.5%) and 27 females (67.5%) out of 40 patients with AF. Mean age of the patients with AF was 66 years as compared to 61.75 years in patients without AF ( $p = 0.01$ ). The mean duration of HTN was 21.5 years in patients with AF as compared to 13 years in those without AF ( $p = <0.001$ ). Subjects were further divided into three groups according to duration of hypertension; the first group with duration less than 10 years had 20% patients with AF, second group having hypertension for 11 -15 years, 10% patients and the third group with hypertension greater than 15 years had 70% patients with AF ( $p = <0.001$ ). Mean systolic BP was 154.95 mmHg in patients with AF as compared to 147.98 mmHg in those without AF ( $p = <0.001$ ).

**CONCLUSION:** Atrial fibrillation is present in a significant proportion of hypertensive patients, more commonly in those with longer duration of hypertension and higher systolic blood pressures.

**Keywords:** Atrial Fibrillation; Hypertension

## **Rare Case of Nocardemia after Chemotherapy for Lymphoma**

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**BACKGROUND:** Systemic Nocardiosis usually occurs in immunocompromised patients. Usually portal of entry is lung. Though Nocardia can involve any organ but isolation of nocardia from blood is rare. We report a case of 19 year old boy with ALL who had recent induction phase chemotherapy developed Nocardemia.

**CASE REPORT:** An 19 year old male was diagnosed with ALL in early October. He was given induction phase. He was given 4 cycles last chemotherapy was given on 4/11/2015. He presented to ER one week later with shortness of breath, fever, dyspnea. On examination patient was tachypnic and tachycardiac. He had bronchial breath sound in right mid chest. WBC count showed neutropenia and Chest xray was done which revealed a cavitary lesion in right midzone of chest xray. There was no such cavity before starting chemotherapy. He had family history of Pulmonary Tuberculosis. Patient was given NIMV support but patient's hypoxia did not improved so he was electively intubated and was shifted to ICU for ventilator support. Empiric treatment with Amphotericin B, Meropenem, Colistin and Valacyclovir was initiated. Patient serial chest xray showed worsening. His miniBAL fluid was sent for AFB smear and Gene Xpert MTB assay. Gene Xpert turned out to be negative. Blood culture gram stain showed branching rods that were modified acid fast. Nocardemia was diagnosed and patient was started on Septran IV, imipenem. Later on nocardia was isolated from BAL fluid also. Drug susceptibility showed resistance to imipenem so Linezolid and Amikacin was started. Brain MRI revealed meningeal enhancements and Echocardiography was done that was negative for vegetations. Patient condition improved on Amikacin and linezolid. Later on he developed Acinetobacter VAP.

**CONCLUSION:** Nocardemia is a rare condition. Nocardemia should be included in differential diagnosis of every immunocompromised patients and new modalities like PCR assay should be used for early diagnosis as early diagnosis can decrease mortality.

**Keywords:** Rare; Nocardemia, Chemotherapy, Lymphoma

## **Frequency of Causes of Hyponatremia in Elderly Population in a Tertiary Care Hospital**

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**BACKGROUND:** Hyponatremia is the commonest electrolyte abnormality in clinical practice. Data from a US health care database showed that in over 160,000 patients, hyponatremia was a significant predictor of medical costs at 6 months (41% increase) and 1 year (46% increase) of followup so it is very important to know causes of this electrolyte abnormality which though being preventable has significant burden on health care. Identifying the cause of hyponatremia remains an integral part of treatment plan so as to limit the morbidity and mortality associated with it especially in geriatric population.

**OBJECTIVES:** To determine the frequency of the factors contributing to hyponatremia in elderly patients admitted to medicine care in a tertiary care hospital.

**METHODS:** A cross sectional prospective study was conducted in 230 elderly (those more than 60 years of age) patients in 6 months from May 2014 till Oct 2014 admitted with diagnosis of Hyponatremia (serum Na less than 135 mEq/L) at tertiary care hospital in Karachi. The primary outcome measure was to study the causes of hyponatremia in elderly patients. Outcome variables would be stratified by age and gender to control the effect modifier. All analyses will be conducted by using the Statistical package for social science SPSS (Release 19.0, standard version, copyright © SPSS; 1989-02).

**RESULTS:** There was female preponderance. 48.3% patients were male and 51.7% were females. Most common risk factors for hyponatremia found in order of frequency were drugs, SIADH, heart failure, vomitings, diarrhea, Addison's disease and HCV-CLD. SIADH was an important cause in many patients with pulmonary or CNS disease (like pulmonary tuberculosis, Pneumonia, lung carcinoma, meningitis/encephalitis, intracranial bleed, subdural hematoma, stroke) were present in the majority.

**CONCLUSION:** Hyponatremia is one the commonest electrolyte abnormality. There are multiple causes of hyponatremia. Common causes are Drug induced, SIADH, heart failure, vomiting, diarrhea, Addison's disease, HCV-CLD.

**Key words:** Hyponatremia; SIADH( syndrome of inappropriate ADH secretion)

## **Immediate Outcome of Very Low Birth Weight Neonates at a Tertiary Care Hospital, Karachi**

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**BACKGROUND:** The weight of the new born at birth predicts the near outcome and future prognosis. Birth weight less than 1500gm carries an increased risk of development of neonatal complication and its long term consequences.

**METHODS:** This was a descriptive cross sectional study at the neonatal intensive care unit of “The Aga Khan University & hospital, Karachi”, from August 23, 2011 to July 23, 2012 where live born neonates having birth weight less than 1500gms with no congenital anomalies were included. The neonates were observed for the first 7 days of life for the development of any clinical signs of complication and relevant investigations were done and noted.

**RESULTS:** Total 2620 neonates were born in AKUH during the above mentioned period. Out of these 146 (5.5%) were Very low birth weight neonates. 62% were male. The immediate complications were hyperbilirubinemia 78% (n=96), respiratory distress syndrome 57% (n=70) and sepsis 11% (n=13). 19 neonates (15.4%) expired. Respiratory Distress Syndrome was the major cause of death (p <0.05). The risk of mortality was stratified with gestational age, gender and birth weight and it was found that higher the gestational age and birth weight, the chances of survival are also high.

**CONCLUSION:** Meticulous antenatal and postnatal care and justified use of surfactant and antibiotics may help to improve the survival.

**Keywords: Very Low Birth Weight Neonates; Sepsis; Respiratory Distress Syndrome**

## **Visual Impairment in Tuberculosis Meningitis: (Case series)**

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**BACKGROUND:** Tuberculosis (TB) is not only known for its prolonged morbidity but also associated with a greater number of devastating complications. Vision loss is one of the uncommon yet crippling complications of tuberculous meningitis (TBM) and can complicate up to 70% of the patients with TBM. Here, we report three such cases with diminished vision of varying extent and history of fever.

**CASE REPORTS:** A 3 ½ year old boy with non-reactive, mid-dilated pupils, bilateral abducent nerve palsy and optic pathway dysfunction; a 15 year old girl with optic neuritis, diminished direct and consensual light reflexes, fixed, dilated pupils, and weak ocular movements and a 14 years old boy with anisocoria, right oculomotor and left abducent nerve palsies, pale optic disc with visual acuity of 20/150 bilaterally. The patients responded well to ATT and supplemental steroids.

**CONCLUSION:** Since TB is treatable and to a great extent preventable, it deserves international priority to increase the awareness about its possible complications and the need to manage these patients before any of the complications set in. The patients responded well to Anti -TB treatment. Therefore it is necessary to identify vision impairment early in TBM and initiate treatment promptly especially in our country which ranks fifth on the list of countries with a high burden of TB worldwide, according to the world Health Organization (WHO) estimates

**Key Words: Tuberculous Meningitis; Visual Impairment; Children**



## **Medical Error Reporting and Analysis System: An Initiative**

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**BACKGROUND:** Whenever National needs pertaining to healthcare are discussed, various kinds of pathologies come up which contribute to the overall disease burden in our still developing part of the world. There are many organizations working on regional and national level to ease the disease burden, but not many address the burden of medical errors, their consequences or future prevention. Medical errors contribute significantly to morbidities and cost of health care. Keeping in view the systems in existence currently at this 200 bedded tertiary care facility, the Ethics committee of the hospital recommended formulation of a Medical Error Reporting System and Analysis Committee.

**METHODS:** A policy and mechanism for reporting medical errors was devised; awareness regarding medical errors and significance of reporting while ensuring anonymity was communicated across the board. Medical error analysis Committee was established in May, 2014, comprising of representatives from various disciplines like Medicine, Surgery, Critical care, Nursing, Administration and Quality Assurance. The objective of this committee was to filter & identify medical errors, analyze and suggest measures that contribute in system improvement and prevent them from repeating in future.

**RESULTS:** The very first year of the committee, 293 cases were reported out of which 215 were actual medical errors, rest were either incidents or not errors. Significant issues were identified and many of them were resolved with preventive measures.

**CONCLUSION:** The objective was indeed achieved, which is a “system based” approached focusing on “how” and “why” rather than “who”. The committee continues to function for minimization of medical errors and improvement in healthcare system.

**Keywords:** Medical errors; Reporting; Error Analysis; Root Cause

## **Impact of Cost & Myths on Cancer Treatment**

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**BACKGROUND:** Globally cancer burden is growing at an alarming pace and it is second leading cause of death. In our current state of cancer care globally, around half of the approximately 28 million cancer survivors worldwide underwent radiotherapy (RT) at some point in their treatment. To improve quality of cancer care clinical practitioners have an important tool in the form of clinical audits, which can remarkably help in clinical practice modification. After keen observation in our clinical set up that few of our patients takes expert options from clinician but never come back for treatment so we aim to audit that what factors are major hindrance for patients being non-compliant to treatment in our clinical set up

**OBJECTIVES:** To evaluate factors which are major hindrance for patients being non-compliant to treatment advised by clinicians.

**METHODS:** This retrospective audit includes patients booked in clinic from March 2014 to August 2014 for radiotherapy. Almost all patients who were seen in clinic further discussed in respective site specific multi-disciplinary tumor board meeting (MDT) to make an appropriate treatment plan. Afterwards patients were registered for radiation therapy either with radicle or palliative intent. Total 52 Patients who were recommended for radiotherapy in clinic but refused to come for treatment were selected for this audit. We took telephonic interview of those patients and evaluated reason for not pursuing treatment at AKUH. A Performa was filled for every patient to document the cause.

**RESULTS:** Total 52 patient's simulation forms were taken for audit out of which 36 patients gave telephonic interview while 16 patients did not respond to phone call. Analysis of 52 patients showed that 49 patients were booked with curative intent while 3 patients with palliative intent. Results showed that 27/36 patients (75%) refused treatment due to financial issues and choose treatment in other hospitals. 6/36 (16.6%) patients refused recommended treatment due to multiple radiation related myths. One patient's treatment plan changed in MDT 1/36 patients (2.7%), one patient was unsatisfied with clinician counseling 1/36 patients (2.7%) and one patient's disease upstaged 1/36 (2.7%) and he no longer remained candidate for radicle radiation therapy.

**CONCLUSION:** Financial constraint and misconceptions are the two most important factors found to be hindering the acquisition of recommended cancer treatment. Further efforts are required to overcome cost issues. Physicians need to work on patient's education and quality of life while delivering the standard treatment.

**Keywords: Cancer; Treatment; Costs**

## **Mycosis Fungoides: A Rare Entity: A Case Report**

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**BACKGROUND:** Mycosis fungoides (MF) is classically evolved through cutaneous manifestations including patches/plaques, tumors, and generalized erythroderma. Staging classification system for MF and SS is TNMB system, based upon an evaluation of the skin, lymph nodes, visceral involvement, and blood. Treatment modalities includes Topical treatments, Radiotherapy, Phototherapy, chemotherapy, and novel targeted agents

**CASE REPORT:** 36 years old female presented to us with complain of multiple crusted skin lesions, progressively increasing in size. On examination she had generalized patchy erythroderma, crusted tumor lesion with axillary lymphadenopathy. Biopsy revealed T cell lymphoma. Computed tomography scans revealed multiple enlarged lymph nodes in axilla, and lymph node mass at L1 level. Blood tests showed no atypical cells. Her TNMB stage was T4 Nx M0 B0. Multi-disciplinary tumor board meeting consensus decision comprised of skin-directed therapy and systemic chemotherapy. Due to depth and size of skin tumors, total skin electron therapy (TSET) was recommended for this case with weekly oral methotrexate. Treatment was delivered with extended SSD technique, 350 cm. Prescribed dose was 3600cGy in 24 fractions with 150 cGy dose/fraction. After 1 month follow up visit, patient had no clinical evidence of disease over skin.

**DISCUSSION:** Mycosis fungoides is T cell lymph proliferative disorder that arises primarily in skin. Radiotherapy with electrons of all skin is normally used in patients with history of quick progression of disease with complete response rates after 3 months of treatment vary from 80 to 97%.

**Keywords: Mycosis Fungoides; Skin; Rare**

## **Response Evaluation after Concurrent Chemoradiation in Hypopharyngeal Carcinoma**

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**OBJECTIVES:** The objective of this study was to determine frequency of the overall response of tumor after 3-dimensional conformal radiotherapy and chemotherapy in Hypopharyngeal carcinoma after 6-8 weeks of completion of treatment.

**METHODS:** This was a descriptive case series at the Dept of Oncology, Aga Khan University & Hospital, Karachi. The study was completed in 8 year from 1<sup>st</sup> January 2007 to 31<sup>st</sup> December 2014 with thirty five patients with histologically proven Hypopharynx carcinoma who were referred for radiotherapy with chemotherapy during the study period were enrolled on satisfaction of inclusion and exclusion criteria. Staging was done before starting the treatment. All patients received a radiation dose of minimum 70 Gy in 35 fractions (2 Gy / fraction) through 3-dimensional conformal radiotherapy planning. Chemotherapy was given along with radiotherapy. Response of disease was assessed after 6-8 weeks of completion of treatment according to Miller's criteria.

**RESULTS:** There were 26(74.3%) males and 9(25.7%) females. Mean age was  $52.06 \pm 20.01$  years. Mean pretreatment radiological size of tumor was  $4.19\text{cm} \pm 1.55$ , Most of the patient had locally advanced disease i.e. 3(8.6%) had stage IV B, 15 (42.9 %) had stage IV A, and 13 (37.0%) had stage III disease at presentation. Only 4 (11.4%) had stage II disease none of patient found to have stage I disease. 8 (22.9%) of patients received induction chemotherapy. Majority of patient 27 (77.1%) received concurrent chemotherapy with radiation. None of patient receives adjuvant chemotherapy. 31 (88.6%) of patients received 70 Gy and 4 (11.4%) of patients received >70 Gy of radiation dose through 3-dimensional conformal radiotherapy. Mean post treatment radiological size of tumor was  $1.42\text{ cm} \pm 1.86$ . Majority of the patients had good response to treatment i.e. 17 (48.6%) of patient had CR (Complete response), 14 (40.0%) had PR (Partial response). Only 2 (5.7%) of patient had SD (stable disease) and 2 (5.7%) patient had PD (progressive disease). Overall response of disease was 88.6 % (CR+ PR: 48.6% + 40.0%). On stratification it was found that 100 % complete response (CR) rates were achieved in patient with tumor size of <2 cm and among 4 patient with stage II disease 3 had CR (complete response) and 1 had PR (partial response), among 13 patient with stage III disease 8 had CR (complete response) and 4 had PR (partial response) which was very good overall response as compare to stage IV A, IV B disease. Patients who received RT dose > 70 G have 25% of CR (complete response) and 75% of PR (partial response) with no SD (stable disease) and PD (progressive disease) as compare to patients who received 70 Gy 51.6% had CR and 25.5% PR 4% had SD (Stable disease) and 4% had PD (progressive disease).

**CONCLUSION:** The frequency of overall response of tumor after 3-dimensional conformal radiotherapy and chemotherapy in hypopharyngeal carcinoma after 6 to 8 weeks of completion of treatment found to be very high i.e. 88.6 % (CR: 48.6%, PR: 40.0%).

**Keywords:** Hypopharyngeal carcinoma; 3-DCRT; Chemotherapy; Response of Tumor

## **Hidradenocarcinoma: A Rare Sweat Gland Neoplasm Presenting with Cervical Node Metastasis**

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**BACKGROUND:** Hidradenocarcinoma is very rare malignant tumor of sweat gland. In literature it is reported for less than 0.001% of all malignant tumors. This rare tumor more frequently involves areas of face and scalp and very rarely on extremity. It is locally aggressive in nature can also metastasize to lymph node but rarely to distant sites. Usually these tumor treated by wide local excision but there is no definite treatment guideline for tumor with gross nodal disease. Role of radiation in this aggressive and advance stage disease is not clear. We are reporting a rare case of hidradenocarcinoma who presented with gross nodal involvement and treated with multimodality treatment including surgery and concurrent chemo radiation.

**CASE REPORT:** A thirty eight year old male presented with history of right neck swelling for 3 month, also had a history of scalp lesion on right side of vertex which was there for more than 20 year. CT Scan Head and neck showed multiple enlarge lymph node on right side of neck, largest on level II of 4 cm in size, there is also a well-defined lobulated cystic mass over right side of scalp of 4 x 2.6 cm in size without any underlying bony erosion. The histopathology report of biopsy of right nodal mass suggest large cell carcinoma with AE1/AE3,CK7 and P63 diffuse positive and CK20 and TTF1 negative on staining. Staging workup including CT scan chest, abdomen and pelvis and bone scan were negative for any distant metastasis. Pan endoscopy was done which was negative for any primary in head and neck region. He underwent wide local excision of scalp lesion with right neck dissection. Histopathology reported as Malignant Hidradenocarcinoma of scalp, size 4.2 x 3.5 x 2.2 cm, closest margin 0.1cm, 56 lymph node was recovered from right side of neck out of which 2 were positive for tumor at level II, largest deposit was 2.3cm. The case was discussed in multidisciplinary tumor board meeting where consensus was to give adjuvant concurrent chemo radiation. Radiation dose of 60 Gy in 30 Fractions was given along with Cisplatin 100 mg/m<sup>2</sup> 3 weekly. After completion of treatment he was followed up with clinical examination and serial CT scan of head and neck. Now he has completed his 2 year of follow up and remained disease free.

**CONCLUSION:** We report a rare case of young male patient with diagnosis of malignant Hidradenocarcinoma of scalp with cervical nodal enlargement which was treated with local excision and neck dissection followed by chemo radiation to the scalp and right side of neck along with concurrent chemotherapy. Till date there is no evidence of local recurrent or systemic disease

**Keyword: Hidradenocarcinoma; Chemo Radiation (CCRT); Nodal involvement; Neck Dissection**

## **Ewing's Sarcoma of Para Nasal Sinus – A Rare Presentation**

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**BACKGROUND:** Ewing's sarcoma (ES) belongs to the group of neuro-ectodermal tumors. It commonly occurs in ribs, pelvic girdle and diaphysis of long bones and is rare in head and neck area. ES is a primary malignant bone tumor found commonly in teen age, after leukemia and osteosarcomas, but it is rare in adults. This case is being reported for its rarity both in terms of age of presentation and nasal cavity as a site of origin. She was treated in a multimodal fashion, using surgery, chemotherapy and radiation therapy.

**CASE REPORT:** A sixty year elderly lady known case of hypertension and rheumatoid arthritis, mother of 3 children presented with complains of right nasal obstruction and excessive watering from right eye. She was initially treated with antibiotics, but of no use. She then underwent dacryocysto-rhinostomy to treat epiphora, but without any benefit. Later on ENT evaluation revealed a firm fleshy mass filling right nasal cavity arising from lateral wall of nose and invading floor of nasal cavity and nasal septum. A contrast enhanced CT also showed the same findings with thickening of right maxillary antrum. She underwent endoscopic resection and histopathology confirmed it as a small round blue tumor consistent with Ewings' Sarcoma. Postoperative MRI head, neck and brain showed no evidence of residual disease and brain metastasis. PET/CT revealed no residual or metastatic disease. There was a delay of two months in initiating the treatment so MRI was repeated which showed recurrence of disease at medial canthus of right orbit. After discussing in ENT multidisciplinary meeting, she was advised for six cycles of chemotherapy with possible surgical resection at the completion of treatment. She received total four cycles of Vincristine, Adriamycin, Cyclophosphamide (VAC) and Ifosfamide, Etoposide (IE) chemotherapy. Her tolerance to chemotherapy was very poor, she had to be admitted in hospital multiple times for febrile neutropenia. A follow up CT scan showed significant reduction in size and it was appearing as only plaque like with subtle post contrast enhancement along medial canthus. She was then again discussed in tumor board meeting and recommended for local radiotherapy followed by 2 more cycles of chemotherapy. She received local radiotherapy 50Gy in 25 fractions.

**CONCLUSION:** It is important to discuss every cancer case in a multidisciplinary setting, and especially the rare cases must be discussed with other disciplines of medicine. Here we treated this case of rare site of Ewings' sarcoma and on follow up scans after two months of radiation therapy no local disease was observed.

**Keywords:** Ewing's Sarcoma; Paranasal sinus; Rare

## **Primary Melanocytic Neoplasm of CNS- A Rare Disease**

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**BACKGROUND:** Primary melanomas of central nervous system (CNS) are rare but aggressive neoplasms; accounts for approximately 1% of all cases of melanoma, among them, 3.6% arise in pineal region. Primary intracranial melanomas are thought to develop from melanocytes, normal elements of arachnoid covering brain, spinal cord, and pineal gland that originated at neural crest and migrated during embryogenesis. Generally, malignant melanomas are known as radio-resistant tumor and role of many treatment modalities are controversial. Here we report a rare case of primary malignant melanoma brain, over its feature of imaging studies, pathological findings, and management.

**CASE REPORT:** 29 years old male, married, banker by profession presented with complains of generalized fits for one month and progressive right sided weakness for few days. On consultation with neurosurgeon, MRI Brain was advised which showed single space occupying lesion in medial cortex of left frontal lobe with hyper intense signals on T1 images associated with left intracranial bleed and significant mass effect. Desmoplastic neuro-epithelial tumor was radiological differential diagnosis. MRI spine advised was also normal. Then neuro navigation guided excision was done. Histologically, it revealed neoplastic lesion with spindle shaped cells and extensive hemorrhage. Immunohistochemistry showed S-100, Melan-A, HMB-45 stains positive and increased Ki-67 proliferative index while EMA, GFAP stains negative. All these features were suggestive of Malignant Melanoma. Post operatively CT scan was done after one week to rule out hydrocephalus which showed heterogeneous area in left frontal lobe that could be secondary to postsurgical changes however possibility of residual disease could not be excluded. Patient was then referred to oncologist for further management. Physical examination of skin and mucosa did not show any lesion suggestive of melanoma. Whole-body 18-fluoro-deoxyglucose positron emission tomography was advised that did not demonstrate any sites with abnormal uptake. Then patient was treated with 36 Gy of whole-brain and 18 Gy of extended local boost irradiation. Surveillance was decided for chemotherapy. Follow-up was advised after eight weeks with MRI Brain.

**CONCLUSION:** We report a rare case of young male patient with diagnosis of primary malignant melanoma of brain which was treated with surgical resection followed by whole-brain and extended local irradiation without chemotherapy. Long-term follow-up is needed to determine whether radiotherapy without chemotherapy is sufficient for the treatment of primary CNS melanoma. At present, there is no standardized treatment to address primary CNS malignant melanomas; therefore discussion in multidisciplinary tumor board meeting is mandatory for the management of patients with this type of rare disease.

**Keywords: Primary Melanoma; Rare; Brain**

## **Pre-Menstrual Syndrome: Big Consequences & Evil for Girls and Impact of Painkiller on Painful Menstruation**

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**BACKGROUND:** Pre-menstrual syndrome (PMS) is physical and emotional symptoms appear before menstruation such as back pain, bloating, mood swing, stress, depression, crying, anxiety etc. Menstrual pain is the common problem in women. Women feel menstrual pain due to the excessive release of prostaglandins during the contraction of uterus, which elevate pain in pelvis.

**OBJECTIVES:** The objective of this study is to recognize premenstrual syndrome among the sample population; and its evils and consequences for young girls if it remains untreated and to observe the effect of painkiller on menstruation.

**METHODS:** It is a survey based study and survey has been taken from 100 women with age range of 12-35 years old. Survey is based on a questionnaire.

**RESULTS:** According to survey, PMS symptoms occur in 83% women and among which young women of age group 24-35 years are mostly affected i.e. 95%. The main reason found in affected women is stress and low calcium intake in diet. 26% women observed increased menstrual flow and 20% women observed decreased menstrual flow after taking painkiller. 30% women observed increased duration of menstruation and 16% women observed decreased duration of menstruation after taking pain killers.

**CONCLUSION:** The main finding of this study is that the symptoms of pre-menstrual syndrome are slowly or gradually increasing with passage of time and may lead them to a disorder called Pre-menstrual Dysphoric Disorder (PMDD). And according to overall study, painkillers are safe but not very much safe, it causes some side effects on menstrual flow.

**Keywords: Premenstrual Syndrome; Painkiller; Painful Menstruation**

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## **Successful Dose Adjustment of Warfarin in DVT and Stroke Patients by Virtue of Lifestyle Modification**

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**BACKGROUND:** Warfarin, a vitamin K antagonist, is an oral anticoagulant unspoken for the prevention and assistance of venous thrombosis and its outlook and the restraint and treatment of the thromboembolic complications associated by the whole of atrial fibrillation. Warfarin has furthermore been secondhand to prohibit infrequent temporal ischemic attacks and to abbreviate the risk of recurrent myocardial infarction.

**OBJECTIVES:** The objective of the study was to evaluate the successful dose adjustment of warfarin in patients receiving anticoagulation therapy for deep vein thrombosis and stroke. Different drug interactions and INR fluctuations that leads to dosage variation of warfarin are of great concern during this studies.

**METHODS:** Heeding to the results the fluctuation in INR value of patients may vary either less than 2 or greater than 3.5.the dose of warfarin that is administer to patients under studied may be ranges from 3.8 to 5 mg which is used to be adjusted according to the INR value of patient.

**RESULTS:** The major causes of INR fluctuation during warfarin therapy included low doses or drug interaction either by food or any other drug as it was observed that .By low dosing of warfarin INR will be decrease or by drug interaction INR seems to be increase.

**CONCLUSION:** It was concluded that these benefits uncovered that the specialized medical pharmacist's involvement inside anticoagulation supervision improved this restorative upshot of patients and also prove the benefits of specialized medical apothecary well guided anticoagulation hospitals throughout. The multidisciplinary collaboration gives genuinely ideal consideration to a populace of patients having an abnormal state of comorbidity.

**Keywords:** Warfarin; Lifestyle; DVT; Stroke

## **A Cross Sectional Survey on Evaluation of Miscarriage Prevalence, Awareness & Consequences Responsible for this Dangerous Incident**

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**BACKGROUND:** Miscarriage is a loss of baby during pregnancy and it mainly occur in 20-23 weeks of pregnancy.

**OBJECTIVES:** The objective of this study is to determine the most commonly miscarry occur at which Age and Highlight the main symptoms and causes in Miscarry.

**METHODS:** This study comprise of 50 women's having miscarriage we collect our data and present it.

**RESULTS:** Most common miscarry occur in young girls due to Immaturity and mostly due to gene mutation in parent cells (still under investigation).

**CONCLUSION:** We conclude that mostly patient feel hesitate to discuss her problems with their doctors and we should have to improve our health care services because pregnancy and miscarriage is a very sensitive issues. Non serious behavior of doctors also a big reason for miscarriage.

**Keywords:** Miscarriage; Dangerous; Awareness

## **From Its Complications**

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**BACKGROUND:** Thrombosis is the formation of blood clot which causes obstruction in the blood flow through circulatory system. when thrombus become too large so causes hypoxia because it blocked the large arteries and after that also blocked the small arteries which causing less supply of the oxygen to the tissues so causes hypoxia, and also the accumulation of lactic acid is start in different organs of our body .Recent studies shows that thrombosis cause death and disabilities and many of the people affected with thrombosis complications.

**OBJECTIVE:** Our objective for this survey is to find out the main cause of thrombosis and why it become worst or severe, our main aim is to spread the awareness to the people about the thrombosis that “what is thrombosis” and guide both normal and suffering individuals about thrombosis, its severity and prevention.

**METHODS:** To study about thrombosis, its causes, risks and its complication, about 60 people were asked to share their knowledge about the thrombosis by answering the questionnaire this study took duration of about 1 month and then the data was arranged and studied.

**RESULTS:** It was observed that the knowledge about thrombosis in the affected people about 85%, in non affected people about 56.66% and the unaware pupil among affected is just 15% while in the non affected it is about 43.33%.

**CONCLUSION:** Our result shows that the knowledge about thrombosis in the affected people about 85%, in non affected people about 56.66% and the un aware people among affected is just 15% while in the non affected it is about 43.33% which means that there is a still a chance to get and better so we should arrange awareness programs and workshops so that level of awareness increases and the occurrence of thrombosis decreases.

**Keywords: Thrombosis; Awareness; Complications**

## **Perception of Final Year Medical Students on Preparatory Surgical OSCE and Perceived Impact on Preparation for the Final Exams**

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**OBJECTIVES:** To assess feedback provided by medical students on efficacy of the Surgical OSCE and the feedback provided in preparation of the final exam conducted at the end of the academic year.

**METHODS:** A cross sectional survey was carried out amongst 133 students at the Department of General Surgery's Unit "D" in Khyber Teaching Hospital, Peshawar from November, 2014 to November, 2015. Students were asked to fill out questionnaires regarding the importance of preparatory OSCE and the feedback provided during these sessions and their contribution in preparing for the final exam.

**RESULTS:** 75.2% of the students were of the opinion that a wide range of knowledge was covered regarding surgical topics and examinations, and 82.7% agreed that the feedback provided by the teachers was helpful. 93.2% agreed that the environment at the time of the test was very cooperative and that the teachers were helpful. 83% of the students agreed that the test was conducted in a fair manner with no bias.

**CONCLUSION:** OSCE is a standardized format of examination. The feedback provided by the students is valued highly and is representative of their perceptions and can thereby help in the advancement and improvement of the testing process.

**Keywords:** Objective Structured Clinical Examination; Feedback; General Surgery; Undergraduate Medical Education; Medical Students

## **Emerging Need of Community Pharmacies for Managing Prescription Drugs Dispensing in Diarrhea**

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**BACKGROUND:** The abuse of prescription drugs are increasing day by day because of lack of knowledge and lack of counseling. This is a significant social problem which has to be minimized by developing community pharmacies in different communities.

**OBJECTIVES:** Metronidazole is the drug which is used in diarrhea, in our study we have focused on its abuse by layman. We have reported here the abuse of Metronidazole (Flagyl) in case of diarrhea.

**METHODS:** A survey based study of N=200 laymen population including both male and female aged 18-55 were carried out. We also targeted N=50 Physicians and N=50 Retail drug sellers in order to observe prescription and dispensing pattern.

**RESULTS:** From our results we found that 66% laymen self medicate in diarrhea and 50% use combination of ORS and metronidazole which was prescribed by physician once in life. In Retail Pharmacies sale of Flagyl is 60% without prescription.

**CONCLUSION:** From our study we came to conclude that Metronidazole is being used as over the counter drug. By establishing community pharmacies we will reduce abuse of metronidazole and create awareness among layman regarding its proper use, resistance and adverse effects.

**Key words:** Prescription drugs; OTC drugs; Community Pharmacy; Metronidazole; Flagyl

## **Left Persistent Superior Vena Cava: A Case Report**

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We report a case of a patient who presented with septic shock and displayed a persistent left superior vena cava (PLSVC) after implantation of a central venous catheter as revealed by echocardiography. This anomaly is rather rare (0.3%-0.5%), and is important when doing procedures such as a left internal jugular central lines or placing pacemakers. Keeping in view the patient's serious clinical situation, we decided to leave the catheter in place and continued inotropic support with careful and continuous control. The patient died after 72 hours therapy. No complications attributable to the catheter were observed. We think that the risk is acceptable in similar conditions

## **Persistent Metabolic Acidosis in DKA? Finding the Culprit: A Case Series of DKA with Delayed Recovery of Metabolic Acidosis**

Khadija N. Humayun<sup>1</sup>, Muhammad Azeem Khan<sup>1</sup>

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**BACKGROUND:** Diabetic ketoacidosis (DKA), clinical syndrome characterised by hyperglycaemia, ketonaemia, metabolic acidosis ( $\text{HCO}_3^- < 15 \text{ mmol/l}$ ). Management of DKA focuses on restoring circulating volume, avoiding cerebral oedema. The standard IV solution is 0.9% “normal” saline having higher chloride concentration than serum, increases the body’s total chloride load resulting in hyperchloraemic acidosis persisting after ketosis has resolved which prolongs recovery delaying switching of I.V to Subcutaneous Insulin.

**CASE SERIES:** Following three cases (Table I) were found to be difficult in managing the acidosis despite similar standard therapies, chloride was the main reason for delay in correction of acidosis.

**CONCLUSION:** In DKA with persistent metabolic acidosis. Kidney Injury, Hypoperfusion with circulatory shock (lactic acidosis) and Hyperchloraemic Metabolic acidosis must be considered. Bicarbonate administration is not indicated.

**Keywords:** Diabetic Ketoacidosis; Metabolic Acidosis; Kidney Injury

## **Frequency and Types of Epilepsy in Children with Cerebral Palsy at a Tertiary Care Hospital in Karachi**

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**BACKGROUND:** Very limited local data is available for the types of cerebral palsy in children and their association with epilepsy which results in high levels of psychosocial difficulties for children and all family members.

**OBJECTIVES:** To determine the frequency and types of epilepsy in children with cerebral palsy at a tertiary care hospital in Karachi

**METHODS:** All children up to the age of 16 years in pediatric neurology clinic were included. Patient's demographics and history was recorded. The type of epilepsy in cerebral palsy and EEG and Brain imaging findings were recorded.

**RESULTS:** 215 cerebral palsy children till age of 16 years were included. Mean age of 64 months  $\pm$  46 months with 56% males and 44 % females. 32% had Epilepsy and 68% were without Epilepsy. 84% had generalized seizures and 16% had partial seizures. 33% of the cerebral palsy were Diplegic, 29.3% hemiplegic, 24.7% Quadriplegic, 8.4% Mixed and 4.7 % were Ataxic/Hypotonic. Hemiplegic type 63% had maximum presentation with epilepsy. OR = 7.37, 95% CI (3.8-14.1). The association between the abnormal EEG findings and the epilepsy in Cerebral palsy was significant (p-value < 0.05) no association between the Brain imaging findings and the cerebral palsy with epilepsy (P= 0.8).

**CONCLUSION:** 32% of the Cerebral Palsy children had epilepsy with maximum hemiplegic type 63%. OR = 7.37, 95% CI (3.8-14.1).

**Keywords:** Cerebral palsy; Epilepsy; Generalized epilepsy; Partial epilepsy



## **Successful Transfer from Insulin to Glibenclamide in a Neonate with Diabetes: First Case from Pakistan**

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**BACKGROUND:** Neonatal Diabetes Mellitus, a rare disease (1 in 200,000) infant, is a monogenic form of diabetes, onset within 6 months of age presenting as transient or permanent forms, caused by different genetic abnormalities with heterozygous activating mutations in ATP sensitive K-channel genes KCNJ11 and ABCC8, being common. Sulfonylurea treatment restores insulin secretion in patients with these mutations. Patients can be treated orally instead of insulin, with significantly improved glycaemic control and quality of life.

**CASE REPORT:** A term baby presented at one month with fever, tachypnea and vomiting. Patient was born with an uneventful post natal course to consanguineous parents having no family history of Diabetes. He was found to have blood glucose of 1299 mg/dl with acidosis and ketonuria. After being managed for Diabetic Ketoacidosis, patient was switched to subcutaneous NPH Insulin. Blood samples were sent for genetic testing with parent's consent and were found to be heterozygous for the KCNJ11 missense mutation, in the Kir6.2 subunit of the K-ATP channel. Glibenclamide started at seven weeks of age and Insulin was stopped within one week. At 3 months, HbA1c was 5.9% on Glibenclamide alone. At 10 months of age he has normal growth and development, no neurological deficit and no Insulin requirement.

**CONCLUSION:** Molecular testing in neonatal diabetes Mellitus may help in targeted therapy with oral hypoglycaemic preventing use of insulin.

**Keywords: Insulin; Glibenclamide; Diabetes**

## **Resolution of Vomiting with Ondansetron in Children Aged 2-10 Years, with Acute Gastroenteritis**

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**BACKGROUND:** Utility of ondansetron as an antiemetic was studied for resolution of vomiting in Acute Gastroenteritis in Children for successful oral rehydration therapy.

**OBJECTIVES:** To determine the frequency of resolution of vomiting with ondansetron in children aged 2-10 years presenting with vomiting in acute gastroenteritis with no or some dehydration at the Emergency Department(ER) of AKUH.

**METHODS:** Children aged 2-10 years diagnosed and managed in Emergency department as acute gastroenteritis (with no or some dehydration) with vomiting who were given ondansetron were included; The children were followed in ward for 24 hours for the resolution of vomiting and the initiation of ORT at 4 hours of administration of Ondansetron.

**RESULTS:** There were 313 Children between ages 2 to 10 years (24 to 120 months) Mean age was 51.68 ±19.16 months. ). 62% (195) were males and 38% (118) were females. There was resolution of vomiting in 24 hours in 281 children (90%) given Intravenous or oral ondansetron. There was no association of resolution of vomiting with Age categories, Number of doses, Route of Administration of ondansetron. There was statistical significant between the resolution of vomiting and initiation of ORS (P <0.005)

**CONCLUSION:** Ondansetron is an effective drug in reducing the vomiting in acute gastroenteritis

**Keywords: Ondansetron; Vomiting; Acute Gastroenteritis**

## **Independent Prescription of Medicines and Diagnostic Test Advice by Final Year Medical Students in Punjab: A multicenter Study**

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**BACKGROUND:** In Pakistan, medicines sale is not rigorously controlled. Due to this culture medical students in Pakistan start prescribing medicines and advising diagnostic tests before they graduate. This study was done to see the frequency of independent medical prescription by final year medical students.

**METHODS:** A cross sectional study was done on 180 stratified randomly selected final year medical students from three Public medical colleges of Punjab (NMC, QMC, PMC). Stratification in selection was based on gender as male to female ratio was 2:3 in all medical colleges. Data was obtained on self-administered questionnaire. Frequencies were calculated. Chi test was applied for significance.

**RESULTS:** Response rate was 95%. Out of 180 selected, 172 responded. 36% were male and 64% were female. 65% of all had prescribed medicines independently. Out of these, only 34% done physical examination before prescribing. 43% of all medical students had advised diagnostic tests and 29% had interpreted diagnostics test independently. 26% of all students had administered Injectables and alarmingly one third of these were administered without seeing expiry dates. Most common prescribed medicines were NSAIDs(92%) and antibiotics(73%). Most common advised tests were CBC, Chest Xrays and Urine DR. 74% thought that medical students should not prescribe medicines. 45% thought that a medical student will be considered incompetent if they decline request of prescription. There was significant relationship between gender and prescription ( $p=.001$ ), male were more likely to prescribe.

**CONCLUSION:** Large number of final year medical students had prescribed medicines and advised tests before graduation. Corrective measures and future researches are needed.

**Keywords: Medicines; Diagnostic Tests; Medical Students**

## **Impact of Socioeconomic Factors on to the Risk of Head Injury in Patients Presenting to the Emergency Department – A Cross-Sectional Study**

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**BACKGROUND:** Trauma is perceived as a disease of the poor and medically underserved. We have observed that the majority of head injury in the adult population who presented to the emergency department was of high socioeconomic status. This study aimed to investigate the relative risks of head injury in children with their socioeconomic status.

**METHODS:** A 1-year cross-sectional study was conducted from Jan 2014 to December 2014 was conducted at the Department of emergency medicine, Aga Khan University Hospital. The Medical record number of patients with head injury was retrieved from the Health Information and Management Systems (HIMS) department that uses ICD 10 coding systems for medical records. The patient's family was contacted with the telephone numbers that were written in the patient's files and structured questions were asked on a pretested questionnaire after taking verbal consent from the family members. The data was entered and analyzed on SPSS version 19.

**RESULTS:** A total of 114 patients were enrolled in our study with mean age of the study population 41.5 (range 21 to 75). The majority of the patients were male 74 followed by female 40. The number of males in the family of the head injury patients was 4 and that of female was 3.9. 28% of our study population has less than 25000 PKR household income and 44.7% of the patients have household income between 25000-50000 PKR. 21% of the patients with head injury were coming from a high socio-economic area and 15.8% from a low socioeconomic area. The mean number of children in the house was 2.54. Of the number of patients who were presenting to the emergency with head injury the majority 45.6% of them were either graduate or have a post graduate qualification followed by intermediate qualification in 20.2%.

**CONCLUSION:** A complex interplay exists between socioeconomic status and head injury risk in patients presenting to the emergency department. Significant number of patients with head injury was from high socioeconomic areas of the city with a good literacy rate. Future prospective studies are needed to better address causation.

**Keywords:** Traumatic Brain Injury; Socioeconomic Factors; Children; Head Injury

## **Cerebellar Abscess: A Rare Presentation of Tuberculous Meningitis**

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Tuberculous Meningitis is common in tuberculosis (TB) endemic regions. It is one the most devastating slow growing infectious disease varying from asymptomatic to a debilitating condition among children worldwide. Here we present the case of a young girl with fever, vomiting and headache. Radio-imaging revealed posterior cranial fossa mass in right cerebellum with moderate hydrocephalus. She underwent craniotomy and mass excision. Her histopathology showed chronic granulomatous inflammation. Her mycobacterial gene expert was positive. She showed gradual recovery postoperatively on antituberculous therapy.

**Keywords: Tuberculoma; Xpert MTB/RIF; Posterior Cranial Fossa Mass**

## **Hypermanesemia with Dystonia, Polycythemia, and Cirrhosis (HMDPC) due to Mutation in the SLC30A10 Gene**

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**BACKGROUND:** Manganese (Mn) is an essential element for metabolic pathways but it can be toxic when present in excessive amount in body. Hypermanesemia along with dystonia, Polycythemia, characteristics MRI brain findings in basal ganglia and chronic liver disease is an inherited Mn transporter defect due to mutation in the *SLC30A10* gene.

**CASE SERIES:** We are reporting three siblings who presented with features of dystonia, polycythemia, MRI brain showing basal ganglia hyperintensity on T1 weighted images and chronic liver disease. Blood (Mn) levels were markedly elevated in the affected patients. Mutation analysis of DNA samples of the affected children confirmed a homozygous missense mutation in *SLC30A10*. Chelation therapy with intravenous disodium calcium edetate(EDTA) was started in two siblings and led to a marked decrease in whole blood Mn. Oral Penicillamine was later added to the therapy which further improved blood Mn levels.

**CONCLUSION:** This is a rare disorder and is one of the potentially treatable inherited metal storage disorder. It can be fatal if left untreated. Penicillamine may be an effective alternative to EDTA.

**Key words:** Inherited Hypermanesemia; Polycythemia; *SLC30A10* Mutation

## **Application of ICF Core Sets in Children with Cerebral Palsy**

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**BACKGROUND:** The International Classification of Functioning, Health & Disability (ICF), provides a new conceptualization for understanding health & disability. It applies different codes to the body structures, body functioning, activities & participation & environmental factors influencing quality of life.

**OBJECTIVES:** To apply brief ICF-CY core sets in children with spastic Cerebral palsy (CP).

**METHODS:** This was a Descriptive cross sectional study. A total 30 children with Spastic CP (age 1-6 years) were included in study conducted in AKUH Karachi. On the basis of history & examination of children, we applied brief ICF core sets to children with spastic CP to assess their functional status.

**RESULTS:** Total patients were 30. Spastic diplegia was most frequent type seen 13(43%). In body structure: 23(77%) had severe impairment in structure of brain (s110). In body functions: more than 50% patients had severe impairment in mobility of joints (b710) & muscle tone function (b735). In activities & participation: more than 40% of patients had difficulty in walking (d450), difficulty in moving around different locations (d460) & difficulty in toileting (d530). In Environmental factors: majority of patients facing severe environmental barriers in their daily routine life.

**CONCLUSION:** Most common areas of impairments were the body functions and activities & participation in our study. Environmental factors were major limitation in the care of CP. The application of ICF Core Sets in this study provides a novel and standardized approach in describing the functional profile of children with CP. Through application of these core sets we can standardize the functional assessments of CP worldwide.

**Key words:** Application; ICF Core Sets; Spastic Cerebral Palsy

## **Ultrasonography of Optic Nerve Sheath Diameter (ONSD) for Raised ICP in a Tertiary Care Centre of a Developing Country**

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**BACKGROUND:** Raised intracranial pressure (ICP) is a common life threatening syndrome and early recognition and treatment is associated with better outcome.

**OBJECTIVES:** To determine the utility of ultrasound guided Optic nerve sheath diameter (ONSD) measurement as compared to CT scan.

**METHODS:** A Prospective case series done in Emergency and Paediatric critical care unit of Aga Khan University Hospital. Measurement of ONSD in millimetres was done by placing the linear probe of ultrasound on the eye ball and average of three readings were taken from each side.

**RESULTS:** 48 patients who had clinical suspicion of raised ICP were included in study with mean age of 7.5 yrs (+/- 5.0) with 21/48 (43.8%) between 1-8 yrs and 19/48(39.6%) > 8 yrs with 32/48(66.7%) were male. Non traumatic coma was the most common diagnosis 41/48(85.4%) with infectious cause being most common while Traumatic brain injury constitutes 7/48(14.6%). Ct scan and MRI brain were done in 39/48(81.3%) and 9/48(18.7%) of patients. 33/48(68.8%) patients shown raised ICP with ultrasound guided ONSD measurement as compared to CT scan/MRI which showed only 14/48(29.2%) to have raised ICP. We found mean value of 4.36mm (+/-0.62) and 4.51mm (+/-0.64) on on right and left side of ONSD in patients < 1 yrs, 5.57mm(+/- 0.86) and 5.65mm(+/-0.98) on right and left side of ONSD in patients 1-8 yrs, and 6.0mm(+/-0.75) and 6.0mm(+/-0.88) on right and left side of ONSD in patients > 8 yrs respectively. Overall sensitivity and specificity of ultrasound guided ONSD measurement of 86.7% and 39.4% respectively as compared to CT scan/MRI of 60% and 84.8% respectively.

**CONCLUSION:** We found ultrasound guided ONSD measurement as a better, inexpensive, non-invasive and reproducible screening tool for the diagnosis of raised ICP.

**Keywords:** Ultrasonography; Optic Nerve Sheath Diameter; Raised ICP



## **Pediatric External Ventricular Drain Experience from a Developing Country**

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**BACKGROUND:** External ventricular drains (EVDs) are used to treat acute hydrocephalus. Guidelines on pediatric traumatic brain injury (TBI) emphasize the need for studies on EVD use in pediatric patients.

**OBJECTIVES:** To describe indications and complications of EVD placement in children and to evaluate its use in terms of GCS improvement

**METHODS:** Retrospective review of medical records of all the children (age 1 month – 16 years) who underwent EVD placement at our hospital from January 2007 to December 2014 was done. Data was collected on a designed proforma including age, gender, diagnosis, indication for EVD insertion, pre and post EVD GCS, Na levels and complications of EVD insertion. Results are presented as mean and standard deviation and frequency and percentages.

**RESULTS:** Total 177 children underwent EVD placement, median age was 4 years (IQR 9) and 66% were males. Median GCS at admission and discharge was 13 (IQR 7) and 15 (IQR 4) respectively. 44% children had meningitis (25% bacterial and 19% tuberculous) while 28% had intracranial tumors, 15% with hemorrhage and 5% Traumatic brain Injury (TBI) and rest other conditions. Main indication for EVD insertion was acute hydrocephalus (80%), VP shunt malfunction in 15% and 5% had TBI. Complications were observed in 46 (26%) of the patients, infections in 42%, malfunction in 24%, hemorrhage in 13%, misplacement and obstruction in 6% each. Staphylococcus was the main infectious organism. Mean GCS on presentation was  $11.5 \pm 3.9$  and after EVD insertion was  $12.2 \pm 4.4$  ( $p 0.047$ ).

**CONCLUSION:** Acute Hydrocephalus was the main indication for EVD insertion and infections remain the main complications of EVD placement.

**Keywords:** Acute Hydrocephalus; External Ventricular Drains; Traumatic Brain Injury

## **Frequency of Platelet Function Disorders in Patients Presenting with Bleeding**

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**BACKGROUND:** Inherited platelet function disorders may present with bleeding of variable severity and unknown frequency and may be frequently missed. They are increasingly recognized as an important cause of bleeding, particularly in adolescent girls with menorrhagia. The prevalence of congenital platelet disorders in our population has not been established, however, these disorders are relatively more common in communities where consanguineous marriages are more frequent like in the Middle East and India, but very limited information is available in developing countries like Pakistan about their prevalence so we attempted to see how frequent these disorders are in our patients.

**METHODS:** Cross sectional study done between March to October 2014 at section of Haematology Aga Khan University of medical & health sciences. 5ml of whole blood sample in sodium citrate tube was collected for detection of platelet functions disorders. Platelet rich plasma was made by centrifugation and was used for testing. Platelet function studies were performed by using aggregation platelet aggregometer (Chrono-Log aggregometer model 700). ADP, Collagen, Epinephrine and Ristocitin were used as agonists.

**RESULTS:** 32 patients fulfilled inclusion criteria 18 females, 14 males with age range 3 years to 22 years. Out of these 32 patients 13 patients (40.62%) had platelet function disorder with female predominance ( 8 females, 5 males). Age ranges between 6 years to 22 years. Out of these 13 patients, 7 had Glanzmann's- thrombasthenia, 4 had Bernard-Soulier syndrome & 2 patients were labeled with Quebec syndrome.

**CONCLUSION:** 40% of these 32 patients had platelet function disorders. This is an ongoing study further data will be added on completion of specific period.

**Keywords:** Platelet Function Disorder; Bernard-Soulier Syndrome; Glanzmann's thrombasthenia

## **Immunophenotypic Analysis of Haematological Malignancies in Pakistani Population**

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**BACKGROUND:** Immunophenotyping has become an essential tool for diagnosis and characterization of hematological malignancies. It plays a critical role in diagnosis, classification, prognosis and detection of minimal residual disease. The objective of this study was to see the frequency of Hematological malignancies diagnosed via immunophenotyping in our population.

**METHODS:** Retrospective collection of data on a specially designed Proforma from consecutive cases of Hematological malignancies referred to department of Pathology Aga Khan University Karachi between the years 2009 to 2010.

**RESULTS:** A total of 210 patients aged between 3 to 80 years who had been diagnosed with malignant hematological disorders were included in the study. Among them 66.6% were males (n = 140) and 33.4% females (n = 70). The overall median age in adults at diagnosis was 42 years. Acute myeloid leukemia was most frequent (34.7%) with a median age of 32 years, followed by chronic lymphocytic leukemia with 22.2% (median age 60 years), Non-Hodgkin lymphoma (19.9%; median age 40 years), Acute Lymphoblastic Leukemia (13.6%; median age 25 years), Hodgkin's lymphoma (5.9%; median age 36 years) and Hairy cell leukemia (3.7%; median age 60 years). Below the age of 20 years, acute lymphoblastic leukemia was predominant (65.7%), followed by acute myeloid leukemia (34.3%).

**CONCLUSION:** This study shows the pattern of Hematological cancers in our population. There might be under-reporting of Hematological cancers in women. Further studies are required to find out prevalence and distribution of these malignancies.

**Keywords:** Immunophenotyping; Hematological Malignancies; Pakistan

## **Lead Concentration in ‘Surma’ of Pakistan and Saudi Arabia**

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**OBJECTIVES:** Lead is a toxic metal. Cosmetic products have been implicated as potential source of exposure to lead, particularly in South Asia and Middle East. We analyzed the lead concentration in ‘surma’ and related cosmetic products used in Pakistan and Saudi Arabia.

**METHODS:** 33 cosmetic samples were bought from the market of Pakistan and Saudi Arabia. The cosmetic products which make the large respective market share were purposely chosen. The products originated from Pakistan, India, Saudi Arabia, Germany, France, Italy and England. The samples were analyzed by metallic composition analysis by energy dispersive X-ray fluorescence spectrometry.

**RESULTS:** Of the total 33 samples 6 had lead content in them. Four (4) samples had extremely high lead levels ranging from 96-99%. Samples with high lead levels were popular brands originated from Pakistan and Saudi Arabia.

**CONCLUSION:** Lead containing cosmetics has potential to increase the risk for women, her newborn and young child in South Asia. A policy need to be devised to put a ban on cosmetics containing lead. A market survey of all cosmetic products should be conducted and regularly monitoring is required to curb this menace.

**Key words: Lead; Surma; Women and Child health**

## **Frequency of Low Vitamin D Levels with Low Serum PTH in Hemodialysis Patients**

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**OBJECTIVES:** To analyze the frequency of Vitamin D deficiency and its association with low PTH levels in hemodialysis patients in our tertiary care setting.

**METHODS:** It was a cross sectional study conducted at the dialysis unit of our tertiary care hospital. We registered 30 patients who were included on the following criteria;

-End stage renal disease on dialysis for at least one year

- Serum PTH < 150 pg/ml

These patients were randomly checked for serum Vitamin D3 (25 hydroxycholecalciferol) levels sent through Dialysis unit, checked by Electro chemiluminance method, also their serum calcium, Phosphate and Alkaline phosphatase levels were observed.

**RESULTS:** Out of 30 patients in our Dialysis Unit, only 4 (13%) patients had Vitamin D levels of > 30ng/ml, 14 patients (46%) had range between 20-30ng/ml and 12 (40%) had range <20 ng/ml. Mean range of serum Calcium was +7.85 mg%, serum Phosphorus mean + 3.4 mg% and Alkaline Phosphatase mean +98.5 u/L.

**CONCLUSION:** Our study scopes the view of an important aspect in management of hemodialysis patient, associated morbidity, mortality and 5-year survival rate. The need of treatment with Vitamin D supplementation needs to be questioned in every individual patient and can have detrimental effects in long run.

**Keywords: Low Vitamin D; PTH; Hemodialysis**

## **Day Care Services and Women's Participation in Informal Employment**

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**BACKGROUND:** Parents who enrol their children into early childhood programs have more time to participate in employment activities. This reality brings in a new dimension on early child development. Although there is a marked increase in women's participation in the labour market, formal day care centres have not been established to address this need. As a result, there has been a proliferation of informal day care centres in informal settlements. The study, carried out in Mukuru Kwa Njenga, sought to investigate the provision of day care services, and how it affects women's participation in informal employment.

**METHODS:** To address the objective, a household survey involving 60 women was conducted. In-depth interviews involving the local leadership and community-based organizations were conducted to determine the scope, challenges and support of day care services in the area. Two focus group discussions; one with a group of 8 women and the other with 5 social workers were conducted to document challenges and support available for women.

**RESULTS:** Results established that 90% of the women reported that they work 6-7 days a week and for long hours. There were inconsistencies to this gain because mothers had to sometimes miss work and use profits to tend to a sick child. Although findings from the survey and focus group discussion with the women established that the quality is wanting, the women continue to use the services.

**CONCLUSION:** Further studies on quality of services could be done to address the gaps in provision.

**Keywords: Day Care Services; Women; Employment**