Supplement

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Oral Presentation

Impact of Cell Salvage on Allogenic Blood Usage in On-Pump Primary Coronary Artery Bypass Graft Surgery

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Abstract

Objectives: To determine the effect of perioperative autologous cell salvage transfusion on the allogenic blood requirements in patients undergoing on-pump primary CABG surgery at Royal Hospital, Oman. The secondary outcome was to evaluate the impact of cell salvage on hospital stay, rate of complications and 28-day mortality.

Methods: This prospective cohort study used historical cohort as control group. After approval of ethical committee, 73 cases of primary on-pump CABG done in Royal Hospital in 2012 were enrolled into the study group (autologous cell salvage was used intraoperatively). This group was compared with a control group which included 72 cases done in 2011. Patients who came for emergency surgery, re-do surgery or with valve replacement were excluded, as well as those who had deranged pre-operative coagulation, liver function or renal parameters. Blood and its product consumption was measured in each group in addition to ICU and hospital stay, re-opening, complications, re-admission within 4 weeks and 28-day mortality.

Results: After excluding those with preoperative renal or hepatic dysfunction, 124 patients were included in the study (60 in study group and 64 in control group). The groups were matched in terms of demographic and surgical measures as well as pre-operative hemoglobin, hematocrit and renal parameters. Allogenic packed red blood cells (PRBC) were transfused in 55% of subjects in the cell salvage group compared with 82.8% in the control group (p=0.001). The rate of allogenic blood or its products transfusion was 72.7% in cell salvage group compared with 89.1% (PRBC 82.8%) in the control group (p=0.014). The mean allogenic PRBC transfused was 1.10±1.7 units in cell salvage group compared with 2.25±2.3 units in the control group (p=0.002). The average consumption of whole blood, fresh frozen plasma, platelets and cryoprecipitate in the study group were 0.03 (0.16 in control group), 2.0 (1.5 in control group), 1.73 (1.67 in control group), 0.22 (0.45 in control group) units per case, respectively. However, the differences were not significant. ICU and total hospital stay in the study group *vs.* control group were 47.5 *vs.* 50.2 hours (p=0.798) and 9.6 *vs.* 12.1 days (p=0.427), respectively. There was no significant difference in 28-day mortality, rate of re-opening due to bleeding, re-admission within 4 weeks, and complications.

Conclusion: The use of autologous cell salvage in on-pump primary CABG reduced the requirements for allogenic packed red blood cells by 1.15 units for each patient and reduced the rate of PRBC transfusion by 27%, but did not reduce blood product consumption. This study did not show any significant benefits in regard to hospital and ICU stay, and four-week morbidity and mortality.

Keywords: Cell salvage; Autologous blood; CABG; On-pump; Blood requirement.

Sialendoscopy in Diagnosis and Management of Salivary Glands Obstruction: SQUH Experience

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Abstract

Objective: To evaluate our experience in management of salivary gland disorders through the sialendoscopy technique.

Methods: A retrospective medical chart review was undertaken of all patients undergoing sialendoscopy for salivary gland disease between 1st October 2010 and 31st September 2013. Demographic, clinical, and surgical variables including age, gender, date of first symptoms, parotid or submandibular location of the disease, preoperative imaging results, sialendoscopy technique, sialendoscopy observations, complications and follow-up period upto two years were recorded.

Results: More than 100 sialendoscope procedures were carried out for 80 patients in that period of three years. The mean age was 30 years (range: 3-56 years). There were 33 males (41%) and 47 females (49%). All cases presented with symptoms of recurrent swelling with pain over a period ranging from 1 to 20 years. Sialendoscopy procedures were performed in the parotid gland in 56% of cases

and 44% in the submandibular gland. Diagnostic sialendoscopy was done in 41% whereas interventional sialendoscopy was done in 46% (37 out of 80). Pathological findings showed that around 40% of cases were due to stricture and 36% were due to stone. There were no reported major complications during these procedures. Ninety percent (72 of 80) of cases resulted in complete resolution of symptoms, with no recurrence of symptoms, after a mean follow-up period of 12 months.

Conclusion: Sialendoscopy is a new technique in the management of salivary gland disease. Based on the present literature and the authors' experience, it is considered as an effective and safe diagnostic and therapeutic tool which gradually starts to replace previous management procedures in dealing with non-neoplastic salivary gland diseases.

Keywords: Salivary gland obstruction disease; Sialendoscopy.

Image-Guided Core Needle Biopsy in Breast Cancer Detection in Comparison with Surgical Excision Biopsy

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Abstract

Background: Percutaneous image-guided core breast biopsy is a markedly and widely used method for imaging. The imaging quality improvement plays a big role in surpassing excisional biopsy by the core imaging guided biopsy (stereotactic or ultrasound guided) and making core biopsy the preferred diagnostic investigation.

Aim: The imaging findings along with the core biopsy results are crucial in deciding the right management pathway and the radiologist plays a big role in figuring out the concordance of the histopathology results with the imaging findings and ultimately formulating a management plan.

Methods: For a period of 2 years, starting from March 2011, all patients who underwent both image-guided biopsy (% ultrasound guided and stereotactic biopsy) and surgical excision were included in the study. The final histological type from the surgical excision was compared to the type of image-guided biopsy. The patients were assigned into two groups: 50 years and below and above 50 years.

Results: Of the 51 patients, 36 (71%) patients were diagnosed as malignant by excision biopsy and 15 (29%) were benign. The most common malignancy was invasive ductal carcinoma (IDC). Malignant outcome was more common in the above 50 years age group; 21 patients (84%) were malignant and 4 patients (16%) were benign. Among the patients with BIRADS 5 radiological assessment, 29 patients (80%) were malignant and 3 patients (20%) were benign. The screening population included (16 patients) was found to have malignant outcome in 11 cases (69%) and benign outcome in 5 cases (31%).

Conclusion: Stereotactic and ultrasound-guided core-needle biopsy procedures are highly concordant with the surgical excision results and are associated with less complications.

Keywords: Core imaging guided biopsy; Accuracy; Breast cancer; Surgical excision biopsy.

Trend in the Requests of High-Sensitive Troponin T against the 2012 Published Guidelines for the Third Universal Definition of Myocardial Infarction

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Abstract

Background: The use of cardiac markers, most importantly troponin (cTnT or cTnI), has a fundamental role in the diagnosis of myocardial infarction (MI). Recently, the third universal definition of MI provides an integrated approach for the diagnosis of MI, and acknowledges that elevation of cTn can occur in the absence of MI.

Aim: This study aims to assess the requesting of hs-TnT at Royal Hospital as a biochemical marker of cardiac ischemia according to the 2012 published Third Universal Definition of MI Guidelines. This involved investigating the clinical utility of hs-TnT, requesting interpretation of results and adherence to the turn-around-time (TAT) for releasing the results.

Methods: Using this system, all hs-TnT tests conducted during the two-week period between 11th and 24th of May 2013 were collected for analysis. Hs-TnT tests requested for the same patients during the same admission before or after these dates were also included. Excluding the requests with no samples received by the laboratory. Hs-TnT is a high sensitivity assay.

Results: The majority of cases were requested from A&E (n=377, 54%). Of the 698 requests/tests, 377 (54%) requests were ordered from the Emergency department, 72 (10.3%) from Acute Medical admissions, 123 (17.6%) from Cardiology, 31 (4.4%) from Cardiothoracic, while 95 (13.6%) were ordered from other departments in lesser frequencies namely Neurology, Nephrology, Surgery, and Obstetrics and Gynecology. From the 404 patients involved, 233 only had one test done, 113 patients had 2 requests and 58 had 3 or more requests done. As for the labs, 97% of the samples had turnaround time of less than 90 minutes.

Conclusion: The majority of hs-TnT requests are not compliant with the recommended guidelines. The laboratory is compliant with the guidelines in reporting the results in less than one hour for the majority of requests.

Keywords: High sensitivity troponin; Clinical utility; Universal definition of MI; Cardiac markers.

Determine Door-to-Needle Time for Administration of Fibrinolytics in Acute Myocardial Infarction

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Abstract

Background: Evidence exists that expeditious restoration of flow in the obstructed infarct artery after the onset of symptoms in STEMI patients is a key determinant of short- and long-term outcomes regardless of whether reperfusion is accomplished by fibrinolysis or PCI.

Aim: The primary objective is to determine the door-to-needle time for the administration of fibrinolytics for acute myocardial infarction in emergency departments at Royal Hospital and then compare it with the American Heart Association/American College of Cardiology (AHA/ACC) recommendation of 30 minutes as a marker for quality of care.

Methods: A retrospective observational cohort study of case notes from January 2010 to December 2012 of all patients who received fibrinolytic for acute myocardial infarction at presentation to the Emergency Department at Royal Hospital. A pilot study was conducted to determine the sample size. Eligible patients (total of 175) were included. The total door-to-needle time calculated was considered as a primary outcome. Sub analysis of the data was done to determine potential causes of delay.

Results: Out of 175 cases studied, only 30 patients (17.1%) received fibrinolysis within the timeframe recommended by AHA for STEMI management. The mean of door-to-needle time was 62 minutes with 95% CI (53-70). There was 47% reduction of door-to-needle mean time when fibrinolysis was given in the emergency department.

Conclusion: The delay in administering the fibrinolytics could be shortened by encouraging initiating thrombolytic treatment in the emergency department.

Keywords: Door-to-needle time; Fibrinolysis; Myocardial infarction; AHA/ACC recommendation.

Quality of Diabetes Care in Primary Health Centers in Oman

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Abstract

Objective: To assess the quality of diabetic care provided in primary health care settings in North Al-Batinah region of Oman.

Methods: This was a cross-sectional study of randomly selected 500 diabetic patients attending six primary care diabetic clinics between January to December 2010. Nine standards on the questionnaire measured the extent to which the quality of diabetic care was audited in the diabetic clinics. Analysis was performed using descriptive statistics.

Results: The mean age of the sample was 51±13 years ranging from 15 to 87 years, majority of which were females (61%). Seventy-seven percent of the patients attended diabetic clinics at least 4 times per year. Of the nine assessed diabetic standards, HbA1c was documented in 33% of patients, body mass index (BMI) in 12%, low-density lipoprotein cholesterol (LDL-c) in 40%, albumin creatinine ratio (ACR) in 28%, creatinine in 63% and blood pressure in 96%. Optimal control among these documented indicators was noted in 32%, 21%, 25%, 85%, 92% and 19%, respectively. The physician documented the referral for annual retinal checks in 45%, foot examination in 39% and performing ECG in 19%. Overall, no diabetic patient had attained control in HbA1c, blood pressure or LDL-c in patients (n=118) who had non-missing values of these three standards.

Conclusion: There is gap between the recommended diabetes care and current practice. There is an urgent need for proper interventions to improve the quality of diabetes care in management as well as documentation. This can be achieved by implementation of a suitable guideline to manage and diagnose this debilitating condition. The quality of diabetic care improvement requires an adaptation of a comprehensive diabetic protocol.

Keywords: Quality; Diabetes; Indicators; Oman.

Spectrum of Papillary Thyroid Carcinoma: A Single Center Study

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Abstract

Background: Thyroid cancer is the most common endocrine malignancy in Oman. Papillary thyroid carcinoma (PTC) is the most frequent type. Among females, it is the second most common cancer. The diagnosis of papillary thyroid carcinoma is based primarily on architecture and nuclear morphology in routine Hematoxilin and Eosin (H&E). Classical papillary carcinoma is composed of prominent papillae with fibrovascular cores. These are covered by cuboidal cells displaying overlapping nuclei, optically clear chromatin, eosinophilic intranuclear inclusions, and nuclear longitudinal grooves.

Aims: This retrospective study was done to determine the spectrum of histomorphological variants of papillary thyroid carcinoma in a single tertiary care centre in Oman.

Methods: This is a retrospective, descriptive study carried out in Oman at Sultan Qaboos University Hospital Pathology Department and included papillary thyroid carcinoma cases diagnosed from 2000 to 2012. Initially, the reports of 133 consecutive cases were retrieved through the hospital information system (HIS). Important clinical data gathered included age, gender and follow-up period. Eighteen cases were excluded because their H/E stained slides and formalin fixed paraffin embedded blocks were not available. One hundred and fifteen cases were included in this study. Their H/E stained slides were retrieved and evaluated by four pathologists independently. Non-classical cases/cases with atypical morphology also had their immunohistochemical slides available for review (wherever performed).

Results: A total of 115 tumors were diagnosed as PTC. Ninety-five (95) were females and 20 were males. Majority of patients were between the ages of 20-50 years. The most common morphologic type seen in the Omani population was the classical papillary variant 44/115 (38%) followed by papillary micro-carcinoma 30/115 (26%), and the third most common pattern was the follicular variant 18/115 (13%).

Mean tumor size was 2.0 cm (SD: 0.5 mm). Multi-focality of tumor was seen in 55/115 (48%) cases, whereas it was unifocal in 60 cases (52%). Extra-thyroidal extension was seen in 15/115 (13%) cases. Thyroiditis was present in 59/115 (51%) cases. Only 29/115 (25%) cases had lymph node metastasis. Out of the 115 cases, 73% had lived free of the disease up to the time of this study.

As for the immunohistochemical markers, CK 19 was positive in 29/31, HMB 1 positive in 15/15 cases, HMW CK positive in 15/15 cases and CEA was done in one case where it was reported negative.

Conclusion: As per this study, classical papillary thyroid carcinoma is the most common morphological type. Majority of the cases displayed favorable clinical and histopathological prognostic indicators including young age, small tumor size, classical histology type, and absence of extrathyroidal extension.

Keywords: Papillary thyroid carcinoma; Histomorphological variants; Oman.

Incidence and Pattern of Thyroid Dysfunction in Patients on Chronic Amiodarone Therapy

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Abstract

Background: Amiodarone is a potent anti-arrhythmic drug with different side effects (SE). One of these potentially serious SE is thyroid dysfunction (TD). This is because of the high iodine content of amiodarone, although the exact pathogenesis remains unknown. The patient might exhibit amiodarone-induced hypothyroidism (AIH) or amiodarone-induced thyrotoxicosis (AIT). To date, the data about the incidence and pattern of TD in Oman or in the Arabian Gulf region are scant.

Aim: To determine the incidence and pattern of thyroid dysfunction (TD) in patients on chronic amiodarone therapy.

Methods: A retrospective study which evaluated 59 patients who had received amiodarone therapy regularly for at least 12 months for a period of 3 years from October 2007 to October 2010. The patients were followed up at the cardiac clinic at Sultan Qaboos University Hospital, Muscat, Oman.

Results: The mean age of the cohort was 63 ± 13 years ranging from 27 to 98 years. Fifty-one percent (n=30) of the patients were females. There were 11 (19%) cases of thyroid dysfunction (TD). Seven (12%) patients had hypothyroid, 3 (5%) had hyperthyroidism and only 1 (2%) patient had sub-clinical hypothyroidism; no cases of sub-clinical hyperthyroidism were noted. Female gender and the presence of anti-thyroid peroxidase antibodies were significantly associated with amiodarone-induced hypothyroidism (p=0.001), while age, amiodarone dose and duration of therapy were not correlated with the development of TD (all p –values >0.05).

Conclusion: Amiodarone-induced thyroid dysfunction was prevalent in this study. Hypothyroidism was more frequent and most commonly seen in female patients and those who had positive anti-thyroid peroxidase antibodies. Initial screening and periodic monitoring of thyroid function is mandatory for all patients on amiodarone therapy.

Keywords: Incidence; Pattern; Thyroid dysfunction; Amiodarone therapy; Oman.

Eyelid malignant tumors at Sultan Qaboos University Hospital

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Abstract

Background: Eyelid tumors are the most frequent neoplasms in ophthalmology. They represent 15% of face tumors and 5% to 10% of all cutaneous tumors. They include a large variety of benign or malignant tumors although benign tumors greatly outnumber the malignant ones. The incidence of malignant tumors is increasing even in younger age. Over the world, basal cell carcinoma has been reported to be the most common eyelid tumor (85% to 95%), followed by squamous cell carcinoma (5%), sebaceous gland carcinoma (1% to 5%) and then malignant melanoma (1%). However, variation in the incidence in different countries has been studied with a higher incidence of sebaceous gland carcinoma being reported in Asian populations compared to western populations.

Aim: This study is an attempt to characterize eyelid malignant tumors based on a single tertiary institutional study from 2006-2012 at Sultan Qaboos University Hospital. It also aims to determine the pattern of different histologically confirmed malignant eyelid tumors and to emphasize early recognition of the tumors for appropriate management and better prognosis.

Methods: This is a retrospective study in which the clinical data of all patients who were found to have histologically confirmed malignant eyelid tumors from January 2006 to December 2012 were retrieved. These cases were then analyzed for their age, sex, presenting symptoms, tumor location, and variations with respect to the pathological subtype, recurrence and management.

Result: A total of 6 cases were included. There was an equal sex distribution with the tumors confirmed in 2 young cases. All the cases underwent full thickness excisional biopsy with eyelid reconstruction. The histopathological specimens reported basal cell carcinoma in 3 cases, sebaceous gland carcinoma in 2 cases, and squamous cell carcinoma in 1 case.

Conclusion: Although this was a small study, it simulated the same pattern of incidence of eyelids tumors in Asian populations with a higher incidence of basal cell carcinoma and sebaceous cell carcinoma. It also showed the occurrence of these tumors at even younger age thus early recognition for proper management is needed.

Keywords: Characteristics; Eyelid malignant tumors; Tertiary care institution; Oman.

Effect of Self-tapping Screws on Surface Roughness When Used With and Without Tapping - An Experimental Study

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Abstract

Background: Osseointegration can be defined as the formation of a direct interface or contact between an implant and bone without intervening soft tissue. It is the basic mechanism by which a vast majority of successful artificial joints integrate with the host skeleton, but in the context of fracture fixation implants, sometimes, it makes the implant removal difficult or impossible.

Aim: This study aims to determine whether inserting a self tapping screw leads to increased surface roughness of the flute.

Methods: Ten 3.5 mm diameter self-tapping titanium screws, 24 mm long (Acumed, USA) were purchased. The screws were sterilized in an autoclave for 26 minutes at 127 degree centigrade. A freshly slaughtered sheep humerus was obtained. It was X-rayed to make sure that it was disease-free and the cortex was of uniform diameter in the area of screw insertion. Pilot drill hole was made using an appropriate drill. Five of these screws were inserted without pre-tapping in a random fashion. Five more screws were inserted after pre-tapping (creating threads). The screw ends were cut using a surgical bolt cutter. The tips were cleaned with alcohol and examined under scanning electron microscope. Further imaging was carried out using an atomic force microscope. The areas of surface roughness were mapped out from predefined sectors of the flute using image J software (NIH, USA). The number of scratches and the cumulative length of the scratches were counted in each of the three segments of the flutes (distal, middle and proximal). The values were added up to give 15 readings for each group (Group A = non-pre tapped *vs*. Group B = pretapped). Mann-Whitney U-Test (one tailed) was performed to test the statistical significance.

Results: The number of scratches in each group were calculated and analyzed as follow:

	Group A (non-pre tapped)	Group B (pretapped)
Mean	28.07	15.73
Standard deviation (SD)	4.89	2.46
95% confidence interval	+/- 2.47	+/-1.24

The difference was statistically significant ($p<0.05$). Z-score was 4.56 ($p<0.05$)

Conclusion: There was a statistically significant difference in the surface roughness of the screw tip depending on whether it was inserted with or without pre-tapping. This could contribute to osseointegration of the screw and make removal difficult or impossible. It is therefore recommend that even self-tapping screws be inserted after pre-tapping.

Keywords: Tapping; Titanium; Anodization; Osseointegration; Surface roughness; Scanning electron microscopy.

Predictors of Hospital Length of Stay Following Deliberate Self-harm in Oman

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Abstract

Aim: To determine the predictors of hospital length of inpatient admission following deliberate self-harm.

Methods: A retrospective, hospital-based records review of all patients admitted with deliberate self-harm was done over a three-year period (from 2009 to 2011) at Sultan Qaboos University Hospital (SQUH), a tertiary care center in Oman.

Results: The total number of records reviewed during the three-year period was 117 patients, 102 (87%) were Omani and 15 (12.8%) were non-Omani. The mean age was 23.5 and the rate of DSH was highest in the age group 15-24 years (65.8%) and lowest in the age group <15 years (1.7%), where 82% were female, 65% were single and 44% were unemployed. Pharmacological method was commonly used (82.9%) and analgesics accounted for 36.1% of cases. Most of the cases were after conflicts. Previous self-harm was found in 28% of the cases. More than half of the cases were admitted for a period of 1-2 days. There was significant association between short hospital stay and the pharmacological method. In contrast, psychiatry diagnosis was found to be a predictor for longer stay (more than 4 days).

Conclusion: The rate of self-harm is increasing in Oman with the analgesic use remaining the most common method for self-harm. The predictors of longer inpatient stay should be considered in the DSH preventive programs in order to reduce the avoidable burden.

Keywords: Predictors; Hospital stay; Deliberate self-harm; SQUH; Oman.

Poster Presentation

Chronic Kidney Disease (CKD) in Children, Tertiary Hospital (Royal H) experience in Oman 2006-2012

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Abstract

Aim: This project aims to study the descriptive epidemiology of CKD in children <14 years of age at Royal Hospital, a tertiary center in Oman where >80% of the CKD in children are seen. It is an initiative to establish local data in regards to CKD to help in the future planning of possible preventative majors and strategies to retard the progression of the disease and therefore reduce the financial burden of various modalities of treatment.

Methods: Retrospective descriptive review of computerized medical records in Al Shifa system of all children diagnosed to have chronic kidney disease/chronic renal failure (age <14 years at diagnosis) at the Royal Hospital, Muscat, Oman from Jan/2006 until Dec/2012. A questionnaire was filled and parents were called to complete the missing data. The data collection sheet included inquiries about demographic details, consanguinity and family history, clinical, biochemical and imaging data, details of different causes, treatment modalities and overall outcome. The data were processed and analyzed using SPSS 17.

Results: The preliminary results of this huge project that can be used for future researches in related topics are reported here. The total number of patients (<14 years of age) diagnosed with CKD was 124 patients during that period, of which 61% were males. Since it was observed that >80% of CKD patients in Oman whose children's population age <14 years is around 800,000 according to 2012 census, the mean incidence of advanced stages (GFR <60) was 18.2 per million age related population which is higher than other countries (10-15 per MARP). Mean age at diagnosis was 3 years which is less compared to other countries (4-8 years old). Congenital anomalies of kidney and urinary tract CAKUT are the leading causes for CKD in children worldwide and that was evident in this study where 48% of our patients had CAKUT. Forty percent of our patients had inherited causes and majority of those were consanguinities. There were 13 patients transplanted locally with very good outcome compared to 24 patients transplanted abroad with frequent rejections that can be explained by the fact that donors abroad were unrelated. Still, there are a lot of data to be analyzed related to laboratory data and other conservative treatment modalities.

Conclusion: Although complete coverage of all centers treating CKD in children in Oman was not achieved, the authors believe that the results may still reflect the picture closest to the actual condition nationwide. The data we gathered is huge and can be used

for future researches. The data collection sheet can be formulated into a national registry protocol. Advanced stages at diagnosis prompts the need for proper screening tools and the diagnostic as well as therapeutic approach to CKD must emphasize primary prevention, early detection, and aggressive management.

Keywords: Epidemiology; Chronic kidney diseases; Pediatric age; Royal Hospital; Oman.

Cyclopentolate Plus Tropicamide *vs*. Atropine in Patients With Refractive Accommodative Esotropia by Means of Retinoscopy

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Abstract

Aims: To compare cycloplegic effect of atropine *vs*. a combination of cyclopentolate and tropicamide in patients with refractive accommodative esotropia in order to establish a standard for cycloplegic refraction in patients with accommodative esotropia in practice.

Methods: A prospective, comparative, interventional study was designed and patients with refractive accommodative estropia attending the pediatric ophthalmology clinic between March-September 2012 were recruited for the study. Standard ophthalmological examination which included assessment of visual acuity, orthotopic assessment and examination of anterior and posterior segments of the eye was performed. Patients underwent cycloplegic retinoscopy with cyclopentolate 1% and tropicamide 1% (instilled three times at 10-minute intervals) 45 minutes after instillation of medications. After four weeks, parents were instructed to instill atropine 0.5% (children aged below 5 years) and 1% (children aged above 5 years) in a standard dose and regimen, and report for refraction. Data obtained from examination and cycloplegic refraction were entered into a standard data collection form. Sample size was calculated using mean statistical methods. Data analysis was performed using Student *t* test.

Results: Thirty four eyes with refractive accommodative esotropia aged from 1 to 12 (mean: 6) had a deviation of mean value 21.1 prism diopters base out and underwent cycloplegic retinoscopy. The mean value of retinoscopic findings of the right eye was +4.3 D with cyclopentolate, and +4.4 D with atropine. In the left eye, the measurements were +4.3 with cyclopentolate, and +4.2 D with atropine. When these obtained data were compared by the Student's *t* test, no statistical significance was found ($p \pm 0.517$) between the cycloplegic effect of a combination of cyclopentolate, tropicamide, and atropine.

Conclusions: There was no significant difference between the cycloplegic effect of atropine *vs*. a combination of cyclopentolate and tropicamide in patients with refractive accommodative esotropia in the authors' clinical practice. Therefore, in the management of patients with accommodative esotropia, cycloplegic retinoscopy with cyclopentolate is effective. It is also safer, cheaper and more preferred by parents and patients than atropine retinoscopy.

Keywords: Cycloplegic effect; Atropine; Cyclopentolate; Tropicamide; Refractive accommodative esotropia.

Effect of Hemolysis on Cardiac Troponin I Assay

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Abstract

Background: Hemolysis is the most common pre-analytical interference encountered in routine laboratory. A 20% change in cardiac troponin assays is considered significant as an increase or a decrease in serial troponin levels commonly indicates either an evolving or resolving acute myocardial infarction, respectively. Current troponin assays have different susceptibilities to interference by hemolysis.

Aim: This study aims to evaluate the effect of varying degrees of hemolysis on the 2nd generation cardiac Troponin I assay at relevant troponin concentrations.

Methods: Clinically relevant cardiac troponin I (cTnI) concentrations at which we need to investigate the effect of hemolysis were determined. These were: (a) 99th percentile cutoff for the reference control group (40 ng/L); (b) Acute myocardial infarction cutoff (500 ng/L); and (c) Pools with higher cTnI concentrations (4620, 5300, 7790 ng/L). Plasma pools with the above mentioned concentrations were prepared. Hemolysate was prepared from whole blood samples after washing packed red blood cells three times with 0.9% normal saline and adding hemolysing reagent gradually to create different hemoglobin concentrations ranging from low to high (0.2, 0.6, 1.0, 1.4, 2) g/dL. The hemoglobin concentration was measured by radiometer ABL 800 blood gas analyzer. From each prepared hemolysate, 10 µl was added to 90 µl of troponin sample from each pool. Concentrations of cTnI were measured before and after adding hemolysate using the Beckman Coulter Access analyzer. Results were analyzed using SPSS program. Prior to starting this experiment, appropriate stability and precision studies were conducted to ensure precise and accurate results. The results were also adjusted for any dilution effect secondary to the addition of hemolysate regardless of hemoglobin concentration.

Results: The sample stability study revealed that most plasma troponin samples were unstable after 2 hours if kept at room

temperature. The precision study revealed that the %CV of the method at the 99th percentile cutoff was 24%. Hemolysis caused a negative interference with the cTnI assay at all levels. The effect was more obvious at the acute myocardial infarction cutoff (500 ng/L) and at the higher troponin concentration pools. The effect became significant at higher troponin concentrations, causing around a 20% decrease or more in baseline troponin, when the hemoglobin concentration was 2.0 g/dL (hemolysis index 150). The negative interference of hemolysis at and around the 99th percentile, however, was not significant (i.e., changes less than 20%).

Conclusion: Samples sent for troponin analysis should not be kept at room temperature for more than 2 hours. They should be analyzed and refrigerated immediately. Hemolyzed samples received by the laboratory for troponin estimation should be analyzed and results released with a qualifying comment. A non-hemolyzed sample should be sent to the laboratory as soon as possible to compare results. Each laboratory should be aware of the effects of hemolysis on its individual troponin assays.

Keywords: Troponin; Hemolysis.

Postoperative Pain Relief and Blood Loss after Total Knee Replacement: Bupivacaine with *vs*. without Adrenaline

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Abstract

Aims: To evaluate whether local infiltration of the wound site by 0.25% bupivacaine with or without adrenaline would be effective in attenuating postoperative pain intensity as well as decreasing blood loss in patients undergoing total knee replacement (TKR).

Methods: After approval by the hospital ethical committee, all TKR patients (either sex, 50-70 years old) operated under a single surgeon were included in the study. This was to eliminate influence of difference in surgical technique by different surgeons. Patients with CNS disorders or those on narcotic pain medication were excluded.

Results: Postoperative pain was assessed subjectively using VAS (0=no pain, 10=maximum pain) and objectively depending on consumption of total morphine. Blood Loss: A collection in drain bag over first 4 hours; hemoglobin and hematocrit (preoperative, second, and fifth day).

Conclusion: Addition of adrenaline to bupivacaine during intra and extracapsular infiltration towards the end of TKR surgery reduces blood loss by its vasoconstrictor effect leading to a better plug formation. It also decreases pain intensity significantly by decreasing absorption of bupivacaine leading to an increased neuronal uptake and thereby enhanced analgesia quality.

Keywords: Local infiltration; Bupivacaine; Adrenaline; Postoperative pain; Blood loss; Total knee replacement.

Ultra-Low Dose of Naloxone Added to Bupivacaine or Bupivacaine-Fentanyl Mixture in Prolonging Supraclavicular Brachial Plexus Blockade

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Abstract

Objective: To evaluate the effect of an ultra-low dose of naloxone added to bupivacaine-fentanyl mixture on the onset and duration of sensory and motor block; and to document the incidence of side effects like pruritus, nausea/vomiting; as well as to assess patient satisfaction.

Methods: Following approval from the Ethical Issues Committee, 30 ASA I-III patients between the ages of 18-80 years undergoing elective surgery of hand, forearm or elbow with a duration of 1 to 2 hours were selected. Patients undergoing supraclavicular block were divided using computer generated stacked randomization into four groups.

Gr A (n=10) – received Bupivacaine 0.5% (Bupi) 20 mL + 3 mL of isotonic saline (control group),

Gr B (n=16) – received Bupi 0.5% 20 mL+ 2 ml fentanyl (100 µg) & 1 mL isotonic saline,

Gr C (n=3) – received Bupi 0.5% 20 mL + normal saline 2 mL + naloxone 1 mL (100 ng),

Gr D (n=1) – received Bupi 0.5% 20 mL + fentanyl 2 mL (100 µg) & naloxone 1 mL (100 ng).

Results: This is an ongoing study. Initial results show no remarkable changes between Groups A, B & C. However, the lone single patient of Group D showed prolonged sensory and motor block with an early onset of block.

Conclusion: The initial results show insignificant changes between groups A, B & C. However, one case in Gr D (naloxone, fentanyl, bupivacine) had shown early onset and prolonged duration of sensory and motor block, with no side effects as outlined above. Data collection is in progress. Final analysis shall be performed after completion of data collection from 120 patients.

Keywords: Fentanyl; Naloxone; Bupivacaine; Supraclavicular brachial plexus block.

Temporalis Fascia Graft *versus* Cartilage-Perichondrium Graft in Tympanoplasty: Preliminary Results

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Abstract

Objective: The repair of the tympanic membrane has been attempted with large variety of synthetic, homologous and autologous tissue; however, temporalis fascia and cartilage-perichondrium are used most commonly today.

Aim: The aim of this study is to compare the outcome of the repair of the tympanic membrane perforation using temporalis fascia graft and cartilage perichondrium grafts.

Methods: This is a prospective study of patients confirmed to have CSOM and operated during the years of 2012-2013 at Al Nahdha Hospital, Muscat, Sultanate of Oman. The patients were followed up postoperatively at which the graft success rate and level of hearing improvements were compared.

Results: The cartilage-perichondrium group showed 100% successful graft uptake in comparison to 98.9% in the temporalis fascia. Data did not show significant differences in the average air bone gap changes in both groups. This parameter needs to be elaborated further after completion of this study.

Conclusion: Both cartilage-perichondrium and temporalis fascia provide viable autograft material. Both achieve comparable and excellent graft uptakes. Completion of this study is needed to study the hearing restoration in both groups.

Keywords: Tympanoplasty; Graft; Temporalis fascia; Cartilage-perichondrium; Uptake; Hearing restoration.

Prevalence and Characteristic of Patients with Chronic Pain

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Abstract

Aim: This study aimed to determine the prevalence and the characteristics of patients with chronic pain amongst patients attending a primary healthcare center in Oman.

Methods: A retrospective cross-sectional study was carried out in which all patients aged 18 years and older who attended Sultan Qaboos University Health Center in Oman between January to December 2010 were enrolled. Patients who have been prescribed analgesics (nonsteroidal anti-inflammatory drugs, paracetamol, tramadol, amitriptyline, gabapentin and co-codamol) for a minimum period of three months were identified. Patients constituting two control groups were selected randomly by using a randomization table. One group was matched to the current study group in terms of age and gender. The demographic and clinical characteristics of patients in this study group were compared with the two control groups. A telephone survey of a random sample of patients who attended the health center during the same period of the study who were prescribed analgesics at least once was carried out. Patients were asked a single question whether they still have chronic pain or not. The aim was to determine whether we are overestimating or underestimating the prevalence of chronic pain.

Results: Out of a total number of 6609 patients, 241 (3.6%) were found to have chronic pain. The mean age was 54±12 years. The majority of patient were females 72% (n=174) above 60 years of age and most of them where Omanis 83.3% (n=200). The mean body mass index (BMI) was 31 kg/m^2. Osteoarthritis was the most common (43.2%) pain condition amongst the study patients followed by low back pain (18%), and migraine (7.1%). Non-steroidal anti-inflammatory drugs (NSAIDs) were the most common drugs prescribed. Diabetes and hypertension were both the most common comorbidities associated with chronic pain.

Conclusion: The prevalence of chronic pain seems to be low amongst patients attending a primary healthcare center. Females above 60 years of age are mainly affected. The most common conditions resulting to chronic pain are osteoarthritis, low back pain and migraine. The most common analgesics prescribed are NSAIDs. Further research is needed in this field to confirm the findings.

Keywords: Prevalence; Characteristics; Chronic pain; Primary health care; Oman.

Interobserver Variability on Breast Core Biopsy

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Abstract

Background: Grading of breast cancer based on certain histological features plays a precious role in predicting the prognosis and the outcomes of this prevalent neoplasm.

Aim: This study evaluates the degree of agreement on grading invasive ductal carcinoma on breast core biopsy among general pathologists.

Methods: Breast core biopsies of 27 patients with invasive ductal carcinoma were independently evaluated by three pathologists and graded according to the Bloom and Richardson (Nottingham modification) grading system. A detailed histopathological assessment was carried out and analyzed statistically.

Results: The results showed a substantial agreement among the three pathologists in the final grading of breast core biopsies (Kappa=0.819, 0.690, 0.757 and $p<0.0005$). The same trend of agreement was also observed in scoring mitosis (Kappa=0.859, 0.765, 0.654 and $p<0.0005$), and nuclear pleomorphism (Kappa=0.538, 0.505 and 0.535 and $p<0.0005$). Fair agreement was noted in scoring tubule formation (Kappa=0.456, 0.382, 0.428 and $p<0.01$).

Conclusion: This study revealed that despite the presence of individual differences in evaluating some of the parameters of the grading system, there was a substantial agreement among the participating pathologists in the final grading of breast carcinoma in core biopsies.

Keywords: Agreement; Invasive ductal carcinoma; Breast core biopsy; Pathologists.

Association of Acute Chest Syndrome with e-NOS, ARG1, and GSNOR Gene Polymorphism in Omani Sickle Cell Patients

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Abstract

Background: Acute chest syndrome (ACS) is the most common pulmonary complication of sickle cell disease (SCD) and is associated with reduced nitric oxide (NO).

Aim: To examine endothelial nitric oxide synthase (NOS3) gene polymorphisms (T-786C, E298D and Intron 4 VNTR) as well as ARG1 and GSNOR gene polymorphisms with ACS in SCD Omani patients.

Methods: Genomic DNA was isolated using the standard techniques and stored at -20°C pending analysis. DNA sequence polymorphisms for HBB gene($\mathbf{b}^{6Glu>Val}$), NOS3 gene polymorphisms (T-786C, E298D and Intron 4 VNTR) as well as ARG1 and GSNOR gene polymorphisms were studied by direct sequencing of the relevant genomic segment amplified by polymerase chain reaction on an ABI PRISM 3100 genetic analyzer using appropriate primers described in the literature.

Results: Study results showed that only the eNOS promoter C-786 allele showed a statistically significant association ($p=0.001$) in ACS cases, especially so with the female gender ($p=0.005$). There was no correlation observed with eNOS polymorphisms E298D and Intron 4VNTR, ARG1 and GSNOR gene polymorphisms studied in this cohort of SCD patients with ACS.

Conclusion: eNOS promoter C-786 variant which reduces eNOS gene activity was observed as a genetic risk factor for ACS in adult female sickle cell anemia patients, explained by the fact that eNOS is known to be regulated by estrogens.

Keywords: (NOS3) gene polymorphisms; (T-786C, E298D and Intron 4 VNTR); ARG1; GSNOR gene polymorphisms; Acute chest syndrome; SCD, Oman.

Patterns of Antimicrobial Prescribing in a Tertiary Care Hospital in Oman

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Abstract

Objective: Antimicrobial stewardship programs have been designed to improve and measure the appropriate use of antimicrobials in order to achieve optimal clinical outcomes and reduce bacterial resistance. This study aims to analyze patterns of antimicrobial prescriptions for patients hospitalized in acute care setting and to assess appropriateness of antimicrobial use among prescribers in a tertiary care hospital in the Sultanate of Oman in 2012.

Methods: This is a retrospective audit study of appropriateness of antimicrobial prescribing in patients that were admitted and discharged from acute medical teams in a tertiary care hospital in Oman from 17th to 21st of November 2012, over a period of three

weeks. Data of all cases were retrieved from an acute medicine department database. Patient records and prescriptions were reviewed by an expert Infectious Disease consultant. Rationality of antimicrobial use was evaluated, analyzed and judged based on standard guidelines and experience of the evaluating consultant. General frequency analysis was performed to test appropriateness of antimicrobial prescribing.

Results: There were 178 patients discharged from acute medical teams over a period of three weeks, where 64.04% received antimicrobial agents during admission; 287 antimicrobial agents were used over a period of three weeks. Average number of drug per patient was 2.5. The most common prescribing agent was piperacillin/tazobactam. Most of the patients had infections from gram-negative organisms. High rates of extended spectrum beta-lactamase producing organisms were observed. Cultures were obtained prior to antimicrobial initiation in only 25% of patients. Variability in antimicrobial selection for common infections was also observed.

Conclusion: National guidelines for management of common infections are needed in order to minimize overuse and misuse of antimicrobial agents in tertiary care hospitals. A large surveillance study is needed on antimicrobial prescribing appropriateness in different hospital settings.

Keywords: Antimicrobial prescribing; Stewardship.

Maternal and Perinatal Mortality and Morbidity in Twin Pregnancies in Oman

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Abstract

Background: The diagnosis of multiple gestations is frequently met with joy and excitement by families; however, the happiness is tempered when the realization occurs that this diagnosis places the mother and the gestation at significantly increased risk for morbidity and mortality.

Aim: This study was conducted to evaluate the risk of pregnancy complications and adverse perinatal outcome in women with twin pregnancy.

Methods: A 5-year retrospective study was carried out from January 2008 to August 2012 at the Department of Obstetrics and Gynecology, Khoula Hospital, Muscat, Oman. All women admitted to the antenatal and labour ward with multiple pregnancies after 24-weeks gestation were included in the study. Main outcome measures were maternal complications (anemia, GDM, pre-eclampsia, preterm labor, preterm prelabor rupture of membranes, postpartum hemorrhage), perinatal morbidity and mortality. All data collected were analyzed using SPSS-16.

Results: There were 85 (52%) women who presented with preterm labor, 79 (48%) were born at ≥37 weeks of gestation. Anemia was found in 17 cases (10%), and pre-eclampsia was found in 39 (24%) cases; 101 of the patients (62%) ended in cesarean sections. Prematurity was the major problem in 52% and about half of twins admitted to NICU; 21 babies had congenital anomalies (12.5%).

Conclusion: At present, the number of twin pregnancies is increased significantly due to assisted reproductive techniques and due to increased age at marriage. Multiple pregnancies are associated with increased risk for the mother and fetus. Preterm delivery increases the risk for the babies.

Keywords: Pregnancy complications; Adverse perinatal outcome; Twin pregnancy.

Optical Coherence Tomographic Patterns in Diabetic Macular Edema (DME): Prediction of Outcome after Intravitreal Triamcinolone Acetonide (Triesence) injection

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Abstract

Aims: To identify optical coherence tomographic (OCT) patterns of diabetic macular edema (DME) that might predict the anatomical and visual outcomes after intravitreal triamcinolone acetonide (Triesence) injection. To measure mean visual acuity gain and mean reduction in central foveal thickness (CFT) to check intraocular pressure changes and lens changes.

Method: Electronic medical records for 22 eyes of 22 patients were reviewed. Each subject was classified as one of three DME types according to the OCT features: diffuse retinal thickening (DRT), cystoid macular edema (CME) and serous retinal detachment (SRD). All patients were assessed clinically and treated by two retina consultants at Sultan Qaboos University Hospital (SQUH). Patients were fully informed about the nature of the condition and the intervention, and consented accordingly. All patients received ophthalmic examination including best corrected VA, intraocular pressure measurement, slit-lamp biomicroscopy, and dilated fundus examination. FFA was performed in most of the patients.

Ocular coherence tomography was done prior to treatment and during follow-up. Baseline BCVA, IOP, slit lamp examination and macular OCT were recorded for each patient. Subjects were given

intravitreal injection of triamcinolone acetonide (2 mg/ 0.05 mL). The clinical course of best-corrected visual acuity (BCVA), IOP, lens changes and central foveal thickness (CFT) using spectral domain OCT was monitored for a minimum of 3 months after the injections.

Results: Data were analyzed using SPSS to evaluate the mean visual acuity gain and mean reduction in central foveal thickness. Data were also analyzed for ocular complications of intravitreal Triesence such as intraocular pressure changes and lens changes.

Conclusion: In this study; although OCT patterns of DME did not predict the anatomical and visual outcome after intravitreal triamcinolone acetonide (Triesence®) injection, it showed that using a reduced injection dose of 2 mg/0.05 mL did not cause significant IOP or lens changes.

Keywords: Optical Coherence Tomography; Diabetic macular edema; Intravitreal; Triamcinolone acetonide; Triesence.

Assessing the Mammographic and Ultrasonographic Features of Invasive Lobular Carcinoma

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Abstract

Aims: To evaluate the imaging findings of invasive lobular carcinoma (ILC) in both mammography and ultrasound and to determine whether invasive lobular carcinoma is frequently missed in mammography.

Methods: The medical records and pathological diagnosis of 327 invasive breast carcinomas at SQUH between May 2008 and July 2013 were retrospectively reviewed. Only patients with pathologically-proven pure ILC were included in this study.

Results: The total number of patients who were diagnosed was 17 which accounted for 5% of all invasive breast carcinoma and the patients aged between 50 to 70 years. Of the 17 patients, 12 had imaging studies which constituted the material of this study. The most common mammographic finding was architectural distortion (8/12 = 66.6%). The most common US finding was an irregular hypoechoic mass with ill-defined margins (10/12= 83%). The carcinoma was correctly detected on initial mammographic evaluation in 11 patients (92%). Ultrasound breast was detected in 12 patients (100).

Conclusion: Architectural distortion was the most common finding of ILC in mammography, whereas, in US the most common feature was irregular or ill-defined hypoechoic mass with acoustic shadowing. The detection rate of ILC in both studies was very close.

Keywords: Invasive lobular carcinoma (ILC); Mammography; Ultrasound.

Surgical Relevant Anatomical Variants of the Paranasal Sinuses on CT PNS

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Abstract

Objective: To investigate the frequency of surgically relevant anatomical variants of the paranasal sinuses (PNS) on CT scans of patients suspected to have sinusitis.

Methods: This is a restrospective record review of 100 consecutive CT examinations of the paranasal sinuses performed at Khoula Hospital over 2 years (October 2011 to October 2013), fulfilling the inclusion criteria of multiplanar CT reformation in all three orthogonal planes available and clinically suspected acute/chronic rhinosinusitis. CTs of patients with tumors, traumas, pediatric age or with extensive diseases were excluded. Anatomical variants included uncinate process insertion, infraorbital ethmoidal cells (Haller cells), Agger nasi cells, frontal recess cells, cribriform plate anatomy, sphenoethmoidal (Odoni cells).

Results: Data gathering and analysis is yet to be completed.

Conclusion: By the end of the study, the percentage of each anatomical variant in the studied population should be determined. Knowledge of anatomical variants is important for otolaryngologists, particularly prior to endoscopic sinus surgery to identify the obstructive anatomy as well as to reduce the iatrogenic complications.

Keywords: Anatomical variants; Paranasal sinuses (PNS), CT scans; Sinusitis.

Obesity as a Risk Factor for Breast Cancer in the Omani Population

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Abstract

Background: Breast cancer is the most common cancer worldwide including Oman. The incidence of obesity is increasing all over the world and 23.8% of females in Oman are obese. It is acknowledged from different studies that obesity is also a risk factor for breast cancer.

Aim: The aim of this study is to determine the relationship between obesity and breast cancer in Omani females.

Methods: The study was conducted at Sultan Qaboos University Hospital from September 2009-September 2012. A total number of 210 patients was included in the study. The cases and control were equal (1:1). The study was designed to consider BMI as an indicator of obesity. Other risk factors were also seen like age, menopausal status, number of children, breast feeding, hormonal use and family history of breast cancer. Correlation of obesity and estrogen receptor status was also assessed.

Result: The primary data analysis showed weak correlation between BMI and breast cancer (p=0.07). On secondary data analysis, there was no association between obesity (BMI) and positive estrogen receptor in the cancer group. Multivariate analysis showed age to be the only significant risk factor for breast cancer (p=0.0001).

Conclusion: There was no significant correlation between obesity and breast cancer in the Omani population. Age was found to be the only significant risk factor for breast cancer in Omani females. It seems that breast cancer in Oman presents with different risk factors which need further research in terms of the epidemiology and may need bigger sample.

Keywords: Obesity; Breast cancer; Oman.

Review of Cases of Cesarean Section on Patient's Request at Tertiary Care Hospital in Oman

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Abstract

Introduction: Cesarean section on maternal request (CSMR) is defined as cesarean delivery for a singleton pregnancy on maternal request at term in absence of any medical or obstetrical indication. In the last few decades, the rate of cesarean sections has been noticed to increase dramatically and CSMR is thought to be one of the reasons for this increase.

Objectives: The purpose of this project was to estimate the incidence of CSMR at Royal Hospital over a study period of one year, to explore the demographic and clinical characteristics of the women choosing CSMR, to identify factors influencing women's decision of CSMR in Oman, and to summarize the experiences and level of satisfaction of these women after the cesarean delivery.

Methods: A cross sectional study was planned, including all women with a term singleton pregnancy admitted at Royal Hospital for elective cesarean section (CS) on patient request with no medical or obstetric indication from 24/10/2009 to 23/10/2010. Data was collected on two proformas with the first one filled during their admission and the second one filled 3-6 months after delivery through a phone interview.

Results: The incidence rate of CSMR was 2.45% and the majority of participants were Omanis, older than 30 years of age, parous, employed, with previous CS and not desiring more than three children in the future. In this study, it was found that the most common reason for choosing CSMR was fear of fetal distress or of any risk to the baby followed by fear of going through labor and then ending with emergency CS. This study also showed that 91% of the participants did not experience any difficulty post-delivery, 94% were satisfied with their choice, and 57% would like to have CSMR for their next delivery.

Conclusion: Reducing the incidence of CSMR may reduce the overall rate of CS, mainly by reducing the rate of repeated CS. This goal may be achieved mainly by increasing health education about complications of repeated CS, especially to patients who ask for CSMR and wish to have more than three children.

Keywords: CSMR; CDMR; CS on patient request.

Does Thyrotropin "TSH" Lower Reference Range Need Revisiting?

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Abstract

Background: Initial serum TSH is the most sensitive screening test for thyroid dysfunction. During the last two decades, improved TSH assay has enabled its use for distinguishing between all thyroid dysfunctions. The third generation TSH assay has an analytical sensitivity of ≤0.0025 µIU/mL. However, there has been no parallel change in TSH reference range of 0.35-4.5 mIU/L that has been used with all generations of TSH assay.

Objective: This study aims to assess thyroid hormones status particularly the frequency of hyperthyroidism in subjects with TSH below the recommended assay's reference range.

Methods: This study involved retrospective data of subjects with TSH values in the range of 0.010-0.340 mIU/L with corresponding FT4 (and FT3 if available). Data was collected from Al Shifa health information system (HIS) for sequential subjects (n= 408) from year 2010 to 2011 in Royal Hospital. Exclusion criteria included acutely sick patients, known thyroid, pituitary or hypothalamic disorders, pregnant and pediatric age group. TSH (third-generation assay), FT4 and FT3 were analyzed by Architect Immunoassay analyzer using Chemiluminescent Microparticle Immunoassay (CMIA). The statistics were generated using IBM SPSS 20.

Results: Of the 408 patients with TSH range of 0.010-0.340 mIU/L, 385 (94.4%) subjects had normal thyroid status with

normal FT4 and 23 (5.6%) subjects had raised FT4 (>22.4 pmol/L). When sub-grouped according to TSH level, 5 (1.7%) of the subjects with TSH 0.10-0.34 mIU/L (n=292) had high FT4 range of 22.6–23.8 pmol/L, while 2 (4.1%) had 0.05-0.10 mIU/L (n= 49), and 16 (24%) had 0.01-0.05 mIU/L, (n= 67) had high FT4 range of 22.7-54.2 pmol/L. The total number of subjects with TSH 0.010-0.340 mIU/L who had measured FT3 was 77 of whom 73 subjects had FT3 within the reference range and only 5 (6.4%) subjects had raised FT3 (7.0-12.2 pmol/L) with normal FT4. The results of FT3 (pmol/L) and TSH (mIU/L) in these five patients were: (7, 0.01); (7.7,0.01); (8.2,0.05); (9.4, 0.11) and (12.2, 0.04) pmol/l respectively.

Conclusion: The majority of subjects with TSH of 0.010-0.340 mIlU/L were euthyroid; however the frequency of hyperthyroidism somewhat increased among subjects with TSH <0.050 mIU/L. This study indicates that the lower limit of TSH reference range using third generation assay may be considered to be 0.100 mIU/L with a recommendation for further studies to establish a new reference range in the current practice using highly sensitive assays.

Keywords: Thyrotropin; TSH; Third generation assay; Hyperthyroidism; Reference range.

Chronic Rhinosinusitis: Nasal Endoscopy *versus* CT scan

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Objective: To evaluate the reliability of rigid nasal endoscopy in the diagnosis of chronic rhinosinusitis in adult patients clinically diagnosed to have chronic rhinosinusitis (CRS) and its ability to predict intra-sinus mucosal involvement as compared to computed tomography (CT) scan.

Methods: A prospective diagnostic accuracy study of consecutive patients with diagnosis of CRS who were symptomatic and fit the American Academy of Otolaryngology – Head and Neck Surgery Task Force criteria were enrolled prospectively. Each patient was subjected to rigid diagnostic nasal endoscopy and classified as defined by the revised Sinus Allergy Health Partnership (SAHP) Task Force criteria. These patients then underwent noncontrast CT sinuses on the same month. Results were analyzed as a diagnostic test evaluation using CT as the gold standard.

Results: Twenty-one patients out of the 75 calculated sample size had symptom-based CRS. Nasal endoscopy was abnormal in 65 patients (87%). Of these patients, 60/65 (92%) showed positive findings on CT scan. Ten patients had normal endoscopy. Of these, 6/10 (60%) had abnormal CT scan. Sensitivity and specificity of diagnostic nasal endoscopy against CT scan were 91% (95% CI: 81.25-96.57) and 44% (95% CI: 13.97-78.6), respectively. The likelihood ratio (LR) for positive nasal endoscopy to diagnose CRS was 1.6 and LR to rule out CRS when the endoscopy was negative was 0.21.

Conclusion: Diagnostic endoscopy is a valid and objective diagnostic tool in the work up of patients with symptomatic CRS. Nasal endoscopy is able to diagnose CRS with confidence of more than 90%. CT scan of paranasal sinuses is not recommended to be done routinely in workup for CRS to reconfirm the findings of nasal endoscopy except in cases with symptomatic CRS and negative on nasal endoscopy, and also as part of pre-operative workup for sinus surgery.

Keywords: Chronic; Sinusitis; Rhinosinusitis; Nasal endoscopy; CT scan; Sensitivity; Specificity.

Osteomyelitis in Children: Seven years Experience at two Tertiary Care Centers in Oman

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Abstract

Background: Osteomyelitis (OM) is considered as one of invasive infections in childhood. It has variable presentations and outcomes depending on the patient's medical background, time of presentation, and causative organism.

Objective: The aim of this study is to look into the epidemiology, management and outcome of OM in the pediatric age group in Oman represented by two referral hospitals. The etiology data will help to establish the prevalence of MRSA as a cause for OM. Recommendation on medical and surgical management can be established in the future utilizing this local data.

Methods: This is a retrospective descriptive study which included all children below 13 years of age who were admitted in Khoula Hospital and Royal Hospital with ICD discharge code consistent with osteomyelitis from January 2006 – September 2013. The demographical data, investigations, surgical and medical management, and outcome of cases were collected. Data was extracted from patients' electronic records (Al Shifa system) in both hospitals and SPSS statistical program was used for data analysis.

Results: Preliminary results of 34 patients from Royal Hospital (22 males, 12 females) were analyzed. Most of the cases (76.5%) were acute osteomyelitis, 5.8% were subacute, and 17.6% are chronic OM. Seven patients out of 34 had Sickle cell disease. At the time of presentation, 17 cases had proceeding focus of infection and 11 patients with history of trauma. The mean duration of symptoms was 7 days. Fever was present in 42% of the cases. There were swelling, pain and restricted range of movement in 67%, 64% and 50% of patients, respectively. Warmth and redness at affected sites were present in 42% of the patients. Empirical therapy with one antibiotic was started in 35% of the patients and two antibiotics in 64%. Regarding blood culture, 38% were negative, 26% grew MSSA and 20% grew MRSA. The common antibiotic combinations used were cloxacillin with ceftriaxone or gentamycin, and vancomycin with ceftriaxone. Forty percent of the cases underwent surgical intervention. The main complications found in few patients with OM were deformities, abscess formation, septic arthritis, fracture, and/or evolvement to chronic OM.

Conclusion: Initial data from this study echoes previous studies highlighting the great variability in clinical presentation, diagnosis, and management of OM in children. It underscores the great need for local recommendation and adoption of uniform and evidence-based approach to the management of OM in Omani children.

Keywords: Osteomyelitis; Children; Oman; Antibiotics; Epidemiology; Outcome.

Knowledge of Alzheimer's Disease Among Health Care Professionals

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Abstract

Background: Continued aging of population is expected to be accompanied by substantial increase in the number of people with dementia and also in the number of healthcare staff required to care for them. Adequate knowledge about dementia among healthcare staff is important in terms of quality of care delivered to this vulnerable population.

Objectives: The purpose of this study is to assess knowledge of Alzheimer's disease across a range of healthcare staff.

Method: This is a cross-sectional survey study conducted among healthcare professionals (including nurses and doctors) at Sultan Qaboos University Hospital and Al-Masarra Hospital in Muscat. Knowledge level was investigated via the validated Alzheimer's disease knowledge scale (ADKS). Knowledge level was compared across demographic categories including professional groups (doctors/nurses) and by whether the participants had any professional or personal experience of caring for someone with dementia.

Results: Eighty participants were enrolled in the study including diverse staff in terms of age, profession (doctors and nurses) and different levels of contact with patients with Alzheimer's disease. Results of this research showed that knowledge about Alzheimer's disease was better among doctors compared to nursing staff in most of the domains of the ADKS.

Conclusion: Specific deficits in dementia knowledge were identified among healthcare professionals in Oman. Overall knowledge about Alzheimer's disorder was of a generally moderate level with significant difference observed among the two studied professional groups.

Keywords: Knowledge; Alzheimer's disease; Healthcare staff.

Physical Activity and Perceived Barriers among High-School Students in Muscat, Oman

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Abstract

Aim: To study the patterns and determinants of physical activity among secondary-school students in Muscat, governorate of Oman.

Methods: A cross-sectional survey was conducted in March 2011 targeting Omani students in 11th and 12th grades. The multistage random sample technique was used to select 4 out of the 6 education regions with the highest population size. From each region, 2 secondary public schools (1 for girls and 1 for boys) were randomly selected. Two classes (1 of each grade) were randomly selected from each school and all Omani national students were requested to fill a self-administered, pre-tested and pre-coded questionnaire developed for data collection. The univariate and multivariate logistic regression analyses were used to identify the predictors of physical activity.

Results: For this study, 439 students were included. Half of the students (52.9%) were enrolled in physical education classes and 95.9% reported after-school physical activities. The recommended level of physical activity (≥1680 MET minutes/week) was met by 23.9% of students, being significantly lower among girls (9.8%) than boys (38.8%). More girls were in the stages of pre-contemplation (5.8%) and contemplation (26.7%) of exercising while more boys were in the action (15.4%) and maintenance stages (36.0%). Girls reported significantly more barriers to exercise, related to lack of

energy (p=0.014), interest in other activities (p=0.000), lack of encouragement (p=0.000), worries about looks (p=0.000), time constraints from academic responsibilities (p=0.000) and family obligations (p=0.039). The full model logistic regression revealed that boys in 11th grade and attempts to regulate weight significantly predicted physical activity meeting the recommended levels.

Conclusion: The revealed rates and levels of physical activity particularly among girls are far from being effective in preventing the growing problem of non-communicable diseases. Students have opportunities for exercising and tailoring of programs, and activities to surmount the barriers and constraints will promote acceptable levels of physical activity. Maximizing the role of schools is indispensable. The focus of future studies should be to investigate the barriers for participation in physical education classes and exploring means of addressing such barriers

Keywords: Physical activity; School students; Internal barriers; External barriers; Motivation.