

VALIDATION OF MALAY BRIEF PAIN INVENTORY QUESTIONNAIRE TO MEASURE CANCER PAIN

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Purpose: This study was conducted to translate and validate the Brief Pain Inventory (BPI) questionnaire in the Malay language. The psychometric properties in terms of construct and concurrent validity of the Malay version of BPI were evaluated. The internal consistency and test-retest stability were also evaluated.

Methodology: The original version of BPI was translated into a Malay version by the standard procedure and piloted among 35 cancer patients with pain. A total of 113 (95.0%) agreed to participate in this study out of 119 eligible patients with an age ranging from 18 to 76 years. They were interviewed between August and November 2004 for the main study to evaluate the psychometric properties of Malay version of BPI.

Results: The pain intensity items demonstrated high loading with a factor whereas the pain interference items were loaded on the other factor in factor analysis. Two factors explained 62% of the variance. With Karnofsky Performance Scale (KPS), pain intensity scale had a moderate negative (Pearson's) correlation ($r=-0.520$, $p<0.001$) and pain interference scale had a good negative correlation ($r=-0.732$, $p<0.001$), showing an appropriate concurrent validity. The coefficient alpha of both scales demonstrated a good internal consistency of the items. The intraclass correlation coefficient for the test-retest stability was 0.61 for the pain intensity scale and 0.88 for the pain interference scale.

Conclusion: Overall, the Malay version of the BPI is a reliable and valid instrument for cancer pain assessment and it is comparable with the original version of the BPI in terms of structure and psychometric properties.

KNOWLEDGE, ATTITUDE, AND PRACTICE RELATED TO BREAST SELF EXAMINATION AND PAP SMEAR EXAMINATION IN MUKIM SITI MANI, KOTA BHARU

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Background: Mukim Siti Mani is a rural area in Malaysia. This study aimed i) to determine the level of knowledge (k), attitude (A), and practice (P) related to breast self examination (BSE) and Pap smear examination (PSE) ii) to identify the specific weak area of the KAP, and to identify the high risk group (in terms of age, sex, and education level) in relation to the KAP.

Method: A cross-sectional study was conducted in January, 2005, among 100 randomly selected women with the age above 18. The villagers were interviewed by using a set of questionnaire. Authors developed the questionnaire and conducted the interviews.

Result: There were a total of 100 Malay women respondents with 49% of them below the age 30, and 30% were not yet married. There were 34%, 79%, and 69% of subjects having below the satisfactory level of KAP. The weak areas identified were knowledge about risk factors of breast cancer and cervical cancer; attitudes towards cancer risks; and 44% and 60% of respondents never practice BSE and PSE. Regarding the risk groups, age below 30, unmarried women, and those with income less than RM500 had poorer knowledge; and lower education level and income less than RM500 had poorer attitude than their comparative groups.

Conclusion: The high prevalence of those with KAP unsatisfactory level indicates the needs for proper health education intervention. The study highlighted the weak areas where the intervention should be designed to focus.

CARCINOMA OF LUNG MANAGEMENT AT ONCOLOGY CLINIC HUSM

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Introduction: Carcinoma of the Lung is the commonest cancer in the developed countries and developing countries. It is the number one cause for death among the cancer patients. The most important risk factor is smoking.

Methodology: The Oncology clinic registered 95 patients of carcinoma lung during 2002-2004. Patient details, management and out come of treatment were analyzed.

Results: More the 50% patients were in 6th-7th decade of life. M: F ratio was 3:1. Malays, had higher incidence followed by Chinese, One Indian patient was registered. Cough and shortness of Breath were the commonest complaints. Bronchoscopy performed in 35% patients. External irradiation was received by 50% of patients. Thirty three percent of patients received chemotherapy. Squamous cell carcinoma was the commonest histopathological diagnosis. Liver, Lung, Bone and Adrenals were the common sites of metastasis noted in our series. Following treatment patients were followed regularly for the response to treatment and for assessment of metastasis. Longest follow up is noted for about 2 years and shortest is 1 month.

Conclusion: Carcinoma of the lung is an aggressive cancer and is the number one cause of death among cancer patients. Early detection can save the life and prolong the survival. As most of the patients present in the advanced stages the survival is approximately few months.

SUBCUTANEOUS PANNICULITIS - LIKE T-CELL LYMPHOMA

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Case report: A young female was admitted in King Fahd Specialist Hospital, Al-Qassim Saudi Arabia with history of fever and multiple subcutaneous nodules over her abdominal wall. Abdominal wall was inflamed and some nodules were ulcerated. She had hepatosplenomegaly as well. Her blood investigations showed bicytopenia, and prolonged PT & PTT. Liver enzymes were also derranged. Imaging studies (C-T Scan & MRI) showed fatty liver and thickened abdominal wall. Biopsy from skin nodule was suggestive of Panniculitis. TCR gene rearrangement studies and immunehistochemistry confirmed the diagnosis of subcutaneous Panniculitis like T-Cell lymphoma. She had rapid clinical and biochemical deterioration because of associated cytophagic histiocytic syndrome, which responded to cyclosporine therapy, and subsequently she was finally planned for CHOP chemotherapy. The present case underlines the need for a thorough work up to rule out all possible causes of panniculitis which sometimes can be unnoticed and resulting in a death of a patient due to associated cytophagic histiocytic panniculitis syndrome secondary to haemophagocytosis involving the bone marrow.

A PILOT STUDY – CORRELATION OF CT PERFUSION PARAMETERS WITH CLINICAL STROKE SEVERITY SCORE IN ACUTE ISCHAEMIC STROKE PATIENTS

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Introduction: Many recent advances have taken place in the diagnosis and management of acute stroke patients. CT perfusion is able to detect perfusion disturbances during the hyperacute stage of stroke. Current management is to initiate acute thrombolysis therapy within three hours of clinical stroke onset. Clinical drug trials are using the National Institute of Health Stroke Scale (NIHSS) score to quantitatively measure the acute neurological deficit prior, during and post drug trial. Its baseline score can prognosticate the future outcome of stroke patients.

Objective: To investigate the correlation of CT Perfusion parameters (cerebral blood volume, cerebral blood flow and mean transit time) with the NIHSS score in acute ischaemic stroke patients.

Materials and Methods: Twelve patients with first presentation of acute ischaemic stroke at less than 72 hours of clinical onset were enrolled. CT Perfusion and NIHSS scoring were performed by the researcher in the same setting. Perfusion parameters (cerebral blood volume, cerebral blood flow and mean transit time) and baseline NIHSS scores were analyzed to ascertain their correlation.

Result: A statistically significant and good strength of correlation was noted between cerebral blood volume ($r=-0.720$, $p=0.008$) and cerebral blood flow ($r=-0.723$, $p=0.008$) with NIHSS score. Meanwhile a statistically insignificant and poor strength of correlation was seen between mean transit time ($r=-0.136$, $p=0.673$) with NIHSS score.

Conclusion: Findings from this pilot study may give an added value to CT Perfusion imaging in acute stroke patient: cerebral perfusion assessment with simultaneous prognostication of future stroke outcome.

ADENOCARCINOMA OF THE LUNG WITH OSTEOLASTIC METASTASES MANIFESTED AS CAVERNOUS SINUS SYNDROME

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Objective: Between 20% and 50% of patients with bronchogenic carcinoma develop skeletal **metastases**, **mostly** osteolytic metastasis at some point during the course of their disease; 25 to 35% of patients will have brain **metastases** develop. However osteoblastic metastases to skull base and presenting as cavernous sinus syndrome is a rare complication of bronchogenic carcinoma. We are presenting one such case.

Case report: A 44-year-old male presented with locally advanced lung adenocarcinoma. Later he developed acute onset right-side external ophthalmoplegia and ptosis secondary to third, fourth and sixth cranial nerve palsy. CT scan revealed sclerotic change of the right sphenoid bone. MRI scan demonstrated a solid right sphenoid mass with infiltration of adjacent cavernous sinus. The mass was hypointense and hyperintense on T1- and T2-weighted images respectively, and showed heterogenous enhancement with gadolinium.

Discussion: Though metastases in adenocarcinoma of lung are frequent and are found in various organs, to the best of our knowledge, osteoblastic metastases in the base of the skull have been rarely described in the literature. This patient also has cavernous sinus infiltration resulting in multiple cranial neuropathies. The mechanisms of osteoblastic metastasis in bronchogenic carcinoma is incompletely understood, over-production of factors such as endothelin-1 that have stimulatory effect on osteoblasts may be responsible. Contrast-enhanced magnetic resonance imaging is the preferred imaging modality to evaluate cavernous sinus infiltration by tumour.

Conclusion: Adenocarcinoma of the lung should be considered in the differential diagnosis of osteoblastic skeletal metastases and cavernous sinus syndrome.

INSULIN SENSITIVITY STATUS OF NON-OBESE NORMOGLYCAEMIC MALAY SUBJECTS

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Introduction: Hyperlipidaemia and insulin resistance may have a relationship. Most of the previous studies looked at insulin resistance in hyperlipidaemic subjects who were also obese. So influence of obesity and hyperlipidaemia acted simultaneously in the genesis of insulin resistance.

Objective: To determine insulin sensitivity and secretory status of non-obese normoglycaemic subjects, and to study the relationship between hyperlipidaemia and insulin sensitivity in such population.

Methodology: A cross-sectional study was performed on 246 non-obese (BMI<25kg/m², waist circumference male<102cm, female <88cm) and non-diabetic subjects aged between 30-60 years. Fasting plasma glucose, fasting insulin and lipid profile were done. Insulin sensitivity and secretory status were calculated using homeostasis model assessment (HOMA) software (HOMA%S, HOMA%B and HOMA-IR). The subjects were divided into two groups according to their lipid status (128 normolipidaemic and 118 hyperlipidaemic) and their insulin sensitivity was compared.

Results: The hyperlipidaemic subjects showed substantially lower insulin sensitivity and higher insulin resistance in comparison to normolipidaemic subjects. Mean HOMA%S of hyperlipidaemic and normolipidaemic subjects were 80 and 155 (p<0.0001) respectively. Mean relative insulin resistance (HOMA-IR) was 2.66 in hyperlipidaemic subjects and 1.05 in normolipidaemic subjects. Insulin secretory status (HOMA%B) of the two groups was 178 and 116 respectively.

Conclusion: Insulin sensitivity of otherwise healthy non-obese hyperlipidaemic subjects is lower than in normolipidaemic subjects. The B cells of hyperlipidaemic subjects have to work more to compensate for lowered insulin sensitivity.

EFFECTS OF THERAPEUTIC LIFESTYLE CHANGES AND SIMVASTATIN ON INSULIN SENSITIVITY OF NON-OBESE NORMOGLYCAEMIC MALAY SUBJECTS

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Introduction: The Adult Treatment Panel of the National Cholesterol Education Program (NCEP ATP III, 2001) proposed 'therapeutic lifestyle changes' (TLC) for lowering lipids in hyperlipidaemic subjects. Its effectiveness in lowering insulin resistance has not been tested. Therefore, a study of only non-obese but hyperlipidaemic subjects is required in an attempt to study the effects of lipid lowering interventions on insulin sensitivity.

Objective: To determine the effects of lipid lowering by TLC and Simvastatin on insulin sensitivity and secretory status of non-obese normoglycaemic hyperlipidaemic Malay subjects.

Methodology and results: An intervention study was done on 28 non-obese hyperlipidaemic subjects. They underwent 3 months of therapeutic lifestyle changes (TLC) regimen after which according to response they were divided into TLC and Simvastatin groups and in the following next three months went through TLC alone or TLC plus Simvastatin. Their insulin sensitivity and lipid status were assessed at baseline and after six months. A control group containing age, sex, BMI matched 28 normolipidaemic subjects were also enrolled to compare the change in lipid and insulin sensitivity in hyperlipidaemic subjects. The intervention showed significant reduction of insulin resistance and improvement of insulin sensitivity in hyperlipidaemic subjects with reduction of lipid levels.

Conclusion: Insulin sensitivity of otherwise healthy non-obese hyperlipidaemic subjects is lower than in normolipidaemic subjects. Insulin sensitivity of hyperlipidaemic subjects can be improved by lowering lipid levels.

DETERMINATION OF THE GLYCAEMIC INDEX OF SELECTED MALAYSIAN FOODS

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Background: The glycaemic index (GI) is a classification of the blood glucose raising potential of carbohydrate foods. There is evidence to support its application to regular diet in terms of benefits for lipid and glycaemic control. Integrating information about the glycaemic index of foods into the Malaysian diet is limited by lack of data. Therefore our purpose was to determine the GI of individual foods which are rice (beras kilang, species name : *oryza sativa*), banana (pisang brangan, species name : *musa paradisiaca*), sweet potato (ubi keledek, species name: *ipomoea batatas*), noodle rice (kuih-teow, rice product species name : *oryza sativa*) and to create a database.

Method: Twelve healthy adults with a mean body mass index of 21.6 ± 1.6 participated in this study. GI was determined using a standard method with white bread and adjusted relative to glucose.

Setting: Dietetics laboratory, Universiti Sains Malaysia.

Results: The results showed that the mean GI of rice was 90 ± 12 , that of kuih teow 85 ± 15 , that of sweet potato 77 ± 12 and the mean GI of banana was 55 ± 12 . Although there was a significant difference in incremental area under the curve (IAUC) and in GI within the subjects ($P= 0.005$, $P= 0.001$). There was no significant difference between the foods. Friedman's ANOVA indicated that there was significant heterogeneity among the means, $P=0.015$, but the only individual means which differed from each other were banana vs. rice.

Conclusion: We conclude that rice, kuih teow and sweet potato are high GI foods, whereas banana is a low GI food. This is the first study in determining the GI of individual Malaysian foods. More research has to be done to determine the GI of many individual Malaysian foods so that a database on Malaysian foods can be created.

ORAL HEALTH ASSESSMENT OF DIABETIC TYPE II PATIENTS IN HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM)

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Introduction: Oral care is acknowledged as a basic nursing procedure in maintaining and perseverance of oral health of total holistic care especially in hospitalized patients. But sadly, this nursing practice is only provided when cases arise or when demanded for.

Objectives: In an effort to improve nursing practice, an assessment of the oral health status, identifying oral manifestations and microorganisms presence on diabetic type II patients in HUSM was conducted.

Methodology: Descriptive study on 50 diabetic type II patients, aged > 40 years. Assessment of patients' oral health status was conducted using Oral Assessment Chart. Swabs from the buccal retromolar were taken and cultured for microorganisms.

Result: This study revealed that patients only brushed their teeth 1-2 times per day using ordinary toothbrush and toothpaste. Forty- two percent (42%) had oral health score of 6-10 with dry mouth, coated tongue and thick saliva, 12% had score <5 (normal) while 8% had a score >16 (worst). Candida (36%), mixed gram negative and positive (30%), gram positive (22%) and gram negative (12%) was cultured from oral cavity.

Conclusion: The oral health status of hospitalized diabetic patients is manifest by dry mouth, coated tongue and thick saliva with pathogenic microorganisms presence. Nurses need to include assessment of oral cavity as part of a standard nursing care practice especially in medically ill patients with oral manifestations.

TRAUMA TO CERVICAL SPINE ADULT VS PEDIATRIC- HUSM EXPERIENCE

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Introduction: The number of cases with craniocervical and cervical injuries reported in HUSM is increasing steadily. Potentially devastating injuries to the cervical spines is relatively critical as it involves vital areas. When it occurs in children, the mortality is more than twice that of adults. Therefore, the pediatric cervical injury should be recognized early and promptly.

Objectives: . To relate our experiences in diagnosing cervical spine injuries in 10 cases at HUSM and to highlight all important and pertinent facts related to cervical spinal injuries.

Methodology: GE light speed helical CT scan equipment available in HUSM was used for our study. All patients were in supine position with the spinal column parallel to and along the midline of the table and perpendicular to the plane of section. The neck was moderately flexed without any force or kept in neutral position whichever was comfortable to the patients, with flexion of hips and knees. Slice thickness depended on the clinical problem- mostly with 1-3mm overlap between contiguous slices, usually 'en bloc' C1-7 vertebrae axial scanning done at a time. Volume rendering and surface reformat technique were used and 3-D images were reconstructed wherever necessary.

Results and conclusion: The study underscores the essential role of the radiology in detecting the injury to the vital parts of the cervical area. The routine use of thin slice helical CT in the high-risk child may be prudent. Vigilant search and close scrutiny of the spines must be maintained during the management of a pediatric case with suspected spinal injury with or without loss of consciousness or spinal fracture on plain radiography.

A STUDY ON THE USE OF A TRAUMA SCORING SYSTEM IN THE ASSESSMENT OF TRAUMA PATIENTS

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Introduction: Trauma scoring is one of the tools in trauma registry. It provides an objective basis for comparing patients' outcome prediction. The Revised Trauma Score (RTS) can be used in predicting trauma patients' mortality probability.

Objective: To determine the relationship between RTS and mortality in USM

Methodology: This is a cross-sectional (single proportion) prospective study on trauma patients presented to the ED in HUSM. These patients were scored on the RTS. Outcome of the patients after resuscitation were noted after 30 days. The probability of survival is reflected by the mean mortality outcome in 30 days. The statistical significance to 30 days mortality was deduced using logistic regression analysis. RTS and probability of survival was analyzed using Pearson's Correlation and Receiver Operating Characteristic curve.

Results: 467 patients were seen in the ED in HUSM during this study. Weighted RTS less than 4 resulted in 0 survival probability. Weighted RTS 4-6 resulted in survival probability of 25%-81% and that of 7-8 resulted in more than 90% probability. Pearson's Correlation analysis showed a Pearson's Correlation Coefficient of 0.927 and a two-tailed P-value of < 0.01 . The area under the Receiver Operating Curve was 0.991 with an asymptomatic significance of 0 (< 0.05)

Conclusion: This study shows that there is a positive relationship between weighted RTS and probability of survival in HUSM.

THE PRACTICE OF OTTAWA ANKLE RULES IN RADIOGRAPHS TAKEN FOR ACUTE ANKLE AND MIDFOOT INJURY IN ED HUSM

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Background: It is common to order radiographs for almost every ankle and foot injuries in Emergency Department (ED). However, only less than 15% of patients have fracture. Ottawa Ankle Rules (OAR) is a world wide well-validated and well-accepted clinical practice guideline to assess these injuries in making the decision for the need of radiographs. The final aim is to reduce the amount of unnecessary radiographs.

Methods: The aim of this study was to determine the prevalence of OAR practice in the patients with radiographs ordered for the ankle and midfoot injuries and the prevalence of fracture in groups which practicing and not practicing OAR. The patients' clinical records were used to evaluate the practice of OAR by looking at the clinical variables and the radiographs were then reviewed for presence of fracture.

Results: High percentage radiographs ordered were not based on OAR that was 59.7%. There was a significant difference in detecting fracture in group which practiced OAR, 70.6% compared with 29.4% of patients where the radiographs that were ordered not based on OAR. This can reduce unnecessary radiographs to 62.2%. Significant proportion of the radiographs ordered, 51.3% had improper documentation in the patients' clinical record.

Conclusion: There was a poor Ottawa practice in acute ankle injuries in ED HUSM resulting in high percentage of unnecessary radiograph ordered. Significant proportion radiographs ordered had improper documentation in the clinical records.

RETROSPECTIVE REVIEW OF BURN PATIENTS IN HOSPITAL USM

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Introduction: Burn injuries are common problem found in developing countries. This is a retrospective review of 218 patients admitted from January 1990 to December 2003 to Hospital Universiti Sains Malaysia which is a referral centre for the east coast of West Malaysia.

Objective: To analyze the burn cases admitted to this referral centre and to evaluate the demographic data of these patients.

Methodology: Data was retrospectively collected from the medical records retrieved from the hospital record office. All burn injury patients admitted from January 1990 to December 2003 were identified and their demographic and clinical data were analysed in SPSS version 11.

Result: There were 218 patients admitted for burn injuries over the past 13 years. Male: Female ratio was 2:1. Children consisted 36.2% of the admission and there was a preponderance of Malay patients (92.7%). Children had a significant higher percentage of scald burn injury compared to adults ($p < 0.01$). Eighty-one percent of thermal burn injuries were seen in adults. Mean total body surface area (TESA) of burn patients admitted was 15.6%. Mean duration of hospital stay was 16 days. Overall mortality rate was 5.5% and the majority was due to thermal burn injury.

Conclusion: Domestic scald injury in pediatric patients and flame burns in adults were commonly seen in developing countries. Length of hospital stay increased with increase in percentage of TBSA burns. Mortality rates were higher in older patients and patients with extensive burns. There is an urgent need for preventive campaign to reduce domestic accidents as this can significantly reduce the admission for burn injuries.

SUBCUTANEOUS ATERIOVENOUS MALFORMATION (AVM) IN THE SCALP

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Objective: To highlight a case of scalp AVM, which is rare when compared to intracranial AVMs; or other causes of scalp vascular malformation.

Case report: A 30-year old male had a history of a painless forehead swelling since birth, increasing in size in the recent 3-4 years. Clinically, there was a soft, bluish and non tender lesion on the midline associated with multiple tortuous veins, bruit and coarse overlying skin. MRI Brain showed an enhancing mass of inhomogeneous intensity within the subcutaneous tissue, with flow void serpiginous structures within. There was no intracranial extension. Cerebral angiogram confirmed an AVM with multiple feeders from both ophthalmic and superficial temporal arteries.

Discussion: Scalp AVMs are relatively rare vascular malformations in comparison to haemangioma and venous malformations; being 20 times more common intracranially. They are discovered later when substantial esthetic and social disturbance entail. MRI is helpful to differentiate AVMs from other vascular causes and aid in the correct diagnosis. Angiography is the gold standard modality to delineate the lesion and exclude any intracranial compartment. Management of scalp AVMs is difficult because of its high flow, complex vascular anatomy and cosmetic problems. Among the many treatment options available, surgical excision remains the most common and successful method. Endovascular treatment can be used as a definitive therapy or as an adjunct to surgical excision.

Conclusion: Scalp and facial AVMs are rare. Treatment poses a great challenge to the clinicians. Multidisciplinary approach is required and this case demonstrated the multidisciplinary involvement of several specialities.

PROGNOSTIC STUDY OF USING DIFFERENT MONITORING MODALITIES IN TREATING SEVERE TRAUMATIC BRAIN INJURY

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Introduction: The aim of the study was to assess whether the multimodality monitoring technique would result in a better outcome score than the single modality monitoring in a severely head injured patient.

Methodology: It was a prospective randomized study, including all adults with traumatic severe head injury who had a GCS of less than 9 and CT scan did not reveal significant infratentorial pathology. In the multimodality group, we monitored basic intensive care parameters and multiple cerebral parameters. In the standard monitoring group, only the intracranial pressure was monitored. We noted the outcome at 6 months post treatment.

Results: The six months outcome between those two groups was not statistically significant ($p < 0.479$). However, the percentage of cases that were independent at 6 months was higher in the multimodality group compared with the single modality group, 21.2% and 17.3% respectively. The multimodality group had also lower percentage of cases that were dependent at 6 months in comparison to the single modality group, 28.8% and 32.7% respectively. The univariate analysis revealed, age ($p < 0.03$), GCS on arrival ($p < 0.01$), 24 hours fluid balance at day two ($p < 0.01$), serum sodium ($p < 0.03$) and intracranial pressure at day 3 of monitoring ($p < 0.01$) were correlated with the outcome.

Conclusion: There was no significant statistical difference between the multimodality and single modality groups. There may be still a possibility of better outcome obtained with multimodality technique because more cases had independent status in that group.

DIAGNOSING DILEMMA: CLEAR CELL SARCOMA OF SOFT PART, A CASE IN PERSPECTIVE

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Introduction: In the treatment of cancer patients, it is important to have a definite diagnosis. However, there are instances whereby this is not achieved due to various reasons.

Case report: A young man presented complaining of progressively painful right knee swelling. Examination revealed a hard swelling with multiple right inguinal lymphadenopathies. Imaging of the right knee showed an enhancing mass with no other distant metastases. The tumour was excised along with the inguinal nodes. Initial HPE was reported as alveolar rhabdomyosarcoma with metastases to the nodes. Patient was commenced on chemotherapy. During treatment, a new lesion developed with progressive swelling over the right inguinal area. The initial HPE was thus reviewed and a new diagnosis of clear cell sarcoma of soft parts was made. Chemotherapy ceased and patient was planned for re-excision followed by radiotherapy.

Discussion: Clear cell sarcoma of soft part is a recently described entity. It is rare and often misdiagnosed as synovial sarcoma, fibrosarcoma or malignant peripheral nerve sheath tumour. Though malignant melanoma of soft parts is a synonym for this tumour, it should be segregated as a unique tumour of soft tissue. There are no specific guidelines for treatment apart from tumor resection with adjuvant radiotherapy. There is no indication for adjuvant chemotherapy. The prognosis remained poor as reported by most studies.

Conclusion: Diagnosing cancer clinically requires a multi-disciplinary approach. Any discrepancy in the clinical nature of the disease requires reassessment of the diagnosis and management of the patient. This is to ensure better care for the patient as well as maintaining the integrity of the practice.

CLINICAL CORRELATION WITH ERCP IN THE DIAGNOSIS OF CHOLEDOCHOLITHIASIS

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Introduction: ERCP is currently the investigation of choice for suspected choledocholithiasis, but is not without morbidity. This is an analysis of clinical symptoms and signs in those patients who underwent ERCP for suspected choledocholithiasis.

Methodology: In this retrospective study, clinical presentations were analyzed in patients who underwent ERCP for suspected choledocholithiasis from January 2000 to August 2003 in HUSM.

Results: The main clinical presentations were abdominal pain and jaundice whereas the main physical sign was abdominal tenderness.

Conclusion: Univariate analysis of clinical parameters showed only jaundice and Charcot's triad to be predictors for presence of choledocholithiasis

ONCOLOGICAL MANAGEMENT OF INTRACRANIAL GERM CELL TUMORS

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Introduction: Intracranial germ cell tumors are a very rare malignancy presenting as intracranial space occupying lesion. Due to the critical site of the origin these tumors are rarely resectable or biopsied for histodiagnosis. In most situations the treatment is based on a radiological diagnosis alone. Craniospinal radiotherapy alone or along with combination chemotherapy is the treatment of choice with encouraging cure rates

Materials and Methods: This is a retrospective analysis of intracranial germ cell tumors treated in the department of Nuclear medicine, Radiotherapy & Oncology of Hospital USM since 1996. These patients underwent thorough radiological evaluation and were treated with sequential craniospinal radiotherapy with or without combination chemotherapy. The patients were followed up regularly with radiological imaging tests at a regular interval.

Results: Nine documented cases of intracranial germ cell tumors were evaluable from our record. There were 8 males and one female with a median age of 21 years (range (2_ years to 32 years). The main symptom at presentation was diplopia and VP shunt was performed for obstruction in 5 cases. Out of 9 cases, two patients refused treatment and succumbed to the disease. One patient was still on spinal radiotherapy at the time of this review. Six patients had completed the full course of craniospinal radiotherapy and were alive with complete radiological regression of lesions. The minimum and maximum follow up ranged from 7 months to 9 years with a median follow up duration of 4 years.

Conclusions: Intracranial germ cell tumors are rare tumors. However they are potentially curable if patients comply with craniospinal radiotherapy and combination chemotherapy. Our experience showed encouraging long-term responses to treatment.

MAXILLOFACIAL TRAUMA IN HOSPITAL UNIVERSITI SAINS MALAYSIA, KUBANG KERIAN, KELANTAN: A 5 YEARS RETROSPECTIVE STUDY

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Introduction: The incidence and etiology of facial trauma differs from country to country and are dependent on socioeconomic and cultural factors. Road traffic accidents (RTA) are the predominant etiological factors for facial injury in Malaysia, whereas assaults, mainly due to alcohol intake and social problem are the main cause of maxillofacial injuries in western countries.

Objectives: To investigate the incidence, etiology, pattern of facial fracture and its associated injuries and to highlight factors that could be addresses when considering effective preventing measures for Malaysia.

Patients and Methods: A retrospective study of patients with maxillofacial injuries presenting to the department of Oral and Maxillofacial Surgery, Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, during a 5-year period was conducted. The clinical findings of 310 patients were reviewed.

Results: A high percentage of patients (77%) were male, and the majority involved in facial trauma is in the age group from 10 to 19 years old (33%) and 20 to 29 years old (34%). Road traffic accident was the predominant etiological factors (98%). The most common facial bone involved in road traffic accident is body of mandible followed by zygoma and orbits. Neurosurgical and orthopedic injuries are most commonly associated in maxillofacial trauma.

Conclusion: This study suggested that road traffic accident is the main etiological factors. The most common sites involved area is the body of mandible, zygoma and orbit. The compulsory use of seatbelts and strict traffic rule and regulations should significantly reduce the accidence and severity of facial trauma.

CONSTRUCTION AND CHARACTERIZATION OF GENETICALLY ENGINEERED LIVE ORAL CHOLERA VACCINE STRAINS VCUSM-7 AND VCUSM-8

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Background: Cholera is an acute, diarrheal illness caused by the Gram –ve bacterium *Vibrio cholerae*. (Yu *et al.*, 2005). Previously our group has come up with vaccine strains against *V. cholerae* O139 namely VCUSM-1, 2 and 6. Previous studies showed that VCUSM were highly immunogenic yet caused residual diarrhea in rabbits. To reduce the reactogenicity of VCUSM, the *rtxC* gene of the RTX gene cluster (Sheahan *et al.*, 2004) of these vaccine strains is mutated.

Methodology: PCR amplified *rtxC* gene was cloned onto pTZ57. Resulting pTZ-*rtxC* was restricted with *Bst*XI and polished. An *aphA* cassette was cloned at *Bst*XI site in *rtxC* gene and resulting pTZ-*rtxC*::*aphA* was obtained. pTZ-*rtxC*::*aphA* was subcloned onto pWM91 and conjugatively transferred to VCUSM-2, and 6. The resultant strains were designated as VCUSM-2a, and VCUSM-7 respectively. Later, the *aphA* gene was removed by restricting the pTZ-*rtxC*::*aphA* with *Psy*I, polished and selfligated. The resultant frameshift mutated *rtxC* was cloned onto pWM91 and conjugatively transferred to VCUSM-2a, and VCUSM-7. This resulted in VCUSM-2b, and VCUSM8 (*hemA*, *rtxC*). Strains were tested for colonization potential in infant mice and residual diarrhea in ligated ileal loop rabbit model.

Results: The *rtxC* mutation in VCUSM-7 and 8 did not result in reduction in the colonization, which is a prerequisite for the elicitation of mucosal immune response. Strains with *rtxC* mutation produced less fluid in the ligated ileal loops suggesting a reduction in reactogenicity.

Conclusions: A mutation in *rtxC* gene did not affect colonization potential of the vaccine strains but significantly reduced toxicity.

DEVELOPMENT OF A DOT ENZYME IMMUNOASSAY (EIA) FOR THE ACUTE DETECTION OF NOSOCOMIAL INFECTIONS DUE TO *ACINETOBACTER BAUMANNII*

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Introduction: *Acinetobacter baumannii* has been recognised as an emerging nosocomial pathogen and is highly multi-resistant to antibiotics. Current diagnosis of the bacteria is due to conventional culture and biochemical methods that may take 2-7 days to produce results. Therefore a new rapid, sensitive, specific and economical test that would allow for the rapid management of nosocomial infection is needed. A unique 36kDa protein from the surface associated protein SAP of *A.baumannii* was identified in a previous study. This protein is antigenically recognized by IgM and found to be specific for *A.baumannii*.

Objective: To develop 3-hour dots EIA test using the 36kDa protein from the SAP of *A. baumannii*.

Methodology: The 36 kDa protein from SAP of *A. baumannii* band was eluted from SDS –PAGE gel using sonification technique. A checker board using different concentrations of the eluted protein (1.5 ug – 0.06 ug) was then dotted onto nitrocellulose membrane and tested against sera from patients having *A. baumannii* infections, infections due to *Acinetobacter* spp., non-*Acinetobacter* infections and normal healthy individuals. Preliminary evaluation of the dot EIA was also done (N= 40).

Results: The checkerboard showed that 1ug was best for dot EIA purposes. Dot EIA was considered positive when the colour obtained was greater than or equal to the positive control. Preliminary dot EIA evaluation showed 33.3% sensitivity and 100% specificity.

Conclusion: The 36 kDa protein is a good candidate for the acute detection of *A. baumannii* infection. A larger number of positive control sera need to be tested to verify and validate the sensitivity results. Cloning of the 36-kDa needs to be done in order to develop the rapid dipstick test.

DEMONSTRATION OF AN ANTIGENICALLY SPECIFIC SURFACE ASSOCIATED PROTEIN OF *ACINETOBACTER BAUMANNII*

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Introduction: *Acinetobacter baumannii* has been recognised as an emerging nosocomial pathogen and is highly multi-resistant to antibiotics. Current diagnosis of the bacteria is due to conventional culture and biochemical methods that may take 2-7 days to produce results. Alternatively a new rapid, sensitive, specific and economical test would allow for the rapid management of nosocomial infections. Development of such a test includes the finding of specific antigenic proteins of *A.baumannii*. Due to its location, surface associated proteins (SAPs) are the prime candidates for recognition by host antibodies.

Objective: This study aims to find the specific SAP against *A.baumannii* and demonstrate the presence of specific IgM against the candidate proteins.

Methodology: SAP of the ATCC *A. baumannii* was extracted from an overnight culture grown in 1litre at 37°C using acidified glycine method. SAPs of 13 clinical isolates of *A.baumannii* were also grown and extracted in the same manner. SDS PAGE gels were done to obtain the protein profiles. Western blot analysis was done using sera from patients infected with *A. baumannii* to detect for the presence of IgM. By method of elimination, antigen(s) that are uniquely seen only by *A.baumannii* sera and do not cross react with other sera tested was identified.

Results: A unique 36kDa protein from the SAP of *A.baumannii* was identified. This protein is antigenically recognized by IgM and found to be specific for *A.baumannii*. When compared to 13 clinical isolates of *A.baumannii*, similar results are observed.

Conclusion: This is the first report demonstrating the presence of a 36kDa SAP that is antigenically specific for *A. baumannii*. The protein is a prime candidate of an acute diagnostic test for *A. baumannii*.

MOLECULAR APPROACH TO IDENTIFY POSSIBLE TYPHOID CARRIERS AMONG FOOD HANDLERS IN KOTA BHARU, KELANTAN

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Introduction: Typhoid is caused by *Salmonella typhi*, which is transmitted by food handlers who are carriers. Carrier detection for typhoid is only from 2-5% due to the low culture isolation rate from stool. An in-house PCR assay against *ST50* gene of *S. typhi* was used in this study to screen for possible carriers.

Objective: To screen for typhoid carriers among healthy food handlers in Kota Bharu, Kelantan using an optimized PCR assay against the specific 50 kDa gene of *Salmonella typhi*.

Methodology: A total of 70 stool samples were collected from healthy food handlers in Kota Bharu, Kelantan. Stool samples were numbered from 1 to 70 and DNA was extracted from odd numbered samples to a total of 35. The remaining even numbered stool samples were used as negative controls by seeding with *Shigella dysenteriae* (N=5) and *Campylobacter jejuni* (N=5). Even numbered stools seeded with *S. typhi* were used as positive controls (N=5). PCR was performed using DNA extracted by boiling method directly from stool specimens and after 24 hours in Selenite F. A 0.8% agarose gel electrophoresis was done to visualize the 1238bp positive PCR products of *ST50* gene.

Results: When DNA was extracted directly from stool at T=0, none of the 35 samples showed positive results. No bands were detected for negative controls. All positive controls showed the presence of the 1238 bp band. When DNA was extracted at T=24, one of the food handler stool cultures showed positive results.

Conclusion: The PCR assay was successful in detecting a carrier among the healthy food handlers in Kota Bharu, Kelantan. Further studies need to be done to confirm carrier status.

A SENSITIVE AND SPECIFIC ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA) FOR DETECTION OF SPECIFIC IGM ANTIBODY IN TYPHOID FEVER

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Introduction: Although TYPHIDOT-M™ is largely successful for the diagnosis of acute Typhoid fever, this Dot-Blot assay for detection of specific IgM antibody was susceptible to IgG masking, and visual subjectivity in evaluation of color intensity resulted in less objective interpretation. As such, there is a need to develop a more sensitive and objective assay.

Objective: To develop an ELISA for the detection of specific IgM antibody to a 50 KDa *S.Typhi* antigen, and to explore its usage as a cost-effective mass-screening alternative to the TYPHIDOT-M™ assay.

Methodology: An indirect ELISA was developed using 10 µg/ml 50 KDa *S.Typhi* antigen coating concentration, test sera dilution at 1:100–1:10,000, HRP-conjugated rabbit anti-human IgM at 1:1,000 dilution, and enzymatic assay using 0.1mg/ml OPD chromogen. To investigate the diagnostic reliability of the ELISA, 5 culture-positive typhoid sera (TYPHIDOT-M™ positive) and 20 normal human sera (TYPHIDOT-M™ negative) from the MBDr serum bank, were used to ascertain the diagnostic sensitivity and specificity.

Results: The intraplate and interplate CV were 4.6% and 8.1%, respectively. End-point serial titrations of a positive control serum indicated that the assay was 1000 fold more sensitive than the Dot- blot test. The diagnostic sensitivity was 100% (5/5) relative to the TYPHIDOT-M™ and culture methods. The diagnostic specificity was 95% (19/20) at a cut-off value set at 2.5 SD above the mean OD reading.

Conclusion: A sensitive and specific ELISA has been developed for the objective detection of IgM antibody to *S.Typhi* 50 KDa antigen, with diagnostic efficiency comparable to the TYPHIDOT-M™ assay. This test may have applications for mass-screening of acute typhoid fever and carrier subjects.

HISTOPATHOLOGICAL STUDIES OF VIBRIO CHOLERAE O139 AND O1 El Tor: TOWARDS UNDERSTANDING THE MECHANISM OF ENTEROPATHOGENESIS

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Background: *Vibrio cholerae* is a gram-negative bacterium that causes diarrheal disease called cholera. It is generally believed that *V. cholerae* colonize the luminal surface of the small intestine and does not invade the intestinal mucosa (Faruque et. al. 1998). In order to understand the enteropathogenesis, we compared the invasive properties of *V. cholerae* O1 and O139 in the ligated ileal loops of the rabbits.

Methodology: The invasiveness of *Vibrio cholerae* was investigated in ligated ileal loop assay in New Zealand white rabbits (Thungapathra et. al. 1999). The presences of ctxAB, ace and zot toxin genes in *V. cholerae* were detected by multiplex PCR. Histopathological examinations were done to study the pathogenesis of *V. cholerae*.

Results: Both the O139 and O1 El Tor serovar of *V. cholerae* showed the presence of toxin genes. Fluid accumulation ratio in illeal loop assay for both O139 and O1 El Tor serovar of *V. cholerae* was similar however the loops inoculated with *V. cholerae* O139 had bloody mucous fluid and serosal hemorrhage. Further investigations revealed *V. cholerae* O139 was able to cross the lamina propria and subsequently invaded the tissues as deep as mesothelial smooth muscles whereas *V. cholerae* O1 crossed the lamina propria but not muscularis mucosae.

Conclusion: This is the first observation in the literature that clearly demonstrated the invasiveness and pathological differences of O139 and O1 El Tor serovar of *V. cholerae*.

DETECTION OF TETRACYCLINE RESISTANT DETERMINANTS IN GRAM NEGATIVE BACTERIA BY MULTIPLEX PCR

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Introduction: Tetracycline and doxycycline are broad-spectrum antibiotics that are used to treat certain bacterial infections including cholera, upper respiratory infections and urinary tract infections. Currently tetracycline has been used as a growth promoter in poultry and cattle. Because of the misuse of the antibiotics, more non-pathogenic and pathogenic bacteria have attained resistant and 32 different tetracycline determinants are known (I. Chopra and M. Roberts 2001). The common determinants in gram negative are A-E and G.

Objective: To develop a multiplex PCR to detect tetracycline determinants mostly seen in gram-negative bacteria.

Methodology: The A-E and G determinant DNA sequences from different gram negative bacteria were retrieved from Genbank and aligned using clustalW and visualized by Genedoc software. Specific primers were designed, PCR for each determinant standardized. Then multiplex PCR was standardized were all the determinants can be amplified simultaneously (L.K. Ng, et al 2001). This assay was tested with 100 clinical strains and the results compared with disc diffusion test.

Results: The multiplex PCR that was successfully developed was able to detect A-E tetracycline determinants within 4hours in gram negative bacteria. Most of the *V. cholerae* isolates gave a 700bp band that indicates the presence of *tetA*. This is the first time a *tetA* resistant determinant has been reported in *V. cholerae*. For other gram negative bacteria like *E. coli* had either *tetA* or *tetB* determinants; *Acinobacillus sp.*, and *Shigella sp* had predominantly *tetB* determinant; while *V. cholerae*, *Klebsiella sp.*, *Enterobacter sp.*, and *Salmonella sp.*, had predominantly *tetA* determinant.

MOLECULAR SCREENING OF *SHIGELLA DYSENTERIAE* CARRIER STATUS AMONG HEALTHY FOOD HANDLERS IN KOTA BHARU, KELANTAN

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Introduction: The pathogen *Shigella dysenteriae* causes the most severe diarrheal illness called dysentery. The organism can be transmitted from person to person via fecal oral route by infected carriers.

Objective: This study aims to screen the possibility of *S. dysenteriae* carrier status among healthy food handlers in Kota Bharu, Kelantan via an in-house molecular technique (PCR), based on the *ompA* gene encoding for a specific and antigenic protein for *S. dysenteriae*.

Methodology: Seventy stool samples of healthy food handlers from Kota Bharu, Kelantan were collected. Stool samples were numbered from 1 to 70 and DNA was extracted randomly from every odd numbered stool to a total of 35. The remaining even numbered stools (N=5) were used as positive controls by seeding with 10⁹ CFU of *S. dysenteriae* and negative controls were stool samples that have been seeded with 10⁹ CFU of *Salmonella typhi* (N=5) and *Campylobacter jejuni* (N=5). DNA was extracted by boiling method directly from the samples and after culture in Gram Negative Broth for 24 hours. In-house PCR assay with the sensitivity of 48pg of DNA concentration was used to screen for the presence of *S. dysenteriae* in stools. PCR results were judged as positive based on the presence of specific 415bp PCR product.

Results: No *S. dysenteriae* was detected directly from stool of food handlers and after culture for 24 hours. All the seeded positive controls showed positive results after 24 hours and when seeded directly. No band was detected among the negative controls. **Conclusion:** The results revealed that food handlers in Kota Bharu, Kelantan did not show evidence of carrier status for *S. dysenteriae*. Further studies need to be done on a larger sample size.

MOLECULAR INVESTIGATION ON *CAMPYLOBACTER JEJUNI* CARRIER STATE AMONG HEALTHY FOOD HANDLERS IN KOTA BHARU, KELANTAN

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Introduction: *Campylobacter jejuni* is the most common cause of bacterial foodborne illness. The organism is transmitted via fecal oral route by means of food handlers who are carriers.

Objective: This study was undertaken to identify possible *Campylobacter*-carrier status among healthy food handlers in Kota Bharu, Kelantan via an in-house PCR test developed for *Campylobacter jejuni*.

Methodology: Stool samples numbered 1-70 were obtained from healthy food handlers in Kota Bharu, Kelantan. DNA was extracted from every odd numbered stool to a total of 35. The remaining stools were used as negative and positive controls. DNA was extracted using the boiling method, directly from stool at T=0 and after culture in Preston broth at T=24. Stool samples (N=5) were used as positive controls by spiking the stools with pure culture. Negative controls were stool samples that have been spiked with *Shigella dysenteriae* (N=5) and *Salmonella typhi* (N=5). All samples were screened by PCR using primers specific for *C. jejuni*. The PCR assay has been previously shown to have a sensitivity and specificity of 100%. The primers are capable of detecting a minimum of 13pg of DNA. The amplified products were analysed by 2% agarose electrophoresis.

Results: PCR examination of the DNA extracted directly from 35 stool samples and 10 negative control stools showed negative results for *C. jejuni* while DNA extracted from all 5 spiked stools showed positive results of 202bp PCR product. Similar results were observed for DNA extracted from samples that have been cultured for 24 hours in enriched media.

Conclusion: We concluded that no *Campylobacter jejuni* carriers were detected among healthy food handlers in Kota Bharu, Kelantan.

DETECTION OF BRUGIAN AND BANCROFTIAN FILARIASIS USING BMR1 AND BMSXP RECOMBINANT ANTIGENS

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Introduction: Anti-filarial IgG4 assay using BmR1 recombinant antigen has been shown to be highly specific and sensitive for detection of brugian filariasis. An equivalent assay for detection of filariasis caused by *Wuchereria bancrofti* has been reported, employing recombinant antigen expressed from SXP gene. An antibody assay would be more sensitive for use in the certification phase of the Global Programme for Elimination of Lymphatic Filariasis (GPELF) and monitoring post-GPELF when the prevalence and intensity of infection would be expected to be very low.

Objective: To develop an IgG4 assay that is highly sensitive and specific for detection of all three species of lymphatic filarias. Such an assay would be very useful in areas co-endemic with both brugian and bancroftian filariasis.

Methodology: BmSXP recombinant antigen was produced by cloning SXP gene from *B. malayi* cDNA library, followed by expression in a bacterial expression system. Subsequently each of the purified recombinant antigens (BmR1 and BmSXP) and mixtures of different ratios of the two antigens (1:1, 2:1, 1:2) were tested using IgG4-ELISA and various categories of infection and normal human serum samples.

Results: The results showed that both recombinant antigens were highly specific (99%-100%). For detection of brugian filariasis, BmR1 antigen alone and a mixture of BmR1 with BmSXP (1:1) gave 98% sensitivity; while BmSXP antigen alone showed 83% sensitivity. For detection of bancroftian filariasis, BmSXP antigen was more sensitive (95%) than assays using BmR1 or mixtures of the two recombinant antigens.

Conclusion: A sensitive and specific pan-filarial IgG4-ELISA for detection of lymphatic filariasis was successfully developed using two adjacent wells, each separately coated with BmR1 and BmSXP.

CLINICAL APPLICATION OF HELICAL CT SCAN IN HUSM

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Introduction: Computerized scan has made a tremendous impact in the medical field. Its validity as a diagnostic aid and its revolutionary role in interventional management is indisputable. The diagnosis and management of several diseases are enormously facilitated by the introduction of helical CT.

Objective: To highlights the role of helical CT in 5 cases of various important clinical entities in HUSM

Methodology: All 5 cases, 1-Ophthalmology, 1-ORL, 1- Neurology, 1- Vascular, 1- Respiratory, that attended to HUSM are retrospectively selected to highlight the clinical applications of helical CT. The GE light speed helical CT scanner in HUSM was used to study these cases. With patients in supine posture, 1.25-2.5 mm axial slices were taken. Volume rendering and surface reformat technique were used and 3-D images were reconstructed wherever necessary.

Results:In all five cases spiral CT is found to be very successful in aiding the correct diagnosis. 1. CT scan is proved to be very accurate in correctly locating the intraocular foreign body. 2. The distinction between malignant and benign nasopharyngeal masses is clearly possible with the aid of helical CT. 3. CT perfusion technique of the brain is very useful in diagnosing cerebral ischaemia and infarcts in acute and subacute conditions. 4. 3-D CTA is a good alternative to conventional angiogram in locating intracranial aneurysms. 5. High resolution CT vividly demonstrated bronchiectasis in our case.

Conclusion: We look at the way CT has changed clinical practice, and examine its implications from a variety of perspectives. Updating our knowledge and keeping abreast with the recent advances are emphasized. Spiral/Helical CT scan with 3D reformation is very useful in arriving at a reasonably accurate diagnosis in difficult clinical entities.

THE SPECTRUM OF RENAL ULTRASONOGRAPHY VARIATIONS THRO' PEDIATRIC AND ADULT AGES - A STUDY OF 80 CASES IN HUSM

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Purpose: To study variants and congenital abnormalities of renal structure in 80 Malaysians of various age groups without known renal disease and To identify normal variations and congenital abnormalities that occur throughout the paediatric age group

Methodology: A prospective and retrospective study of ultrasound images of the kidneys of 56 cases from paediatric (1 day old to 16 years) and 24 patients from adult age group was undertaken. All the patients were urologically symptom and sign free. 3 MHz (for adults) and 5 MHz (for paediatric age) curvilinear probes were used. The normal variations and congenital abnormalities in the renal structure that occurred in premature neonates, term neonates, infants (1-5 years), older children (5-10 years), adolescents (10-16 years) and adults (> 16 years) were identified.

Results: Out of a total of 80 cases only 16 cases showed variations and anomalies. Persistent foetal lobulation in 2, heterogeneous parenchyma in 2, hilar lips in 3, hypertrophied columns of Bertin in 2, junctional parenchymal defects in 2, duplication in 5 cases were found. Fusion anomalies and renal ectopia were not detected.

Conclusion: When managing paediatric cases it is important to be aware of the normal variations. One has to have a thorough knowledge of normal variations that may be confused with true pathology. Some of these abnormalities in paediatric population may be asymptomatic and only be detected as a result of investigation for some other problems.

The importance to distinguish normal appearances that require no further investigation, anatomical variation that may predispose to future pathology, true pathology needing further imaging / intervention are emphasized.

THE USE OF THORACIC ULTRASOUND TO DETECT PNEUMOTHORAX IN TRAUMA AND NON-TRAUMA PATIENTS

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Introduction: Our aims in this study are to determine sensitivity, specificity, positive and negative predictive value of thoracic ultrasound in the detection of pneumothorax in trauma and non-trauma patients, and to determine any significant difference of time taken by thoracic ultrasound and chest radiograph.

Methods: We conducted a prospective study on 31 trauma and non-trauma patients presented to the Emergency Department, Hospital Universiti Sains Malaysia with symptoms suggestive of pneumothorax. Informed consent was obtained from patients who met inclusion and exclusion criteria. The thoracic ultrasound examination was carried out during secondary survey of physical examination. The chest X-ray was performed after the thoracic ultrasound examinations. The result was later compared with chest X-ray. Performance time of thoracic ultrasound and chest X-ray were recorded.

Results: Among the 31 patients, there were 8 patients diagnosed with pneumothorax, 7 of which were detected by thoracic ultrasound, thus study showed that the thoracic ultrasound has a sensitivity of 87.5% and a specificity of 91.3% in the detection of pneumothorax. The positive predictive value was 77.8% and the negative predictive value was 95.5%. There was significant mean difference of performance time between the thoracic ultrasound and chest radiograph ($p < 0.001$). We found that the performance time of thoracic ultrasound was faster than chest radiograph.

Conclusion: Thoracic ultrasound can be used to detect pneumothorax by the absence of “lung sliding” and “comet-tail” artifact. The future development and training of emergency physicians in this technique are useful in the emergency department setting.

REUSABLE LEARNING OBJECTS (RLOs) FOR A PROBLEM-BASED LEARNING (PBL) CURRICULUM

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Introduction: RLO is a synonym for 'Reusable Learning Object', which is a new technology for visualizing and producing learning content. The technology enables the learning materials to be reused in multiple formats, such as lectures, Fixed-learning modules (FLMs), posters or Computer-aided instruction (CAI). Each RLO is small-sized and self-contained, but may be tagged and linked with other RLOs to form a complete course containing simulations, interactive data sets, quizzes, surveys, and videos.

Objective: To develop RLO modules as a means of addressing the deficiencies of traditional CAI programs, and thus to evaluate RLO viability as an educational technology in a problem-based curriculum.

Methodology: Adobe Photoshop™, Illustrator™ and Macromedia Flash™ were software used to develop the RLOs. All files were eventually compiled into internet-savvy format (.swf) where they can be accessed, either as stand-alone programs or on servers using web-browsers.

Results: The successful conversion of lectures and FLMs into RLOs indicated that the technology is within reach of lecturers. The ability of the technology to 'recycle' graphic files developed for one use (such as FLMs) to another (such as animation) indicated time economies in software production. The program file sizes were typically 100 KB, which was 100-1000 times smaller compared to traditional video-based presentation. This represented economies in storage and friendly for on-line learning. Furthermore, Internet compliance ensures easy accessibility of RLOs on all computer systems today.

Conclusion: While PBL is concern with the development of effective and efficient problem-solving skills, self-directed learning skills, and team skills, it is important to keep in mind the major objective of the method, *viz.* the acquisition of an extensive, integrated knowledge base that is readily recalled and applied to the analysis and resolution of problems. With RLO resources, the power of problem-based learning can be fully achieved.

DIFFERENTIAL EPIDEMIOLOGY OF NON-SYNDROMIC CLEFT DEFORMITY IN KELANTAN POPULATION : A PROSPECTIVE STUDY

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Introduction: Cleft lip with/without cleft palate is the most common craniofacial abnormality. It is either syndromic or non-syndromic. The epidemiology study of the cleft deformity usually includes all the cases. There is no local epidemiological study exclusively studying the, more common, isolated non-syndromic clefts.

Objective: To prospectively determine the distribution of cleft type in the non-syndromic cleft lip and/or palate.

Methodology: All non-syndromic clefts patients referred to Reconstructive Sciences Unit, Hospital Universiti Sains Malaysia and agreed for the study were reviewed. Validated questionnaire were used.

Result: From January 1999 to December 2002, a hundred and two non-syndromic clefts patients were studied. Fifty four (53%) patients were male and 48(47%) were female. Males were more common in cleft lip with or without cleft palate, (57%). Females were more common in cleft palate only. Left cleft lip with or without cleft palate were the most common deformity (50%) followed by bilateral cleft lip with or without cleft palate (27%), cleft secondary palate (12%) and right cleft lip with or without cleft palate (11%). Seventy eight percent of left cleft lip, 73% of right cleft lip and 86% of bilateral cleft lip are with cleft palate. Sixty three percent of the patients were from the low social background, 32% from the middle and 5% from the high social background.

Conclusion: Non-syndromic clefts deformity showed distinctly different epidemiology distribution in comparison with the clefts deformity in total

A STUDY ON THE PREVALENCE OF DOMESTIC VIOLENCE AMONG PREGNANT WOMEN ATTENDING HOSPITAL UNIVERSITI SAINS MALAYSIA

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Introduction: Globally domestic violence is emerging as a significant public health problem. It is double tragedy in pregnancy as it involved the mother and also the fetus.

Objectives: To determine the perception, prevalence and associated factors of domestic violence among pregnant women attending HUSM.

Methodology: It is a cross sectional study conducted among 261 pregnant women aged 16 and above attending HUSM through systematic random sampling. It was conducted as face to face interview in a private place. Confidentiality and safety of the interviewer and the respondents were ensured before any interview had been carried out. Data was analyzed using SPSS version 11.5 and Stata version 7.

Results: A total of 261 respondents participated in this study, which give a response rate of 93.1%. There were 25 (9.6%) of the women reported had ever experienced domestic violence, and 20 (7.7%) occurred during the current pregnancy. The commonest type was emotional violence alone (90%) followed by combined of emotional and physical abuse (10%). None reported been sexually abused. The significant associated factors were marital status, unplanned and unwanted pregnancy and the presence of husband's negative behaviours. Majority of the women were comfortable discussing the issue of domestic violence and think the health personnel should do screening of domestic violence during antenatal check up provided it was done in a private and non judgmental way. However the knowledge regarding the available resource for domestic violence was still low.

Conclusion: Domestic violence among pregnant women was a common problem and requires closer attention. Effort should be done to increase the awareness among the population and also the health personnel regarding the problem and the available resource.

STUDENT PERCEPTION OF LECTURE: THE IDEAL AND REALITY

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Background: Although the School of Medical Sciences (SMS), USM utilizes problem based learning, community and family case study program and clinical skills lab training, lectures are also used as a teaching approach. Research reports that the lecture is as effective as other teaching methods if delivered effectively. The main objective of this study is to check student's feedback on lectures offered in the 2nd phase of the undergraduate medical program at SMS.

Methodology: 173 year 2 and 180 year 3 students of SMS, USM of session 2003-2004 were surveyed on 43 randomly selected lectures delivered throughout the years. A questionnaire containing attributes of a lecture situation was utilized using a rating scale ranging from 5 (strongly agree) to 1 (strongly disagree). Score 5 and 4 were considered as ideal. A mean score against variables was identified using SPSS and then analyzed as percentage distribution.

Results: Organization of lecture materials was found ideal for a majority of lectures. However, only 2% and 9% lectures were rated appropriate in volume and pace respectively. Only 33% of lectures employed visual aids that were easily understandable.

Conclusion: Educational managers should focus on the needs for training on delivery skills and use of effective teaching aids for lecturers when planning and conducting faculty development programs. The study findings are also a useful guide for lecturers who aspire to improve their effectiveness.

PSYCHOMETRIC CHARACTERISTICS OF MCQS USED IN ASSESSING PHASE-II UNDERGRADUATE MEDICAL STUDENTS OF USM

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Introduction: MCQs are used in assessing both undergraduate and postgraduate medical students of the School of Medical Sciences (SMS), Universiti Sains Malaysia (USM). Questions that are generated by the subject specialists are vetted at departmental and central levels.

Objective: To analyse MCQs used in assessing Phase-II MD students of USM in terms of its reliability, validity and difficulty and discriminating indices.

Methods: For reliability in terms of internal consistency both Spearman-Brown formula and Cronbach's alpha were used. The concurrent validity was assessed by Pearson correlation between the MCQs and respective MEQs. Difficulty and discriminating indices were collected from the computer generated marking sheets.

Results: Alpha reliability coefficient for internal consistency is 0.91 for both MCQ1 and MCQ2 while corrected reliability (Spearman-Brown prophecy) for MCQ1 is 0.88 and MCQ2 is 0.91. The face and content validity of both these MCQs are judged by the process of generating and vetting of questions. The concurrent validity is assessed by Pearson correlation between MCQs and respective MEQs ($r=0.55$, $p<.01$ for MCQ1 and $r=0.69$, $p<.01$ for MCQ2). Sixty percent of both MCQ1 and MCQ2 are within the difficulty index of 20% to 80% while 34% of MCQ1 and 37% of MCQ2 have discriminating indices of 0.2 and above.

Discussion and conclusion: The MCQs used in the professional II examination of the MD programme have satisfactory levels of reliability and validity. Tests commonly have reliability coefficient between 0.60 and 0.85 (Linn and Gronlund, 2000). Majority of the MCQs are within the acceptable level of difficulty index. Dixon (1994) advocates the difficulty index of 20–80% for multiple true-false MCQs. A well-structured and strict central vetting process in the SMS ensures an acceptable standard of MCQs.

THE USE OF HEART-SPECIFIC FATTY ACID BINDING PROTEIN (h-FABP) TO DETECT MYOCARDIAL INFARCTION AT THE EMERGENCY DEPARTMENT

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Introduction: Human heart specific Fatty-Acid –Binding Protein (h-FABP) is myocardial protein released following damage to myocardial cells after about 15 minutes of injury. The protein can be used to assist in diagnosing Acute Myocardial Infarction.

Objectives: To examine the feasibility and acceptability of use of h-FABP to detect Myocardial Infarct at the Emergency Department. To determine the specificity and the sensitivity, positive and negative predictive value of h-FABP in diagnosing Acute Myocardial Infarct. To compare FABP with other parameters for MI diagnosis like Chest Pain, ECG findings and the traditional Creatinine Kinase enzyme in terms of sensitivity, specificity, positive and negative predictive values.

Methodology: This is a retrospective study regarding the use of h-FABP for the diagnosis of AMI. Records of patients upon whom h-FABP test was used were examined. The records of a total of 47 patients on whom h-FABP test was used were traced. The period of study was from January to December 2004. The results of the h-FABP (positive or negative) are matched against the final diagnosis of MI or non-MI according to the WHO Classification of Myocardial Infarct.

Results & conclusions: FABP test has a good sensitivity (75%) and specificity (87%). h-FABP test has a good Positive Predictive Value (86%) and good Negative Predictive Value (77%). FABP is superior compared to ECG and symptoms of chest pain (be it typical or not) in diagnosing MI. The sensitivity of FABP is better than Creatinine Kinase but the specificity is less in comparison. The FABP is advantageous compared to CK as it can be done within 20 minutes as a point-of-care test.

FABP is an acceptable mode of fast diagnostic tool for Myocardial Infarction at the Emergency Department.

THE USE OF CLASSROOM TRAINING AND SIMULATION IN THE TRAINING OF MEDICAL RESPONDERS FOR AIRPORT DISASTER

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Introduction: The use of field drills has been well established to train medical personnel for disasters but each drill is expensive and very difficult to organize. Training like lectures and classroom simulations-like table top exercises have been used with mixed results. There is a dire need to have complementary form of training which is cost effective, relatively easy to conduct, comprehensive and acceptable. A classroom-based training may be the answer.

Methodology: A classroom – basic training and simulation module used were PowerPoint lectures, simulations, utilizing the Kuala Lumpur International Airport (KLIA) schematic module into “Floor top” model and video show. Seventy six participants (specialist, doctors, paramedics and attendant) were trained using this module. A pre-test with questions was carried out before the training. At then end of training, participants answer similar questions as post-test. The differences between pre-test and post-test are analyzed.

Results: There was no differences between doctors and specialist in both pre-test and post-test performance (p -value <0.05). Pre-test and post-test results were similar to all participants except that the performance of attendants was significantly low (p -value <0.05) in post-test.

Conclusion: This Classroom training and simulation were clearly beneficial in increasing theoretical knowledge of candidates and clearly improved the knowledge of disaster plan significantly on the back of its low cost, relatively-easy to conduct, fun and holistic nature.

IMMUNE STATUS IN PRETERM BABIES AND ITS ASSOCIATION WITH SEPSIS

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Background: Preterm babies are at a much higher risk of neonatal sepsis than term babies. Many factors may be responsible for this, including the deficient host defense in babies. Several studies have shown reduced levels of immunological parameters in the cord blood of preterm babies. This is the first study aiming to compare immunological parameters in the cord blood between preterm babies developing sepsis and those not developing sepsis

Methodology: In this pilot study, cord blood was taken from 36 preterm neonates and the following parameters were determined in the immunology lab: Immunoglobulin G, A and M, Complement factors 3 and 4, NBT and lymphocyte subsets. All babies were prospectively followed up for the first two weeks after birth for the development of neonatal sepsis. Results were compared using the t-test (parametric variables) or Mann-Whitney U test (non parametric variables)

Results: Eleven percent of the subjects developed clinical septicaemia. Overall these preterm babies had significantly reduced cord blood levels of IgG, IgA, IgM, complement factors C3 and C4 and reduced NBT, but only IgA levels and NBT reduction were significantly lower in babies with septicaemia during the first two weeks than in those without septicaemia (0.19 vs 0.21 g/l; p value: 0.007 and 3.50% vs 8.00%; p value: 0.017 respectively)

Conclusion: Even though most immunological parameters tested were reduced in the cord blood of preterm babies, only low IgA levels and low NBT reduction were significantly associated with the occurrence of clinical septicaemia in preterm neonates.

ATA₇TAA VARIANT OF THE UGT1A1 GENE IN MALAYSIAN NEONATES WITH NEONATAL JAUNDICE

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Background: Gilbert syndrome is potentially a risk factor for neonatal jaundice. It has been classically ascribed to a variant in the TATA-box, a repeat of 6 TA sequences in the promoter region of the UGT1A1 gene. In the mutated gene there are 7 repeats. This is the first study with the aim to determine the frequency of the TATA box variant in Malay neonates with jaundice and to compare them with non jaundiced controls. In other Asian populations (Taiwanese and Japanese), this variant is relatively rare and other mutations have been identified, causing clinically Gilbert syndrome

Methods: Fifty-five term neonates with significant jaundice (bilirubin levels of more than 250 mmol/l) and fifty normal neonates were included in the study. The allelic frequency of the mutated gene was studied using amplification of DNA through standard PCR followed by GeneScan fragment analysis.

Results: Among the neonates with jaundice there were 10 (18%) heterozygotes and 4 (7%) homozygotes for the TATA-box variant. In the normal controls there were only 6 heterozygotes (12%) and 1 homozygote (2%) for this variant. The allelic frequency of the TA₇ was 16 % in the jaundiced group versus 8 % in the non-jaundiced group. This difference did not reach statistical significance (p value 0.2)

Conclusion: The ATA₇TAA variant was not a rare variant as in other Asian populations. It is more common in jaundiced neonates than in non-jaundice neonates. This variant may be a significant risk factor for the development of jaundice in Malaysian neonates.

TWO NON-RELATED BABIES WITH ABO INCOMPATIBILITY, NEGATIVE DIRECT COOMBS TEST AND A DOUBLE MUTATION IN THE UGT1A1 GENE

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Introduction: About 70 % of babies with ABO-incompatibility and neonatal jaundice (NNJ) have a negative direct Coombs test. These babies usually show no significant drop in haemoglobin and have most of the time no other detectable signs of haemolysis. The exact pathophysiology of the early onset jaundice in these babies is not fully understood.

Case reports: Here we present two non- related babies, born to mothers with blood group O positive. Both babies had blood group B positive but a negative direct Coombs test. They developed jaundice within 24 hours after birth. Under intensive phototherapy, bilirubin levels were initially increasing but did not reach exchange transfusion levels. They each required phototherapy for about 7 days.

Their UGT1A1 gene, encoding the enzyme responsible for bilirubin glucuronidation in the liver was screened for the presence of the following mutations: ATA7TAA, classically responsible for Gilbert syndrome in Caucasians; G71R, common in Taiwanese and Japanese populations and G493R, a recently detected mutation in a Malay family in which the homozygous mother had Crigler- Najjar syndrome type 2. Both babies were found to be positive for two of the three mutations (ATA7TAA and G71R)

Discussion and conclusion: The early onset neonatal jaundice in these two cases with ABO incompatibility and negative direct Coombs test may be caused by a slight increase in the breakdown of red blood cells associated with a slight decrease in excretion rate of bilirubin in the liver. Point mutations in the UGT1A1 gene may play an important role in the pathophysiology of NNJ

TREATMENT OF SEVERE MECONIUM ASPIRATION SYNDROME WITH SURFACTANT LAVAGE IN THE NICU HUSM IN 2004

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Background: Meconium aspiration syndrome (MAS) is caused by aspiration of meconium containing amniotic fluid. The meconium is causing inflammation, airway obstruction and also surfactant inhibition. Recently surfactant replacement therapy and surfactant lavage of the bronchial tree have emerged as therapies for MAS and may improve the outcome of babies with severe MAS very significantly. The aim of this study was to review the outcomes of babies with MAS since surfactant lavage was practised for severe MAS in HUSM.

Methods: This is a retrospective study of a case series of MAS. Since the date that surfactant lavage was introduced (April 2004) until one year later (April 2005) all cases of meconium aspiration syndrome requiring ventilation were reviewed. Outcome measures that were studied included survival rate, time on ventilator, time on oxygen and duration of hospital stay.

Results: During the study period there had been 15 cases of meconium aspiration syndrome admitted to the NICU in HUSM and requiring ventilation. Eight of these babies underwent surfactant lavage. No babies succumbed of respiratory problems but two babies died of septicaemia. The duration of ventilation ranged from 2 to 12 days (mean 6 days). The duration of oxygen requirement ranged from 4 to 38 days (mean 19 days). The mean duration of hospitalisation was 23.3 days (ranging from 6 to 42 days).

Discussion and conclusion: Since surfactant lavage for MAS was started in HUSM, there had been no babies with MAS requiring very prolonged ventilation or oxygen supplementation. This is quite sharply contrasting with previous years where several babies every year had severe chronic lung disease as a consequence of MAS requiring home oxygen therapy.

DELETION AND COPY NUMBER ANALYSIS OF THE SMN GENE IN MALAYSIAN SMA PATIENT; A PRELIMINARY REPORT

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Introduction: Spinal Muscular Atrophy (SMA) is divided into 3 clinical subgroups with type 1 being the most severe. SMN gene, which exists in a duplicated form, SMN1 and SMN2, is responsible for the disease. About 90-95% of SMA patients show homozygous deletion of exons 7 and 8 of the SMN1 gene. Carriers for the disease have one copy of the SMN1 gene. The copy number of SMN2 gene has been reported to be correlated with disease severity.

Objective: To determine the deletion frequency of the SMN1 gene in Malaysian SMA patients and the copy number of SMN1 and SMN2 genes in a SMA family.

Methodology: Twenty-five SMA patients who fulfilled the inclusion and exclusion criteria were recruited. Genomic DNA was extracted from their blood and the blood of the family members' of one of the type 3 patient using a commercial kit. The amplification of exons 7 and 8 of the SMN were done by method described by van der Steege et al. The copy number of SMN1 and SMN2 genes was quantified by quantitative PCR using Real-Time PCR.

Results: *Homozygous deletion of SMN1 gene in 80% of the patients was found to be less than expected. All the family members examined for copy number, except for patients, had 1 copy of the SMN1 gene, suggesting that they are carriers for the disease. Conclusion: This analysis is helpful to the detection of the carrier status of SMA. For SMN2 copy number, the patient had 2 copies, suggesting that SMN2 is not related to the severity of the disease and other factors may modify the phenotype of SMA. A larger study is underway to confirm these findings.*

PULMONARY HYPERTENSION AND ITS TREATMENT

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Introduction: Pulmonary hypertension (PHT) is defined as a resting mean PA pressure of > 25mmHg or > 30 mmHg on exercise. It is a relatively rare disorder, and the prognosis is always poor. Death or heart-lung transplantation is the only sure outcomes for this disorder at present. And with the scarcity of donors worldwide, a move to understand this disorder is required. We would like to present our cases and a short review of PHT.

Case series: There are at present 11 cases of PHT on our register. The causes are varied, ranging from primary pulmonary hypertension to HIV-related PHT. Most of our cases are secondary to a cardiovascular lesion, mainly left to right shunts and in some coexistent PHT with a cardiovascular lesion. Most of our cases are first treated with diuretics, anticoagulants, oxygen and a vasodilator. Our first choice is nifedipine, despite knowing that all calcium channel blockers have a median time to failure of 9 months (this is related to the costs caring for these patients). However, because of this and other factors, a large number of our patients are on sildenafil (Viagra™). Sildenafil is the only promising drug available for the treatment of PHT in Malaysia at the moment.

Conclusion: Sildenafil (phosphodiesterase-5 inhibitor), a potent pulmonary vasodilator, is currently used in the treatment of paediatric USM patients with pulmonary hypertension.

LYMPHOCYTE ALTERATIONS IN CHILDREN WITH RHEUMATIC HEART DISEASE

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Introduction: Acute rheumatic fever is an autoimmune/inflammatory disease. Humoral and cellular immune responses play an important role in its pathogenesis.

Methodology: In a prospective, case-control study, we investigated the lymphocytic subpopulations in three groups of children seen at HUSM Group 1 were children with acute rheumatic carditis (ARHD), group 2, with chronic rheumatic heart disease (CRHD), and group 3, children who served as controls (admitted for minor elective surgical procedures). After consent was obtained, venous blood were collected, immunophenotyped and results computed as percentages (%) and absolute counts. All data collection and statistical differences between the 3 groups were analysed using Analysis of variance (ANOVA) and post hoc analysis (Benferroni's test).

Results: There were 39 patients with ARHD, 37 in CRHD and 14 in control. The total lymphocyte count was lower in the ARHD and CRHD as compared to the control group (3102±200; 3322±193 vs 4114±270, P=0.006). There was also a decrease in CD8 and CD16 subsets where their absolute counts were significantly lower in the ARHD and CRHD (639±63 vs 1210±10.3, P=0.000; 687±51 vs 1210±10.3, P=0.000) vs controls. CD16 subsets vs control group (301.5±45, vs 744.6±69, P=0.0001 and 407.3±27 vs 744.6±69, P=0.0001). The CD45RO were subdivided into CD4Ro and CD8Ro in our study. CD4Ro (the helper memory cells) were lower in both the ARHD and CRHD as compared to the controls (459±44.1 vs 686±46.8.1, P=0.01). CD8Ro (cytotoxic memory) cells were significantly lower in both CRHD and ARHD when compared to controls (333±38.5 vs 565±72.6, P= 0.007, 254±31.9vs 565±72.6, P=0.000, respectively). CD8Ro percentage wise did show a difference between ARHD and CRHD (39.5±1.7 vs 47.4±1.8, P=0.006).

Conclusion: The altered lymphocyte subsets are indicative of its role in the pathogenesis of RHD.

REPORT OF TWO RARE CONGENITAL MALIGNANCIES IN HUSM

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Background: Congenital cancer is rare, and metastatic cancer of the infant at birth is even more unusual. Recently within a period of four months we came across two cases of congenital malignancies.

Case Reports: The first case presented in December 2004, a baby was born with a right facial mass involving the cheek, maxilla and mandible. It was a huge irregular mass, +measuring about 8 x 10 cm. The histopathologic findings were compatible with Primitive Neuroectodermal Tumour (PNET). She was started on chemotherapy at day 34 of life, but developed sepsis secondary to febrile neutropaenia after she completed a course of chemotherapy. She passed away due to sepsis on day 44 of life. The second case presented in March 2005 with a huge swelling of the left arm at birth. It was measuring about 11 x 15 cm with a diameter of 27 cm. It appeared to be vascularised mass and very aggressive tumour. The mass extended to the left shoulder in a few days time. CT Thorax and Abdomen revealed a solitary right renal mass with metastasis to the bone and lymph nodes. The Histopathologic findings were compatible with Malignant Rhabdoid Tumour (MRT). The patient's condition deteriorated and she developed respiratory distress and requiring mechanical ventilation. The patient passed away on day 8 of life.

Conclusion: This is a report of two aggressive congenital malignant tumours in our NICU. In both cases, the prognosis was very poor.

A PILOT COMPARATIVE STUDY BASED ON CLINICAL PERSPECTIVE UPON THE EFFECTS OF DECREASING mAs ON IMAGE QUALITY IN PAEDIATRIC CT BRAIN

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Introduction: Radiation exposure to the patient during computed tomography (CT) is relatively high. There is high tendency to be biased toward higher than is actually required mAs and shorter pitch factors, thus the radiation dose.

Objective: To determine whether a lower radiation dose technique (60% reduction) could be used in computed tomography (CT) of the paediatric brain without jeopardising its diagnostic accuracy.

Materials and Methods: This is a randomised cross sectional prospective trial, involving 50 children aged 0-12 undergoing plain computed tomography (CT) brain. In this study, the variable parameter was mAs, as mAs is directly proportional to radiation dose at fixed kVp, with one group using 190mAs and the other, 70mAs (60% reduction). Other technical parameters such as kVp, pitch, and section thickness were fixed. Anatomical details, resolution with less noise detected and the confidence level in reaching a diagnosis were evaluated using a 4-point scoring system.

Results: For both observers, the Kappa statistics is 0.818, indicating that there was perfect agreement between the two observers. The total acceptability by first and second observers were 84% and 74% respectively. It was best shown in structures of high contrast resolution.

Conclusion: CT radiation dose reduction is an important issue when considering CT examination by balancing the benefits against possible radiation risk. In this study, it was possible to reduce 60% of the radiation dose of paediatric CT brain. It is recommended especially useful in gross abnormalities and follow-up cases, not requiring meticulous details.

A STUDY ON ANXIETY-DEPRESSION AND SOCIAL READJUSTMENT AMONG PARENTS WHO HAD CHILDREN WITH CHRONIC ILLNESSES

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Background: The objective of this study was: (i) to determine the prevalence of anxiety and depression among parents who had children with chronic illnesses in HUSM (ii) to determine the relationship of chronic illnesses with parental anxiety and depression and (iii) to determine the relationship of anxiety and depression with social readjustment of parents.

Method: A cross-sectional study had been conducted among 100 parents and their children attending Child Psychiatric and Paediatric clinic, HUSM using systematic random sampling method. Children with chronic illnesses had been followed up for: (i) cardiac illnesses (37%) (ii) neurological disorders (22%) (iii) hematological and oncologic illnesses (32%) and, (iv) child psychiatric disorders (9%). Hamilton Anxiety-Depression Scale (HADS) and Social Adjustment Rating Scale (SARS) were used as instruments to measure anxiety-depression; life events and social readjustment respectively. Both instruments were validated locally with good validity and reliability. Social readjustment was measured using Life Change Unit (LCU). Informed consent was given by parents. Ethical clearance was granted by USM. Data were analysed using SPSS-10.

Results: The prevalence of anxiety and depression among parents who had children with chronic illnesses was 56% and 28% respectively. Majority of parents (46%) scored <150 LCU (33% risk to have serious life changes); followed by 36% scored 150-300 LCU (50% risk to have serious life changes within 2 years) and 18% scored >300 LCU (at high risk to get serious health problems). Social readjustment that had high frequency according to the order of importance was due to: (i) changes in financial status, (ii) changes in personal life, (iii) changes in the work place, (iv) changes in sleep and (v) changes as a result of retreat. However, there was no statistical significant different between chronic illnesses in children with parental anxiety and depression. Similarly, there was no statistical significant different between parental anxiety and depression with life events and social readjustment (both $p>0.05$).

Conclusions: This study demonstrated that, (i) the prevalence of anxiety and depression among parents who had children with chronic illnesses is equivalent to studies conducted all over the world. (ii) those parents are at risk of serious life changes and health problems, though these finding could be due to chance. It is important for parents to look after themselves well while taking care of their sick children.

USM CATARACT SURGERY REGISTRY

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Introduction: Cataract is a major cause of preventable blindness. Cataract extraction accounts for more than half of the elective surgery in the department of ophthalmology.

Objective: To describe the data on cataract extraction done at Hospital Universiti Sains Malaysia, Kubang Kerian 2002-2003.

Methodology: Data on all cataract operation done in HUSM between 1st January 2002 to 31st Disember 2003 were retrieved from the National Cataract Surgery Registry.

Result: A total of 663-cataract operations were performed in all ages. Their mean age was 62.69 years. There were 339 (51.1%) male and 324 (48.9%) females. Majority is Malays (86.3%) and the rest are Chinese (11.8%), Indians (1.1%). Seventy one percent has first eye cataract surgery. Up to 64% of the patients have systemic comorbidity in which diabetes mellitus (49.1%) was the commonest. 64.3% of the operated eye has pre-existing ocular comorbidity. Senile cataract was the major cause of cataract and secondary cataract was diagnosed in 47 patients (7.1%). Majority of the eye (50.4%) had unaided preoperative vision of 1/60 or worse.

Of 663 cataract surgeries performed, ECCE was the commonest type of surgery performed (66.1%), followed by phacoemulsification in (27.5%) and lens aspiration (5.3%). Most of the surgeries (89.9%) are done under local anesthesia. All patients had intraocular lens implantation done in which 96.4% wa posterior chamber IOL pf PMMA type.

Conclusion: USM cataract surgery registry showed that majority of patients presented for cataract surgery have unaided preoperative visual acuity of 1/60 or worse. Majority of cataract surgery was performed under local anesthesia in which ECCE was the most common.

PRIMARY EXCISION AND RECONSTRUCTION OF EYELID MALIGNANCY

Bakiah S, Hamidah B

Purpose: To highlight two cases of eyelid malignancy; basal cell carcinoma of the lower lid and sebaceous gland carcinoma of upper eyelid and its surgical management.
Method: A case report

Results: Basal cell carcinoma was diagnosed in an 80 year old male presenting with lower lid mass. In the second case sebaceous gland carcinoma was diagnosed in a 57 year old female with 2 years history of progressive enlargement of upper lid mass. In both cases, tumour excision with frozen section technique was done and primary lid-sharing reconstructions were carried out using Hughes procedure and tarso-conjunctival (Cutler-Beard) techniques. In both cases there were excellent aesthetic results and no recurrence till date.

Conclusion/Discussion: The goal of surgical treatment in eyelid malignancy is to remove the entire tumour while maintaining cosmesis. This is efficiently done with a frozen section technique. Defects larger than half of the eyelid may require advancement flap or lid sharing technique.

A STUDY ON THE INCIDENCE OF INFECTIOUS CORNEAL ULCER IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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Introduction: In developing countries, corneal ulceration is the major cause of blindness. Corneal opacification is second only to cataract as the most important cause of visual disability in the world today. Background information on local incidence of infectious corneal ulcer would be useful to help us in more effective management of it. The possibility of eliminating some risk factors of corneal ulcers should be highlighted to reduce the incidence of this potentially sight-losing disease.

Methodology: A prospective, cross sectional study of all cases of infectious corneal ulcer presented at eye clinic HUSM from January 2004 to April 2005.

Results: There were 16(69.6%) males and 7(30.4%) females, with an overall mean age of 44.7 years. Twenty one (91.3%) was Malays and two Chinese (8.7%). Twelve (52.2%) patients had a history of trauma, 7 wore contact lenses (30.4%), 2 had ocular pathology (8.7%) and 2 had other risk factors (8.7%). Central ulcers were more common (78.3%) than peripheral ulcers (21.7%). Hypopyon was present in 20 cases (87.3%). The culture was positive in 18 patients (78.3%). Positive cultures were more common in trauma cases, (50%), patients wearing contact lenses (33.3%), and those with ocular pathology (11.1%). Causative agents included *Pseudomonas aeruginosa* (66.7%), *Streptococcus pneumonia* (11.1%), *Penicillium sp* (11.1%), and *Fusarium spp.* (5.6%).

Conclusion: This study provides demographic data of infectious corneal ulceration in HUSM which is useful for reducing possible risk factors and better management of the condition.

APPRAISAL ON MANAGEMENT OF UNILATERAL SINU-NASAL DISEASES - A HOSPITAL UNIVERSITY SAINS MALAYSIA EXPERIENCE

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Introduction: Unilateral sinu-nasal complains have always been a warning sign for the attending physicians, although patient do not take it seriously until it is worsened to disturb the daily life in one way or other.

Objective: To highlight the demographic presentation and rationale of management for unilateral sinu-nasal diseases in our set up at hospital university sains malaysia.

Methodology: We have looked into hospital records of 69 cases of unilateral sinu-nasal diseases who were admitted to the department of ORL-HNS from March 2001 to March 2005. Demographic data have been recorded, presentation of problems has been evaluated, investigations and treatment whether surgically or medically, have been critically analyzed. Time lapse taken from patients first consultation until diagnosis and commencement of treatment has been accounted.

Results: Broadly, inflammatory diseases topped the list with number of cases being 34, neoplasm over all being 27cases, Meningo-enchaphalocoele 2 and foreign body nose 6 that required hospitalization. It has been noted that there were long gaps between patients first symptoms and first specialist consultation. Default from follow-up, had been another area of concern complicating the management of already serious diseases.

Conclusions: There is an enhanced need to stress the primary care physicians and centers for an early referral, especially unilateral nasal problems to centers which are well trained and fully equipped to deal with diseases like fungal sinusitis and benign and malignant sinu-nasal tumors.

DIAGNOSIS OF NASOPHARYNGEAL CARCINOMA BY DNA AMPLIFICATION OF EBV GENOMES IN NASOPHARYNGEAL BIOPSY AND FINE-NEEDLE ASPIRATION OF NECK NODES

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Introduction: Nasopharyngeal carcinoma (NPC) is common in Malaysia but diagnosis is sometimes delayed. The Epstein-Barr virus (EBV) is known to be associated with NPC.

Objective: This study evaluates the validity and reliability of detecting three genes – EBNA1, EBNA2 and LMP1 in nasopharyngeal biopsies and fine-needle aspirates of metastatic neck nodes in NPC.

Materials and methods: Tissue from 72 nasopharyngeal biopsies were collected. Thirty-six were positive and 36 negatives served as controls. Tissue from 70 fine-needle aspirations were similarly obtained. Thirty-five belonged to NPC-positive patients, and 35 of other pathologies served as controls. DNA was extracted, amplified with forward and reverse primers for EBNA1, EBNA2, and LMP1 genes, and human β -actin gene to ensure sufficient DNA for analysis, and detected by electrophoresis. Cloned DNA from B95-8 cell lines served as positives control. Histopathological-proven primary tumour and clinico-pathological criteria for neck nodes were used as gold standard for comparison.

Results: 35/36 positive nasopharyngeal biopsies contained sufficient DNA. $P > 0.05$ by showed no significant difference from histopathology. EBNA1 has the best sensitivity (97.1%) and specificity (100%) ($\kappa = 0.97$). One patient with obvious nasopharyngeal tumour was negative on the 1st biopsy and confirmed on repeat biopsy 2 weeks later, but EBV DNA was detected in both specimens.

35/36 metastatic NPC specimens contained sufficient DNA. $P > 0.05$ showed no significant difference from clinico-pathological criteria for neck metastasis. A cut-off point of $>0/3$ genes offers the highest sensitivity (97.1%) and specificity (94.1%) ($\kappa = 0.91$). All histological types of NPC contained EBV DNA.

Conclusion: EBV DNA detection is reliable and accurate in diagnosing NPC. It is on par with histopathology and superior to fine-needle cytology and can suggest NPC in occult primaries.

EFFICACY OF LARYNGEAL NERVE INTEGRITY MONITORING DURING THYROIDECTOMY

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Introduction: Recurrent laryngeal nerve paralysis is reported to be 2.5% - 3% in total thyroidectomy. The incidence may go up with advanced T-stages, revision surgery and when the procedure is performed by Inexperienced surgeons. Continuous nerve integrity monitoring may help to reduce this incidence in total thyroidectomy.

Objective: To determine how continuous recurrent laryngeal nerve (RLN) integrity monitoring (NIM) facilitates the procedure during total thyroidectomy.

Study design: 11 cases of advance T-stage (stage 3 & 4) and 2 cases of completion thyroidectomy were selected to undergo total thyroidectomy while monitoring RLN with EMG endotracheal tube (ETT) from Medtronic Xomed. NIM – EMG-ETT were placed by the anesthetist to lie in contact with the true vocal cords. No topical laryngeal anaesthesia or long acting neuromuscular blockade were used. RLN was routinely identified and was tested during the entire surgery using a unipolar probe stimulating electrode. Evoked EMG was continuously monitored intra-operatively by sound signals.

Results: All 13 cases were successfully done without inflicting any injury to the RLN during the surgery. Placing of the EMG-ETT was never a problem and there was no breakdown in continuous nerve integrity monitoring intra-operatively. It facilitated surgery in identifying the nerve in difficult cases.

Conclusion: We found that EMG–ETT monitoring was an efficient method to facilitate RLN dissection in early identification and difficult situations like nerve implication in tumour growth, nerve isolation in Berry's ligament. It also helps to confirm its anatomic integrity at the end of a case.

The most important benefit of NIM is its utilization for residents learning surgical techniques in a teaching institute.

OCULAR TUBERCULOSIS STUDY: A PRELIMINARY REPORT

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Introduction: Recently, tuberculosis has reemerged and raised the possibility of increasing prevalence of ocular tuberculosis. Ocular involvement is mostly secondary from the systemic sources and rarely as portal of entry.

Objectives: To determine the clinical presentation of ocular tuberculosis in an endemic area.

Methodology: An observational case series were conducted involving patients who were either suspected, confirmed or a probable case of ocular tuberculosis seen in eye clinic, HUSM from January 2002 to December 2004. Their demographic data, clinical features, investigations to confirm the diagnosis as well their visual outcome were documented.

Results: Six cases of ocular tuberculosis were included (involving 10 eyes). All were immunocompetent patients. The most common presentation is reduced vision (90%) followed by eye redness (60%) and pain (40%). Four eyes presented with good visual acuity (6/6-6/12). Granulomatous anterior uveitis (80%) is the most common ocular findings, posterior uveitis (60%), papillitis (20%), choroidal tubercle (10%), panophthalmitis (10%) and masquerade syndrome (10%). Three patients presented with systemic symptoms and only 2 patients had history of contact with tuberculosis patient. Mantoux test was positive in all patients. Based on their clinical findings and investigative results, 3 cases were defined as suspected ocular tuberculosis and the remaining as probable cases. Four patients have improvement of vision post treatment with antiTB regime and steroid, while two cases remained the same.

Conclusion: Immunocompetent patient is more susceptible to develop ocular tuberculosis in an endemic area. It is important to have high index of suspicion of ocular tuberculosis in patients presented with granulomatous uveitis.

EFFECT OF HEALON 5 AND HEALON GV ON CORNEAL ENDOTHELIUM AFTER PHACOEMULSIFICATION SURGERY

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Objective: To compare corneal endothelial morphological changes after the use of Healon 5 (sodium hyaluronate 2.3%) and Healon GV (sodium hyaluronate 1.4%) during phacoemulsification surgery, particularly at three months after the surgery.

Methodology: One hundred and ten patients were randomized, 55 per group, in a prospective randomized clinical trial of phacoemulsification surgery using Healon 5 or Healon GV. Three ophthalmologists performed the surgeries. The corneal endothelial cells density, average cell size, coefficient variation and hexagonality were assessed preoperatively and at three months postoperatively using a non-contact specular microscope Topcon SP2000. Analysis of the data was performed using SPSS version 10.0.

Result: There was statistically significant difference between Healon 5 group and Healon GV group based on endothelial cell density ($p=0.015$) and percentage of cell loss ($p=0.033$). The cell size was noted significantly smaller in the Healon 5 group compared to the Healon GV group at three months ($p=0.004$). A similar result was also noted in term of percentage of changes in cell size ($p=0.033$).

There were no statistically significant differences in changes of coefficient variation of cell size and hexagonality in both groups at three months after the surgery.

Conclusion: Minimal corneal endothelial morphological changes were noted in the Healon 5 group compared to the Healon GV group, particularly in term of less cell loss and less alteration in cell size at three months after the surgery. This study indicates that Healon 5 is more effective than Healon GV in minimizing risk of corneal endothelial injury during phacoemulsification surgery.

USM CATARACT SURGERY REGISTRY - PREDICTORS FOR POOR VISUAL OUTCOME

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Purpose: To identify factors for poor visual outcome following cataract surgery.

Methods: Data was obtained from National Cataract Surgery Registry (NCSR), a multicentre prospective cataract surgery registry. Those patients who had undergone cataract surgery in Hospital Universiti Sains Malaysia from 1 January 2002 to 31 December 2003 were included in this study. Postoperative refraction was done at 12 weeks post surgery. Poor visual outcome was defined as those achieved refracted visual acuity worst than 6/12 at 12 weeks post surgery. Factors contributed to poor visual outcome were also identified.

Result: 663 patients were recruited with mean age of 62.69 years. Poor visual outcome was observed in 39.6% of the cases. Poor visual outcome post cataract surgery mainly due to ocular comorbidity (40%), intra-operative complication (5.3%) and majority of the intra-operative complication was due to posterior capsule rupture (57%).

Conclusion: Ocular comorbidity is associated with higher risk for poor visual outcome following cataract surgery.

SYNDROME OF INAPPROPRIATE SECRETION OF ANTIDIURETIC HORMONE IN PATIENT WITH CARCINOMA OF THE NASOPHARYNX

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Introduction: Nasopharyngeal Carcinoma is a common cancer in South East Asia and the incidence is rising. A very small percentage of patients with NPC have been reported to develop a Syndrome of Inappropriate Antidiuretic Hormone secretion (SIADH). This is particularly true if the tumour has extends to the brain especially to the area of petrous apex.

Case Report: Mr I. M, is a 44 year old malay man who presented with history of right neck swelling for more than a year associated with reduced hearing, nasal block and occassional haemoptysis. His initial CT scan of head and neck showed no intracranial involvement. He was treated with external radiotherapy. While on radiotherapy he was warded for a few occasions for lethargic, reduced oral intake and abnormality in his blood parameters. His blood tests showed picture of SIADH, with persistent hyponatremia, high urine osmolality, high urine sodium concentration and low plasma osmolality. He was not on any drug therapy that can cause SIADH.

Discussion: There are various causes of SIADH ranging from infections, drugs, vascular disorders and neoplasms. Nasopharyngeal carcinoma is one of the neoplasms that have been associated with SIADH. The interesting point to be aware of is that in this patient there is no intracranial involvement of the tumor that can potentiate the secretion of ADH. Given that Vasopressin had been measured in this patient at our set up, we should have been able to delineate the true physiological cause of SIADH in this scenario.

Conclusion: SIADH can be caused by wide variety of disorders and neoplasms and Nasopharyngeal Carcinoma is one of the rare causes.

RAPID SCREENING FOR C3435T POLYMORPHISM IN EXON 26 OF THE MULTI-DRUG RESISTANCE (MDR1) GENE IN MALAY PATIENTS WITH ACUTE LEUKEMIA

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Introduction: The over expression of P-glycoprotein has been found to be associated with therapy resistance in hematological malignancies including acute leukemias. Recently, a single nucleotide polymorphism (SNP) in exon 26 (C3435T) in the MDR1 gene has shown to have functional consequences with altered expression of P-gp. Denaturing HPLC has been established as a rapid method for screening SNP in the form of heteroduplex of the DNA samples under partially denaturing condition.

Objective: To develop a rapid denaturing HPLC technique for screening a C3435T polymorphism in exon 26 of the multi-drug resistance (MDR1) gene in Malay patients with acute leukemia.

Methodology: The SNP C3435T was determined by using dHPLC technique in 83 Malay patients diagnosed as acute leukemia; 35 (34.0%) were acute myeloid leukemia (AML) and 48 (46.6%) were acute lymphoblastic leukemia (ALL) from HUSM. The profiles of dHPLC analysis were compared with wild type samples as a control.

Results: The optimum temperature for detection of C3435T mutation was empirically optimized at 61°C. Of 48 sample of ALL subjects, 19 (39.58%) were single peak for homozygous wild-type CC, 20 (41.67%) were heterozygous peaks for heterozygous CT mutation while 9 (18.75%) were homozygous TT mutation. Of 35 sample of AML subjects, 9 (25.72%) were single peak for homozygous wild-type CC, 23 (65.71%) were heterozygous peaks for heterozygous CT mutation while 3 (8.57%) were homozygous TT mutation.

Conclusion: The use of denaturing HPLC in mutation detection was reliable because of its sensitivity and specificity. Thus, denaturing HPLC is a good candidate for routine screening and detection of mutations in medical as well as research settings.

A STUDY OF BETA-2 AR GENE POLYMORPHISMS AMONG MALAYSIAN SUBJECTS

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Introduction: To date, 17 single nucleotide polymorphisms (SNPs) have been identified within the beta2-adrenergic receptor gene but only three have been widely studied, which resulted in the substitution of amino acid at position 16, 27 and 164. Two more SNPs within the 5' leader region harbouring the open reading frame (ORF) located at position -47 and -20 were found to alter the receptor expression. We report the preliminary results of the β_2 AR genotype of these 5 functionally important SNPs among Malaysian subjects, using a simplified single-tube allele specific multiplex PCR.

Objectives: To study the genetic variation on the five SNPs among Malaysian subjects using a simplified single-tube allele specific multiplex PCR.

Material and methods: A total of 26 subjects were enrolled from Hospital Universiti Sains Malaysia and Hospital Ipoh. Genomic DNA was extracted from 4ml of blood. The five SNPs of the β_2 AR gene were simultaneously amplified from genomic DNA using single-tube allele specific multiplex PCR followed by gel electrophoresis. Selected amplicons were sequenced and the results confirmed the presence of 5 alleles.

Results: PCR products were successfully amplified from the genomic DNA. Genotype frequency for allele 16 was 38.46% (Arg/Arg) and 61.54% (Arg/Gly); allele 27 was 92.31% (Gln/Gln) and 7.69% (Glu/Glu); allele 164 100% (Arg/Gly); allele -47 was 7.69% (T/T) and 92.31% (C/C); and allele -20 was 53.85% (T/T) and 46.15% (T/C) respectively.

Conclusion: We report the preliminary findings of our study on the 5 SNPs of the beta2 AR gene among the Malaysian population. The simplified single-tube multiplexed PCR applied in this study provides an easier, faster and cost effective methods of screening β_2 AR gene polymorphisms.

A STUDY OF BETA 2-ADRENERGIC RECEPTOR POLYMORPHISMS IN ACUTE ASTHMATICS AND THE ASSOCIATION TO THE HOSPITAL U.S.M. EMERGENCY ROOM VISITS

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Introduction: Despite advances in science and technology, mortality associated with asthmatic exacerbation is still increasing especially in major urban areas. Hence, the role of beta 2-adrenergic receptor (B2AR) polymorphisms and the number of Emergency Room visits during asthmatic exacerbation is studied to determine if there is an association between these two factors.

Objective: To determine the association between B2AR Polymorphisms at Codon 16 and 27 in acute asthmatics and the association to their visits to the Hospital USM Emergency Room for the treatment of their relapse.

Methodology: 132 asthmatic patients presenting to the emergency department HUSM for acute exacerbation of bronchial asthma fulfilling the inclusion and exclusion criteria were chosen during a study period of 15 months. Five ml of venous blood was taken for DNA extraction and then genotyped for the 2 B2AR polymorphisms using multiplex PCR. The demographic data and the number of Emergency Room visits in a year were collected. The data were analyzed using descriptive statistics from the SPSS (version 11.0).

Results: There was no significant association between b2-AR polymorphisms at both codon 16 and 27 and the number Emergency Room visits during acute exacerbation of bronchial asthma ($p=0.639$; $p=0.533$) respectively.

Conclusion: Our results suggested that b2-AR polymorphisms codon 16 and 27 in asthmatics are not associated to the number of Emergency Room visits for the treatment of their asthmatic relapses.

BETA 2-ADRENERGIC RECEPTOR POLYMORPHISMS AND RESPONSE TO SHORT ACTING BETA 2-AGONIST

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Introduction: The short acting β_2 -agonists are the most potent bronchodilators currently available to relieve bronchoconstriction during acute, life-threatening asthmatic attacks. However, patients show variable response and this may be influenced by genetic factors. Hence, the role of beta 2-adrenergic receptor (B2AR) polymorphism and their response towards β_2 -agonist during asthmatic exacerbation was studied.

Objective: To determine associations between B2AR Polymorphisms at Codon 16 and 27 and the response to short acting β_2 -agonist during asthmatic exacerbation.

Methodology: One hundred and thirty two asthmatic patients presenting to the emergency department HUSM for acute exacerbation of bronchial asthma fulfilling inclusion and exclusion criteria were chosen during a study period of 15 months. PEFr was performed before and 30 minutes after short acting β_2 -agonist nebulization treatment and the results documented. Five mls of venous blood was taken for DNA extraction and then genotyped for the 2 B2AR polymorphisms using multiplex PCR. Patients' clinical responses to β_2 -agonist nebulization were then compared to their genotype to determine an association.

Results: There was no association between B2AR polymorphisms at both codon 16 and 27 with response towards short acting β_2 -agonist (p=0.315 and p=0.706) respectively

Conclusion: Our results suggested that Beta-2 polymorphisms at codon 16 and 17 are not associated to the response to inhaled salbutamol. Larger studies are however needed to allow for other concomitant factors that may influence β_2 -agonist response.

SCREENING FOR MUTATION OF THE PGF₂ RECEPTOR GENE BY DHPLC : A PRELIMINARY REPORT

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Introduction: Latanoprost, which acts on PGF₂ receptor is responsible in reducing the intraocular pressure through increasing the uveoscleral outflow of aqueous humor. Nonetheless, genetic studies of this receptor gene have not been widely established. Out of 170 polymorphisms reported in SNP database, only a few had been studied, while others remain in black box.

Objectives: To screen for sequence changes in the PGF₂ gene using dHPLC and to determine the association of PGF₂ receptor gene in glaucomatous patients.

Methodology: Twenty glaucomatous patients and fourteen non-glaucomatous patients were recruited into this study. Genomic DNA was extracted from blood. Sequence of PGF₂ gene was obtained from the NCBI GenBank. Five alleles, which located in the exons were identified. A total of two pairs of specific primers were designed and wild type samples for these loci were identified. PCR were performed on the patients and controls. Amplicons were then mixed with wild type amplicons in a ratio 1:1. Fragments were then identified and slow-reannealing were performed before screening of dHPLC.

Results: Specific primers designed amplified region targeted perfectly. A primer pairs amplified the SNPs in the codons of exon-2, while the other amplified four mutation sites, which located out of the codons in exon-3. No mutations have been identified yet after dHPLC screening.

Conclusion: As far as we know there is no record to date on screening mutations using dHPLC. The results from this study show there is no association between the receptor gene and glaucoma disease could be detected. Though, larger study is currently underway to confirm the finding. The establishment of this screening method of this gene will be helpful for those who are doing large-scale patients screening.

THE USE OF THE *dnaJ* AND *hsp65* GENES FOR DETECTION OF *MYCOBACTERIUM SPP.* IN A MULTIPLEX PCR-ELISA FORMAT

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Purpose or background: Mycobacterial infection due to mycobacteria other than tuberculosis is becoming more common particularly in immunocompromised patients. Rapid detection of both *M. tuberculosis* and atypical mycobacteria based on nucleic acid detection is becoming more important to replace the clinical diagnosis and conventional laboratory diagnosis. This study focuses on the *dnaJ* and *hsp65* genes for the development of molecular primers and probes for the detection of mycobacterial species.

Method: Based on these two genes, in which the sequence of the mycobacterial *dnaJ* gene was determined in this study, a multiplex PCR-ELISA diagnostic assay was developed for the detection of the mycobacterium genus involving the development of both genus-specific primers and probes.

Results: The primers for both genes were found to be highly specific. Detection of PCR products using the genus-specific probes showed that the *hsp65*-G probe was highly specific for mycobacterial species. The *dnaJ*-G probe appears to be less useful as it gave negative results with both *M. fortuitum* and *M. scrofulaceum*. However, it remains useful when used together with the *hsp65*-G probe. The sensitivity of both probes using the multiplex PCR-ELISA method are high whereby one femtogram of DNA was detectable, compared to gel electrophoresis that can only detect down to 100 picogram. Both probes were able to diagnose positive (based on AFB microscopic and culture results) sputum samples correctly.

Conclusion: The method applied is highly specific and sensitive for the detection of mycobacterium species. Both probes were also able to correctly diagnose positive (based on AFB microscopic and culture results) clinical specimens.

CLONING AND EXPRESSION OF TRUNCATED CTCF TRANSCRIPTION FACTOR

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Introduction: The CTCF gene maps on chromosom 16 at 16q21-q22.3. It encodes a transcriptional factor protein CTCF called zinc finger protein. CTCF has a number of functions in the cell including controls of cell proliferation by having interactions with other proteins. There are several proteins associated with CTCF. Among them are proteins involved in transcriptional and cell proliferation control, RNA processing, signal transduction, nucleosome components and tumor suppressors. CTCF consists of N-terminal domain, zinc finger domain and C-terminal domain. Extensive research has been done to elucidate the important protein regions that might play important role in both DNA binding and protein-protein interactions. Previous studies has shown there was a region in the C-domain, which has direct interaction with large submit of RNA polymerase II and controlling various cellular process.

Methodology: In this study, a truncated CTCF from the C-terminal domain was produced by polymerase chain reaction (PCR). The amplified product was then sub-cloned into the intermediate cloning vector, pTOPO 2.1 and transformed into *E.coli* strain DH5_. The insert was then cut with respective restriction enzyme to obtained truncated region and further ligated into pET16b expression vector for its expression in *E.coli* strain BL21 (DE3). Expressed protein was separated using SDS-PAGE followed by Western Blotting using _- Histag monoclonal antibody.

Result and discussion: The truncated CTCF protein was detected to migrate at the size of approximately 27kDa despite its theoretical size of 4kDa. This migration was expected and due to anomalous conformational changes during migration and this phenomenon has been observed in C terminal of CTCF.

THE EFFECT OF 17 β -OESTRADIOL AND OESTROGEN RECEPTOR AGONIST ON ENDOTHELIUM-DEPENDENT AND – INDEPENDENT RELAXATION OF RAT AORTA

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Introduction: Although a vasorelaxant effect of oestrogens is widely recognized, its exact mechanism however is unclear; in particular, the endothelial involvement in this action remains uncertain.

Aim: To study the role of oestrogen receptors (ERs), endothelium-derived nitric oxide (EDNO) and the potency of ERa and ERb agonists in oestrogen dependent vasorelaxation.

Methodology: Thoracic aortae from 12-week old male (n=10) and female (n=10) Wistar rats were cut into 3 mm rings with the endothelium either intact (n=10) or removed (n=10), and suspended in a tissue bath in 37 °C. The effects of cumulative concentrations of 17 β -oestradiol, ERa, ERb agonist on KCl-induced isometric contractions were recorded. Following this the tissues were washed and re-incubated with either L-NAME (100mM) or ODQ (10mM) for one hour and the responses of 17 β -oestradiol, ERa, ERb agonist were recorded again.

Results: 17 β -oestradiol-induced vasorelaxation was not significantly blocked by L-NAME. The relaxation was however, significantly decreased by ODQ both in the presence and absence of endothelium and significantly decreased the potency of 17 β -oestradiol in female tissues (log EC₃₀ -6.10±0.80 vs -5.10±0.21, females vs males, respectively). ERb agonist was significantly more potent than ERa agonist in all aortic rings (log EC₃₀ -5.43±0.21 vs -4.54±0.21 and -5.54±0.21 vs -4.98±0.21 in females and males, respectively). In male aortae, ERb agonist-induced relaxation is significantly reduced after removal of endothelium, but not with ERa agonist. In female aortae no significant difference was seen in ERa and ERb-induced relaxation either before or after removal of endothelium.

Conclusions: The mechanism of oestrogen-induced vasorelaxation, especially in female is both endothelium-dependent and –independent and cGMP and ERb-receptor mediated.

EXPRESSION OF HUMAN MDR1 IN AN OUTER MEMBRANE PERMEABILITY MUTANT OF *ESCHERICHIA COLI*

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Background : Human p-glycoprotein (p-gp) is a plasma membrane protein encoded by human *mdr1* gene which has a role in cross resistance of cells to many toxic compounds. This study is aimed to clone and express the human MDR1 protein in a leaky mutant of *E. coli* to establish a model system to screen p-gp inhibitor that will help to overcome the multidrug resistance problem in cancer and also in other diseases.

Method : From the human MDR1.pGEM3Zf(-) cDNA clone, the MDR1 gene was subcloned onto a prokaryotic expression vector pPROEXHTb. The expression of the recombinant protein was carried out in outer membrane permeable UTL2 *E. coli* strain and induced by isopropyl β -D-thiogalactopyranoside (IPTG). The protein was then detected by immunoblotting technique against p-gp monoclonal antibody C219 and anti-His antibody.

Result : MDR1 gene orientation was successfully verified by *EcoRI* restriction analysis. However, the expression of the recombinant protein showed some toxicity effect to the bacterial host UTL2 but was minimized by some modifications on the induction and growth conditions. Heterologously expressed MDR1 protein showed by immunoreactive bands representing p-gp with the apparent size approximately 130 to 140 kDa in both anti p-gp and anti-His antibody western blot assay.

Conclusion : The human p-gp was successfully cloned and expressed in leaky mutant *E. coli*. The MDR1 clone thus developed may serve as a model system for *in-vitro* drug test for screening of p-gp inhibitor.

PRODUCTION OF YB-1 COLD SHOCK DOMAIN PROTEIN USING BACTERIAL EXPRESSION SYSTEM: A PRELIMINARY STUDY

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Introduction: The Y-box protein is the family of most evolutionary-conserved nucleic acid binding proteins from bacteria to plants and vertebrates. The highly conserved 70 amino acid DNA domain, the so-called 'cold shock domain' (CSD) was defined initially in bacteria as a characteristic feature of this family. The name Y-box protein comes from the ability of the CSD to bind to the Y-box sequence [5'-CTGATTGG-3'] of DNA, which is an inverted CCAAT box, in the promoter region of many genes.

Methodology: In this preliminary study, the Cold Shock Domain (CSD) of human *YB-1* gene was cloned into prokaryotic expression vector and the protein was expressed in *Escherichia coli*. The Cold Shock Domain region of human *YB-1* gene was amplified by PCR and sub-cloned into intermediate cloning vector pCR TOPO 2.1. The amplified gene was further sub-cloned into pET expression vector and the orientation was confirmed via sequencing. The recombinant pET16b-CSD was then transformed into *E.coli* strain BL-21 (DE3) and expressed as suggested by the manufacturer. Further conformation of the protein was then carried out via Western Blotting using α -Histag monoclonal antibody. The protein was then subjected to Immuno Metal Affinity Chromatography (IMAC) for purification.

Result and discussion: Expressed CSD protein was detected to migrate at approximately 17 kDa in gradient SDS-PAGE, despite its theoretical size of 7.8kDa. This anomalous migration of this protein might be due to its particular amino acid composition that has been detected previously.

PENILE FRACTURE – IT CAN HAPPEN

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Introduction: Penile fracture is a rupture of the tunica albuginea of 1 or both corpora cavernosa that occurs when the penis is erect. It is a rare urological emergency. Most injuries occur during vigorous vaginal intercourse or self manipulation due to abrupt bending of the erect penis. Diagnosis is usually clinical. Management strategies in suspected cases are controversial. Long-term complications are common.

Case report: A 23-year old man presented with a complaint of acute onset of penile swelling after a fall in the bathroom. On examination, his penis was grossly swollen, especially the distal half, and deviated to the left. He was scheduled for exploration and repair. A rupture of the tunica albuginea of the right corpus cavernosum was found without involvement of neither the contralateral corpus nor the urethra. The rupture was sutured.

Discussion: Rupture of the tunica albuginea and subsequently corpus cavernosum at erection occurs when the intracavernous pressure exceeds 1500mmHg. MRI is the most accurate method of diagnosis but this may delay surgery hence, usually diagnosis is based on the clinical symptoms and history of trauma. The modern consensus of management favours early operation to prevent late complications such as erectile dysfunction and penile deviation.

EAGLE'S SYNDROME: A CASE REPORT

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Objective: Eagle's syndrome is an aggregate of symptoms of an elongated styloid process (greater than 3 cm) or a calcified stylohyoid ligament.

Case Report: A 50-years old lady complaints of right ear pain,itchiness, tinnitus and right neck pain of 3 weeks duration.Physical examination revealed mildly inflamed right external auditory canal and a prominence on the right side of oral cavity. CT scan revealed long right styloid process measuring 33.8 mm,compared to the contralateral side (measuring 19.9 mm). It is medially curved towards pharynx and closely abuts right common carotid artery.

Discussion: The length of styloid process is individually variable.Cadaveric studies shows length of normal styloid process from 1.52 cm to 4.77cm.Radiologic examinations revealed length of normal styloid process <2.5cm.However according to Monsour and Young 1986,a long styloid process is defined as more than 4 cm,since in this situation the highest incidence of Eagle's syndrome occurs.Incidence of this syndrome varies between population.4% of population are believed to have elongated styloid process but very few had pain.Eagle(1937) presented 2 possible clinical expressions ie.classical stylohyoid syndrome(classical Eagle's syndrome) which almost always following tonsillectomy and stylocarotid syndrome (carotid artery type) which arises whenever styloid process or ligament compresses carotid arteries and especially the perivascular symphatetic fibres.For diagnosis of Eagle's syndrome,accurate case history is needed.Styloid process(usually not palpable) may be palpated in the tonsillar fossa and may initiate or aggravate symptoms.Radiological examination confirms the diagnosis. Eagle's syndrome treated either surgically or conservatively.

Conclusion: A long styloid process alone with other factors are necessary to give rise to Eagle's syndrome.CT scan is best for diagnosis although accurate case history and specialist's intuition are fundamental importance for differential diagnosis of several other pharyngo-cranio-facial pain disorders.

RENAL ONCOCYTOMA - A RARE CASE PRESENTATION

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Objective: To present a rare case of oncocytomas ie. benign tumor of renal tubules, histologically characterized by oncocyte. Previously considered benign, but now recognized to metastasize.

Report: A 55 years old man with hypertension, diabetes and renal failure, on ultrasound examination found to have bilateral renal parenchymal disease and a large mass with calcification in left lumbar region arising from lower pole of left kidney. The mass is heterogenous with foci of calcification and necrosis in inferomedial part of left kidney. Abdominal examination revealed non-tender ballotable abdominal mass on the left. CT scan revealed well-defined large homogeneously enhancing mass lesion in lower pole of left kidney measuring 15cm x 15cm with multiple specks of calcification within. Diagnosis made was benign renal tumor with differential of oncocytoma. Patient then developed septicaemia, multi-organ failures and died.

Discussion: Oncocytomas are rare benign, slow growing tumors of renal parenchyma. Also found in thyroid, parathyroid, pancreas, adrenal and salivary glands. Occurs at any age and often asymptomatic. Most frequent symptoms are abdominal pain and flank mass. Varies in size from 1 to 20 cm or larger. Usually solitary and unilateral, but can be multiple (5%) and bilateral (3%). Peak incidence in 7th decade with distinct male predominance. Tumor is endophytic or exophytic, spherical in shape with or without capsule and calcification. Homogenous or heterogenous on ultrasound. CT scan demonstrates well-defined, homogeneously enhanced solid mass when large contain central scar with extension into perinephric fat. Diagnostic problem is for pre-operative distinction from renal cell cancers, because of different surgical approach.

Conclusion: The diagnosis of renal oncocytoma by imaging is difficult and can only be made with certainty by histological examination. Imaging guided biopsy does not always provide reliable distinction because renal cell cancer may have regions composed of oncocytes and oncocytoma and on occasion harbor small regions of malignant-appearing tissue indistinguishable from renal cell cancer.

INTRAUTERINE RHABDOID RENAL TUMOUR

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Objective: Rhabdoid tumor of the kidney (RTK) is one of the most aggressive and lethal malignancies in pediatric oncology. It comprises only 1.6% of childhood renal tumour. The mean age of presentation is 11 month but in this case, the tumour occurred much earlier, that is during intrauterine life.

Case report: A 36 week gestation Malay female baby was delivered with huge swelling of the left arm measuring 17cm in length and 26cm in circumference. Her plain radiograph showed a huge soft tissue density lesion occupying the left arm with cortical destruction over the distal humerus and proximal radius and ulna. US of the lesion were suggestive of lymphangioma. She then underwent CT of the left upper limb, thorax and abdomen which revealed a solitary right renal mass with distant metastasis to the bone and lymphnodes. The biopsy result is in keeping with features of rhabdoid tumour of kidney.

Discussion: Rhabdoid tumor of the kidney (RTK) is a rare tumor. The International Society of Paediatric Oncology (SIOP) has reported that RTK comprises 0.9% of childhood renal tumors. The cell of origin is unknown. Clinical presentations are usually fever and hematuria. Diagnosis when patients are younger than 1 year is associated with an unfavorable prognosis. RTK tends to metastasize not only to the lungs, but also to the brain (10% to 15%). The overall survival rate for patients with RTK was 23.6%.

Conclusion: Rhabdoid tumour of the kidney is a very rare disorder. In this case, the presentation is very much earlier (intrauterine) with evidence of metastasis at birth.

POST TRAUMATIC CAROTICO-CARVENOUS FISTULA

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Objective: Carotico-carvenous fistulas (CCFs) are abnormal communication between the carotid arterial system and the venous carvenous sinus. This presentation is about the successful endovascular embolization treatment of CCF.

Case report: A 42 year old Chinese lady, with history of road traffic accident and loss of conciousness. CT scan brain performed was unremarkable. Patient was treated conservatively. One month later, patient developed right eye swelling with injected conjunctiva, diplopia and restricted eye movement. Bruit was present. The cerebral angiogram confirmed the presence of a right sided carotico-carvenous fistula. Patient underwent endovascular embolization of the fistula after which the right eye markedly improved.

Discussion: CCFs is classified aetiologically as traumatic (75%) versus spontaneous (ruptured aneurysm or AVMs) and anatomically as direct (high flow; 70-90%) versus indirect (low flow). Angiographically, it is divided into 4 types: Type A, B, C and D. Clinical symptoms are related to the fistulous sinus being directly communicates with the ophthalmic veins. Cranial nerves (III, VI and/or VII) palsies may also be affected. Computed tomography (CT) scanning, magnetic resonance imaging (MRI) and orbital sonography often confirm the diagnosis. Diagnostic test is cerebral arteriography with selective catheterization of the internal and external carotid arteries on both sides.

Conclusion: The optimal treatment is closure of the abnormal arteriovenous communication with preservation of the ICA patency via either endovascular treatment or surgical repair. Endovascular treatment is now becoming more popular with development of variable microcatheters, which provide access to distal cerebral vessels and newer embolic agents, which can be delivered through them.

GIANT LEFT HEPATIC ARTERY MYCOTIC ANEURYSM IN IMMUNOCOMPROMISED PATIENT

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Introduction: Mycotic aneurysm is uncommon, representing only about 2.5% of all aneurysms. 80% of hepatic artery aneurysm are extra-hepatic and of these, 63% affect the common hepatic artery, 5% left hepatic artery and 4% right hepatic artery and left hepatic artery. Lesions may be single or multiple. Our presentation is about one of such rare cases.

Case Report: 21 years old gentleman, alcoholic, ex-IVDU with retroviral positive admitted in unconscious state. He had been suffering from severe epigastric pain, per rectal bleed and fever for weeks. On admission, he was anemic and blood transfusion given. CT abdomen findings were suspicious of bleeding hemangioma of the left lobe of the liver. MR abdomen and cholangiogram show giant mycotic aneurysm of the left hepatic artery with multiple liver abscess. Laparotomy performed and left lateral segment hemihepatectomy done. Histopathological examination of the aneurysm suggestive of hyalinised fibrocartilagenous tissue. HPE of the aneurysm is suggestive of Klebsiella pneumonia.

Discussions: Left hepatic mycotic aneurysm is rare. Usually asymptomatic and present often late in fourth and fifth death. Early presentation in this patient is due to the immunocompromise state with concomitant liver abscess. Usual presentation is pain and lump in abdomen and rarely as gastrointestinal hemorrhage. It may rupture into the peritoneal cavity. Extrahepatic aneurysms have higher incidence of rupture and have mortality of 82%. Etiologies include atherosclerosis, infection and liver abscess. The latest treatment is to resect visceral vessel aneurysm and aneurysms larger than 2cm in diameter to avoid rupture. Prognosis is poor in immunocompromised patient.

Conclusion: Mycotic aneurysm of the hepatic artery is extremely rare, clinical manifestation is non specific. Keeping high suspicion index and utilization of radiological modalities such as CT and angiography are essential to make an early diagnosis.

ASSOCIATION OF *STREPTOCOCCUS BOVIS* WITH COLONIC NEOPLASIA

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Background: *Streptococcus bovis* is a normal inhabitant of the human gastrointestinal tract that can cause bacteremia and endocarditis, as well as urinary infection. Recently reports also suggest a correlation between increased level of *S. bovis* and human colonic cancer. This report describes a patient who presented with infectious enteritis. *S. bovis* was associated with colonic carcinoma and tubular-villous adenomas.

Materials and Methods: 50 fecal samples from patients with inflammatory bowel disease were collected in the period of January and February 2005 from HUSM. Colonoscopy, histopathology and bacteriological investigations were performed.

Results: Eight cases out of 50 cases were conformed as having a colonic cancer. Bacteriological investigations conformed one case was positive for *S. bovis*. Adenocarcinoma, as well as tubular-villous adenomatous polyps were confirmed to be present in this patient by histopathological examination.

Discussion: The finding of this bacterium among patients with inflammatory bowel disease is also related to the presence of villous or tubular-villous adenomas in the large intestine. For this reason, complete and detailed investigation of the large intestine must be performed in patients with infectious endocarditis, even in the absence of intestinal symptoms. Patients with infectious endocarditis from *S. bovis* and normal colonoscopy may be included in the group at risk for developing colonic cancer.

Conclusions: The association between some of inflammatory bowel disease with *S. bovis* and carcinoma of the colon has important clinical implications. If the lesion can be discovered at an early stage, curative resection may become possible.

SEBACEOUS CARCINOMA OF SCALP WITH LUNG AND BONE METASTASIS DIAGNOSED IN A YOUNG FEMALE

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Introduction: Sebaceous Carcinoma (SC) is a rare malignancy of skin appendages. Most commonly seen in Orbital region, Extra Orbital SC are very rare, so far 160 cases reported in literature. SC is a disease of 6th and 7th decades of life. Here we present a case of SC in 28 years old female with metastasis to Lungs and Bone.

Case report: A 28 years old, Malay female referred to HUSM from HKB, in Sept, 2004 with a painless growth over the scalp at occipital region since four months. She had ulcerative lesion in the same region three years back and underwent excision at Hospital Kajang. HPE revealed Sebaceous Carcinoma, never received adjuvant treatment. Current examination revealed right cervical lymph node, right eye proptosis and multiple cranial nerves palsy. CT Scan Head, Neck, Brain and Thorax showed aggressive soft tissue tumor in the occipital region with local infiltration into the base of the skull and meningeal involvement, distant metastasis into the lungs, cervical spines, T1, 1st rib (left). Received single fraction Radiotherapy 8 Gy at thoracic spine in palliative intent and advised intravenous Mitomycin.

Discussion: SC is the adnexal tumor of skin, derived from pluripotential cell of epidermis. It may arise from Orbital or Extraorbital Sebaceous glands. Extraorbital SC is rare. Most common site is skin of face and neck. The Scalp skin lesion is the primary site in our patient. The histopathologic criteria for SC are high mitotic activity, nuclear pleomorphism, lobular architecture and foamy vacuolization in the cytoplasm.

Conclusion: We believe Extraorbital SC may act very aggressively with potential of early and multiple distant metastasis despite prompt surgical excision. Therefore follow up screening for local recurrence and for distant metastasis should properly evaluate.

CEREBRAL MYCOTIC ANEURYSM COMPLICATING INFECTIVE ENDOCARDITIS IN MITRAL VALVULAR DISEASE – A CASE REPORT

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Objective: To highlight a rare case presentation of Infective endocarditis (IE), one of the leading causes of life-threatening infectious disease. Intracranial mycotic aneurysm, a rare and known neurologic complication of infective endocarditis is associated with a high mortality rate

Case report: A 6-year-old girl with congenital dysplastic mitral valve associated with mitral regurgitation developed Staphylococcus aureus infective endocarditis. Two weeks later she complained of severe headache, blurring of vision and intermittent vomiting without any focal neurological signs. MRI scan demonstrated multiple infarcts (caused by septic emboli) in the infratentorial area of the brain. A follow-up CT scan revealed a mycotic aneurysm at the tip of basilar artery. She was treated conservatively with supportive care and antibiotics.

Discussion: ICMAAs have been noted in 2% to 10% of cases of IE and account for 2.5% to 6.2% of all intracerebral aneurysms. Only approximately 15% of mycotic aneurysms occurring in IE occur in arteries supplying the brain. Most often ICMAAs are located on the distal branches and bifurcations of middle cerebral artery. ICMAAs often develop within 1 month of the presumed septic embolization. The most likely mechanism of ICMAAs formation is bacterial induced weakening of arterial wall. The management of cerebral mycotic aneurysm is controversial. Some physicians have argued for prompt surgical repair because of the high mortality rate associated with rupture of these aneurysms. Others have recommended antibiotic therapy with serial neuroimaging monitoring and have reserved surgery for aneurysms that enlarge or remain patent despite antibiotics.

Conclusion: We reported a case of intracranial mycotic aneurysm complicating an infective endocarditis in mitral valvular disease.

THREE DIFFERENT CLINICAL MANIFESTATIONS OF DECOMPRESSION ILLNESS PRESENTING TO THE EMERGENCY DEPARTMENT

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Introduction: DCI or decompression illness is the disorder that arises from the presence of bubbles formed from gases, usually nitrogen, that have become dissolved in the tissues of the body during a sojourn at raised environmental pressure. Classically clinical presentations of decompression sickness include musculoskeletal pain, skin symptoms, and neurological manifestations. The presenting complaints can be so vague and subtle, that the receiving physician may miss the diagnosis.

Case reports : Three cases of DCI were referred from Perhentian Island which involved recreational divers. All of them were Caucasians. Patient 1 presented mainly with generalized body cramps with carpopedal spasms like hyperventilating syndrome. Patient 2 presented differently, with temporary blurring of vision and persistent central sharp chest pain on deep breathing almost immediately upon reaching the water surface. Patient 3 presented with an even more peculiar complaint: a prolonged duration of multiple joint pains particularly in the shoulder region. All of them were referred to the hyperbaric unit of the Armed Forces hospital in Lumut and successfully treated with recompression therapy.

Conclusion: Physicians working in the emergency department located in close distance to coastlines or where water related recreational activities like scuba diving happen, should be aware of different clinical manifestations of diving related illnesses particularly DCI. Clear guidelines about emergency management and patterns of referral for diving related illnesses should be displayed prominently in the ED. To avoid misdiagnosing of DCI cases, emergency physicians and nursing staff should have formal training in under water medicine.

SELF-CONFIDENCE EVALUATION AFTER AN INTRAHOSPITAL TRANSFER COURSE : A PILOT STUDY

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Introduction: The Emergency Department HUSM is involved in intrahospital transfer of the critically ill patients. An intrahospital transfer protocol and training was recently initiated to improve the skills of the transport team.

Objective: To describe the level of self-confidence of the housemen and paramedics before and after an intrahospital transfer course conducted in the emergency department HUSM.

Methodology: In this study conducted in April 2005, a questionnaire form was given to each one of the 38 participants to fill in prior to and after the intrahospital transfer course. The intrahospital transfer course ran for 6 hours which consist of 3_ hours of lectures and 2_ hours of skill stations. Rating questionnaires were used from 1= not confident to 5 = most confident. Participants are considered to be confident if the total score is > 15. The means of both pre-course and post-course total score were calculated and compared. The reliability of the questionnaires was presented by Cronbach's alpha.

Results: There were 15 (39.5%) housemen and 23 (60.5%) paramedics participated in the course. The mean pre-course confident score was 11.2 (SD 2.9) and the mean post-course confident score was 14.1 (SD 3.0). The number of participants who were not confident before the course was 37 (97.4%) and after the course were 23 (60.5%). The number of participant who was confident before the course was 1(2.6%) and after the course were 15 (39.5%). The Cronbach's alpha reliability of the questionnaires was 0.725.

Conclusion: There is an improvement of self-confidence in general for the participants of the intrahospital transfer course after completion of the course.

RISK FACTORS OF NOSOCOMIAL *ACINETOBACTER* BLOOD STREAM INFECTION IN HOSPITAL UNIVERSITI SAINS MALAYSIA, KELANTAN

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Introduction: *Acinetobacter* spp is a known nosocomial pathogen causing wide range of clinical diseases mainly pneumonia, wound infection and blood stream infection (BSI).

Method: The risk factors of *Acinetobacter* BSI were determined by 1:1 case control analytical study, involving fifty-eight confirmed cases *Acinetobacter* BSI patients

Results: *Acinetobacter* BSI patients were mostly located in intensive care unit (OR 3.83 95% CI 1.40-4.07 p=0.001) and had longer intensive care unit stay (12.72 ± 17.29 days compared to 2.97 ± 7.88 days p=0.010). The risk factors for *Acinetobacter* BSI included prior exposure to antimicrobial agents such as penicillins (OR 1.55 95% CI 1.04-2.29 p=0.026), aminoglycosides (OR 2.00 95% CI 0.98-4.08 p=0.048) and cephalosporins (OR 2.35 95% CI 1.52-3.64 p=0.000), mechanical ventilation (OR 2.40 95% CI 1.49-3.89 p=0.000), presence of nasogastric tube (OR 1.71 95% CI 1.21-2.42 p=0.001), arterial catheter (OR 1.90 95% CI 1.25-2.88 p=0.002) and urinary catheter (OR 1.70 95% CI 1.18-2.44 p=0.003). In multivariate analysis, the independent risk factors for *Acinetobacter* BSI were prior treatment with cephalosporins (OR 3.836 95% CI 1.657- compared to other Gram-negative infections 8.881 p=0.002) and mechanical ventilation (OR 3.164 95% CI 1.353-7.397 p=0.008).

Conclusions: This study revealed *Acinetobacter* as a common pathogen especially in intensive care settings and rational use of antimicrobial agents is of paramount importance to control the infection, thus reducing the mortality.

SHOULD HOSPITAL BE EVACUATED AFTER TREMOR? A HOSPITAL UNIVERSITI SAINS MALAYSIA EXPERIENCE

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Introduction: When there is an alarm or a natural disaster, human instinct makes them perceive building as unstable and unsafe. The normal response is to leave the building as soon as possible. The scenarios are different in hospital setting whereby they serve an essential function in the health services network. Hospitals need to provide or continue the services even during disaster or emergencies. Hospital evacuation will face another type of disaster when displaced critical victims have no place to go for continued medical care.

Case report: Sunday 26th December 2004, 0900 am local time, Hospital Universiti Sains Malaysia (HUSM), Kota Bharu experienced tremor for 20 minutes. Everybody screamed and rushed out from the buildings. Ambulatory and psychiatric patients walked through without assistant, the doctors unattended their patients, public and staffs ran down using stairs and elevators. Critically ill patients and the staffs at High Dependency Ward; 8th floor were panic because they didn't know where to evacuate the patients. It was even a very great difficulty to evacuate non-ambulatory patients from orthopedic wards, oncology wards and pediatric wards. Evacuation of the patients and public was disorganized, poorly coordinated and chaotic.

Conclusion: Hospital evacuation may not necessary during tremor. HUSM internal disaster plan need to be improved if evacuation is required in the future.

AIRPORT DISASTER DRILL : ARE WE READY?

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Introduction: A disaster is defined as a sudden massive disproportion between hostile elements of any kind and the survival resources that are available to counterbalance these in the shortest period of time. In mass casualty situations, demands always exceed the capacity of personnel and facilities. During chaotic condition caused by outnumbered injured victims, hospital disaster preparedness will ensure flow of victims and facilitate the triage and treatment of disaster victims efficiently and successfully without compromising daily activities.

Case report: This disaster drill exercise was organized by Malaysia Airport Sdn. Bhd. 8th September 2004, 12 noon, aircraft B737 – 400 crashed on Lapangan Terbang Sultan Ismail Petra, Kota Bharu. Seventy passengers were on board. Ten red tag patients were immediately evacuated to HUSM. Our response time was 15 minutes. One patient was brought via helicopter. Two victims required urgent operation. One patient was brought in dead and sent to mortuary. Triage system was excellence. Communication system was unsatisfactory. There were inadequate clinician attendances to the command center. Respective doctors on duty presented without staffs and equipments. Patient's flow via triage area were satisfactory. Emergency Department was attended by unnecessary personnel.

Conclusion: This disaster exercise enables us to assess and evaluate our disaster plan. Common cause of the failure in this exercise was poor communication, poor coordination, and unfamiliarity with task and responsibilities during disaster.

PROVISION OF MEDICAL SUPPORT FOR FORMULA ONE (F1) RACING IN SEPANG FI CIRCUIT – HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM) EXPERIENCES

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Introduction: Medical support for mass gatherings is common task for our hospital such as Sultan Kelantan birthday ceremonies, football league, expo and etc. A mass gathering is defined as any collection of greater than 1000 people at one location and that requires its own emergency medical response plan. Our hospital also provides medical support for Formula One racing since a year of 2002. In this prestige event we provide Track Medical Services instead Public Medical Services. Track medical services consist of Track Medical Center and Trackside Medical Services. This presentation will highlight our participation during the Formula One event recently.

Case report: Formula one racing this year felt on 18th – 21st March 2005. 8 of us, 4 doctors and 4 paramedics represented HUSM to provide Track Medical Service. We underwent intensive training of mass casualty management system and track incident 2 weeks prior to the event. 2 doctors in charge Alpha units (ambulances), 2 doctors in charge the pit lane and paramedics were distributed in Bravo and Charlie units. We were position either in the inner track or outer track along the circuit.

Conclusions: This valuable experiences were very new for us and it enhance perspective towards mass gathering management, disaster management and foremost prehospital care services.

PATTERN OF SEXUAL OFFENCES ATTENDED AT ACCIDENT AND EMERGENCY DEPARTMENT OF HUSM FROM YEAR 2000 TO 2003 : A RETROSPECTIVE STUDY

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Introduction: Sexual offenses and sexual assaults rapidly increasing in both industrialized and developing countries. This study inquired an investigation of the pattern of sexual offences attended at the One Stop Crisis Center (OSCC) of the Accident and Emergency (A&E) Department, Hospital Universiti Sains Malaysia (HUSM), USM Health Campus, Kelantan.

Methods: A total of 439 reported sexual offence cases were examined from January 2000 to December 2003 based on the survivors tended and laboratory analysis from Pathological Department.

Results: All survivors consisted of Muslim female. Among these women, 18.9% were victimized by their male partner or boyfriend, 27.3% by relatives and the remaining 53.8% by others. Only 0.7% of victims did not attempt to lodge a police report. There was a significant relationship between occupation and victimization: students were at highest risk. By comparison based on types of offences, rape cases were the highest in number attended at the OSCC, HUSM with a total of 72.7%; followed by 27.3% of incest; 26.4% of child sexual abuse; 4.8% of sodomy and lastly 1.6% of gerontophilic cases. Only 70% of the specimens obtained from survivors of sexual offence were sent for laboratory analysis. The result remained negative in 82.4% specimens and thus the laboratory results are merely functioning as a supportive evidence for sexual offence cases attended at OSCC.

Discussion and conclusion: It is argued that most of the sexual offenses were conducted by stranger and psychopath, which is in really a myth. Therefore, only by a more dedicated study and inductive reasoning these assailants will be understood on their modus operandi and behavior pattern and intervention can be could enacted to prevent more victimization.

A STUDY OF RAPE CASES PRESENTED TO THE ONE STOP CRISIS CENTRE (OSCC) IN THE EMERGENCY DEPARTMENT KUALA LUMPUR HOSPITAL

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Introduction: Sexual violence continues to plague our nation and destroy lives. All members of society are vulnerable to this crime, regardless of race, age, gender, or social standing.

Objective: The objective of this study is to describe victim, assailant and assault characteristics in rape cases presented to the One Stop Crisis Center in Emergency Department, Kuala Lumpur Hospital.

Methodology: A retrospective study was done involving all rape cases presented to the One Stop Crisis Center, Emergency Department of Kuala Lumpur Hospital from January 1st, 2003 to August 31st 2004. 141 case records which met the inclusion and exclusion criteria were analyzed.

Results : Two-thirds (66.7%) of the cases presented to the One Stop Crisis Center (OSCC) less than 72 hours after the incident. Almost two third (62.4%) involved Malay girls followed by Chinese (17.7%) and Indonesian nationality (11.3%). Eighty percent of them are single. In majority of cases, the assailant is someone known to the victims (62.4%). Known assailant produce similar percentage of external genitalia injury compared to strangers (47% vs. 47%). When a stranger was involved, 66% of the time more than one assailant took part in the incident compared to 26% when the assailant is known to the victim

Conclusion: Two-thirds of rape cases involving victims aged 17 years and older were Malays. One-quarter of the time more than one assailant were involved. Almost two-thirds knew their assailant who inflicted the same percentage of external genitalia injury compared to strangers.

HEAT STRESS AND PHYSIOLOGICAL CHANGES AMONG MALE WORKERS IN AN AUTOMOTIVE MANUFACTURING PLANT IN SHAH ALAM, SELANGOR

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Introduction: Heat stress is one of the occupational hazards that can increase the risk of getting heat disorders. It was noted to be a serious problem in certain industries. Heat stress will contribute to physiological changes such as increased body core temperature, heart rate, and sweating, thus leading to variety health problems.

Objective: To determine the relationship between heat stress and physiological changes (body core temperature, blood pressure, heart rate and recovery heart rate) among respondents.

Methodology: A cross-sectional study was conducted among 46 male workers. Heat Stress Index (HSI) for workplace area and measurement of physiological changes were done among respondents. Data were analysed using SPSS version 11.0.

Results: Ninety percent of the workers were in contact with highest work heat with average mean WBGT in 28.96 °C. A weak correlation was found between body core temperature and heart rate before work ($r=0.293$) and there was also a weak correlation between body core temperature and systolic blood pressure after 8 hours work ($r=0.309$). Paired t-test showed a significant increase in body core temperature between the time before work starts and 2 hours after the start of work ($p = 0.002$) and also after 8-hours ($p < 0.001$). The diastolic blood pressure was significantly decreased 2 hours after work started when compared to that before work starts ($p= 0.011$).

Conclusions: Most of them are acclimatized to extreme temperatures, although they still have the possibilities of getting heat stress. Administrative and engineering control should be improved to reduce exposure of high temperature among them.

SITUATIONAL ANALYSIS OF SAFETY AND HEALTH IN PRIMARY SCHOOLS IN KOTA BHARU

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Introduction: Safety and health is a major concern in public health since numerous injuries or accidents have been reported, including school accidents and injuries.

Objective: To investigate the awareness of safety and health among the headmasters in their respective schools.

Methodology: This survey was conducted among 50 headmasters of primary schools in Kota Bharu using a questionnaire.

Results: The study revealed that the knowledge on Occupational Safety and Health Act (OSHA 1994) among the headmasters was low (7.7%). Forty two percent of the schools did not implement any safety and health programme while more than 50% did not have safety policies in their schools. In general we found that it is necessary to improve occupational safety and health in schools.

Conclusion: We concluded that specific safety programmes in schools should be carried out to improve the safety and health awareness among teachers, staff and students.

ASSESSMENT OF PHYSICAL RISKS IN THE PROCESSES OF OIL PALM CULTIVATION IN SARAWAK

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Introduction : The guidance on risk assessment at work drawn up by the Public Health and Safety at work Directorate, Luxembourg, 1995, defined risk assessment as the process of evaluating the risk to health and safety workers while at work arising from the circumstances of occurrence of hazard at the workplace.

Objective: The aim of the risk assessment study was to identify the hazards available in the processes of oil palm cultivation and to list them in descending order of the risk ratings.

Methodology: Hazards of different kinds of injuries in the processes of oil palm cultivation in Bintulu, Sarawak were assessed and risk quantification was done during the month of June 2001. Identification and ranking of the hazards were carried out with the workers who are well involved with the oil palm plantations. Risk rating was deduced using the function of likelihood of hazard and likelihood of harm from the hazard in a formula as below:

Risk Rating = Hazard Rating X Severity Rating, i.e. $RR = HR \times SR$

Results: Backache was the main hazard given the highest weightage in terms of risk it caused; followed by problems from pesticides and fertilizers, hit by fronds and problems arising from handling vehicles.

Conclusion: From such prioritized list, steps into ameliorating the unhealthy conditions among oil palm workers should be planned out.

RELIABILITY AND CONSTRUCT VALIDITY OF THE MALAY VERSION OF THE JOB CONTENT QUESTIONNAIRE (JCQ): PRELIMINARY RESULTS OF THE VALIDATION STUDY

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Introduction: Although the numerous studies in various languages has been valid and reliable for the psychometric of JCQ; there is no study ever done to assess the reliability and validity of the JCQ in Malaysia. Therefore, the purpose of our current preliminary study was to assess the reliability and construct validity of Malay version of the JCQ in automotive industry working environment.

Method: A cross-sectional study was conducted on June 2004 among 50 workers of Perodua Sdn Bhd in Kota Bharu, Kelantan. All workers were consented to participate in this study. Translation and back translation was made. Statistical analysis for reliability analysis was test by internal consistency and construct validity by exploratory factor analysis using principal components and Varimax rotation method.

Result: Cronbach's alpha coefficients were acceptable for decision latitude (0.74) and social support (0.79). However, it was low for the psychological job demands scale (0.60). Exploratory factor analysis showed 3 meaningful factors that could explain the 3 theoretical dimensions of Karasek's demand-control-social support model.

Conclusion: The result of the validation study suggested that the JCQ scales are reliable and valid for assessing job strain in automotive industry working population. Further analyses are necessary to considering the stability and concurrent validity analysis with bigger sample size.

Keywords: JCQ, validation, automotive workers

DEPRESSION, ANXIETY AND STRESS IN AUTOMOTIVE WORKERS IN MALAYSIA

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Objective: This study examines the prevalence of depression, anxiety and stress in 297 automotive workers of a large automotive industry in Malaysia.

Method: A comparative, cross-sectional study was conducted on 297 automotive workers (115 in the paint shop section and 182 in the body shop section) in March, 2005. A screening questionnaire, DASS42 was completed by workers during office hours in the premises of the industry.

Result: Altogether 297 Malay, male automotive workers consented to participate in this study. Forty-four (38.3%) paint shop workers experienced depression compared to 67 (36.8%) body shop workers ($p>0.05$). Fifty-three (46.1%) paint shop workers experienced anxiety compared to 95 (52.2%) body shop workers ($p>0.05$). Thirty-six (31.3%) paint shop workers experienced stress compared to 52 (28.6%) body shop workers ($p>0.05$). No significant differences in the mean (sd) scores for depression [8.6 (5.9) versus 8.5 (5.7)], anxiety [8.3 (5.5) versus 8.8 (5.6)] and stress [11.6 (6.6) versus 11.6 (6.4)] between paint shop workers and body shop workers were observed.

Conclusion: A moderately high prevalence of depression, anxiety and stress was observed in automotive workers despite no significant differences between paint shop workers and body shop workers.

LUNG FUNCTION STATUS AMONG WORKERS IN A RUBBER FACTORY IN KELANTAN

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Introduction: Some hazardous chemicals are used in rubber industries, and effects on respiratory function due to these exposures have been documented.

Objective: To determine the status of lung functions and to explore the association of personal factors and lung function among workers in a rubber factory.

Methods: A cross-sectional study was conducted in February 2005 among 101 workers in a rubber factory. A questionnaire was used to collect personal and work related information, and a spirometer (Chestgraph HI-701) was used to assess the lung function of individual workers. According to the predicted value of lung function parameters, the percent of predicted value for each parameter was calculated for individual workers.

Results All were Malays and 67 (66.3%) were males. The mean age was 39.5 (10.4) years. The prevalence of lung function parameters below 80% of predicted values were 12.1%, 30.8%, 2.2%, 47.3%, 36.3% for FVC, FEV1, FEV1/FVC, MMF, PEFR respectively. About 20.9%, 15.4% and 3.3% were diagnosed as restrictive, obstructive, and mixed type respectively. None of the personal factors including the duration of work showed association with lung function parameters such as FVC, FEV1/FVC, and MMF in this population.

Conclusion: A moderately high prevalence of poor lung function parameters and restrictive and obstructive lung defects were observed in this study. Further studies are necessary to clarify the factors influencing lung function parameters in similar categories of workers in Malaysia.

DOES SOCIAL SUPPORT HAVE AN ASSOCIATION WITH DEPRESSION, ANXIETY AND STRESS AMONG CAR ASSEMBLY LINE WORKERS IN SELANGOR?

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Introduction: Assembly-line work, in which workers have less control and work in an environment with physical hazards such as noise, vibrations and dangerous machines leads to stress.

Objective: To determine the association of social support and demographic factors with depression, anxiety and stress.

Methodology: A cross sectional study was conducted among 200 assembly line workers in March 2005. A set of questionnaires consists of demographic factors, job content questionnaires and DASS (42 items) questionnaires were used. Categories of depression, anxiety and stress were divided into two groups, normal (no condition and mild) and abnormal (from moderate to extremely severe). Associations with social support and demographic factors were tested using independent-t test and chi-square test.

Result: Majority was Malay (99%), male (96%) and age between 19-42 years old. The prevalences were 18.5%, 40.0% and 21%. Factors that shows association were: age with depression ($p < 0.01$), age with stress ($p < 0.01$), marital status with anxiety ($p \text{ value} < 0.04$), marital status with stress ($p < 0.04$), work duration with depression ($p < 0.01$), work duration with anxiety ($p < 0.01$) and work duration with stress ($p < 0.01$).

Conclusions: There is no significant association between social support and depression, anxiety and stress but there are association with age, marital status and work duration. Further studies are necessary to explore other factors contributing to stress, anxiety and depression among the workers.

A STUDY ON PARENTING STYLES AND THE RELATIONSHIP WITH DEPRESSION AND FRIENDSHIP QUALITIES IN ADOLESCENTS

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Background: The objective of this study was: (i) to identify various types of parenting styles used by parents and (ii) to determine the relationship with depression and friendship qualities in adolescents.

Method: A study had been conducted among 105 Form two students and their parents using systematic random sampling in Kota Bharu district utilizing Child Behaviour Checklist, Parenting Style Questionnaire and Friendship Qualities Scale. Informed consent was given by students and their parents. Ethical clearance was granted by USM and the Ministry of Education.

Results: Majority of parents (93.3%) had implicit understanding of parenting styles. Majority of them employed an authoritative style (74 %); followed by indulgent (33 %), authoritarian (30 %) and uninvolved (26 %). Adolescents' friendship qualities have a significant different with parenting styles ($p < 0.05$) but, not with depression. ($p > 0.05$).

Conclusions: This study confirmed the conjecture that parenting styles construct and configure the way adolescents' socialize but not the way they feel and handle their emotion. Authoritative style, by enlarge, is the most favourable way of bringing up adolescents in these days due to its negotiating and democratic nature which coincides with the democratic nature of the larger system.

OBSERVATION OF CONTINUOUS ATTACHMENT OF PERIODONTAL LIGAMENT FIBERS TO ALVEOLAR BONE

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Background: The main function of the periodontal ligament is to produce attachment between tooth and the surrounding alveolar bone. Terminal ends of periodontal fibers are embedded between these two tissues as Sharpey's fiber. For the tooth to function properly this attachment should be always maintained. During physiological drifting of a tooth there is always a bone deposition and a bone resorption surface on either side of a drifting tooth. This study is carried out to observe how continuous periodontal attachment is maintained during drifting of rat molar teeth.

Methodology: This study used decalcified paraffin-embedded blocks of 40-day-old Wistar rat maxilla. Serial 5 μ m thick sections were made in mesio-distal plane of the tooth. To demonstrate morphology and collagen fiber, sections were stained with hematoxylin and eosin or silver impregnation.

Result: It was established from the previous investigation that physiological drifting is evident in 40-day old rats. In bone resorptive surface, transient reattachment areas were found in places and resorbed periodontal ligament fibers were reattached to it.

Conclusion: This study suggested that an attachment is continuously maintained between the alveolar bone and periodontal ligament fiber even when the alveolar bone is under resorption process. Fiber intermingling was not found in these reattachment sites and a mineral mediates this attachment and reattachment.

ANTIBACTERIAL EFFECT OF SILVER FLUORIDE WHEN APPLIED TO GLASS IONOMER CEMENTS

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Introduction: Glass Ionomer Cements (GICs) have been claimed in preventing and controlling dental caries due to fluoride ions released and the bacteriostatic potential. The objectives of this investigation were to investigate the antibacterial effect of two GICs (Fuji IX and Fuji VII), with and without a coating of different concentration of silver fluoride (AgF) using agar plates and broth culture.

Methods: Tryptone Soya Broth (TSY- OXOID) added with agar bacteriological was prepared. Saliva from one of the candidate was collected and serial dilutions were then made to provide 250 uL of 10⁻³ dilution of saliva. Discs of GICs, (Fuji IX and Fuji VII -6mm x 1mm) were coated with different concentration of silver fluoride (10%, 20%, 30% and 40%) or without coating were prepared accordingly. The zones of clearing around GICs discs on the agar plates were examined, photographed and measured. The GICs discs in the broth cultures were removed and prepared for Scanning Electron Microscope (SEM) Analysis.

Results: A significant reduction of bacterial growth occurred on all the Fuji IX and Fuji VII discs when treated with various concentrations of AgF. Uncoated Fuji IX and Fuji VII discs allowed considerable bacteria growth. Ten per cent AgF showed as high a level of bacterial growth inhibition as most other concentrations of AgF.

Conclusion: Surface application of a 10% of silver Fluoride to GICs discs will enhance antibacterial properties of these materials, thus contributing substantially to the ability to control the progression of dental caries.

SPHENO-OCCIPITAL SYNCHONDROSIS MORPHOMETRICS IN INFANTS WITH CLEFT LIP AND PALATE

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Introduction: The sphenoid-occipital synchondrosis (SOS) is regarded as an important maturity and growth centre of the craniofacial skeleton. The width of the SOS is not well described in the literature on oro-facial clefting. The paucity of the data may relate to difficulties in visualizing the SOS using conventional radiographic techniques.

Objective: In this study we aimed to compare the width of the SOS in its most superior part and inferior part on the left and right sides in infants with cleft lip and palate (CLP) with that in unaffected individuals.

Methodology: In this study, CT scans were obtained from 29 Malay CLP patients aged between 0-12 months and 12 noncleft patients matched for age, using a GE Lightspeed Plus Scanner. The measurements of the SOS were obtained using the 'Persona' 3D software package, developed at the Australian Craniofacial Unit, Adelaide.

Results: When General Linear Modelling (GLM SAS 2001) statistical package was applied, a greater width was found in the inferior part of the SOS in infants with CLP than in the unaffected individuals ($p < 0.05$).

Conclusion: As the cranial base develops from endochondral ossification, it is possible that the deficient ossification or continuous chondroblastic proliferation of the cranial base may result in the increased width of the cranial base in infants with CLP. A wider cranial base in CLP might cause an increase in the width between the unfused palatal shelves.

3D CRANIOFACIAL IMAGING: ACCURACY, ASSESSMENT AND APPLICATION IN CRANIOFACIAL SURGERY

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Introduction: Craniofacial surgery is capable of habilitating individuals who have major deformities of the head. Thus, the planning and evaluation of such operations is dependent on advance of biomedical imaging for defining the underlying bony structures and overlying soft tissue. This study presents data registration method for craniofacial surgical planning using different imaging modalities.

Objectives: The objective of this study is to register and transform the data from various coordinate systems into a 3D Cartesian coordinate system. The aim of the registration and superimposition is to produce a 3D model of a patients hard tissue i.e. skull, and over lay this with the patients soft tissue in one standard coordinate system.

Methods: In this study, 4 patients with 3D surface models and 3D landmarks were obtained by three different modalities; laser scanning, CT Scan and CR (Close Range) Photogrammetry and were superimposed. The registration process involves surface to surface registration of soft tissue data from laser scanner and CT scan, landmark based registration to the photogrammetric data and anatomical landmark-based transformation to Frankfort Horizontal reference system.

Results: The standard error of the registration obtained from multimodal imaging devices using 3D affine transformation is in the ranged of 1-2 mm.

Conclusion: In conclusion, the images produced from these modalities could give surgeons and other craniofacial researcher accurate and precise information regarding the quality and quantity of the structures and to determine the final result of surgical reconstruction.

A STUDY OF THE PREVALENCE OF ASSOCIATED CONGENITAL ANOMALIES IN PATIENTS WITH CLEFT LIP AND / OR PALATE IN KELANTAN

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Background: Cleft lip and palate are the most frequent congenital malformations of the head and neck region. Numerous reports of congenital anomalies associated with cleft lip and/or cleft palate have appeared with the reported incidence varying from 1.5% to 63.4%.

Objective: To determine the prevalence of various types of congenital anomalies associated with cleft lip and/or palate in patients attending Combined Cleft Palate and Craniofacial Deformities Clinic (CCCDC), Main Dental Clinic Kota Baru, Kelantan.

Methodology: Record of all the newly registered cases of cleft lip and/or palate patients in this clinic from January 1998 to December 2003 were retrieved. The follow up cases were included. The variables registered for the study were age at registration, gender, type of cleft and associated congenital anomalies.

Main results: The study sample was 401 cases. Patients with cleft palate only (CPO) had a higher prevalence of associated congenital anomalies (24.8%) as compared to those with cleft lip with or without cleft palate (CL/P) (11.1%). There was higher prevalence of associated congenital anomalies in the syndromic clefts (100% in both CPO and CL/P) as compared to non-syndromic clefts (12.9% in CPO; 6.6% in CL/P). Pierre Robin was the commonest among the syndromic cases (5 out of 12 syndromic cases). CL/P was found to be more prevalent in male (54.0%), while CPO was more prevalent in female (64.9%).

Conclusion: In conclusion, patients with CPO had higher prevalence of associated congenital anomalies than those with CL/P. The associated congenital anomalies were mostly in the head and neck region, both in CL/P and CPO patients.

3D CT LANDMARK ANALYSIS FOR DEVELOPMENT OF MALAYSIAN CRANIOFACIAL DATABASE

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Introduction: The development of a Malaysian craniofacial database is a multidisciplinary initiative that will provide an important reference for community, security, social and medical applications. Current focus is the collection of data involving the population from the state of Kelantan that has a relatively high percentage of craniofacial deformities.

Objectives: The objective of this study is to improve the identification of landmarks and to make surgical planning and diagnosis more accurate, we have devised a method for craniofacial analysis using anatomical regions in 3D environment.

Methods: A method of landmark identification and measurement in 3D is described. Anatomical regions such as mandible, orbits, zygoma and maxilla are located, created and stored as templates of 3D CAD files for subsequent analysis. Data from these images were tested for accuracy and repeatability by comparing with direct measurements using caliper and CMM. The landmark points are reproducible in CAD system for further analysis.

Results: It was found that there was no significant statistical difference ($p > 0.05$) in the mean landmark measurements done on 3D CAD image and direct measurement methods using the caliper and CMM.

Conclusions: It was found that the approach provides a fast, accurate and efficient method for landmarks identification of the craniofacial areas in database development. It indicates the importance of anthropometric measurements and 3D analysis as valuable tools in the understanding of craniofacial anomalies.

FACIAL SOFT TISSUE FEATURES IN MALAY SCHOOLCHILDREN ASSESSED WITH FINITE ELEMENT ANALYSIS

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Background Soft tissue facial feature may reflect the intra-oral dental arch conditions, especially in cases of vertical maxillary excess, in which the maxillary complex appears to be clinically protruded with respect to mandibular component.

Objectives: The aim of this study is to quantify and localize differences in Class I and Class II facial soft tissue, using finite-element analysis.

Methods: After obtaining appropriate consent, Malay schoolchildren from Kota Bharu, Malaysia, were screened for dental occlusal characteristics. Fifty children with a mean age of 15 ± 0.7 years were divided into two groups of 25. The first group had Class I occlusion. The second group had Class II malocclusion. A 3dMD stereophotogrammetry unit was used to capture the 3-D facial soft tissues using a standardized protocol. For the facial soft tissues, 15 homologous landmarks were digitised, using MorphoStudio™ software, and the Procrustes means were computed. The mean Class I and Class II configurations were subjected to t-tests and finite-element analysis.

Results: Class I and Class II facial soft tissue configurations were statistically different ($p < 0.05$). Specifically, the mean Class I midface region was ^a16-18% larger in size (than the mean Class II facial configuration. In contrast, nasal, mental, and pre-auricular and angle of the mandible regions were generally smaller in size (by^a14-16%).

Conclusions: Morphologic differences between Class I and Class II facial soft tissue are identifiable using finite-element analysis, which correlates with respective dental arch features

**ASSOCIATION OF FACIAL SOFT TISSUES AND DENTAL ARCH FEATURES
IN MALAY SCHOOL CHILDREN**

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Introduction: The association of malocclusion and soft tissue facial features remains controversial and is not fully understood.

Objectives: The aim of this study is to investigate the association of dental arch and soft tissue facial features in Malay schoolchildren.

Methods: After obtaining appropriate consent, Malay schoolchildren from Kota Bharu, Malaysia, were screened for dental occlusal characteristics. Fifty children with a mean age of 15 ± 0.7 years were divided into two groups of 25. The first group had Class I occlusion. The second group had Class II malocclusion. A 3dMD stereophotogrammetry unit was used to capture the 3-D facial soft tissues using a standardized protocol. Dental impressions were taken for all children and dental study models were prepared. Fifteen homologous facial soft tissues landmarks were digitized. Fourteen homologous landmarks of the upper and lower arches were digitized, using MorphoStudio™ software, and the Procrustes means were computed. The mean Class I and Class II configurations were subjected to canonical correlation analysis.

Results: Class I and Class II facial soft tissue configurations and dental arch feature were significantly correlated ($p < 0.001$). The best linear combination of the soft tissue facial feature measurements was correlated ($r = 0.973$) with the best linear combination of dental arch features in Class I malocclusion. For Class II malocclusion, the best linear combination of the soft tissue facial feature measurements was correlated ($r = 0.992$) with the best linear combination of dental arch features.

Conclusions: Class I and Class II facial soft tissues and dental arch features are closely correlated. However, further investigation is needed to show which specific variables are responsible for the high degree of correlation.

DENTAL ARCH FEATURES IN MALAY SCHOOLCHILDREN ASSESSED WITH FINITE ELEMENT ANALYSIS

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Introduction: The association of malocclusion and soft tissue facial features remains controversial and is not fully understood.

Objectives: The aim of this study is to investigate the association of dental arch and soft tissue facial features in Malay schoolchildren. The specific objective of this study is to quantify and localize differences in Class I and Class II lower dental arches, using finite-element analysis.

Methods: After obtaining appropriate consent, Malay schoolchildren from Kota Bharu, Malaysia, were screened for dental occlusal characteristics. Fifty children with a mean age of 15 ± 0.7 years were divided into two groups of 25. The first group had Class I occlusion. The second group had Class II malocclusion. Upper and lower dental impressions were taken for all children and dental study models were prepared and photographed using a standardized protocol. For the lower arch, 14 homologous landmarks were digitised, using MorphoStudio™ software, and the Procrustes means were computed. The mean Class I and Class II configurations were subjected to t-tests and finite-element analysis.

Results: Class I and Class II lower dental arch configurations were statistically different ($p < 0.05$). Specifically, asymmetric size differences (11-20%) were localized in the canine and molar regions, and in the labial segment, indicative of crowding, while shape differences were evident throughout the lower arch.

Conclusions: Morphologic occlusal differences between Class I and Class II lower dental arches are identifiable using finite-element analysis.

HYDROXYAPATITE-BASE MATERIAL AS BONE REPLACEMENT MATERIAL IN VIVO STUDY

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Introduction: Various forms of implant materials have been used to fill in bone defects, to replace joints and reconstruct organs in the orthopaedic and dental field. The ability to achieve bone anchoring of implants has been of major interest in both oral surgery and orthopedics. Porous HA is a restorable and osteoconductive implant, it has been used as artificial bone graft material in many experimental and clinical trials

Objectives: The aim of this study is to assess the bone reaction formation around block and powder porous hydroxyapatite (HA) implants inserted into non-healing mandible defect using light and scanning electron microscopy.

Materials and methods: Hydroxyapatite (HA) implants inserted transcortically and extending into medullary canal of mandibular rabbit was assessed using light and scanning electro microscopy. Twenty-four New Zealand White male rabbit of six months old were anaesthetized and muscles were blunt dissected to reach mandible, the defect was created on both side of mandible. Porous HA block and porous HA powder were placed in the right side while the left side was not implanted act as control. The implants were retrieved at 2 weeks, 4 weeks and 3 months. complete and good osseointegration between implant materials and host bone in addition to new bone formation in the mandibular defects implanted with porous HA blocks form as well as in the powder form.

Conclusion: The results of this study demonstrate that both porous HA block and powder are good implant materials that can accelerate bone healing and resorbed in acceptable time. Both materials showed similar resorption mechanism due to their similarity in osteoconductivity and biodegradability properties.

NATURAL CORAL AS A BONE GRAFT MATERIAL FOR DENTO-ALVEOLAR EFFECTS

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Introduction: Tooth extraction is frequently followed by three dimensional bone resorption that hinders dental restoration procedures. Preservation of bone contour for dental implants, pontic design, denture stability, and soft tissue aesthetics are important considerations after extraction. Therefore, ridge preservation techniques are important. Natural coral (NC) is a xenograft and can be used as a biomaterial for bone replacement because it simplifies the surgical procedure and harvesting of autologous bone is no longer necessary.

Objectives: To study the use of NC in preservation of the post-extraction dento-alveolar.

Methodology: We had performed NC bone grafting on 25 patients since 2004. Our control group consisted of 25 patients. After local anesthesia, atraumatic tooth removal followed by complete removal of granulomatous tissue was done. NC was augmented in the dento-alveolar sockets while in the control group the sockets were left empty. Graft containment and soft tissue closure was obtained. Patients were examined at 1-3 months after surgery. The soft tissue coverage of the surgical area and clinical signs of infection and inflammation were evaluated. OPGs were taken to measure the bone height before and after implantation of NC with the aid of a computerized software orthoralix 9200.

Results: Before extraction and after grafting, the height of alveolar bone was measured. The mean height for sockets with NC was +0.73 mm mesial and +0.36 distal while in the control group there was resorption of the alveolar bone as (negative), -2.49 mm mesial & -2.54 mm distal.

Discussion: Coral is an excellent material for bone repair. This preliminary study has shown that coral grafting of post-extraction sockets produced new bone with similar characteristics to the normal alveolar bone.

EFFICACY OF PLATELET RICH PLASMA WITH NATURAL CORAL IN ALVEOLAR BONE GRAFTING: PRELIMINARY CLINICAL AND RADIOGRAPHIC RESULTS

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Introduction: Platelets are rich in growth factors that contribute to accelerate tissue regeneration. Platelet Rich Plasma (PRP) induces the repair and formation of bone. PRP extracted from autologous whole blood is known to have a number of different growth factors in high concentration. These growth factors are taken from the patient's own blood and incorporated with the scaffold that in this study is the natural coral (NC) produced by National Tissue Bank, Universiti Sains Malaysia.

Objective: To study the effect of PRP combined with natural coral.

Methodology: We performed the bone grafting with NC and PRP on 25 patients. While other 25 patients didn't undergo grafting. Prior to extraction 5cc of blood was taken from each patient. Sterile tubes with 3.8% sodium citrate were used as anticoagulant. The plasma was centrifuged for 7 minutes at a speed of 280 G at room temperature. Plasma was separated into fractions by means of very accurate pipetting. Once PRP was obtained (0.05 cc) of 10% calcium chloride was added for each 1cc of PRP. The jelly form PRP was then mixed with NC and implanted in the dento-alveolar defects.

Results: All patients had complete bone healing with no signs of infection. Orthopantomographs revealed that alveolar bone height for the PRP+NC was with the mean +0.82mm mesial and 0.65 mm distal. In the control group the mean of alveolar resorption was (-) mesial -2.15 and -2.68 distal.

Discussion: Alveolar bone grafting is a significant treatment for dento-alveolar defects. It may not only preserve the remaining bone thus resulting stabilization of adjacent teeth and facilitating enough bone for placement of implants and prosthesis. PRP compensates for the osteogenesis of synthetic bone that only has osteoconductive property.

SALIVA AS A DIAGNOSTIC TOOL FOR ASSESSMENT OF DENTAL CARIES

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Introduction: The biological factors that are present within saliva are important to protect teeth. Therefore this study attempted to evaluate the effects of salivary testing in dental caries assessment. The role of flow rate, pH, viscosity and buffering capacity of saliva in subjects with high caries (DMFT>5) against a control subjects (DMFT=0) was evaluated.

Methods: 40 subjects aged between 18 and 40 years were selected (20 subjects control group and 20 subjects group I). By using a salivary testing kit (GC product), each subject underwent test such as hydration status of the oral mucosa, viscosity and pH of resting saliva, quantity of stimulated saliva and buffering capacity of stimulated saliva.

Results: It was observed that flow rate, viscosity, pH and buffering capacity of saliva in subjects in the experimental group was significantly lower ($p=0.01$) when compared to control group.

Conclusion: Since saliva provides a general protective effect, clinically significant decrease in salivary functions can be considered as one of the etiologic factor that contributes to the development of dental caries. Therefore we recommended this saliva test to be done in patients with high caries risk.

PRELIMINARY STUDY OF IN VIVO FORMED DENTAL PLAQUE USING CONFOCAL LASER SCANNING MICROSCOPY AND SCANNING ELECTRON MICROSCOPY

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Introduction: Dental plaque defined as bacterial aggregation on the teeth or other solid oral structures. It is recognized as the primary etiological factor for periodontal disease and dental caries.

Objective: This study designed to assess the thickness and content of in vivo accumulated dental plaque on acroflat lower arch splint using confocal laser scanning microscopy (CLSM) combined with vital fluorescence technique and scanning electron microscopy.

Methodology: Five dental students with a high level of oral hygiene were selected for this study, they wore acroflat lower arch splint for 3 days. The appliance were carefully removed off and transferred to physiological saline and cut into two parts. The first part was immediately stained with fluorescein diacetate and ethidium bromide and viewed using Laser scanning confocal microscopy (Leica, Germany). The second parts were kept in a 1% cacodylate buffer for SEM

Results: Accumulated dental plaque revealed different plaque microflora vitality and thickness according to volunteer's oral hygiene. The thickness of plaque smears range from 40.32-140.72 μm and 65-128.88 for a live (vital) and dead accumulated microorganisms respectively while the thickness of plaque on the appliance range from 10 μm to 653 μm . Confocal microscopy revealed both dead and vital bacteria on the surface of the dental plaque. Scanning electron microscopy revealed accumulation of different shaped of bacteria in all dental plaque.

Conclusion: This study offers a potent non-invasive tool to evaluate and assessed the dental plaque biofilms, which is the effective factor in the development of tooth caries.

NON-CONTACT 3D DIGITIZER AS A POSSIBLE TOOL IN ARCHIVING DENTAL STUDY MODELS

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Introduction: The use of stone and plaster study models is an integral part of any dental practice and is required for research. Storage of study models is problematic in terms of space and cost. A new technique of laser scanning is available for archiving dental study models in a digital format. However, assessment of the accuracy of the three-dimensional (3D) models has not been carried out yet.

Objective: To evaluate the accuracy of non-contact 3D digitizer in archiving dental study models.

Methodology: A comparative assessment between direct measurements of dental study models and measurements of computer generated 3D images of the same study models were performed. Five dental study models stored at Hospital Universiti Sains Malaysia (HUSM) for the purposes of research were used in the study. The models were captured in the three dimensions using a Konica-Minolta VIVID 910 (laser scanning technique) and stored in digital format.

Results: The average difference between measurements of dental casts and 3D images was 0.47 mm. This difference was statistically significant ($P > 0.05$).

Conclusion: This preliminary study shows that it is quite acceptable to use 3D imaging to store dental study models for treatment monitoring and research.

TOXOPLASMOSIS SEROPREVALENCE AMONG THE HOSPITAL POPULATION IN HUSM

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Background: Toxoplasmosis is an endemic worldwide zoonotic infection. It is caused by *Toxoplasma gondii*, a coccidian parasite of felids. Humans are one of the intermediate host for toxoplasma. The serology is the mainstay of diagnosis in most cases. However, the current tests were not able to distinguish clearly an acute from a past infection.

Objectives: To determine the seroprevalence of toxoplasmosis in HUSM, the demographic characteristics of the patients and the impact of serological test results on the clinical management of toxoplasma patients.

Method: This is a hospital-based cross-sectional retrospective study. Records of all patients suspected for toxoplasmosis from March 2004 to February 2005 were included in the study. Cases were selected based on the request of toxoplasma serological test. Patients who have more than one specimen sent for toxoplasma serology within 2 weeks from the first request were regarded as one. The demographic data, clinical presentation, results of toxoplasma serology, patient's treatment and its outcome were recorded in data sheets. The data were analyzed by SPSS version 10.

Result: All patients were Ig M negative. About 30% of patients were positive for toxoplasma Ig G antibody. All patients tested for avidity showed high percentage of Ig G avidity (> 30%). The majority of patients were not treated accordingly for toxoplasmosis.

Conclusion: The seroprevalence of toxoplasmosis in this hospital is comparable to other studies. The serology result alone, without the clinical interpretation, may compromise its usefulness and impact on the clinical management.

EFFECT OF ROXITHROMYCIN ON CHLOROQUINE AND MEFLOROQUINE RESISTANT *PLASMODIUM FALCIPARUM*

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Background of the research: Drug resistant *Plasmodium falciparum* is a global challenge. Chloroquine and mefloquine are no longer potent antimalarial drugs due to the emergence of resistance. Combination therapy has now become the standard for many regimes to overcome drug resistance.

Methods: In this study, a macrolide antibiotic, roxithromycin, which is a known p-glycoprotein inhibitor and reported to have antimalarial activity, was combined with chloroquine and mefloquine in an *in vitro* assay against the chloroquine and mefloquine resistant *P. falciparum* strain Dd2. Drugs diluted in tissue culture media were assayed at different concentrations in a checkerboard pattern in 96-well microplates. Synchronized parasite cultures were added to the microplates and the wells were spiked with tritiated hypoxanthine after 24-h of incubation. Plates were then harvested after 48-h incubation. The incorporation of tritiated hypoxanthine by the parasites was detected using a beta scintillation counter.

Results: We observed that the IC₅₀ values of roxithromycin, chloroquine and mefloquine were 3.8 ± 0.9 µg/ml, 60.0 ± 5.0 ng/ml and 16.0 ± 3.0 ng/ml. The IC₅₀ values of chloroquine and mefloquine were decreased substantially when combined with roxithromycin. Isobolograms indicated that the chloroquine and roxithromycin combination was relatively more synergistic (average FIC of 0.62) than the mefloquine and roxithromycin combination (average FIC of 0.86).

Conclusion: We conclude that chloroquine/roxithromycin and mefloquine/roxithromycin combinations are effective and synergistic (FIC < 1) against *Plasmodium falciparum* *in vitro*, and merit further testing *in vivo*.

EFFECT OF FLUOXETINE ON REVERSING CHLOROQUINE AND MEFLOQUINE RESISTANCE IN *PLASMODIUM FALCIPARUM*

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Introduction : The widespread emergence of Chloroquine (CQ) and Mefloquine (MQ) resistant *Plasmodium falciparum* necessitates a continuing search for new types of chemotherapy and therapeutic combinations.

Objective: Fluoxetine (Flx), a selective serotonin reuptake inhibitor, and a p-glycoprotein inhibitor with antimalarial activity was assayed in combination with chloroquine and mefloquine to reverse the CQ and MQ resistance in *P. falciparum*.

Method: The CQ and MQ resistant *P. falciparum* strain, Dd2 was synchronized using 5% D-sorbitol prior to drug assays. CQ and MQ were serially diluted two-fold on microtiter plates to yield concentration ranges from 1 to 512 ng/ml and graded doses of Flx (0.01 to 4 µg/ml) was added to individual wells. The synchronized cultures were added and the plates were then incubated at 37°C in an airtight desiccator under 5% O₂, 5% CO₂ and 90% N₂. After 24 hours of incubation, cultures were labeled with [³H]-hypoxanthine and were incubated for another 48 hours prior to harvesting. The incorporation of radiolabeled isotope in each well was determined by using a liquid scintillation counting detector (b counter) and the 50% inhibitory concentration (IC₅₀) values of CQ, MQ, Flx and various combinations of CQ-Flx and MQ-Flx were derived by probit analysis using SPSS software.

Results: The IC₅₀ values of CQ, MQ and Flx were 60.0 ± 5.0 ng/ml, 16.0 ± 3.0 ng/ml and 2 ± 0.2 µg/ml respectively. It was found that CQ-Flx combinations are more synergistic (FIC average is 0.55), while MQ-Flx combinations are less synergistic (FIC average is 0.64) as indicated in the isobologram.

Conclusion: The fluoxetine concentrations needed to bring about reversal of resistance are clinically achievable and fluoxetine should be seriously considered for drug combination therapy for malaria.

PILOMATRIXOMA: DIAGNOSTIC PITFALL IN FINE-NEEDLE ASPIRATION CYTOLOGY : A CASE REPORT AND REVIEW OF LITERATURE

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Introduction: Pilomatrixoma (pilomatricoma, calcifying epithelioma of Malherbe) which accounts for almost 20% of pilar tumours, is a benign lesion with differentiation towards hair matrix. This case caused diagnostic difficulty not only for the clinician but also for the cytologist.

Case report: A 62-year old Indian female presented with a right submandibular swelling of four months duration. The clinical findings were highly suspicious for malignancy. A fine-needle aspiration (FNA) biopsy was performed. Three preliminary differential diagnoses were offered, which included odontogenic tumour, mucoepidermoid carcinoma of the right submandibular gland and squamous cell carcinomatous deposit of the right submandibular lymphnode. A subsequent computed tomography demonstrated no bony lesion of the mandible. No primary site of squamous cell carcinoma could be identified. An excision biopsy of the swelling was performed and the histologic diagnosis of pilomatrixoma was made.

Conclusion: The cytologic presentation of pilomatrixoma of the right submandibular region can masquerade as that of a malignant tumour, in this case mucoepidermoid carcinoma or squamous cell carcinoma or even odontogenic tumour. This case delineates the cytologic features of pilomatrixoma, which may mimic carcinoma.

EFFECTS OF ACUTE AMMONIA TOXICITY ON NITRIC OXIDE, ARGININE, CITRULLINE AND NEUROACTIVE AMINO ACIDS IN DIFFERENT REGIONS OF RAT BRAIN

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Background: NITRIC oxide (NO) is involved in many pathophysiological processes in the brain. NO is synthesized from arginine by the three isoforms of nitric oxide synthases. Hyperammonemia is known to cause poorly understood perturbations of the NO metabolism. In the brain, ammonia is mainly detoxified through the amidation of glutamate to glutamine with the changes in the concentration of glutamate and gamma amino butyric acid (GABA). To understand the role of no in hyperammonemia and involvement of neuroactive amino acids, nitrate/nitrite (NO_x), arginine, citrulline, ornithine, glutamine, gluamate and gaba were estimated in cerebral cortex (CC), cerebellum (CB) and brain stem (BS) of rats subjected to acute ammonia toxicity.

Methods: Acute ammonia toxicity in rats was produced by intraperitoneal administration of ammonium acetate and control rats received normal saline. The animals were sacrificed after half an hour of injection and the brain regions were separated and homogenized. In the homogenates, NO was estimated as nitrate/nitrite (NO_x) by a commercial Kit and amino acids were analyzed by the automated Amino Acid Analyzer. Statistical analysis of results was done by an independent student t-test.

Results: The concentrations of nitrate/nitrite (NO_x), arginine and ornithine were increased significantly in CC, CB and BS in acute ammonia toxicity, whereas citrulline concentration was unchanged. Glutamine concentration was significantly increased in all three regions of the brain while glutamate and GABA concentrations were not changed.

Conclusions: The results of this study clearly demonstrated the increased formation of NO, suggesting the involvement of NO in the pathophysiology of acute ammonia toxicity. The changes in amino acid concentration reflect the involvement of these compounds in acute ammonia toxicity.

LOCALIZATION OF THE SPINAL NUCLEUS OF ACCESSORY NERVE IN THE MEDULLA OBLONGATA OF RAT: A HORSE RADISH PEROXIDASE (HRP) STUDY

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Introduction. The spinal nucleus of accessory nerve (SNA, hereafter), supplies the sternocleidomastoid and trapezius muscles. Some investigators have located the SNA in the caudal part of medulla oblongata and upper cervical segments of spinal cord, whereas others have located it in the upper cervical segments of spinal cord only.

Objectives. To ascertain as to whether the SNA is located in the medulla oblongata of rat as reported by many workers in many mammalian species.

Materials and Methods. Ten Sprague-Dawley rats were put under general anaesthesia. In five rats, the right sternocleidomastoid and in the remaining five rats, the right trapezius were exposed in the neck and injected 0.05 ml of 30 % horseradish peroxidase (HRP; Sigma, type VI) solution in normal saline. After 48 hours, the animals were re-anaesthetized, perfused first with normal saline, then with 1.25 % glutaraldehyde and 1 % paraformaldehyde in 0.1 M phosphate buffer at pH 7.4 and finally with 10 % sucrose in the same buffer but at 4 degrees C. After perfusion, the medulla oblongata was removed, placed in sucrose buffer solution at 4 degrees C for 24 hours and its serial frozen sections were cut in a cryostat at 60 micrometers and treated according to tetramethyl-benzidine (TMB)-HRP method of Mesulam (1978).

Results. HRP labeled neuron somata were observed in the caudal part of the medulla oblongata on the right side in those animals in which the HRP was injected into sternocleidomastoid and were absent in the medulla oblongata on both sides in those animals in which the HRP was injected into trapezius.

Conclusion. In rat, the motor neuron somata of the SNA supplying the sternocleidomastoid were located in the caudal part of the medulla oblongata.

EFFECT OF CORAL CALCIUM AS AN INHIBITORY SUBSTANCE AGAINST ORAL SQUAMOUS CELL CARCINOMA CELL LINE: AN IN VITRO STUDY

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Introduction: Squamous cell carcinoma (SCC) of the oral cavity is the eighth most common cancer worldwide. Coral highly contains minerals and the most important mineral in coral that is being studied to cure the cancer is calcium.

This study designed to determine the inhibitory effect of Malaysian coral calcium on the established oral squamous cell carcinoma cell line in vitro and to evaluate the morphological changes (apoptotic change) using Laser Scanning Confocal Microscopy (LSCM).

Methodology: Epidermal growth receptor (EGFR) immunoreactivity, cell line population doubling time was conducted for the OSCC cell line established from a patient. Coral calcium and calcium carbonate (control) were added at different concentration to the cell line and incubated for 72 hrs. Cell seeded alone were acted as control. The MTT (Diphenylteterzolium bromide) assay was performed to detect tumor cell viability while LSCM was used to determine the apoptosis in the OSCC cell line.

Results: Patient histological sections showed squamous cell carcinoma invading and producing a keratin pearl. Both histological section and cells were expressed positive immunohistochemical reaction for EGFR. Cells treated with coral calcium appeared as shed cells with a tendency for clustering in the medium after 72 hours. The number of viable cells was decreased and it was more effective at high concentration (15mg). Apoptotic changes were observed in OSCC cell line treated with coral calcium and calcium carbonate. The inhibitory effect of coral calcium seem to be occurred due to the apoptotic changes in the cells, which may be resulted from role of calcium, and other mineral elements in the coral. The results of this preliminary study were compatible with previous studies.

Conclusion: Coral calcium has some inhibitory effect on OSCC line.

SPARE EMBRYOS AND HUMAN EMBRYONIC STEM-CELL RESEARCH: AN ETHICAL APPROACH

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Introduction: Scientists discovered in 1998 that Embryonic stem cell could be derived from human embryos which were created in the laboratory as part of IVF technique. It gives substance to hopes for novel principles of treatment and it is a great project in the biomedicine for the 21st century. But at the same time it triggers serious controversies on ethical issues, which should be handled carefully.

Objective: To collate, analyze, and criticize the ethical debates regarding stem cell research on spare embryos created in the laboratory as part of infertility treatment.

Methodology: As it is a Qualitative research, the Phenomenological Method (PM) is employed to address the study. It refers to deep analysis through of the collection of data and construction of meaning.

Results: Research on Human embryonic stem cell is forbidden by the Pro-lifers on the ground that it is to commit a murder because it kills a potential human being. Pro-choicers argue that this research will lead down a slippery slope of exploitation and abuse.

Conclusion: It is true that the future potential of stem cell research is very brilliant, but we must proceed carefully along the intricate pathways created by this magic power of science to maintain respect for human life. It must be done under restrictions and supervisions by the society.

DEVELOPMENT OF DNA AMPLIFICATION METHOD FOR THE DETECTION OF HUMAN PAPILLOMAVIRUS

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Introduction: Human Papillomavirus (HPV) has been implicated in the progression of anogenital carcinomas but their involvement in the initiation and progression of oral neoplasia has generated conflicting results. This study was proposed to establish a DNA amplification method for the detection of HPV.

Methodology: Plasmid DNA containing specific HPV strains was used as PCR template. Degenerative primers MY09/MY11 and the GP5+/GP6+ amplifying DNA fragments in the conserved L1 region of HPV were used in nested PCR. The outer MY and the internal GP primer sets, generated an approximately 450bp- and 140bp-PCR products respectively.

Results: Both PCRs were optimized in 20 μ l total reaction volume. The first PCR was done using 1.5mM MgCl₂, 200 μ M each of dNTPs, 10 pmole each of MY09 and MY11 primers, 1U of Taq polymerase and 5 μ l of DNA template at an annealing temperature of 53°C for 30 cycles. The nested PCR was performed using 3.0mM MgCl₂, 200 μ M each of dNTPs, 10 pmole each of GP5+ and GP6+ primers, 1U of Taq polymerase and 1 μ l of DNA template from first PCR, at an annealing temperature of 42.3°C for 30 cycles. The effectiveness of this nested PCR was confirmed using Hybrid Capture II-HPV positive samples.

Conclusion: Two-tube nested PCR using MY and GP primers was established. Our preliminary results found this PCR method to be effective in detecting HPV from clinical samples

A NEW IgM MONOCLONAL ANTIBODY REACTIVE TOWARDS BREAST CANCER CELLS SECRETED BY A STABLE HYBRIDOMA CLONE – C2E7

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Background: A new IgM monoclonal antibody (Mab) with with 1 light chain reactive towards breast cancer cells was produced from a stable hybridoma clone C2E7. The Mab was found to react against an antigenic determinant located in the cytoplasm of the MCF-7 cell line. The reactivity of Mab C2E7 towards MCF-7 cells was markedly reduced when the cells were treated with trypsin but not with neuraminidase or periodate.

Materials and Methods: A stable hybridoma clone C2E7 was established as a result of fusion between the lymphocytes of Balb/c mice sensitized with the MCF-7 breast carcinoma cell line and Sp2/0-Ag14 myeloma cells. The clone was established after five limiting dilutions. Immunohistochemical studies were carried out using immunoperoxidase technique.

Results: The Mab reacted strongly to breast cancer lines MCF-7 and T47-D but not to other cell lines. Immunohistological studies showed that the mab reacted to the lobular breast and fibroadenoma cancer tissues at the cytoplasmic region. No staining was observed when tested against normal mammary tissue or tissues from uterine leiomyoma, stomach showing intestinal metaplasia, cervical carcinoma, tonsillitis, neurofibroma and ductal papilloma of the breast. The hybridoma clone was able to grow and proliferate in serum-free medium of ERDF supplemented with ITES. Large quantities of this Mab were produced in ascities fluid.

Conclusion: The new Mab generated reactive very specific against breast cancer cells by a stable hybridoma clone. The Mab can be use for application as a diagnostic tool and future therapeutic against breast cancer as a recombinant chimeric or humanize monoclonal antibody.

GALLBLADDER CARCINOMA: PALLIATIVE RESECTION AS TREATMENT OF CHOICE: CASE REPORT

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Primary gallbladder carcinoma (GBC) is relatively rare, it is the most common malignancy of the biliary system. It is encountered in 0.05 to 3 per cent of all cholecystectomies. GBC patients continue to have an extremely poor prognosis, and the majority of tumors of GBC patients are considered unresectable at the time of surgical exploration. We report a case of gallbladder carcinoma in a 58-year-old lady who presented with non specific abdominal pain and later underwent palliative gallbladder resection and biliary enteric bypass.

EFFECT OF 24 WEEKS OF DECONDITIONING ON EXERCISE-INDUCED BONE GAINS IN FEMALE RATS

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Purpose: This study investigates the effects of 24 weeks of deconditioning on bone morphometric gains induced by an 8-week high-impact jumping regimen in rats.

Method: Fifty, 12 week-old Wistar female rats were randomized equally into five groups namely; 8 weeks exercise (8Ex), 8 weeks sedentary control (8S), 32 weeks exercise (32Ex), 32 weeks sedentary (32S) and 8 weeks exercise followed by 24 weeks sedentary (8Ex24S). The exercise regimen consisted of 40 jumps/day for 5 days/week at a jumping height of 40cm. Tibial fat free dry weight, ultimate bending load, diaphysis periosteal and endosteal perimeters, cortical and medullary areas were measured. Serum osteocalcin and C-terminal telopeptide of type 1 collagen (1CTP) concentrations were determined. Data was analysed using one-way ANOVA.

Results: Compared to 8S rats, all the measured parameters, with the exception of bone medullary area, serum osteocalcin and 1CTP, were significantly higher in 8Ex rats. Bone mass, ultimate bending load, periosteal perimeter and cortical area were significantly higher in 32Ex rats when compared to 32S rats ($p < 0.05$). Serum 1CTP in 32Ex was significant ($p < 0.05$) lower than in 32S. After 24 weeks of deconditioning (8Ex24S), only periosteal perimeter and cortical area were significantly higher ($p < 0.05$) than 32S groups.

Conclusion: The data indicate that 8-week high impact jumping exercise provides an effective osteogenic stimulus to the tibia of growing rats. However, the gains in most of the measured parameters could not be maintained after 24 weeks of complete cessation of exercise implying perhaps a minimal level of exercise is needed to maintain the exercise-induced bone gains.

THE ROLE OF INSULIN-LIKE GROWTH FACTOR-1 IN DIABETIC EMBRYOPATHY

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Background: The complexity of the intrauterine environment makes it difficult to identify the mechanism(s) leading to diabetic embryopathy. There is mounting evidence that maternally derived growth factors e.g. insulin-like growth factor-1 (IGF-1) are implicated in the regulation of pre-implantation embryo development, raising the question of their involvement in the occurrence of diabetic embryopathy. The aim of this study is to determine the mRNA expression of IGF-1 and IGF-1 receptor in the reproductive tissues at various stages of pre-implantation embryo development in normal and diabetic mice.

Method: Sexually mature female ICR mice of 6-8 weeks old were rendered diabetic by administering a single intra-peritoneal injection with 200mg/kg streptozotocin three days prior to mating. Only mice with blood glucose of more than 15 mmol/L were included in this study. Fallopian tubes and uterine tissues were obtained from superovulated diabetic and normal mice after 48, 72 and 96 hours of fertile mating. The tissues were subjected to RNA extraction and cDNA preparation. The cDNAs were screened for housekeeping gene before subjected to quantification of IGF-1 and IGF-1 receptor mRNA expression using real-time Polymerase Chain Reaction (PCR).

Results: A statistically significant decrease in mRNA expression of IGF-1 at 72 hours and of IGF-1 receptor at 48 hours after fertile mating in the fallopian tubes of diabetic mice compared to normal mice.

Conclusion: The presence of low levels of IGF-1 and IGF-1R mRNA expression in diabetic mouse reproductive tissues may explain the low rate of the pre-implantation embryo development in diabetic embryopathy.

EFFECTS OF AN INDIGENOUS CONTRACEPTIVE HERBAL FORMULATION ON THE GONADOTROPHS OF THE PITUITARY GLAND OF RAT

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Introduction: Traditional herbal contraceptives are widely used; however their mechanisms of action are yet to be evaluated. Previous studies showed that contraceptive herbal formulations (*Lepidagathis longifolia*, *Palaquium sp* and *Phyllagathis rotundifolia*) cause anovulatory estrous cycle, altered circulating hormone le

Objective : To observe the morphometric changes of the gonadotrophs and the plasma concentrations of follicle stimulating hormone and luteinizing hormone.

Methodology. Thirty five animals were randomly divided into 5 groups. Control animals were given vehicle and experimental animals were given combined herbal extract or individual herbal extract at a dose of 540 mg/kg/day s.c for 7 days. Immuno-stained gonadotrophs were studied by using image analyzer, FSH and LH serum concentrations were determined.

Results : The FSH and LH concentrations were low in animals that received combined herbal extract ($p<0.01$). FSH concentration was noted to be significantly low in animals that received *P. rotundifolia* ($p<0.05$). The mean cell area and cell density of gonadotrophs of animals that received combined herbal extract were significantly low compared to control group ($p<0.05$).

Discussion : These findings corresponded to our previous findings that the combined herbal extract reduced both estradiol and progesterone concentrations and the individual plant extracts reduced the estradiol concentration significantly but not the progesterone.

Conclusion : We conclude that the herbal extracts do affect the pituitary gonadotrophs and the circulating gonadotrophins. Further evaluation is needed to verify whether the effect was directly on the pituitary or through a higher centre such as the hypothalamus.

COMPARISON STUDY OF AN IN-HOUSE POLYMERASE CHAIN REACTION (PCR) AND HYBRID CAPTURE 2 (HCII) ASSAY FOR THE DETECTION OF HUMAN PAPILLOMAVIRUS IN CERVICAL SCRAPINGS: A PRELIMINARY REPORT

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Introduction: Cancer of the cervix is one of the common cancers among women globally. High risk-HPVs have been identified as the main culprit in approximately 99.7% of the cancer cases. Over the years, screening for cervical cancer is done based on cytological methods that depend entirely on subjectivity in interpreting the outcomes. Molecular techniques via HCII assay and PCR has been generally utilised to solve this problem.

Objective: To evaluate the effectiveness of two molecular diagnostic tools in HPV DNA testing

Methodology: Cervical scrapings were collected from 40 study subjects and after the preparation of Pap smears; residual specimens were kept in ThinPrep Pap Test bottles prior to HPV DNA diagnosis. Detection of HPV was then done using HCII assay by Digene, as well as MY-GP two tube-nested PCR.

Results: HCII assay and PCR have sensitivities of 36% and 82% respectively, while the specificity for the former was 97% and the latter, 59%. Meanwhile the positive predictive values (PPVs) of the HCII assay and PCR were 80% and 43% respectively, and the negative predictive values (NPVs), were 80% and 89%, correspondingly.

Conclusion: The sensitivity of PCR is higher than that of HCII assay while HCII has a better specificity. Subjects that were cytologically negative but positive by PCR warrant a follow up to observe their progression as well as to obtain a sample for the confirmation HPV infection.

A HISTOLOGICAL EVALUATION OF VALUE-ADDED DENSE HYDROXYAPATITE IN SHEEP : A PRELIMINARY STUDY

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Introduction: The tissue response to different materials will vary with the chemical composition and micro and macro structure of the synthetic material. An optimal clinical utilization of Hydroxyapatite (HA) requires thorough knowledge of factors influencing resorption, the interface between implant, bone and connective tissue. This histological study was designed to evaluate a value-added dense HA (DHA) as bone substitute for tibial bone defect in a sheep model.

Materials and methods: The test material was a value-added DHA in the form of blocks produced by the School of Materials and Mineral Resources, Universiti Sains Malaysia (USM). Twelve healthy, skeletally-matured Malin sheep were used. The experimental group received the DHA in the defect created at the proximal diaphysis of tibia shaft. The defect in the control group was left empty. Both the implanted and control tibias were harvested at intervals of 6,8,12 and 24 weeks. The specimens were undecalcified and analysed under light, confocal laser scanning and scanning electron microscopes.

Results: Histological studies showed that there was enhancement of osteoconduction and osteogenesis in the implant group as evident by the abundance of capillaries, perivascular tissue and osteoprogenitor cells of the host accounting for the new bone formation. SEM analysis showed progressive irregular erosions at the surface of the DHA and the morphology of the pores had changed, indicating an increased DHA degradation.

Conclusion: This study revealed that this dense HA had shown good biocompatibility, osteoconductivity, osteogenesis and biodegradability properties to be used as bone substitute for reconstruction of bone defects. The DHA accelerates bone healing and resorbed in an acceptable time.

BIOCHEMICAL STUDIES ON THE TOXICITY OF AQUEOUS EXTRACT OF LEAVES OF *PHYLLANTHUS AMARUS*, IN RAT LIVER

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Objective : *Phyllanthus amarus*, a plant species of *Euphorbiaceae* family is widely distributed in most tropical and subtropical countries and used as a folk medicine for jaundice and various other diseases. So far no clear documented toxicity studies have been carried out on this plant, especially for those growing in Malaysia. Therefore the aim of this study was to determine the biochemical toxicity effects of aqueous extract of leaves of *P.amarus* (grown locally) on rat liver.

Methodology : Sprague-Dawley rats were used as experimental animal and *P.amarus* extract was administered orally by gavaging the male rats for acute toxicity study (5 grams/Kg body weight) and to the male and female rats for chronic toxicity study (0, 100, 400 and 800 mg/Kg body weight/day for six weeks). Body weights of the rats were measured periodically. Animals were sacrificed at the end of the experimental period and serum was analysed for the biochemical markers of liver injury such as alanine transaminase (ALT), aspartate transaminase (AST), alkaline phosphatase (ALP), lactate dehydrogenase (LDH) and total protein.

Result: Acute administration of *P.amarus* extract orally, at a dose of 5 gram /Kg body weight did not produce any clinical evidence of toxicity. In the chronic study, no significant differences ($P>0.05$) were observed between control and *P.amarus* extract administered rats in the parameters studied.

Conclusion: This study suggests the non-toxic nature of *P.amarus* aqueous extract in rat liver.

HISTOLOGICAL FEATURES OF BREAST LESIONS INDUCED BY 1-METHYL-1-NITROSUREA (MNU) INJECTION IN RATS

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Introduction: Administration of MNU is considered a rapid way of inducing breast cancer in rats. While most data concerned with the time frame of tumour development, little data existed on the growth of the tumour regarding to its size.

Objective: To study the histological features of MNU-induced breast cancer based on tumour size.

Material and methods: 21 days old female Sprague Dawley rats were administered with the MNU intraperitoneally at dose of 70 mg/kg body weight. Tumour specimens were collected according to their largest diameter size at 4.0 ± 0.5 mm, 8.0 ± 0.5 mm, 12.0 ± 0.5 mm and 16.0 ± 0.5 mm. The entire palpable lesions were excised and subjected for histopathological assessment.

Results: Epithelial inclusion cysts and skin adenomas made up most of the benign tumours with 4 cases occurred together with malignant lesions. Ductal carcinoma insitu (n= 5) was seen in tumours of size 8 mm or less. Among the malignant tumours, cribriform type were seen predominantly at tumour size less than 12 mm while those with size 12 mm or greater were of papillary type. The no special type (NST) commonly seen in human was not observed up to size of 16 mm.

Conclusion: Breast tumours induced by MNU were mainly malignant and histological features of the tumour change as the tumour grow.

AMOEBIC LIVER ABSCESS: HOSPITAL UNIVERSITI SAINS MALAYSIA EXPERIENCE

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Background: The percentage of liver abscesses that are amoebic in origin from Malaysian hospitals ranged from 39.0% to 44.1%. Although amoebic liver abscess (ALA) is an important parasitic disease, it is not commonly reported. The aims of this study were to look at the distribution of ALA and indirect hemeagglutination assay (IHA) titer among positive cases and to determine its optimum titer for positive amoebic serology in local patients.

Method: This is a hospital-based retrospective study. All records of patients suspected to have liver abscess from Jun 2003 – Dec 2004 were reviewed. Cases were confirmed based on history, physical and radiological examination and amoebic serology. The IHA test was used for the detection of *E.histolytica* antibody. The patients' data including the age, sex, address, clinical features, provisional and final diagnoses, ultrasound findings and IHA titer results were collected from medical records.

Result: There were 132 cases of suspected liver abscess admitted. The overall percentage of clinically and serologically confirmed cases was 38.6%. The age ranged between 2 and 85 years. The male: female ratio was 5.4:1. The median (iqr) IHA titer for clinically confirmed cases was significantly higher compared to non-confirmed cases ($p=0.001$). The Kappa agreement between clinical liver abscess and seropositive result was 0.485 ($p<0.001$). Confirmed ALA patients had more frequently a presentation of fever, abdominal pain and hepatomegaly compared to non-confirmed cases. The affected liver segments seen on ultrasound were segments 5, 6, 7 and 8.

Conclusion: ALA is frequently seen in this area. Clinical confirmed cases may correlate the serological results; hence assist in the treatment decision.

MORPHOLOGICAL INVESTIGATION OF *COLLOCALIA* SPP. - NATURAL PURVEYOR OF EDIBLE NEST AS HEALTH FOOD

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Keywords and abbreviations: Swiftlets, morphology, histology, Variable Pressure Scanning Electron Microscope (VPSEM), EDX

Introduction: Swiftlets are unique species of swift, found only in the South East Asian region. Famous for its edible nest, the Collocalia species of swiftlet's, are the makers of edible bird's nest used to prepared soup. Known as 'The Caviar of the East', the nests are highly costly. Claims of health giving properties of the nest are abound.

Aims: This study is to investigate the morphology of organs involved in swiftlet's salivary production. Observation of morphological and topographical features of nests samples was undertaken. Elements present in the swiftlet's nest and saliva were examined for a correlation of all the characteristics of the swiftlet's morphology and nesting behavior.

Method: In this study, fresh dead birds were collected for the purpose of histological study via light microscopy. Different samples of swiftlet's nest were analyzed by comparative study using VPSEM with EDX for trace elements. Swiftlet's saliva swabs were obtained and samples undergo similar observation as the nest samples.

Results & discussion: Histological observation of the swiftlet's tongue revealed certain distinctive and unique features such as the presence of a single-oriented intrinsic muscles, cartilagenous structures and enormous minor mucinous salivary glands. Images of nests obtained from VPSEM detailed the surface and inner architecture of the swiftlet's nest. The elemental composition of swiftlet's nest and saliva were quantified via EDX and several prominent elements were identified. FTIR analysis was also undertaken as an alternative to EDX for extended discussion.

Conclusion: The present study revealed unique structures of swiftlets with data to help in our understanding of swiftlet and its nest building prowess.

A PRELIMINARY STUDIES OF THE *IN-VITRO* EFFECTS OF 'GAMAT' EXTRACTS ON HEMATOLOGICAL PARAMETERS

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Introduction: Thrombosis occurs when the body forms blood clots that obstruct normal blood flow. There are many possible factors that can precipitate the conditions, such as injuries to blood vessels; alteration in blood flow; hypercoagulability and excessive platelet aggregation and/or activities.

Aim and purpose of study: The aims of this study is to determine the effects of extracts of two species (*Holothuriidae sp.* and *Stichopodidae sp.*) of sea cucumbers on mean platelet volume and other haematological parameters.

Materials and Methodology: Venous blood samples of six healthy donors were collected in an EDTA tube. An aliquot of 1 ml each was transferred into seven plain tubes containing 0.1ml of phosphate buffered saline as control and 0.1ml extract of the two species of 'gamat' at the concentrations of 0.1mg/ml, 1.0mg/ml and 10mg/ml were respectively used in the test. The effects of the extracts on blood parameters were determined by an automated hematology analyzer (Abbott Cell-Dyn 4000) at 30 minutes interval for two hours. RM ANOVA was employed to determine the effect on mean platelet volume (MPV) and other haematological parameters between the seven groups tested.

Results and Discussions: No significant different of haematological parameters between the seven groups tested were seen. However, for within group analysis (time effect) of the two species, only *Holothuriidae sp.* showed significant difference.

Conclusions: The potential anti-thrombotic properties of the different species of gamat can only be elucidated upon extensive *in vivo* studies.

DETERMINATION OF ELEMENTS PRESENT IN SELECTED PULAU PERHENTIAN SEA CUCUMBER USING ENERGY DISPERSIVE X-RAY (EDX) SCANNING MICROSCOPY & SPECTROSCOPIC ANALYSIS

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Author Keywords and Abbreviation: Sea cucumber, elements, EDX, spectroscopic

Introduction: Sea cucumbers are generally described as long, soft bodied marine invertebrates. They are flexible, elongated echinoderms that are closely related to the star fish and star urchins thus belonging to the class Holothuroidea. Physiological effect mediated by a particular biological product may be beneficial for some individuals and have adverse effect on others in the population. Therefore, identification of possible sensitive elements or substances is important in understanding the known effects of the product.

Aims: This study attempts to analyze and identify various possible organic and inorganic constituents in sea cucumber. This helps to cross check and identify specific location within the dissected whole body of this animal showing distribution of elements in them.

Method: The dissected body parts of sea cucumber which had been processed for microscopy were examined under SEM-EDX. The prepared powder extract of body tissue was also used for SEM-EDX and spectroscopic analysis using AAS and FT-IR.

Results & Discussion: The selected dissected parts of the sea cucumber show the presence of many elements. Silica was found specifically in the mouth of the sea cucumber and Na, Si and Cl were detected in the anus part. Four elements, Fe, Zn, Mn and Sr were determined from AAS analysis. The analysis of organic substances revealed variability of constituents at different sites.

Conclusion: The constituents detected and the distributions of elements in the body part of sea cucumber were revealed and this information can be valuable in medically related and therapeutic-pharmacological field of studies.

UNIQUE HISTOLOGICAL FEATURES OF HOLOTHUROIDEA – LM AND VPSEM STUDIES OF THE PERHENTIAN ISLAND SPECIES

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Keywords and abbreviations: Sea cucumber, morphology, histology, Variable Pressure Scanning Electron Microscope (VPSEM)

Introduction: Sea cucumber is a marine invertebrate closely related to the sea urchins. There are more than 2,000 species identified worldwide. The deep sea variety is known as *Stichopus* spp. and ‘gamat’ in Malaysia. Geographical distribution, climatic influence, diet and sexual behavior can act as biological markers for this organism, but little is known about this animal. Our present knowledge of this family is inadequate, especially their ultra-structural properties.

Aims: The aim of the study is to verify and relate the characteristic and histomorphological features of selected sea cucumber by examining external and internal tissue morphology. Proper taxonomy and species identification information will be relevant for future work, especially the occurrence of elements and pharmacological properties of their tissue extracts.

Methods: Two species of sea cucumber were prepared as required and morphological investigations were undertaken by stereo, light and VPSEM microscopes.

Result & discussion: Differences exist in the external and internal morphology of the two species studied. In particular, the orientation and density of the ‘mutable’ collagens show different histological features depending on sites. Comparison of mouth and anus show clearly defined unique structures. These findings are highly suggestive of the presence of ossicles, morula cells and muscle-like-tissue and integuments specific to the species.

Conclusion: One specimen suspected to be *Cucumaria frondosa* was reported to be only found in North America. However, detailed literature search suggest it to be *Stichopus japonicus*, suggesting the possibility of dislocation of their habitat due to global climatic changes thus explaining their siting in Malaysian waters.

ETHICAL ISSUES RELATED TO IN VITRO FERTILIZATION: WESTERN PHILOSOPHICAL PERSPECTIVES

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Introduction: The most successful breakthrough in Assisted Reproductive Technology in recent years is In vitro Fertilization technique. It basically transformed the process of procreation from private personal relation between a couple into artificial means in the laboratory and in many instances the involvement of a third party in the process. These changes in the procreative processes challenged basic religious, ethical and legal problems that should be handled carefully.

Objective: To collate, analyze, and criticize the Western philosophical approaches to In Vitro Fertilization (IVF).

Methodology: As it is a Qualitative research, the Phenomenological Method (PM) is employed to address the study. It refers to deep analysis through of the collection of data and construction of meaning.

Results: IVF technique is almost free from ethical difficulty if it avoids the involvement of a male sperm donor or an egg donor and is carried out within marriage bond and marriage span. If conducted under restrictions and careful monitoring by the society, this new dimension of medical science has to have its own code of ethical conduct acceptable to the scientific community.

Conclusion: The Western philosophical perspective on IVF technique hinges on the duality of sorts: an ethically acceptable technique when no issues related to surrogate parenthood is involved but requiring strict ethical code of conduct when undertaken within strict clinical environment.

ANTIOXIDANT ACTIVITY OF SOME ULAMS NATIVE TO KELANTAN, MALAYSIA

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Introduction: Antioxidants (synthetic or natural) are the agents that are capable of protecting the effect of free radicals *in vitro* and *in vivo*. However, synthetic antioxidants in food may promote negative health effects. Thus, researches are continually going on in search of an ideal natural antioxidant and its potential source. A few studies have been performed on antioxidant properties of several Malaysian plants and 'ulams' (young parts of plants that are being consumed as raw dish from ancient time by the Malays).

Objectives: To evaluate the antioxidant activity of three 'ulam' species that are native to the state of Kelantan, Malaysia.

Methodology: The 'ulams' studied were *Oroxylum indicum* (Beka), *Apium graveolens* (Sup/Sadri), and *Vitex negundo* (Lemuni). The methanolic extract from each 'ulam' was prepared and the antioxidant activity of those ulam extracts was carried out employing the inhibition of linoleic acid autoxidation, superoxide scavenging and DPPH radical scavenging assays. Each of these assays was based on spectrophotometry in which absorbance at a wavelength (e. g. 520 nm for DPPH radical scavenging assay) was monitored.

Results: Out of three methanolic extracts of the 'ulams', two extracts showed strong antioxidant activity irrespective of the assay done. The decreasing order of antioxidant activity on the basis of superoxide as well as DPPH radical scavenging assays was observed as *Vitex negundo* (Lemuni) ~ *Oroxylum indicum* (Beka) > *Apium graveolens* (Sup/Sadri). The antioxidant activity of Lemuni and Beka were relatively high (> 80%), which indicated that these two species of 'ulams' are potentially good sources of antioxidant.

Conclusion: *Vitex negundo* (Lemuni) and *Oroxylum indicum* (Beka) were identified as good sources of antioxidant. It is, therefore, worth to study further with these ulams and the outcome of the study can be of importance in dietary control of diseases.

IN-VITRO CYTOTOXICITY EVALUATION OF BIOMATERIAL BY USING MTT ASSAY

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Introduction: The MTT assay (3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulphonyl)-2H-tetrazolium) is a quantitative colorimetric assay based on the cleavage of the yellow water-soluble tetrazolium salt, to form water-insoluble, dark-blue formazan crystals. The MTT, cleavage occurs only in living cells by the mitochondrial enzyme succinate dehydrogenase.

Objective: The objective of this study was to determine the viability (IC_{50}) of osteoblast cell lines on natural coral material by using MTT assay

Methodology: Natural coral material was extracted in culture medium (400mg/ml) and incubated for 48 hours at 37°C with 5% CO₂. Serial dilution of the extract with a culture medium was prepared and added into the 96 well-plate containing 1 X 10⁴ cells/well and further incubated for 72 hours at 37°C with 5% CO₂. Cells without material added as a negative control respectively. Cell viability was measured by using MTT assay and ELIZA reader at 570nm was used to measure metabolic activity of cells.

Results: The result of the MTT assay showed that the natural coral material has not caused a significant decreased in osteoblast cell viability. At the highest concentration used i.e. 400mg/ml, no IC_{50} values were detected for natural coral after 72 hours of treatment.

Conclusion: This study concluded that natural coral, which is locally produced as a bone substitute, was not cytotoxic and MTT assay was appropriate for rapid screening of large number of test substance for cytotoxicity evaluation.

THERMAL CHARACTERIZATION OF ASPIRIN, CAFFEINE AND MEFENAMIC ACID BASED NON-NARCOTIC ANALGESICS

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Introduction: Thermal methods of analysis (TG, DTA, TG-DTA, DSC, DMA and TMA) find numerous applications in the fields of complexes, oragno-functionalized resins, epoxy glass composites, plastics, ceramics, and other materials. These techniques have been seldom reported for the characterization of pharmaceuticals. Therefore, it would be useful to study the physicochemical characteristics of the pharmaceuticals by employing single or simultaneous thermal analysis techniques, and to generate baseline data.

Objective: Some non-narcotic analgesics of the aspirin, caffeine and mefenamic acid groups were characterized using simultaneous thermogravimetry and differential thermal analysis (TG-DTA). The main objectives were to characterize these drugs on the basis of their thermal stability, moisture content and degradation pattern over a wide range of temperature.

Methodology: The finely powdered and homogenized samples of active ingredients and corresponding manufactured products were run on simultaneous TG-DTA in a dynamic N₂ atmosphere over the temperature range of 25°C to 700°C. The linear heating rate was programmed at 10°C per minute. The α -alumina powder was used as a reference material for DTA.

Results: The data on percent moisture, thermal stability, shelf-life and decomposition pattern was derived out from the thermal analysis curves of the corresponding analgesics drugs. The non-narcotic analgesics available in the market were of good quality, having negligible quantities of the impurities. The shelf life of the products analyzed is adequately covered by the expiry dates mentioned on each product, In some cases, the products did not even show deterioration after the expiry date.

Conclusion: Thermal analysis is a rapid, user friendly and economical method for the characterization of pharmaceutical products.

PUTATIVE *COLLOCALIA SPP.* NEST BUILDING PHEROMONE – PROMOTION OF NEST BUILDING ACTIVITIES

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Introduction: *Collocalia spp.* is a cave-dwelling bird. There are five species of collocalia that can construct edible nest. Their nest is ranked amongst the world's most expensive animal products healthy food. House farming of these species is well developed and has considerably helped to overcome, the demand issue. Besides using the recorded loud chirping of birds from radio cassettes to attract the birds, a new technology has been introduced. It is called pheromone. Basically, pheromone is a chemical secreted by an animal that influences the behavior or development of others of the same species, often functioning as an attractant of the opposite sex. They are well documented as the force that controls all social behavior, including mating.

Objectives: To observe the effectiveness of using a putative pheromone introduced to the swiftlets during building of their nests and to test whether the introduction of the pheromone effects attraction between the male and female during the build-up of the nest.

Methodology: The putative pheromone was extracted from old nest and dissolved into liquid form with water. The test was conducted at the farming place for observation of the effectiveness of the putative pheromone in attracting nest build by the swiftlets. The numbers of nests build within a 1-m² area were noted. Control areas were left as they are and comparison was made of the number of nest building activities, with pheromone treated areas observed over a 4 weeks period.

Results: Increments of nest building were noted either by brushed pheromone or sprayed pheromone compare to control. Sprayed pheromone shows faster nest building and shows an increase in the number of nests being build.

Conclusions: The putative pheromone can be a valuable adjunct to nest building activities of *Collocalia spp.*