

ASSOCIATION OF NDP GENE MUTATIONS AND RISK FACTORS IN RETINOPATHY OF PREMATURITY AMONG MALAY POPULATION

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Introduction: Retinopathy of Prematurity (ROP) is a multifactorial disease and associated with short gestational period, low birth weight, high oxygen exposure and prolonged duration of mechanical ventilation. Genetics factors are linked to the course of ROP in recent years since similar risk factor group of infants showed different ROP severity.

Objectives: This research is basically to determine the presence of NDP gene mutation in Malay patient with ROP and to evaluate the association between NDP gene mutations and ROP. Besides that we also want to evaluate the association of systemic risk factors (extreme prematurity (≤ 28 week) and extreme low birth weight (≤ 1000 g) and environmental risk factors (high oxygen exposure ($\text{SpaO}_2 \geq 95\% > 40\%$ daily percentage time) and prolonged duration of ventilation (> 3 days) with ROP.

Methods: The study designed was 'Case Control Study'. A total 56 of Malay premature patients (ROP = 28 patients, non ROP = 28 patients) were enrolled in this study after written consent taken from the parents. Genomic DNA from each patients was extracted from venous blood and subjected to PCR and direct sequencing for NDP gene. The stage of ROP, systemic and environmental risk factors were reviewed from patient medical records.

Results: All the patients (ROP = 28 patients, non ROP = 28 patients) that recruited in the study were born between year 2004–2012. The male patients in ROP and non ROP were 15 (53.6%) and 17 (60.7%) respectively. The mean gestational age was 28 weeks (ROP) vs 30 weeks (non ROP) ($P = 0.010$), mean birth weight was 986 g (ROP) vs 1476 g (non ROP) ($P = 0.010$) and mean duration of ventilation was 12.3 day (ROP) vs 4.3 days (non ROP) ($P = 0.207$). There was no NDP gene mutation detected in both groups. The extreme prematurity (≤ 28 weeks) and prolonged duration of ventilation (> 3 days) were significantly associated with ROP ($P = 0.030$ and $P < 0.001$ respectively). The extreme low birth weight (≤ 1000 g) and high oxygen exposure ($\text{SPO}_2 \geq 95\%$, $> 40\%$ daily percentage time) were not significantly associated with ROP ($P = 0.101$ and $P > 0.95$ respectively). Multiple regression analysis revealed prolonged duration of ventilation (> 3 days) as the only independent risk factor for ROP

and increased risk of ROP 9.71 fold (95% CI: 2.780, 33.92, $P < 0.001$).

Conclusion: There was no association between NDP gene mutations and ROP among Malay ethnic background. Extreme prematurity and prolonged duration of ventilation were the risk factors that significantly associated with ROP. However further comprehensive large cohort with multicentre approach will benefits more the outcome of this study.

Supervisor:

Associate Professor Dr Zunaina Embong

Co-Supervisor:

Dr Abdul Aziz Mohd Yusoff

Associate Professor Dr Shatriah Ismail

Associate Professor Dr Noraida Ramli

Dr Ismail Ibrahim

A STUDY ON STEROID-INDUCED DIABETES MELLITUS AND ASSOCIATED RISK FACTORS IN PATIENTS ON PROLONGED USE OF PREDNISOLONE IN OUTPATIENT CLINIC, HUSM

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Introduction: Steroid are commonly used in autoimmune and inflammatory conditions. Prolonged usage of steroid can lead to metabolic abnormalities particularly development of diabetes mellitus. Steroid diabetes also named steroid – induced diabetes referred to prolonged hyperglycaemia due to steroid therapy due to other medical conditions. Previous studies showed that prevalence of steroid-induced diabetes between 12–40%, and associated risk factors of steroid-induced diabetes were old age, high body mass index, impaired glucose tolerance before steroid therapy, cumulative dose and long duration of steroid therapy. There was no study regarding steroid –induced diabetes in our country.

Objectives: Thus, the objectives of our study were (1) to determine the proportion of patients that developed DM during prolonged use of prednisolone. (2) to investigate the associated risk factors of steroid induced diabetes mellitus in patients on prolonged use of prednisolone.

Methods: The study was a cross sectional study performed from September 2012 till November 2012 in outpatient clinic, HUSM. 94 patients that were on prolonged usage of prednisolone underwent OGTT.

Results: Out of the 94 patients that were on prolonged use of prednisolone, 12 patients developed DM. The proportion of patients that developed DM after prolonged use of prednisolone was 12.8% (95% CI 6.70-21.2%). All of the 12 patients were diagnosed as having DM by abnormal OGTT. They were 76 female and 18 male patients. The mean age for diabetic patients was 44.42 years (SD 15.93) and 34.60 years (SD 13.21) in non-diabetic group. Age was found as associated risk factor of steroid-induced DM. Older age was associated as increased risk of steroid-induced DM.

Conclusion: The proportion of patients that developed steroid-induced DM after prolonged use of prednisolone was 12.8% (95% CI 6.70-21.2%). Age ($P = 0.028$) was significantly associated with steroid-induced DM. Therefore, physicians need to be aware that steroid can increase blood glucose especially in elderly patients.

Supervisor:

Dr Wan Izani Wan Mohamed

CONVULSIVE STATUS EPILEPTICUS AND ITS ASSOCIATED FACTORS AMONG ADULT SEIZURE PRESENTING TO EMERGENCY DEPARTMENT, HOSPITAL UNIVERSITI SAINS MALAYSIA

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Introduction: Seizure is a common neurological disorder of adult population. Convulsive Status Epilepticus (CSE) is the complication and progression of adult seizure.

Objectives: To evaluate the proportion of adult seizures in Kelantan and to identify the associated factors leading to the progression to CSE.

Methods: A total of 160 cases involving 94 patients, that presented with seizures to our Emergency Department, Hospital Universiti Sains Malaysia, Kelantan between 2008 to 2010 were included in this study. The case notes were retrospectively review and a data was collected using a standardized proforma form.

Results: The mean age of the patients were 41.19 (SD 18.20) years ranging between 18 years old to 81 years old. Majority of cases involve were male patients (59.4%) and predominantly from Malay ethnic (91.2%). A patient with an increase in 1 year of age has 1.05 times the odds to have CSE (95% CI 1.013, 1.079, $P < 0.05$) when adjusted for lactate and aetiology. A patient with an increase in 1mmol/L of lactate has 1.36 times the odds to have CSE (95% CI 1.116, 1.658, $P < 0.05$) when adjusted for age and aetiology. A patient had a seizure due to trauma has 10.35 times the odds to have CSE (95% CI 1.126, 95.072, $P < 0.05$) compared to epilepsy when adjusted for age and lactate. A seizure patient due to central nervous system (CNS) infection had 10.95 times the odds to have CSE

(95% CI 1.261, 95.163, $P < 0.05$) compared to epilepsy when adjusted for age and lactate.

Conclusion: Age, lactate level and the underlying aetiologies of the seizures like CNS infection and trauma had higher risk to develop CSE.

Supervisor:

Dr Kamarul Aryffin Baharudin

Co-Supervisor:

Dr Aniza Aziz

A STUDY OF PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR GAMMA (PPAR γ) GENE VARIANT IN RELATION TO PHYSICAL ACTIVITY AND FAT INTAKE AMONG PRIMARY SCHOOL MALAY CHILDREN IN KOTA BHARU, KELANTAN

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Introduction: The missense mutation of Proline to Alanine at codon 12 (*Pro12Ala*) of Peroxisome Proliferator Activated Receptor Gamma (*PPAR γ*) is one of the most critical genetic factors predisposing to positive energy balance that may lead to development of obesity.

Objectives: 1) To determine the association between *Pro12Ala* variant in the *PPAR γ* gene and body mass index (BMI) status of Malay children, 2) to determine the differences of physical activity between subjects with and without *Pro12Ala* variant in the *PPAR γ* gene and 3) to determine the differences of fat intake between subjects with and without *Pro12Ala* variant in the *PPAR γ* gene.

Methods: One hundred and nineteen subjects (119) ages 9-11 years old from primary school in Kota Bharu, Kelantan were involved in this study. Anthropometric measurements: weight, height, percentage body fat, waist hip ratio and BMI were conducted. In order to determine the physical activity, activity counts of the subjects were recorded every 10 sec for 5 days (3 days of weekdays and 2 days of weekends) using accelerometer (Actigraph GT3X+). As for fat intake, a food diary was distributed to the subjects and subjects filled the diary for 2 days of weekdays and 2 days of weekends. Whereas, for genotyping, a 2mL of blood sample was collected from each subject through venipuncture. Genomic DNA was extracted from leucocyte of the blood. Afterward, High Resolution Melting (HRM) analysis was performed to identify the genetic variation of *Pro12Ala* in the *PPAR γ* gene.

Results: From 119 subjects, 39.5% ($n = 47$) were overweight, while normal weight subject was 60.5% ($n = 72$). A statistical test of Pearson Chi square was performed, result showed that there was a significant association ($P = 0.03$) between *Pro12Ala* variant in the *PPAR γ* gene in normal

weight and overweight group, with allelic frequency among overweight children wildtype (CC) and heterozygous (CG) were 0.83 and 0.17 respectively and in normal weight group the allelic frequency of *Pro12* and *Ala12* were 0.92 and 0.08 respectively. However, there was no significant difference in activity counts between subject with and without *Pro12Ala* variant. Thus, it is also reported that, there was no significant difference in fat intake of mutational and non mutational group of *Pro12Ala* variant.

Conclusion: There was an association between *Pro12Ala* variant in the *PPAR γ* gene and BMI group of the subjects. However, there were no significant differences in physical activity and fat intake between the subject of mutation and non mutational group.

Supervisor:
Dr Surini Yusoff
Co-Supervisor:
Dr Mohd Nidzam Jawis

ANTIFUNGAL EFFICACY OF MALAYSIAN HENNA PLANT EXTRACTS ON PATHOGENIC FUNGI OF OTOMYCOSIS

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Introduction: Several studies on the effects of *Lawsonia inermis* (henna) on different diseases have earlier been reported in different regions of the world using various extracts and concentrations. However, its efficacy on the pathogenic fungi in otomycosis is rarely described. The antifungal activity of Malaysian henna using various concentrations on common pathogenic fungi of otomycosis was investigated in this study.

Objectives: The objectives of this study are to determine the inhibitory efficacy of different concentrations of henna-water extract on *Aspergillus niger* and *Candida albicans* and also to investigate the inhibitory efficacy of different concentrations of henna-ethanol extracts in suppressing the growth pattern of *Aspergillus niger* and *Candida albicans*.

Methods: Leaves samples of henna were collected from Kubang Kerian, Kelantan district, Malaysia and made into various concentrations of water and ethanol extracts and their antifungal efficacy were examined. The efficacy of these extracts was examined using the well diffusion method, against *Aspergillus niger* and *Candida albicans* which are known to be the most implicating pathogenic fungi of otomycosis.

Results: Inhibition of growth pattern of these fungi by henna water extract was demonstrated to be significant ($P < 0.01$) with superiority over henna-ethanol extract in suppressing the growth of *Aspergillus niger*. In contrast,

henna-ethanol extract was found to be superior to henna-water extract in the suppression of the growth pattern of *Candida albicans*.

Conclusion: The result demonstrated the antifungal activity of Malaysian henna leaves against the known pathogenic fungi of otomycosis, thus demonstrating its potentiality as an alternative antifungal agent in the treatment of otomycosis.

Supervisor:
Associate Professor Dr Rosdan Salim
Co-supervisor:
Dr Irfan Mohamad
Associate Professor Dr Zeehaida Mohamed

SERUM MAGNESIUM LEVEL AMONG HYPERTENSIVE EMERGENCY PATIENTS IN EMERGENCY DEPARTMENT HUSM

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Introduction: Magnesium is the fourth most abundant cation in the body and yet it is the most neglected in our daily diet. Many studies were done associating the lack of Magnesium with diseases such as hypertension, ACS and metabolic syndrome. Magnesium also has been used in the management of patient with eclampsia. Contradicting evidences were also found on previous study regarding serum Magnesium and hypertension. However there is no study done pertinent to serum Magnesium level among patient with hypertensive emergency. Knowledge in this study may aid in future treatment of patients with hypertensive emergency.

Objectives: The aim of this study were to determine admission serum Magnesium level among hypertensive emergency patient in HUSM Second objective was to determine serum Magnesium level among normal healthy population in Kelantan State. Apart from that, the study also compares the mean difference of serum Magnesium level between hypertensive emergency patients and control population data. Fourth objective was to compare the median difference of mean arterial pressure between serum Magnesium subgroup. The last objective was to determine serum Magnesium level as a predictor of the development of hypertensive emergency.

Methods: A total of 43 samples, 22 control and 21 study populations involved in this study. All control population were taken from healthy volunteer whereas the study population were from patients that were diagnosed with hypertensive emergency. Blood samples for serum Magnesium were sent to HUSM main lab. Data recorded and analysed with SPSS v 20.

Result: The normal value of serum Magnesium for control group is from 0.89 mmol/l to 1.05 mmol/L with the mean of 0.97 mmol/L, whereas for hypertensive emergency

is from 0.64 mmol/L to 1.37 mmol/L with the mean of 0.95 mmol/L. There is no significant mean difference of serum Magnesium between hypertensive emergency and control group ($P = 0.52$). Age and hypomagnesemia state were significant risk factor for developing hypertensive emergency (OR = 1.147, OR = 5.417 respectively). Background of hypertension and IHD were associated with hypomagnesemia.

Conclusion: No significant mean difference in serum Magnesium between groups was observed. However this can be due to the presence of hypertensive emergency patients in both hypomagnesemia and hypermagnesemia groups. Hypertensive emergency that associated with ACS has lower mean serum Magnesium, (0.88 mmol/L) and consistent with previous study. Older patients and patients with hypomagnesemia state were at higher risk of developing hypertensive emergency. Past history of hypertension and IHD has significant association with hypomagnesemia. The role of Magnesium in managing patients with hypertensive emergency needs further study as current evidence is not that convincing.

Supervisor:

Dr Nik Hisammuddin Nik Abd Rahman

PREVALENCE AND ASSOCIATED FACTORS OF SEXUAL DYSFUNCTION AMONG OVERWEIGHT AND OBESE WOMEN IN HUSM

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MMed (Family Medicine)

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Introduction: In addition to being a risk factor for multiple diseases, overweight and obesity may impair female sexual function. However, there are relatively few studies assessing sexual function in overweight and obese women.

Objectives: The aim of this study was to determine the prevalence and associated factors for female sexual dysfunction in overweight and obese women.

Methods: A cross-sectional study was conducted among 204 overweight and obese women in Klinik Rawatan Keluarga, Hospital Universiti Sains Malaysia using validated Malay Version of Female Sexual Function Index with Cronbach of 0.8665 to 0.9675 and total scores cut off point of 55 in determining female sexual dysfunction. The socio-demographics, physical and biochemical parameters were obtained.

Results: The prevalence of female sexual dysfunction among overweight and obese women was 12.3% (95% CI: 7.79, 16.81). Sexual desire disorder was the most prevalent dysfunction (23%), followed by arousal disorder (8.3%), lubrication disorder (9.3%), orgasm disorder (4.9%), satisfaction disorder (9.3%) and pain disorder (6.9%). Husband age [OR (95% CI): 1.09 (1.03, 1.16)], parity [OR

(95% CI): 0.74 (0.55, 1.00)], low-density lipoprotein cholesterol level [OR (95% CI): 10.86 (1.42, 83.20)] and total cholesterol level [OR (95% CI): 0.12 (0.02, 0.66)] were significant associated factors for female sexual dysfunction in overweight and obese women.

Conclusion: Almost one in every eight overweight and obese women had sexual dysfunction. Husband age, parity, low-density lipoprotein cholesterol level and total cholesterol level were significantly associated with FSD. Thus, health care providers should be proactive in evaluating and addressing issues of sexual dysfunction among overweight and obese women. Appropriate health promotion as well as preventive measures should be taken.

Supervisor:

Dr Imran Ahmad

Co-supervisor:

Professor Dr Shaiful Bahari Ismail

PREVALENCE AND ASSOCIATED FACTORS OF SEXUAL DYSFUNCTION AMONG OVERWEIGHT AND OBESE WOMEN IN HUSM

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Supervisor:

Dr Imran Ahmad

Co-supervisor:

Professor Dr Shaiful Bahari Ismail

KNOWLEDGE, ATTITUDE AND PRACTICE (KAP): SURVEY AMONG MEDICAL OFFICERS REGARDING INFLUENZA A (H1N1) INFECTION AND ITS MANAGEMENT IN THE STATE OF PERAK MALAYSIA

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Introduction: In modern medicine history, multiple flu pandemics have occurred and recorded throughout. There have been four known flu pandemics since 1918, each with its unique different characteristics. All these pandemics had caused widespread infection and hitting thousands in number of death. Identifying public health interventions that might be able to halt a pandemic in its earliest stages is therefore a priority. Therefore, the process of overcoming the widespread infection of influenza pandemics has eventually developed the preventive measures such as vaccination, improved healthcare providers' knowledge and also awareness among public. Little has been known about the level of knowledge, attitude and practice of Medical Officers (MOs) serving the primary level of our health systems.

Objectives: The aim of this study was to determine the knowledge, attitude and practice (KAP) levels of the MOs as well as to look for factors that can influence those levels.

Methods: This is a cross-sectional study that was conducted in the state of Perak, Malaysia using a set of questionnaire. The study was done in post-pandemic period of Influenza A(H1N1) between August 2011 till August 2012. The questionnaire was created based on multiple previous studies and has been validated for reliability and validity. The target population was only for Medical Officers (MOs). All the MOs were recruited from Emergency & Trauma Departments (ETD), district hospitals and outpatient departments (OPD) throughout state of Perak. All statistical analyses were calculated using SPSS version 20.0 software.

Results: There were 122 respondents (medical officers) involved in this study. The mean score for knowledge, attitude and practice were 70.56%, 81.83% and 85.09% respectively.

Dependent variables associated with satisfactory knowledge were workplace, race, experience in managing Influenza A (H1N1), respondents attended seminar and longer duration of service ($P < 0.05$). Unfortunately none of the aforementioned variables can be associated independently. The higher knowledge also was significantly correlated with longer duration of service ($R = 0.33$, $P < 0.001$). Positive attitude was associated with race as independent factors ($P < 0.05$). Higher score of attitude has been found to correlate with higher practice score ($r = 0.28$, $P < 0.05$). The good practice was independently associated with vaccinated respondents (OR: 3.14; 95% CI: 1.35-7.31) and having experience in managing Influenza A (H1N1) (OR: 0.36; 95% CI 0.14–0.89).

Conclusion: The KAP levels of medical officers in state of Perak were very good. Mandatory attendance to related seminar or courses pertaining to airborne outbreak might be beneficial especially if done periodically to sustain the adequate level of competency. Joint-efforts should be targeted at inculcating relevant knowledge and instilling good practice among healthcare workers to improve management in future pandemics.

Supervisor:

Dr Abu Yazid Md Noh

THE EFFECT OF AN ALCOHOL-FREE CHLORHEXIDINE MOUTHWASH ON ORAL *Streptococcus mutans* COLONY COUNTS AMONG THE MALAYSIAN ARMY PERSONNEL

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Introduction: Oral health is an important aspect of combat readiness in the Malaysian Army. However, during military operation army personnel are unable to fully practice normal mechanical tooth brushing due to some limitations. Thus, other modalities of care are very much needed to enhance the ability for maintenance of good oral health.

Objective: The objective of the study was to determine the effect of alcohol-free chlorhexidine mouthwash on oral *S. mutans* colony counts among the Malaysian Army personnel.

Methods: A non-randomised double-blind community intervention study was conducted on 181 Malaysian Army personnel. The participants were assigned into treatment and control groups where all participants in one study group were exposed to only one study intervention. Stratified proportionate random sampling methods were used and the total sample recruited from each stratum was based on proportion of population size. The treatment group was given alcohol-free chlorhexidine mouthwash while the control group was given placebo mouthwash. Fifteen mls mouthwash was gargle for 30 seconds, twice a day for a period of two weeks.

Two mls of unstimulated saliva sample was collected during a three-day visit to the Armed Forces Dental Centre and cultured onto Trypticase-Yeast Extract-Cysteine Sucrose-Bacitracin agar. The number of bacterial colony was counted manually and bacterial identification was confirmed by using API 20 Strep kit. The total number of oral bacterial colony (CFU/ml) was measured before intervention (Day-1), Day-7 and Day-14. The Repeated Measures ANCOVA was utilised to determine the differences in means within, between and within-between groups.

Results: The majority of the participants were between 20 to 35 years of age (72.9%), male (92.8%) and among other military ranks (95%). There was no significant difference of overall mean age ($P = 0.324$), DMFT ($P = 0.356$) and missing component ($P = 0.274$) of the DMFT index between groups. However, there was a significant difference of mean for the decayed teeth ($P = 0.009$) and filled teeth ($P = 0.022$). There was no association between groups for age group, gender and military ranks. The present study showed significant difference of mean oral streptococci colony counts in all time comparison in treatment group however, there was no significant difference in all comparison in control group. Between groups and time-group effect analysis showed a significant difference of mean oral streptococci colony counts between groups regardless of time and based on time respectively. The difference was also significant after decayed and filled teeth are controlled.

Conclusion: Rinsing of alcohol-free chlorhexidine mouthwash was found to have significant positive effects on reduction of oral streptococci colony counts. This mouthwash may be employed as an adjunct to mechanical method of preventive measures among the Malaysian Army personnel.

Supervisor:

Professor Dr Syed Hatim Noor

Co-supervisor:

Associate Professor Dr Azizah Yusoff

Associate Professor Dr Zeehaida Mohamed

A PROSPECTIVE COHORT STUDY ON THE EFFECT OF INTER-VISIT OCULAR PERFUSION PRESSURE ON SEVERITY AND PROGRESSION OF GLAUCOMA

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Introduction: Ocular perfusion pressure (OPP) is the pressure difference between blood pressure (BP) and intra-ocular pressure (IOP). Low OPP has been known as a risk factor and associated with severity of glaucoma. Previous studies reported the association of 24 hours OPP. The 24 hours OPP is not practical in clinical setting and difficult to associate with long term progression. Inter-visits OPP is easily conducted during follow up visit.

Objectives: To determine the association between 12 months inter-visits OPP with severity and progression of glaucoma.

Methods: A prospective cohort study was conducted involving POAG, NTG and PACG patients. Baseline BP and IOP were taken at the recruitment and OPP was calculated mathematically. Weight, height, fasting lipid and sugar level was also measured. Ocular and systemic examination was conducted. Severity of glaucoma was based on modified Advanced Glaucoma Intervention Study (AGIS) score on Humphrey visual field (HVF) analysis 24-2 or 30-2 at baseline. Severity of glaucoma was divided into early, mild, moderate, severe and end stage. Patients were then followed up at 3, 6, 9, and 12 months. BP and IOP were recorded during the follow up visits. HVF was then conducted again at 12 months follow up. Patients were then divided again according to progression and non progression based on the different of AGIS score between baseline and 12 months follow up. Analysis was conducted using repetitive measure ANOVA.

Results: A total of 164 glaucoma patients (60 POAG, 52 NTG and 52 PACG) were recruited. There was statistically significant difference in mean OPP over 12 months follow up ($P = 0.015$). There was significant difference of IOP ($P = 0.025$) and systolic BP ($P = 0.011$) over 12 months follow up. There was also significant difference of mean OPP between PACG and POAG ($P = 0.022$) and between PACG and NTG ($P = 0.019$). Mean OPP ($P = 0.010$), systolic OPP ($P = 0.020$), diastolic OPP ($P = 0.010$), systolic BP ($P = 0.040$) and diastolic BP ($P = 0.006$) was statistically significance according to severity of glaucoma. Patients with end stage glaucoma showed the lowest and widest fluctuation of inter-visit mean OPP. While those with early and mild glaucoma showed higher mean OPP compared to moderate and severe. A total of six patients showed progression of glaucoma (3 NTG and 3 PACG). Lower and wider fluctuation of mean OPP was observed in patients who progressed.

Conclusion: Inter-visit OPP is more practical clinically. Comparatively PACG showed significant lower mean OPP than POAG and NTG. There was also significant association of OPP and severity of glaucoma. It is recommended to measure BP during follow up visit especially those with end stage glaucoma. To prevent further progression, BP monitoring is also important in early stage of glaucoma especially in PACG patients.

Supervisor:

Associate Professor Dr Liza Sharmini Ahmad Tajudin

ACUTE CORONARY SYNDROME IN YOUNG PATIENTS IN HOSPITAL UNIVERSITI SAINS MALAYSIA AND FACTORS ASSOCIATED WITH ITS COMPLICATIONS

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Introduction: Coronary vascular diseases are the main causes of mortality and morbidity in Malaysia. In year 2006, the estimated incidence of acute coronary syndrome (ACS) in Malaysia was 141 per 100,000 populations, and the inpatient mortality rate was approximately 7%. Although ACS occurs mainly in older patients, about 5–10% of cases occur in young patients aged less than 45 years old causing considerable morbidity and affecting the quality of life in their most productive life. Studies on ACS in young patients in Malaysia are limited and thus the result of this study will hopefully be applicable for further reference and research for the benefits of patients.

Objectives: This study was aimed to identify the characteristics, treatment and complications of ACS in young patients aged less than 45 years old admitted in Hospital Universiti Sains Malaysia (HUSM) and the factors associated with its complications.

Methodology: This study was a retrospective record review. Young patients aged less than 45 years old who diagnosed with ACS and admitted to HUSM between 1st of January 2002 to 31st of December 2012 who fulfilled the inclusion and exclusion criteria were included in the study. The data information were collected using a checklist performed by researcher consisted of socio-demography, medical history, clinical presentation, laboratory investigation and diagnosis, treatment and complications. Simple and Multiple logistic regressions were used for data analysis.

Results: A total of 147 patients were enrolled, with mean (standard deviation) age of 39.1 (4.97) years and male to female ratio of 3:1. Of total sample, 64.6% were diagnosed as unstable angina, 15.6% as non ST elevation myocardial infarction and 19.7% as ST elevation myocardial infarction. The most frequent risk factors of ACS were dyslipidaemia (65.3%), followed by hypertension (43.5%), current smoking (42.9%) and heart disease (29.9%). Most patients treated medically with 91.8% patients received aspirin and statin, and 86.4% received clopidogrel while streptokinase were prescribed in 11.6% of patients, heparin in 46.3% and fondaparinux in 52.4%. There were 73 patients (49.7%) had complication(s) of ACS with the most common were heart failure, (35.4%) followed by arrhythmia (20.4%) and pulmonary oedema and cardiogenic shock (both 13.6%). Current smokers [adjusted odds ratio (AOR) 4.03; 95% confidence interval (CI): 1.33, 12.23; $P = 0.014$], diabetic mellitus [AOR 3.03; 95% CI: 1.19, 7.71; $P = 0.020$], and pharmacological treatments of fondaparinux [AOR 0.18; 95% CI: 0.08, 0.39; $P < 0.001$] and oral nitrates [AOR 0.18; 95% CI: 0.08, 0.42; $P < 0.001$] were the significant associated factors for complications of ACS in young patients admitted in HUSM when other variables were controlled.

Conclusion: In conclusion, there was high prevalence of established cardiovascular risk factors in which indicating the importance of primary prevention. Most patients

treated medically and heart failure was the most common complication. Smoking status and diabetes mellitus were the significant risk factors while pharmacological treatment of fondaparinux and oral nitrates were the significant protective factors for complications in ACS in young patients admitted in HUSM.

Supervisor:

Associate Professor Dr Norsa'adah Bachok

EFFECT OF STRESS ON COPING STRATEGIES AMONG PARENTS WITH CLEFT LIP AND PALATE CHILDREN IN KOTA BHARU

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Introduction: Cleft Lip and Palate (CLP) is a common congenital anomaly that affects newborns. Parents as a caregiver experience elevated stress as a result of physical and emotional disabilities of their child would require for coping strategies.

Objectives: This research was aimed to determine the effect of stress on coping strategies among parents with CLP children with adjustment of academic levels of respondents, number of children, gender of child and type of cleft.

Methods: A cross-sectional study was conducted among 84 parents of CLP children from Combined Cleft Unit at Dental Clinic and Hospital Raja Perempuan Zainab II, Kota Bharu. Guardians and parents with disability and mental illness were excluded. Stress and coping were assessed using Depressive, Anxiety and Stress Scale-42 and Malay COPE Inventory questionnaires, respectively. COPE questionnaire consists of Problem Focus, Emotion Focus and Less Useful domains. Analysis was done using Multivariate Analysis of Covariance (MANCOVA).

Results: The mean age of respondents was 35.5 (Standard Deviation 7.4) years old. All respondents were Malay and married and 71% were mothers. The prevalence of stress was 21.4% [95% Confidence Interval (12.4, 30.4)]. There was a significant difference of the mean of overall coping between stressed and non stressed parents with the adjustment of academic level of respondents, number of children, gender of child and type of cleft [MANCOVA, Pillai's Trace F statistic (df) = 4.174 (3,74), $P = 0.009$]. When the results for the dependent variables were considered separately, there were significant difference in mean of problem focus, [$P = 0.046$] and less useful coping strategy [$P = 0.003$] after Bonferroni adjustment. The stressed parents used lower levels of Problem Focus coping and higher Less Useful coping strategies compared to the non stressed parents when Bonferroni correction was applied. The overall P value became smaller after the adjustment for confounders and covariate.

Conclusion: Stress had an effect on the preference of coping strategies of parents of with CLP children. These findings could contribute to the development of effective interventions to aim at facilitating effective coping strategies that are appropriate to the parents of CLP children and also facilitating the preparation of psychologists and social support teams should be available for the parents of CLP children.

Supervisor:

Associate Professor Dr Norsa'adah Bachok

Co-Supervisor:

Dr Aniza Abd Aziz

Associate Professor Dr Normastura Abd Rahman

ROLE OF NASAL IRRIGATION BY USING ALKALINE NASAL SOLUTION IN ALLERGIC RHINITIS TREATMENT AS AN ADJUNCT THERAPY

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Introduction: Nasal irrigation is an important component in the management of upper respiratory tract diseases. Alkaline nasal solution plays vital role as an adjunctive therapy in the treatment of allergic rhinitis. Unfortunately, there still exists lack of evidence and practice regarding usage of alkaline solution as nasal irrigation in allergic rhinitis treatment.

Objectives: The aim of this study was to determine the effectiveness and role of nasal irrigation by using alkaline solution with any changes in nasal or non-nasal symptoms in the treatment of allergic rhinitis as an adjunct therapy. Besides, this study also analysed for any side effects of alkaline nasal solution following its usage for the treatment of allergic rhinitis.

Methods: This was a prospective, randomised control trial in which a total of 64 patients recruited from HUSM and divided into test group (n = 32) and control group (n = 32). These patients confirmed suffering from allergic rhinitis with the presence of positive skin prick test. Then these patients of both groups, their symptoms will be assessed with a standardised and validated symptom score questionnaire pre- and post- study. Their symptoms were evaluated based on nasal and non - nasal symptoms. The test group had been given alkaline nasal solution as nasal irrigation for the period of 6 weeks along with regular nasal spray and antihistamine. Furthermore, the control group was given only the nasal spray and antihistamine for 6 week duration. During this study period, assessments of any adverse effect by usage of alkaline nasal solution as nasal irrigation in the test group subjects were also analysed.

Results: This study shows most of the sample subjects were middle age (21–40 years) and active earning group in

which their daily routine and quality of life are strongly related to their allergic rhinitis symptom control. Most of the subjects were grouped into moderate/severe persistent allergic rhinitis. Furthermore majority of subjects in this study were allergic to house dust mite. This study shows statistically significant nasal symptom improvement in nasal discharge, nasal itchiness and sneezing among the Test group. There were no side effects noted in the usage of alkaline nasal solution during the study. Therefore alkaline nasal solution as nasal irrigation in the treatment of allergic rhinitis is beneficial.

Conclusion: Nasal irrigation is a simple mode of treatment that relieves the symptoms with no documented adverse effects. Alkaline nasal solution as nasal irrigation has better effect on patient's nasal symptoms and improves quality of life. Nasal irrigation techniques are simple and easily taught in primary health care. Moreover alkaline nasal solution is an important component in the management of allergic rhinitis as an adjunct therapy.

Supervisor:

Associate Professor Dr Baharudin Abdullah

Co-Supervisor:

Dr Rushdan Ismail

A RANDOMIZED TRIAL ON HAEMODYNAMIC CHANGES DURING INTUBATION USING AIRTRAQ® AND MACINTOSH LARYNGOSCOPE

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Introduction: Sympathetic response is associated with laryngoscopy and intubation. Such response can be hazardous to patients with poor physiological reserve. Many research and development were done to look for the best way of obtunding this response. New laryngoscopes like Airtraq® laryngoscope were designed to improve the process of intubation and thus reduces sympathetic response secondary to laryngoscopy and intubation.

Objective: To compare the sympathetic response and immediate complication of endotracheal intubation using Airtraq® and Macintosh laryngoscope, which are then analyzed to determine if the newer Airtraq® laryngoscope is an inferior, equal or superior alternative to the mainstay Macintosh laryngoscope.

Methods: This is an experimental, prospective, stratified, single blind randomized study. 142 patients who had fulfilled the inclusion and exclusion criteria were allocated into Airtraq® and Macintosh group according to age group, 18–29, 30–39, 40–49, and 50–59. sBP, dBP, MAP and HR of patients at baseline, during intubation, 1, 2, 3, 4, and 5 minutes post-intubation were collected and compared. Complications associated with laryngoscopy and intubation were observed in

this study too.

Result: Statistical analysis using mean (SD) and ANOVA test were performed on the data obtained. Data was compared in general, age group below 40 years old and age group above 40 years old. In general, there was significant difference within group for both Airtraq® and Macintosh groups for sBP, dBP, MAP ($P < 0.001$). However, there was no significant different between and within-between group for sBP, dBP, MAP and HR. Pressure response was significant different within and between groups for age group more than 40 years old ($P < 0.05$) and the changes were more than 20.0% from the baseline in Airtraq® group. No significant different in HR between 2 groups and the changes were less than 20.0% in all age groups.

Conclusion: Airtraq® laryngoscope causes less sympathetic stimulation during laryngoscopy and intubation. It is suitable to use in elder patients and those which exaggerated sympathetic response during laryngoscopy can be hazardous.

Supervisor:

Associate Professor Dr Mahamarowi Omar

Co-Supervisor:

Dr Lily Ng Mooi Hang

HEALTH EDUCATION VIA AUDIO-CLIPS: A PILOT STUDY ON PUBLIC RECEPTION IN KELANTAN, MALAYSIA

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Introduction: Whilst perinatal mortality in Malaysia had been decreasing rapidly for the past two decades, the rate in Kelantan has been relatively static for the past ten years, which are around 10 per 1000 births. Health education of parents may be a crucial factor in resuming the decline in perinatal mortality for this state.

Objectives: The aim of this study was to determine the suitability and efficacy of using audio clips to convey two important health messages related to prevention of perinatal mortality.

Methods: Two audio clips were designed by health experts in paediatrics on two issues namely (i) seeking early medical help if abdominal pain occurs at any time during pregnancy, and (ii) the importance of taking folic acid. The audio clips were played in the paediatric and O&G clinics and feedback was sought from consented participants who listened to the clips. The participants' knowledge about the two topics was determined by a pre and post-test. All assessment tools were developed by a panel of experts and underwent pretesting after which appropriate modifications were made. Listeners' feedback on the audio-clips was reported using descriptive

statistics while the pre and post-test knowledge was analysed using Mc Nemar analysis.

Results: The majority of the 175 participants were female (88.6%) and the mean age was 31.5 (SD = 8.23). Half of them attended university or college (52.0%) and 45.7% completed secondary level of education. More than 90% of participants expressed good satisfaction about the understanding, attractiveness, usefulness, and quality of the audio-clips. Almost 94% of them did not agree that the audio-clips were disturbing to them. With regard to the level of knowledge related to health messages they had listened to, there was a significant increased of percentage of correct answer post audio clip in all 8 questions asked (i.e. $P < 0.001$ in 7 questions). In addition, the mean confident level towards the role of folic acid for prevention of lethal congenital malformation post intervention was also significantly increased ($p < 0.001$).

Conclusion : This study suggests that audio clips may be a suitable and effective mode for health education about important perinatal issues.

Supervisor

Professor Dr Hans Van Rostenberghe

Co-supervisor

Dr Azizah Othman

Associate Professor Dr Noraida Ramli

Dr Nor Rosidah Ibrahim

Dr Azriani Ab Rahman

ASSOCIATIONS BETWEEN GENDER, YEAR OF STUDY AND EMPATHY LEVEL WITH ATTITUDES TOWARDS ANIMAL WELFARE AMONG UNDERGRADUATE DOCTOR OF VETERINARY MEDICINE STUDENTS IN UNIVERSITI PUTRA MALAYSIA

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Introduction: Attitudes towards animal welfare are important in influencing how animals are treated. Studies of attitudes towards animal welfare in veterinary students are scarce.

Objectives: The study is to determine the associations of gender, year of study and empathy level of undergraduate DVM students in UPM with their attitudes towards animal welfare. It is hope that the findings will enhance a diverse research in the future in order to explore variety of factors in relation to animal welfare since such study is currently limited. Furthermore, it is hope that the finding could contribute to the development of teaching- learning of animal welfare.

Methods: Questionnaires were given to 440 Doctor of Veterinary Medicine undergraduate students in Universiti

Putra Malaysia to study the association between gender, year of study and empathy level with attitudes towards animal welfare. Data were collected from respondents through two sets of self-guided questionnaires; Interpersonal Reactivity Index (IRI) which assessed empathy level where only two sub-scales from the IRI which were Empathic Concern (EC) and Perspective Taking (PT). Animal Attitude Scales (AAS) were used to assess attitudes towards animal welfare.

Higher scores in IRI and AAS will indicate good empathy level and pro-animal welfare respectively. Ethical approval had been sought from the Ethics Committees in USM prior to the study and the consent from the students was obtained before they attended the questionnaires. Data collected were analysed using Statistical Package for Social Science (SPSS) version 20.

Results: 367 (83.4%) out of 440 students participated in this study. Anti-animal welfare attitude (74.9%) was the highest compared to the pro-animal welfare attitude (25.1%). Analysis showed a significant difference ($P < 0.05$) between year of study and attitudes towards animal welfare ($P = 0.001$), however, there was no significant differences ($P > 0.05$) between gender and attitudes towards animal welfare ($P = 0.057$) as well as between empathy level and attitudes towards animal welfare for the empathic concern sub-scale ($P = 0.194$) and perspective taking sub-scale ($P = 0.320$).

Conclusion: Majority of students were categorized as anti-animal welfare and the attitude were significantly different among years of study. Female and male students have no significant difference in their attitudes towards animal welfare, however, females students were the majority in the pro-animal welfare category. Students with good and poor empathy level also have no significant difference in their attitudes towards animal welfare. Nevertheless, the number of students who possess good empathy level outnumbered those with poor empathy level.

Supervisor:

Dr Nik Mohd. Rizal Mohd Fakri

Co-supervisor:

Dr Mohamad Najib Mat Pa

Dr Ahmad Fuad Abdul Rahim

ROLE OF PREEMPTIVE GABAPENTIN ON POST OPERATIVE ANALGESIA IN LOWER LIMB ORTHOPAEDIC SURGERY

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MMed (Anaesthesiology)

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Introduction: Pain is a main complain given by post operative patients. Various drugs have been used in attempts to improve this post operative pain. However each methods

and drugs have their own limitation and adverse effects. Pre-emptive gabapentin 900 mg can be used to reduce pain intensity post operatively. In this study we evaluate the ability of this drug in reducing additional pain requirement post operatively by giving gabapentin perioperatively.

Objectives: The objectives of this double-blinded, randomized study were to look the ability of gabapentin in controlling post operative pain and to compare the need of additional analgesia for post operative patient in patient pre-treated with placebo and dosage of gabapentin 900 mg.

Methods: Ninety patients, ASA physical status I or II, undergoing elective lower limb orthopaedic surgery were selected and divided into two groups to receive either placebo or gabapentin pre-operatively along with premedication. Operation will be performing under spinal anaesthesia using 0.5% heavy marcain to the cerebrospinal fluid. Selected parameters like heart rate, systolic and diastolic blood pressure and sedation score were recorded prior to anaesthesia. Post-anaesthesia, heart rate, systolic and diastolic blood pressure was monitored every minute for 3 minute using non invasive blood pressure (DINAMAP). Postoperatively patient will be given patient control analgesia (PCA) machine containing morphine for pain control. Pain score will be recorded after operation at recovery room and 1 hour, 4 hour, 6 hour and 12 hour post operatively. Patients were also monitored for complication such as headache, nausea and vomiting.

Results: The result in this study showed that increasing morphine requirement post operative in both group but in the gabapentin 900 mg group need less morphine compare to placebo group (12 percent reduction in total morphine requirement in 12 hour). Percentage of patient in placebo group that need a rescue drug post operative also high as compare to gabapentin group. Pain score in gabapentin group also lower as compared to placebo group.

Conclusion: In conclusion, this study shown that the pre-emptive gabapentin 900 mg was able to reduce post operative morphine requirement, lower the pain score and reduce the need for additional analgesia post operative.

Supervisor:

Associate Professor Dr Shamsul Kamalrujan

Co-Supervisor:

Dr Ahmad Nizam Alias

A STUDY OF EFFECTIVENESS OF ALFUZOSIN IN BENIGN PROSTATIC HYPERPLASIA PATIENTS DURING PROSTATE AWARENESS CAMPAIGN IN YEAR 2006-2009 IN HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM)

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MMed (General Surgery)

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Introduction: Benign prostate hyperplasia is a common benign disease in men after age of 50. Its prevalence is about 19 to 30%. It is not a life threatening disease, but it does significantly reduce the quality of life in both men as well as their opposite partner. This condition affects the men in their daily routine activities, as well as their sexual lifestyle. The symptoms bothering the patients and disturbing their sleep are termed as Lower Urinary Tract Symptom (LUTS). These symptoms are recorded by using an objective scoring system, International Prostate Symptoms Score (IPSS) which was validated by World Health Organization (WHO). It contains seven questions and with scores of 0 to 5 for each question. Sum of all the scores will determine how severe the LUTS is. Although it is a bothersome disease, it is also a treatable disease. It can be treated either medically or surgically. The aim of this study is to find out how effective is the medication- Alfuzosin (Xatral) in this disease.

Objectives: In this study, we aim to determine the epidemiology and how effective is medical (Alfuzocin) treatment in BPH disease among the HUSM patients, since Hospital Universiti Sains Malaysia (HUSM) provides treatment to populations in Kelantan state which include Malay, Chinese, Indian and other races. We hope the data from this study can be a pilot study for ensuing studies in bigger populations involving the other states of Malaysia.

Methods: It is a cross sectional study, the patients diagnosed as BPH from year 2006 to 2009 were recruited. A total of 307 who fulfilled the inclusion and exclusion criteria were included in the study. Patients who were recruited will be contacted by phone and appointment will be given, new set of IPSS and uriflow rate (Qmax) will be obtained and recorded during the interview. The data will be compared with the data prior to initiation of treatment and the result will be analysed using SPSS version 19.

Results: The medical treatment outcome using Alfuzosin was compared with pre- and post-treatment using IPSS, Qmax. The data was analysed using two means paired t-test and the results are significantly different in the two test groups. The means of IPSS improved significantly from 15.55 to 5.53 ($P < 0.001$) and means Qmax from 11.74 to 14.51 ($P < 0.001$). In the study group, 2% of the study population presented with acute urinary retention, which was resolved after starting on Alfuzosin; no others study patients presented with acute urinary retention during the period of study. The result also showed that serum prostate specific antigen levels decreased in patients on medical treatment from 4.69 ng/mL to 3.33 ng/mL ($P < 0.001$).

Conclusion: Benign prostatic hyperplasia although a benign condition, interferes with the normal life style of the patients so does the other partner. By initiating medication- Alfuzosin, it significantly reduces the lower urinary tract symptom as well as improved the urine flow rate. From these result, it showed that Alfuzosin is an effective medication in treating this disease- Benign Prostatic Hyperplasia, hence improving the patients as well as their partner in term of quality of life.

Supervisor:
Dr Mehboob Alam Pasha

COMPARISON OF TIMI AND GRACE RISK SCORES IN PREDICTING ANGIOGRAPHIC FINDINGS IN PATIENTS WITH NSTEMI OR UNSTABLE ANGINA

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MMed (Internal Medicine)

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Introduction: Thrombolysis in Myocardial Infarction (TIMI) and Global Registry of Acute Coronary Events (GRACE) risk scores are used for prognostication and to identify patients at high risk of non ST-segment elevation acute coronary syndrome (NSTEMI-ACS). While numerous reports have revealed that TIMI risk score are correlated with severity of coronary artery disease (CAD), however no study has been done to assess correlation of GRACE risk score with extension of CAD. Currently only few studies that assessed the relation of TIMI and GRACE risk scores with the angiographic findings.

Objectives: To compare the TIMI and GRACE risk scoring systems in discriminating the significant coronary artery disease.

Methods: A retrospective study was done by reviewing NSTEMI-ACS patients' folders that have undergone coronary angiogram in invasive cardiac lab (ICL), Hospital Universiti Sains Malaysia (HUSM). TIMI and GRACE risk score were calculated for each patient and their demographic as well as clinical data were assessed using simple logistic regression to look for their association with the outcome of significant coronary artery stenosis (Stenosis $\geq 70\%$ in any of major epicardial artery or $\geq 50\%$ stenosis of left main artery) and three vessel disease (stenosis $\geq 70\%$ involved all three major coronary arteries). Any factors with P value ≤ 0.25 will be included in multivariable analysis. TIMI and GRACE risk scores performance were measured by c-statistic and determined their area under receiver-operating characteristic (ROC) curve.

Results: One hundred ($n = 100$) samples data were obtained and analysed. The mean TIMI and GRACE risk score were 2.72 ± 1.42 and 119 ± 37.3 . Neither of the risk scores could predict the significant coronary artery stenosis. However for the outcome of three vessel disease, TIMI and GRACE showed significant correlation (TIMI $P = 0.037$ and GRACE $P < 0.001$). C-statistic showed that GRACE (area under the ROC curve = 0.779; 95% CI = 0.656 – 0.901) performed better than TIMI (area under the ROC curve = 0.597; 95% CI = 0.453–0.741) risk score in predicting three-vessel disease.

Conclusion: TIMI and GRACE risk scores cannot predict the significant coronary stenosis. For three-vessel disease, both risk scores showed significant correlation,

however GRACE risk score performed better than TIMI risk score in predicting three-vessel disease.

Supervisor:
Associate Professor Dato' Dr Zurkurnai Yusof
Co-Supervisor:
Dr Ng Seng Loong

A QUANTITATIVE AND CLINICAL STUDY OF PHOTOGRAPHING CT FILMS OF HEAD INJURIES

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MMed (Radiology)

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Introduction: Digital capture of radiographic film is used for transmission of radiological studies between geographically distant locations, usually for purpose of consultation. This is necessary in centres without proper teleradiology facilities. Quantitative and clinical aspects need to be considered as digital capture is a lossy procedure. Traumatic brain injury (TBI) is a neurosurgical emergency that commonly presents to hospitals without neurosurgeons. The lack of proper teleradiology infrastructure results in the use of digital capture of printed head CT images for transmission purposes. We quantitatively study the modulation transfer function (MTF) of one method (digital photograph of a printed CT film) and assess the clinical impact of any missed findings.

Method: Part 1: Using a slanted edge template printed on radiographic film mounted on a viewbox, photographs are taken and the MTF is calculated for various settings. Part 2: Eighty-four head CTs were collected retrospectively and printed onto radiographic film. Photographs were taken at high-quality (digital SLR camera at moderate resolution and compression) and low-quality (phone camera at its highest resolution). Findings were evaluated by a radiologist and any discrepancies were assessed by a neurosurgeon to determine change in emergent management.

Results: Factors adversely impacting the MTF curve were camera type (DSLR performed best, followed by compact camera and phone camera), resolution, compression and ISO setting. Ambient lighting and viewbox luminance had no effect on the MTF curve. The rates of missed findings were 42.9% and 68.8% for the high- and low-quality photographs respectively. Clinically significant discrepancies determined theoretically, likewise, were 6% and 10.7% respectively. The significant findings most often missed were subdural haemorrhage and temporal contusions.

Conclusion: Higher-quality camera and settings demonstrate better performance. Digital capture of printed CT film for TBI using a digital camera can result in theoretically significant discrepancies which need further studies assessing actual patient outcome.

Supervisor:
Dr Win Mar @ Samlah Jalaludin
Co-Supervisor:
Associate Professor Dr Wan Ahmad Kamil Wan Abdullah
Dr Abdul Rahman Izaini Ghani

THE PREVALENCE OF ASPIRIN RESISTANCE IN DIABETIC PATIENTS AND ITS ASSOCIATED FACTORS

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MMed (Internal Medicine)

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Introduction: Aspirin resistance posed major dilemma in preventing cardiovascular disease and stroke. There are many factors that associated aspirin resistance. Among the factors, the inflammatory process in diabetes and glycemic control has been significantly associated with aspirin resistance.

Objectives: Thus, our study aims to look at the prevalence of aspirin resistance and its associated factors.

Methods: The study was a cross sectional and interventional study was performed from Oktober till November 2012 in HUSM. 69 diabetic patients who were on aspirin were enrolled. Glycosylated hemoglobin (HbA1c) and C-reactive protein (CRP) levels were taken. Thromboelastography (TEG) level was measured using TEG machine by a trained technician employing standard methods. The variables obtained were analyzed for prevalence of aspirin resistance, HbA1c, CRP and TEG level. Chi-square test (and Fisher exact test where applicable) were used to evaluate the associations between aspirin resistance with glycemic control (HbA1c) and inflammatory marker (CRP).

Results: Out of the 90 subjects screened, 69 were enrolled in the study. The prevalence of electrophysiological abnormalities was 17.4% (95% CI 9.3, 28.4). The glycemic control (HbA1c) and inflammatory marker (CRP) were not associated with aspirin resistance.

Conclusion: Aspirin resistance was prevalent in our study populations and it was comparable to other studies. The mean HbA1c in aspirin resistance group was 8.9%, while in aspirin sensitive group 8.6%. There was no significant difference of HbA1c between the two groups. There was no significant association between CRP level with aspirin resistance.

Supervisor:
Dr Sanihah Abd Halim
Co-Supervisor:
Dr Shalini Bhaskar

PROSPECTIVE RANDOMIZE CONTROL TRIAL BETWEEN SINGLE SKIN CLEANSING AND DOUBLE SKIN CLEANSING FOR PREVENTION OF CAESAREAN WOUND INFECTION AT HOSPITAL SULTANAH BAHYAH ALOR STAR

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MMed (Obstetric & Gynaecology)

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Introduction: Caesarean section is a common operation on pregnant women and globally increasing in prevalence including in many hospitals in Malaysia. An increase in the incidence of caesarean section was associated with an increase in maternal post-operative infection. Post-partum infectious complications occur more frequently following caesarean sections compared to vaginal deliveries. A reduction in surgical site infections is one of the goals of the World Health Organization's Safe Surgery Saves Lives program (Alex et al; 2009) and appropriate skin antisepsis is one of the care initiatives designed to reduce surgical site Infection. It is difficult to predict that which laboring mother who is might need to undergo emergency caesarean section as mode of delivery. This research is attempted to imply as modification technique of pre-operative antiseptic shower in prevention of post-operative caesarean infections.

Objectives: The aim of the study is to determine the outcomes of the effectiveness of double skin cleansing technique as method of prevention for post-partum maternal caesarean section infection compare to single skin cleansing technique. This study also is to determine the factors that may contribute to increase risk of caesarean wound infection.

Methods: This is a prospective randomise control trial study which is carried out in the Obstetrics and Gynecology Department, Hospital Sultanah Bahiyah Alor Star from June 2009 to May 2010. Women who are eligible and fulfilled the criteria of the study are recruited. After obtained their informed consent, they are assigned to one of the two groups. Randomization performed by asking the patients to choose one of two envelopes which contained Group '1' or '2'. Patients who belongs to Group 1 received single skin cleansing alone (in the operation theatre) as their method of skin cleansing technique while those in Group 2 received two steps of skin cleansing, where the first skin cleansing done in the ward while the second cleansing done in operation theatre. The progress of the outcomes of caesarean wound infection followed up. All the recruited mother were advised to come for follow up to post-natal clinic at two weeks post-partum for wound healing assessment and telephone call made in case of failure to come for follow up. Post- caesarean section wound outcomes were assess and all the data entry and analysis were carried out using the social science and statistical packaged (SPSS) version 18. A *P* value of less than 0.05 was considered statistically significant.

Results: Number of patients enrolled in this study was 630. Majority of the study group had elective ceasarean section for malpresentation, previous history of two caesarean section and refused vaginal birth after caesarean section. There are significant risk factors which are contributed to caesarean wound infection such as previous abdominal surgery (3.7% in one surgery, rise to 18.1% in two or more previous abdominal surgery, *P* value < 0.05), subcuticular tissue thickness > 4 cm (wound infection rate 9.2%, compare to only 6.3% in patient with subcuticular tissue 2–4 cm, *P* value < 0.01,, maternal weight with *P* value 0.05, and diabetes in pregnancy with *P* value 0.01). There are significant differences outcomes of post caesarean wound in relation to duration of surgery after implementation of double skin cleansing in comparison to single skin cleansing method.

Conclusion: Double skin cleansing technique is an independent factor for prevention of post-caesarean wound infection. Few risk factor for post caesarean wound infections are previous number abdominal surgery, maternal weight more than 100 kg and subcutaneous tissue thickness more than 4 cm. Double skin cleansing technique is an effective method for prevention of caesarean wound infection. Implementation of double skin cleansing in risk factors group and prolonged surgery durations has significantly reduce post-caesarean wound infection.

Supervisor:
Dr Mohd Pazudin Ismail
Dr Mohd Rushdan Md Noor

A STUDY OF ASSOCIATION OF THE MALAY VERSION OF COPD ASSESSMENT TEST (CAT) WITH GOLD GRADE AND CARDIOVASCULAR CO-MORBIDITIES AMONG CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) OUTPATIENTS IN KOTA BHARU KELANTAN

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MMed (Internal Medicine)

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Introduction: COPD Assessment Test (CAT) is a simple, patient-completed questionnaire to assess clinical impact of COPD on patient's general health.

Objectives: The main aim of this study was to determine the association between CAT in Malay version with GOLD grade, cardiovascular co-morbidities and frequency of acute exacerbation among COPD outpatients in Kota Bharu, Kelantan. The secondary objective was to determine COPD severity by using CAT score, GOLD grade and COPD group. Prior to that, a pilot study had been done to validate CAT in Malay version.

Methods: 95 eligible and consented patients from Hospital Universiti Sains Malaysia (HUSM) and Hospital Raja

Perempuan Zainab II (HRPZII) were recruited. They filled in CAT questionnaire and then performed spirometry test. For those with history of cardiovascular diseases, previous angiogram, echocardiogram (ECHO) and electrocardiogram were reviewed. Meanwhile, 24 COPD outpatients who were not involved in the main study participated in the pilot study.

Results: CAT score was significantly associated with GOLD grade with P value = 0.011. The association between CAT score with cardiovascular co-morbidities and frequency of acute exacerbation were not significant with P value 0.292 and 0.119 respectively. Most participants had moderate CAT score (50.5%) with severe airflow limitation – GOLD grade 3 (42.1%). However, when combined COPD assessment was applied, majority were in group D (55.8%). The pilot study showed that the Malay version of CAT questionnaire had high internal consistency and reliability with Cronbach's alpha coefficient of 0.867.

Conclusion: CAT in Malay version was significantly associated with GOLD grade but insignificantly associated with cardiovascular co-morbidities and frequency of acute exacerbation within a year. Combined COPD assessment is important to precisely categorize the COPD severity.

Supervisor:

Dr Mat Zuki Mat Jaeb

Co-Supervisor:

Dr Wan Mohd Izani Wan Mohd

Dr Nani Draman

DETECTION OF DNA PLOIDY AND PROLIFERATIVE PHASE IN ACUTE LEUKAEMIA USING FLOW CYTOMETRY

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MPath (Haematology)

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Introduction: DNA analysis using flowcytometry got prognostic implication. Using DNA index (ratio of DNA content between leukaemic and normal cells) to evaluate the ploidy status and analysis of cell cycle give helpful information about proliferative activity of cell population of interest. In acute lymphoblastic leukaemia, children with higher ploidy (> 50 chromosomes) carry best prognosis while children with hyperdiploidy (47–50 chromosomes) have intermediate prognosis and those with hypodiploidy have relatively poor prognosis. The prognosis for other ploidy groups shows variation between different studies. The finding of low percentage of blast cells in S-phase among patients with standard risk features who fail induction has interesting theoretical implications.

Objectives: This study was conducted to determine DNA ploidy and S-phase fraction (SPF) in newly diagnosed acute leukaemia using flow cytometry analysis for propodium

stained blasts either from bone marrow or peripheral blood and to correlate these parameters with remission status after induction chemotherapy.

Method: A total of 61 patients diagnosed with de novo acute leukemia of all age groups were included in this study, diagnosed in HUSM within two years duration. 33 patients were diagnosed as AML and the remaining 28 were diagnosed as ALL. The diagnosis was based on peripheral blood and bone marrow examination for morphology, cytochemistry and immunophenotypic studies. DNA analysis using flowcytometry was performed to determine the presence of aneuploidy cells and the percentage of cells in S-phase using BD FACScanto system.

Result: Aneuploidy was detected in 49 (80.3%) cases: 36 (59%) hyperdiploid and 13 (21.3%) cases hypodiploidy. Cell cycle analysis showed that majority of cases 38 (62%) had low S-phase fraction and 23 (37.7%) high S-phase. The mean SPF was significantly higher in hypodiploid (6.9%) cases compared to non hypodiploid cases (P value < 0.05). 36 (59%) cases achieve remission, 16 (26%) cases didn't achieve remission and another 9 (14.7%) didn't go for induction chemotherapy. Simple and multiple logistic regression showed no significant association between either ploidy or SPF with remission status.

Conclusion: DNA aneuploidy has no effect on remission status after induction therapy nor S-phase percentage has prognostic impact on acute leukaemia. However, larger sample size may be needed in the future to confirm these findings.

Supervisor:

Dr Shafini Mohamed Yusoff

Co-Supervisor:

Associate Professor Dr Rosline Hassan

COMBINED EFFECTS OF EURYCOMA LONGIFOLIA JACK SUPPLEMENTATION AND A CIRCUIT TRAINING PROGRAMME ON BONE METABOLISM MARKERS, MUSCULAR STRENGTH AND POWER AND IMMUNE FUNCTIONS IN ADULT MEN

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MSc (Sport Science)

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Introduction: Although combination of physical activity with supplementation has being investigated on its effects in maintaining and enhancing bone health, muscular strength and immune functions, little is known about the effectiveness of combination of *Eurycoma longifolia* Jack supplementation and a circuit training programme on bone metabolism markers, muscular strength and power, and immune functions in adult men.

Objective: This study investigated the combined effects of 8 weeks *Eurycoma longifolia* Jack supplementation and circuit training programme on bone metabolism markers, muscular strength and power, and immune functions in adult men.

Methods: Forty adult male subjects (mean age: 46.80 ± 5.52 years), were age matched and subsequently assigned into four groups with n = 10 per group: Control group with placebo supplementation (C), *Eurycoma longifolia* Jack supplementation group (Elj), circuit training programme group with placebo (Ex), and combined circuit training programme with *Eurycoma longifolia* Jack group (EljEx). Circuit training programme consisted of 2 circuits of exercise, with 10 different exercise stations per circuit, three times per week for a total of 8 weeks. Subjects in C and Ex group consumed placebo, subjects in Elj and EljEx groups consumed *Eurycoma longifolia* Jack, 7 days/week for 8 weeks. Before and after 8 weeks of experimental period, subjects' anthropometry, muscular strength and power were measured. Blood samples were taken to determine bone metabolism markers and immune functions.

Results: EljEx could increase knee strength and power, shoulder flexion and extension power. Meanwhile, Ex alone could only increase knee strength and power, and shoulder extension power. These results suggested that combination of circuit training with *Eurycoma longifolia* Jack (EljEx) elicited more beneficial effect on muscular strength and power than circuit training alone (Ex). Regarding bone metabolism markers and immune function, parameters EljEx, Ex and Elj did not elicit positive effects on these measured parameters after 8 weeks of experimental period.

Conclusion: Combined *Eurycoma longifolia* Jack supplementation with circuit training programme has potential to be proposed for formulating guidelines in planning exercise and nutritional promotion programmes for the enhancement of muscular strength and power in adult men.

Supervisor:

Dr Ooi Foong Kiew

Co-Supervisor

Dr Chen Chee Keong

Dr Mohd Asnizam Asari

A PROSPECTIVE DIAGNOSTIC STUDY ON THE USE OF NARROW BAND IMAGING ON SUSPICIOUS LESIONS DURING COLONOSCOPIC EXAMINATION IN UNIVERSITI SAINS MALAYSIA

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MMed (General Surgery)

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Introduction: Colonoscopy is the gold standard to

detect colorectal neoplasm. There have been multiple attempts to improve diagnostic accuracy partly by image improvement and one of them is narrow band imaging. Based on published reports that NBI have the good diagnostic accuracy, the usage of NBI in differentiating neoplastic and non-neoplastic colorectal lesions was carried out in our hospital (HUSM) for the first time.

Objective: To explore the diagnostic validity of NBI colonoscopy as well as associated factors related to the neoplastic and non-neoplastic colorectal lesions.

Method: One hundred patients who came mainly for screening colonoscopy with variable lower gastrointestinal symptoms that have suspicious colorectal lesions were included in this study. Only one of the most suspicious lesions in each patient (n = 100) was analysed using NBI colonoscopy based on Sano's classification. These lesions were then either biopsied or resected for histopathological analysis. Endoscopic images were captured electronically and allocated for single reader evaluation. Sensitivity, specificity and diagnostic accuracy of the NBI colonoscopy was assessed by comparing it to histopathology results. Other associated factors related to neoplastic and non-neoplastic lesions were analyzed accordingly.

Results: ROC analysis showed that the sensitivity and specificity of the NBI were 88.2% and 71.9% respectively. The analysis also showed that the area under ROC was 0.801, indicating good level of discriminative ability of NBI to differentiate between disease and non-disease. Bowel preparation failed to reach significant association with NBI outcomes; therefore this study suggests that suboptimal bowel preparation is adequate to obtain good outputs of NBI colonoscopy. There were significant association between LOW and site of lesions to the HPE outcomes even after controlling other variables ($P < 0.05$).

Conclusion: Our study has shown that NBI system in colonoscopy was capable of distinguishing neoplastic from non-neoplastic colorectal lesions. It indicates an acceptable level of agreement with the gold-standard (i.e. HPE). However the role of NBI in screening and surveillance in Malaysia still need further evaluation and exploration.

Supervisor:

Dr Syed Hassan Syed Abdul Aziz

Co-supervisor:

Dr Andee Dzulkarnaen Zakaria

Dr Zaidi bin Zakaria

Dr Ikhwan Sani Muhamad

Dr Sharifah Emilia Tuan Sharif

COMPARISON BETWEEN USAGE OF WISH SPLINT AND 500 ML NORMAL SALINE BOTTLE TO FACILITATE RADIAL ARTERY CANNULATION

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Introduction: Arterial line is one of invasive monitoring that is useful intraoperatively and in critical care unit to provide beat to beat blood pressure monitoring and frequent blood gas sampling. The commonest site of choice is radial artery. Despite the common use and relative ease of radial artery cannulation, one must be knowledgeable of the potential risks involved. The purpose of our study is to assess whether wish splint can facilitate radial artery cannulation with least complication in comparison with normal saline bottle as wrist support

Objectives: To identify technique that facilitate radial artery cannulation and their associated complications.

Method: This prospective, randomised and single blinded study was done in 70 patient undergoing surgery under general anaesthesia and required invasive blood pressure monitoring intraoperatively. Pre-operatively, patients were assessed and Modified Allen Test was performed. Patients with negative Allen Test was taken as a subject and was put under general anaesthesia. Hands were randomised using simple randomisation either wish splint should be applied to the left or right hand and normal saline bottle was applied to the other hand. Each hand were cannulated using wish splint or normal saline bottle. Cannulation time, number of attempt, number of branula used, and complications i.e; radial artery spasm, hematoma, failed cannulation and more than one attempt were compared. Wrist circumferences and distances from elbow to tip of middle finger, blood pressure and heart rate were measured and recorded. Unused arterial line was removed and puncture site was compressed for 5 minutes

Result: There were no difference in gender, body mass index and medical illness. The blood pressure, heart rate, wrist circumferences and distances from elbow to tip of middle finger were similar in both group ($P > 0.05$). The duration of arterial line insertion in the bottle application was 26.4 seconds (SD 27.2) while in the wish splint application was 19.8 seconds (SD 19.1). There were a significant difference in mean time arterial line insertion between bottle and wish splint with P value of 0.005. No complication was observed for both groups except more than one attempt cannulation. 3 (4.3%) patients was attempted more than one time in wish splint and 6 (8.6%) patients in normal saline. No significant different in term of more than one attempt of cannulation with P value of 0.58.

Conclusion: Wish splint can fastened radial artery cannulation compared with normal saline bottle. Radial artery cannulation with wish splint has least complication, similar to cannulation with normal saline bottle.

Supervisor:

Dr Mohd Nikman Ahmad

Co-supervisor:

Associate Professor Dr Samsul Kamaruljan

QUALITY OF LIFE IN CHILDREN WITH EPILEPSY IN KELANTAN, MALAYSIA

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MMed (Paediatric)

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Introduction: The quality of life in children with epilepsy is important to be determined in order to improve quality of life in children with epilepsy. Quality of Life in Childhood Epilepsy (QOLCE) is validated and developmentally-appropriate questionnaire designed to measure paediatric epilepsy specific Health Related Quality of Life (HRQoL) for children age 4 to 18 years in many countries. This is the first report validating and assessing children with epilepsy using epilepsy specific and developmentally-appropriate questionnaires for children in Malaysia, which is QOLCE scale.

Objectives: The general objective is to study the quality of life in children with epilepsy in Kota Bharu, Kelantan. The specific objectives are: 1) to translate and linguistically validate the English version of Quality of Life in Childhood Epilepsy (QOLCE) into bahasa Malaysia version QOLCE questionnaires. 2) To determine the quality of life in children with epilepsy using linguistically validated bahasa Malaysia version QOLCE questionnaires.

Methods: There were 2 phases of study. The phase 1 was to linguistically validate the questionnaires QOLCE into bahasa Malaysia version. QOLCE is a parent form and linguistic validation included reliability test. Reliability test was determined by internal consistency using Cronbach's alpha. The validated bahasa Malaysia QOLCE version was applied to 220 parents of children with epilepsy aged 4-18 years who came to Paediatric Neurology Clinic in 2 tertiary hospitals; HUSM and HRPZ II. The phase 2 study was to determine the factors that contribute to the quality of life in children with epilepsy. There were 81 participants in this study. Independent t-test and one-way ANOVA were used to determine the mean difference in the scores of the subscales item. The patient's demographic characteristics were collected to determine the factors affecting the quality of life.

Results: Cronbach's alpha coefficient ranged from 0.7 to 0.93. The mean overall quality of life was 64.95 (13.23) and the scores which was significant ($P < 0.05$) affecting factors of children's quality of life include EEG findings, current educational status, mental development, number of anti epileptic drugs, compliance and epilepsy symptoms control.

Conclusion: Bahasa Malaysia QOLCE version was linguistically validated and the factors affected the quality of life in children with epilepsy were determined. Recognition of this will be helpful for professionals to treat disease and improve the QOL of childhood epilepsy.

Supervisor:
Dr Salmi Abd Razak
Co-Supervisor:
Dr Nor Azni Yahya

CARDIOVASCULAR FUNCTION PARAMETERS CHANGES: A NEW APPROACH OF ASSESSING HYPOVOLEMIC SHOCK CLASS I

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MMed (Emergency Medicine)

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Introduction: Trauma is an ever-increasing problem and it is the leading cause of morbidity and mortality in the under 40s age group in most developed countries and developing countries including Malaysia. In Malaysia, trauma is the third cause of admission to hospitals and sixth cause of death (Jamaluddin et al., 2008). Hypovolemic shock from acute hemorrhage is the predominant cause of acute intravascular volume loss requiring aggressive fluid resuscitation (Tintinalli, 2011). In class I hypovolemic shock, there is mild to moderate dehydration, meanwhile there are minimal changes with regards to the blood pressure, heart rate, pulse pressure and capillary refilling time (Schriger and Baraff, 1991; Spaniol et al., 2007).

Objectives: Early identification of hemorrhage is difficult when the bleeding site is not apparent. This study explored the potential use of the echocardiograph in the Emergency Department (ED) for detecting blood loss, by using blood donors as a model of controlled mild to moderate hemorrhage. The blood donation will create a similar scenario as in occult hypovolaemia, which cannot be detected by conventional monitoring. Few studies similar to the current research were found and most of them had been carried out in animals.

Methods: 31 healthy blood donors from HUSM/Blood bank were selected over a period of six months. The enrolled donors had their vital signs obtained and transthoracic echocardiographic measurements performed before and after blood donation in supine position. Echocardiographic examination includes measuring stroke volume, cardiac output, left ventricular volume and wall thickness and ejection fraction with Doppler, M-mode and Bi-plane approach. Each of velocity time integral, stroke volume, cardiac output, cardiac index and left ventricular volume in both diastole and systole, showed statistically significant reduction post-donation. The inter-ventricular septum and posterior wall thickness were significantly increased in both diastole and systole after blood donation.

Results: The ejection fraction was found to be increased in both M-mode and Bi-plane. However, the increment in M-mode was found to be statistically non-significant after the 15% loss of total blood volume with ($P > 0.05$). While

the ejection fraction (Bi-plane) increment was found to be statistically borderline significant with ($P = 0.049$).

Conclusion: The increased clinical yield provided by Doppler echocardiograph method should expand its applicability for measuring cardiac output in routine clinical practice especially in ED and early detection of hypovolemia and early fluid management to reduce morbidity and mortality.

Supervisor:
Dr Nik Arif Nik Mohamed
Co-Supervisor:
Professor Dr Rashidi Ahmad

THE FEASIBILITY OF DAY CASE LAPAROSCOPIC CHOLECYSTECTOMY IN A SINGLE HEPATOBILIARY CENTRE, HOSPITAL SULTANAH BAHIAH FROM JANUARY 2008 TO DECEMBER 2010

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MMed (General Surgery)

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Introduction: The development of day case laparoscopic cholecystectomy (DCLC) has been catalyzed by the drive to achieve cost-effectiveness and shortened waiting time for operation. Nevertheless, the DCLC in Malaysia is still uncommon and limited.

Objectives: The aims of this study were to determine the feasibility of DCLC in a single hepatobiliary centre, to determine the success rate of DCLC, to identify reasons for unplanned admission and to establish predictive factors of failure in DCLC.

Methods: This was a retrospective review of 91 patients who underwent DCLC between January 2008 to December 2010. Information on these patients were retrieved and analysed for the reasons of unplanned admission and predictive factors of failure in DCLC. Statistical analyses were performed using SPSS version 19.0.

Results: There were 70 females and 21 males with mean (SD) ages were 37.16 (SD 10.28) and 44.62 (SD 12.03) respectively. Ninety six percent of the patients were ASA class I and 93% of patients had no comorbidities. Ninety one percent of cases were performed by hepatobiliary trainees with median operating time for them was 51.0 min IQR 18, and 45.0 min IQR 73 for consultant ($P = 0.569$). Seventy four percent of patients were successfully discharged following DCLC. There was no readmission following successful discharge from DCLC. The most common reason for admission was conversion to open surgery (7.7%). The predictive factors for failure of DCLC were length of operation [adjusted OR 1.04 (1.01, 1.07)] and severity of adhesion [adjusted OR 38.42 (3.18, 464.84)].

Conclusion: Patient selection is of paramount importance in the success of DCLC. This study has showed that DCLC is feasible in selected hospital with hepatobiliary

unit in Malaysia.

Supervisor:

Dr Maya Mazuwin Yahya

CERVICAL LENGTH AND MODIFIED BISHOP SCORE IN PREDICTING ESTABLISHED ACTIVE LABOUR IN TERM PREGNANCY OF PRIMIGRAVIDA

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MMed (Obstetrics & Gynaecology)

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Introduction: Labour is a dynamic process which involves the uterine contraction and culminates in cervical changes and finally the expulsion of conception. In current modern medicine, much has been done to evaluate the usefulness of cervical length in prediction of pre-term labour. We believe by analogy, cervical length can be used to predict the likelihood of spontaneous labour in primigravida. Traditionally, Bishop score was used in assessing women with symptom of labour. We intend to compare both methods as well as the acceptability and tolerability of both methods by pain score using numeric rating scale.

Objectives: To determine the relationship between the cervical length and Bishop score in relation to the onset of established active labour within 24 hours of admission in term primigravida in Malaysia population.

Methods: It is prospective observational study which looks at the relationship and predictive value of cervical length and modified Bishop score and other patient's factors in relation to established active labour within 24 hours of admission in primigravida with term pregnancy. Nulliparous women with a singleton fetus in the cephalic position were recruited at the Hospital Raja Permaisuri Bainun (HRPB). Transvaginal ultrasound was performed to determine cervical length and digital vaginal examination was done to assess Bishop score. The outcome measure would be the onset of established active labour within 24 hours after admission. Patient whom did not progress will be reevaluated. Cervical length and modified Bishop score will be determined again. All data entry and analysis were carried out using the SPSS version 12. A *P* value of less than 0.05 was considered statistically significant.

Results: A total of 150 pregnant mothers were successfully recruited to complete this study. Out of which 80 patients went in to spontaneous established labour within 24 hours. The remaining 70 patient has failed to achieve spontaneous established labour within the stipulated study time frame (24 hours). The bulk of the study population were Malays (59.3%), followed by Chinese (20.7%), Indian (12.0%) and Others (8%). We found that, both group of patients were comparable as they shared no difference in term of age, gestational age, BMI and number of miscarriage

(*P* > 0.05). Using multivariate analysis, the following factors were significant associated with established labour within 24 hours [quoted as adjusted odds ratio (AOR) and 95% confidence interval (CI)]: cervical length (AOR: 0.58; 95% CI = 0.47–0.73), modified Bishop Score (AOR: 4.43; 95% CI = 1.67–11.73) and cervical funneling (AOR: 8.05; 95% CI = 1.20–53.8). By using ROC curve, the best cut out point for cervical length to predict spontaneous labour is 18.5mm with the sensitivity of 95% and specificity of 94%. The positive predictive value was 96.2% and negative predictive value was 95.2%. With the modified Bishop score of ≥ 6 , the sensitivity and specificity was 83.7% and 68.5% respectively. The positive predicted value was 75.2% and the negative predictive value was 78.6%. Presence of cervical funneling has the sensitivity and specificity of 72.5% and 78.5% respectively. The positive predicted value was 79.4% and the negative predictive value was 71.4%. Cervical length measurement is better tolerated as compare with modified Bishop score.

Conclusion: Cervical length, cervical funneling and modified Bishop score are good predictive clinical assessment tool in determining the chance of spontaneous labour in term primigravida. Cervical length measurement is better tolerated as compare with modified Bishop score.

Supervisor:

Dr Mohd Pazudin Ismail

Co-Supervisor:

Associate Professor Dr Nor Aliza Abdul Ghaffar

PROSPECTIVE RANDOMISED CONTROLLED TRIAL OF POST-OPERATIVE INFECTION RATES IN TWO DIFFERENT SHUNT SYSTEMS AND ITS ASSOCIATION WITH INFLAMMATORY BIOMARKERS

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MSurg (Neurosurgery)

Department of Neurosciences, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kelantan, Malaysia

Introduction: Shunt is essentially lifesaving yet simple procedure for patients with hydrocephalus, however, shunt infection is potentially fatal.

Objectives: To compare the infection rate between the conventional ventriculo-peritoneal shunt to the Silver nano-particle coated shunt (Silverline) and to evaluate the correlation of the baseline inflammatory biomarker levels of interleukin 6 (IL-6), interleukin 8 (IL-8), tumour necrosis factor alpha (TNF- α), high sensitivity C reactive protein (hsCRP) in the cerebrospinal fluid (CSF) and total white cell (TWC) in various aetiologies of hydrocephalus.

Methods: Patients diagnosed with hydrocephalus underwent simple randomization into 2 groups – the Silver group and the conventional group after meeting the inclusion and exclusion criteria. All patients underwent ventriculo-peritoneal shunt with their baseline CSF collected for

inflammatory biomarker testing. The median baseline levels of IL-6, IL-8, TNF- α , hsCRP and TWC were compared between all the samples and the two groups and against the various aetiologies of hydrocephalus via Kruskal Wallis test and the correlation between them were tested using Spearman's test. All patients were followed up, up to 6 month postoperatively for any signs of shunt infection.

Results: 51 one patients was recruited with 26 (50.9%) in the silver group and 25 (49.1%) in the conventional group. Two out of the 26 patients (7.7%) in the silver group had blocked shunt. However, there is no growth from the shunt tubing as well as the CSF culture suggestive of shunt infection. Two patients (3.9%) later developed pneumonia and died. Preliminary inflammatory biomarker testing showed no significant raised baseline median levels in all the samples and between the various aetiologies of hydrocephalus. Moderate correlations were noted between the biomarkers of hsCRP with IL-6 ($r = 0.682$) and TNF- α with IL-8 ($r = 0.508$) and low correlation between IL-6 with IL-8 ($r = 0.424$) and between IL-6 with TWC ($r = 0.408$). Interestingly, a raised pattern of IL-6 (62.96 pg/mL) and IL-8 (5.20 pg/mL) were observed in hydrocephalus patient secondary to infection and raised pattern of TWC ($13.53 \times 103/\mu\text{L}$) and hsCRP (50 ng/mL) were observed in hydrocephalus patient secondary to trauma although not statistically significant.

Conclusion: There is no different in infection rate between the normal conventional and the Silver nano-particle shunt group. Various aetiologies of hydrocephalus have different inflammatory biomarkers baseline levels and positive correlations between some of them.

Supervisor:

Mr Albert Sii Hieng Wong

Co-Supervisor:

Mr Abdul Rahman Izani Ghani

STATUS EPILEPTICUS AND ITS ASSOCIATED FACTORS IN PAEDIATRIC SEIZURES PRESENTING TO EMERGENCY DEPARTMENT, HOSPITAL UNIVERSITI SAINS MALAYSIA, KUBANG KERIAN, KELANTAN, MALAYSIA

Dr Maryam Sumaiya Ahmad Termizi
MMed (Emergency Medicine)

*Emergency Department, School of Medical Sciences,
University Sains Malaysia, Health Campus, 16150
Kelantan, Malaysia*

Introduction: Seizure is a common neurological disorder of childhood. The risk factors for developing status epilepticus (SE) and refractory SE are still poorly understood however it is crucial to identify these factors for early intervention and take the necessary preventive measures to avoid progression to SE which carries significant morbidity and mortality.

Objectives: To study the seizures profile of these cases,

determine the prevalence of SE among paediatric seizures and to identify the factors leading to the progression to SE.

Methods: A total of 304 cases involving 208 paediatric patients, that presented with seizures to our Emergency Department, Hospital Universiti Sains Malaysia (EDHUSM), in 2008 to 2010 were included in this study. The case notes were retrospectively review and data collected using a standardised proforma form.

Results: The mean age of the patients were 4.3 (SD 4.1) years ranging between 1 month to 17 years old. Prevalence of SE among paediatric seizures was 39%. A patient with an increase of 1mmol/l of capillary blood sugar had 1.15 times the odds to have SE (95% CI 1.04, 1.27, $P = 0.010$) when adjusted for aetiology. Patients with acute symptomatic seizures had 4.09 times (95% CI 1.39, 12.04, $P = 0.011$), remote symptomatic had 4.28 times (95% CI 1.94, 9.45, $P < 0.001$), and acute on remote symptomatic seizures had 2.55 times (95% CI 1.36, 4.78, $P = 0.003$) the odds compared to febrile seizures to have SE.

Conclusion: Capillary blood sugar upon arrival to the EDHUSM and the underlying aetiology of the seizures had increase risk of progression to SE.

Supervisor:

Dr Kamarul Aryffin Baharudin

Co-Supervisor:

Dr Aniza Aziz

A STUDY ON ILICIT DRUGS USE AMONG MOTOR VEHICLE INJURED PATIENTS PRESENTING TO EMERGENCY DEPARTMENT

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MMed (Emergency Medicine)

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Medical Sciences, Universiti Sains Malaysia, Health
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Introduction: Driving under illicit drugs is one of the public health concerns as impaired driving cause a potential threat to the road safety. The characteristics of injured patients and the predictors influence the severity of injuries are important to target the specific intervention.

Objectives: To determine the prevalence of illicit drugs used in motor vehicle injured patients and to determine the factors that may influence the severity of injury among illicit drugs used presented to the Emergency Department of Hospital University Sains Malaysia (HUSM).

Methods: This was a prospective cross-sectional study for one year duration, conducted from 1st November 2011 until 31st October 2012. The protocol for this study was approved by the Ethics Committees at University Sains Malaysia. A purposive sampling method was done and trauma patients were selected twice a week (every Saturday and Sunday). 92 patients were enrolled in this study and met the criteria. A urine drug test (F.A.C.T.S) was used to detect the presence

of illicit drugs among injured patients. The predictors that influence the severity injury were recorded and analyzed by using multiple logistic regressions. The primary end point of the study was to know the prevalence of illicit drugs used and determine the factors that may influence the severity of injury among illicit drugs used.

Results: There were 92 patients enrolled into the study during the study period. Of these patients, 38% of injured patients had a positive urine drug test and 62% had negative test. (Cannabis was the most frequently detected drug with (49%) followed with amphetamine (17%), morphine (11%) and benzodiazepine (6%). Among injured patients, (17%) had combined illicit drug used). Male patients between ages of 15–30 years old are predominantly involved in the traffic crash. Illicit drugs used were found 32.6% in male and 5.4% in female patients. By using Multiple Logistic Regression analyses, it revealed that a safety factor of using seat belt or helmet (either use or not use) with ($P = 0.010$) was determined as a significant factor for the severity of injury among illicit drug used.

Conclusion: The prevalence of driving under illicit drugs used was higher in our population as compared to previous study done in Hong Kong. The safety factor was significantly predicted the severity of injury. These findings indicate a need to incorporate a screening test as a routine medical practice at emergency services for injured motor vehicle injury. It is important for the management benefit of treating trauma patients in emergency setting. Illicit drugs used were associated with high severity injury compared to non illicit drug used as mentioned in previous study. The involvement of relevant organisations also needed to modify the existing laws on the safety measures as to reduce the occurrence of severe traffic accidents.

Supervisor:

Associate Professor Dr Nasir Mohamad

Co-Supervisor:

Associate Professor Dr Nik Hisamuddin Nik Abd Rahman

A COMPARISON BETWEEN GLIDESCOPE VIDEO LARYNGOSCOPE AND BONFIL INTUBATION ENDOSCOPE IN NORMAL AND SIMULATED DIFFICULT AIRWAY – A MANIKIN MODEL

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MMed (Anaesthesiology)

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Objectives: Cervical injury patients need a proper handling during intubation to prevent further insults and it is challenging to the airway care provider. The stabilisation of the cervical spine can be achieved by placement of the cervical hard collar. This study aimed to compare the effectiveness of Glidescope Video Laryngoscope (GSVL) and Bonfils Intubation Endoscope (Bonfils) in normal and difficult airway

scenario particularly cervical injury.

Methods: This was prospective cross over study which was done among 58 of anaesthesia medical officers, HUSM. A brief explanation was given regarding the correct way of handling the devices. Participants were performed intubation with both GSVL and Bonfils in both normal and difficult airway scenarios in three attempts. The successful rate was considered during the first attempt meanwhile the mean time was calculated during all attempts. The need of manoeuvre during intubation was documented when the participants required any manoeuvre during any of their attempt.

Results: There were no significant difference in successful rate of using both devices in both airway scenarios. The successful rate with GSVL in both scenarios were 100%. While successful rate for Bonfils in normal airway and difficult airway were 94.8% and 93.1% respectively ($P < 1.00$). In comparison of both devices in normal and difficult airway, the P value were < 0.25 and < 0.125 respectively. The mean time intubation were significantly faster in normal airway of both devices compared to difficult airway scenario (P value of < 0.001 in both GSVL and Bonfils). In comparison of GSVL and Bonfils in both scenarios, GSVL intubation significantly faster with P value < 0.001 in both normal and difficult airway. There were no significant difference in the manoeuvre needed during intubation in both devices and scenarios.

Conclusion: No significant difference between intubation success rate between GSVL and Bonfils in both scenarios. However, the time taken for intubation in normal airway is significantly faster for both devices. Moreover, mean time intubation was faster in GSVL compared to Bonfils. The need of intubation manoeuvre was not significant differences in both devices.

Supervisor:

Associate Professor Dr Shamsul Kamalrujan Hassan

Co-Supervisor:

Dr Rhendra Hardy Mohamad Zaini

OUTCOME FOLLOWING DECOMPRESSIVE CRANIECTOMY FOR TREATMENT OF MALIGNANT MIDDLE CEREBRAL ARTERY INFARCTION IN HOSPITAL KUALA LUMPUR

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MSurg (Neurosurgery)

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Introduction: Malignant middle cerebral artery infarction is a devastating clinical entity affecting about 1%–10% of stroke patients. Medical treatment in such patients has been disappointing, with 80% of affected patients die within 5 days. Surgical treatment with decompressive craniectomy has recently been proposed as an alternative treatment measure, with significant reduction in mortality rates and improvement

in functional outcome of patients reported.

Objectives: This study was done to assess the outcome in patients with malignant middle cerebral artery territory infarction treated with surgery in terms of reduction in mortality rate and improvement in functional outcome, as compared to medical therapy, in Hospital Kuala Lumpur, and identify factors that are associated with outcome following surgical management.

Methods: Retrospective case review of patients diagnosed with malignant middle cerebral artery territory infarction treated at Hospital Kuala Lumpur over a period of 5 years (2007–2012), identified 125 patients who were included into this study. A total of 90 (72%) patients were treated with surgery, while 35 (28%) patients were treated with medical therapy. Patient case notes were reviewed and relevant demographic, clinical, radiological, surgical and medical treatment and complication data were recorded. Outcome was assessed in terms of mortality rate at 30 days, Glasgow Outcome Score (GOS) on discharge and Modified Rankins' Scale (mRS) at three months and six months. Statistical analysis was done using Pearson Chi-Square tests with Yate's continuity correction to determine factors associated with outcome. Logistic regression analysis was done to determine independent associative factors for long term outcome at six months.

Results: The mean age (SD) of patients was 53.8 years old (SD 7.17), with a range 34 years to 65 years old. Mean pre-operative GCS score for patients treated with surgery was GCS 8/15, and mean time between stroke onset to surgery was 26.8 hours (SD 8.3). The follow up period was six months. Significant reduction in mortality rate at 30 days was noted following surgical treatment at 30% compared to 54.3% with medical treatment ($P < 0.05$). Favourable outcome on discharge based on Glasgow Outcome Score (GOS) was seen in 37.8% of patients treated with surgery compared to only 2.9% in patients treated with medical treatment ($P < 0.05$). In patients treated with surgery, good functional outcome based on modified Rankins' scale (mRS) was seen in 48.9% of patients at three months and 64.4% of patients in six months compared to 2.9% and 17.1% respectively with medical treatment. Age was significantly associated with outcome, with patients younger than 55 years having better outcome. Factors significantly associated with good outcome at six months based on modified Rankins' Scale (mRS) in patients treated with surgery was size of infarct of less than 250 mls, midline shift of less than 10 mm, absence of additional vascular territory involvement, good preoperative GCS score and short interval between time of stroke onset to surgery ($P < 0.05$), while hemorrhagic transformation following surgery was significantly associated with poor outcome at six months. Midline shift of less than 10 mm OR 7.524 (95% CI 0.002–0.409) and absence of additional vascular territory involvement OR 0.031 (95% CI 0.002–0.409) was independently associated with good long term outcome at six months.

Conclusion: Surgical treatment with decompressive craniectomy significantly reduces mortality and improves

functional outcome in patients as compared to medical therapy. Factors that are associated with good outcome are younger age, volume of infarct of less than 250 mls, extent of midline shift of less than 10mm, no additional vascular territory involvement, good preoperative GCS score and a shorter time interval between onset of stroke to surgery.

Supervisor:

Datuk Dr Mohammed Saffari Mohammad Haspani

Co-Supervisor:

Professor Dr Jafri Malin Abdullah

COMPARATIVE STUDY BETWEEN COAPTIVE FILM VERSUS SUTURE FOR WOUND CLOSURE AFTER LONG BONE FRACTURE FIXATION

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Introduction: A prospective, randomized controlled trial comparing coaptive film and suture for wound closure after long bone fracture fixation.

Objective: To prospectively compare skin closure time, incidence of wound complication and scar width produced between coaptive film and suture after closed femur fracture fixation.

Methods: Forty-five patients underwent femur fracture fixation with twenty-two patients used suture and twenty-three patients used coaptive film for the skin closure respectively. The method of skin closure was randomised and the surgeon informed before the operation. Closure time was recorded. Incidence of wound complication was documented during the follow-up. Scar width was measured at 12-week follow-up.

Results: Coaptive film formed an adhesive and closed the wound faster than suture. The mean time for skin closure using coaptive film was 171.13 seconds compared to the mean time of 437.27 seconds using suture ($P < 0.001$). The mean wound length in coaptive film group and suture group were 187.65 mm and 196.73 mm, respectively ($P = 0.36$). Wound dehiscence occurred in one patient in coaptive film group (4.3%) whereas one case developed wound necrosis in suture group (4.5%) ($P = 0.74$). There was no significant difference in scar width between the two groups.

Conclusion: Coaptive film is a time-saving procedure compare to suture for skin closure following long bone fracture fixation. There is no difference in the incidence of wound complication and scar width between these two methods of skin closure.

Supervisor:

Professor Zulmi Wan

Co-Supervisor:

Dr Mohammad Anwar Hau Abdullah

A RETROSPECTIVE COHORT STUDY AMONG PATIENTS WITH TRAUMATIC BRAIN INJURY IN NEURO INTENSIVE CARE UNIT HUSM: TO REVIEW THE RELATIONSHIP BETWEEN POTENTIAL FACTORS IN THE MANAGEMENT OF TBI WITH THE OUTCOMES

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MMed (Anaesthesiology)

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Introduction: Traumatic brain injury (TBI) is one of the major causes of morbidity and mortality and may lead to economic constrain to our society. It is now known, the deleterious secondary insult, which occurs hours or days later is the main source of poor outcomes. Hence, measures have been taken over the decades to improve the quality of care and resulting in less mortality and morbidity. Regrettably, our country has an increasing motor vehicle accident yearly, creating quite a number of patients with traumatic brain injury. Despite the increasing number of patients with traumatic brain injury in our country, the data is still none existent.

Objectives: The aim of this study is to review the relationship of all potential influence factors in the management of TBI with the outcomes.

Methods: This is a retrospective cohort study, which involved 117 patients from Neuro Intensive Care Unit Hospital Universiti Sains Malaysia within January 2009 until December 2010.

Results: The outcomes of patients based on GOS scoring (mortality and functional recovery: good or poor) at discharge from Neuro ICU HUSM and at 3 months. Overall, quite a number of the factors had significant associations to the outcomes. Based on GOS as the outcomes scale, the mortality rate was 18.8% at discharge and increased to 20.5% after 3 months. Whereas, patients who had poor recovery was 47.9% at discharge and reduced to 35% after 3 months later. There were 5 factors: preadmission GCS < 9, SBP < 90, PaO₂ < 60, INR > 1.5 and APTT > 30.5 that were found to be significantly associated with mortality on discharge and at 3 months. Additional factors significantly associated with mortality at 3 months were presence of comorbidities and level of PaCO₂ < 35 mmHg. While in term of poor recovery, preadmission GCS < 9, ct scan findings of ICB, SBP < 90, PaO₂ < 60, PaCO₂ < 35, PaCO₂ > 40, Temp > 38.5C, INR > 1.5, complications: sepsis and VAP were significantly associated with poor outcome at discharge. All the same factors were also significantly associated with poor outcome after 3 months except for ct scan findings, PaCO₂ > 40, Temp > 38.5C and VAP complication. Additional factors that were significantly associated at 3 months were presence of comorbidity and APTT > 30 secs.

Further analysis with multivariate logistic regression showed that, only preadmission GCS and SBP < 90 were the significant risk factors associated with poor outcome at discharge and 3 months. The preadmission GCS crude OR was 3.834 (Confidence Interval: 1.555–9.457) at discharge and at 3 months was 4.288 (Confidence Interval: 1.665–11.044). Meanwhile, SBP < 90 had crude OR of 18.584 (Confidence Interval: 3.774–91.507) at discharge and at 3 month, the OR was 7.054 (Confidence Interval: 2.229–21.668).

Conclusion: Pre-admission GCS < 9 and SBP < 90 were the only 2 independent risk factors significantly associated with poor outcome of the patients.

Supervisor:

Dr Wan Mohd Nazaruddin Wan Hassan

Co-Supervisor:

Dr Abdul Rahman Izaini Ghani

Dr Nizar Abdul Jalil

THE USE OF ICE PACK AS A LOCAL ANESTHETIC FOR INTRAVENOUS CANNULATION IN THE EMERGENCY DEPARTMENT HUSM

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MMed (Emergency Medicine)

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Introduction: Intravenous cannulation is one of the procedures frequently performed in the Emergency Department (ED). In ED, it is usually done without the use of a local anesthetic to reduce the pain. This may be due to the fact that drugs usually used e.g. Eutectic Mixture of Local Anesthesia (EMLA), required a time of at least 60 minutes to be effective. For the majority of cases in the ED, intravenous cannulation has to be done immediately.

Objectives: The objective of this study is to study the effectiveness of ice as a local anesthetic for intravenous cannulation.

Method: A prospective cohort study was conducted on 50 volunteers who had come to the emergency department Hospital Universiti Sains Malaysia (HUSM). Volunteers who fulfilled the criteria for inclusion was applied the ice pack over the forearm at the cannulation site. The pain experienced by the subject during cannulation was measured using the visual analogue scale. Comparison for cannulation time also was analysed.

Results: The results from 50 volunteers showed that, the forearm that was applied with ice pack had significantly less pain compared to those forearm without ice application. The p value for pain during intravenous cannulation was less than 0.05 showing a significant difference in pain score. Mean (SD) pain score for ice was 11.7 mm (SD 3.02) and without ice 38.9 mm (SD 3.19). A difference in pain score of more than 20mm was obtained. Out of 50 subjects, no side

effects was noted after the application of ice pack. This study showed the difference between the mean cannulation time with and without ice during intravenous cannulation was not statistically significant.

Conclusion: Ice is an effective agent for reduction of pain during intravenous cannulation in the ED. Its relative inexpensiveness and easy application should make its use for intravenous cannulation in the ED.

Supervisor:
Dr Emil Fazliq
Co-Supervisor:
Dr Chew Keng Sheng

NUCLEAR FACTOR KAPPA B GENETIC POLYMORPHISMS AND ASSOCIATION WITH COLORECTAL CANCER SUSCEPTIBILITY RISK IN MALAYSIAN POPULATION - A MOLECULAR EPIDEMIOLOGY STUDY

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MSc (Epidemiology)

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Introduction : Sporadic colorectal cancer (CRC), the most common gastrointestinal malignancy in Malaysia and one of the most common cause of cancer deaths, is a major public health problem. CRC is a multifactor caused disease resulting from complex interaction between environmental and genetic predisposition factors. However, the genetic predisposition risk of an individual for CRC development remains largely undetermined. Recently, Nuclear Factor kappa B signalling pathway has been implicated in colorectal carcinogenesis. Given the important role of NFκB signalling pathway in CRC development, it was hypothesized that genes and genetic variations in NFκB signalling pathway could be putative genetic predisposition factors. This case-control study was designed to test this hypothesis.

Objectives : To investigate the genotype and allele frequencies of three SNPs, namely A to G variation at 3' UTR of NFKBIA, -519 C to T of NFKBIA and -94 insertion/deletion ATTG of NFKB1 gene in Malaysian CRC patients and normal controls and to determine the risk association of these three SNPs with CRC predisposition.

Method: This case-control study involved 474 study subjects with 237 histopathologically confirmed CRC patients as cases and 237 normal healthy volunteers as controls. After getting informed consent, blood samples from study subjects were collected, DNA extracted and genotyping of the three SNPs was carried out employing Polymerase Chain Reaction – Restriction Fragment Length Polymorphism (PCR-RFLP) technique. Genotypes were categorized into homozygous wildtype, heterozygous and homozygous variant. Risk associations of specific genotypes with CRC susceptibility were

determined by deriving Odds Ratio (OR) with corresponding 95% Confidence Intervals (CI) using unconditional logistic regression.

Result: The frequencies of homozygous variant genotype of A to G variation at 3' UTR of NFKBIA and NFKB1 -94 insertion/deletion ATTG polymorphism were significantly higher in CRC patients compared to controls. The frequency of homozygous variant genotype of -519 C to T polymorphism of NFKBIA was very low in the cases and nil in the controls. When analyzed singly, the homozygous variant genotype (GG) of NFKBIA 3' UTR A to G SNP showed significantly higher risk association with CRC predisposition, whereas the -519 C to T variation of NFKBIA did not show any risk association. Similarly, the homozygous variant genotype (ins/ins) of NFKB1 -94 insertion/deletion ATTG SNP showed significantly higher risk association with CRC predisposition when analyzed singly. In the two SNP combination analysis, the genotype combinations of NFKBIA -519 C to T (CC) / A to G variation at 3' UTR of NFKBIA (AG) genotypes, NFKBIA -519 C to T (CC) / A to G variation at 3' UTR of NFKBIA (GG) genotypes, NFKBIA -519 C to T variation (CC) / NFKB1 -94 insertion/deletion ATTG polymorphism (ins/ins) genotype, A to G variation at 3' UTR of NFKBIA (AG) / NFKB1 -94 insertion/deletion ATTG polymorphism (del/ins), A to G variation at 3' UTR of NFKBIA (GG) / NFKB1 -94 insertion/deletion ATTG polymorphism (del/del) and A to G variation at 3' UTR of NFKBIA (GG) / NFKB1 -94 insertion/deletion ATTG polymorphism (del/ins) emerged as high risk genotype combinations associated with CRC predisposition.

Conclusion: It is presumed that genetic variation in NFKBIA and NFKB1 genes may result in sustained or constitutive activation resulting in incorrect regulation of the associated proteins and thereby contribute to pathogenesis of CRC. The genotype and/or genotype combinations which showed high risk association with CRC could be considered as putative “at risk” predisposition genotypes associated with CRC susceptibility.

Supervisor:
Professor Dr Ravindran Ankathil
Co-Supervisor:
Professor Dr Syed Hatim Noor

UTILITY OF BEDSIDE PORTABLE ULTRASOUND FOR FRACTURE DIAGNOSIS & ASSESSMENT OF SUCCESSFUL FRACTURE REDUCTION - A CROSS-SECTIONAL STUDY IN EMERGENCY DEPARTMENT (ED), HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM)

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MMed (Emergency Medicine)

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Medical Sciences, Universiti Sains Malaysia, Health
Campus, 16150 Kelantan, Malaysia*

Introduction: Orthopedic long bone fracture is a common presentation in Emergency Department (ED) which was estimated to be 11.5 per 100 000 persons, with 40% occurring in the lower limb. Of all, trauma is the leading cause of long bone fracture either by motor vehicle accident (MVA), fall or sports injury. Since long ago, radiography was the easiest way to view any bone fracture and still used as the gold standard to diagnose bone fracture. The use of ultrasound has become increasingly popular not only among radiologist & obstetrician, but also among Emergency Physician (EP) especially in our country. It is a very important tool in ED, as the usage can be either for diagnostic or therapeutic. The advancement of portable ultrasound nowadays has increase the likelihood of diagnosing long bone fracture. With this, fast & appropriate management of the fracture can be carried out by emergency personnel in ED, without delay. This study was conducted to assess the utility of bedside portable USG in the diagnosis and successful fracture reduction in emergency setting.

Objectives: The aims of this study were to determine the validity of ultrasound in detecting the presence of fracture in long bones, to determine the mean time taken to diagnose long bone fracture using USG versus x-ray, and to compare the acceptability and effectiveness of USG guided fracture reduction adequacy versus radiology study for post-CMR patient.

Methods: This prospective study was conducted for duration of one year, starting from August 2011 till August 2012. Every patient presenting to ED, HUSM was sampled based on non-probability sampling method. Physiological parameters along with time taken for diagnosis using ultrasound (USG) & X-ray were recorded. Other parameters were filled in a standardised data form and statistical analysis was applied using SPSS version 20.

Results: A total of 31 patients involved in this study. The overall mean age was 29 years (range from 12 to 77 years old). There were 25 males & 6 females. There was 100% specificity of USG in detecting fracture of long bone. Majority of the patient were Malay (96.7%) with only 3.2% Indian patient included in the study. Majority (93.5%) of them have closed fracture at distal end of radius, while 1 has closed fracture of humerus and another one with closed fracture at mid-shaft of tibia. In addition, we noted that, majority of fractured bone was due to fall (15 patients), followed by MVA (14 patients) and others (2 patients). In terms of diagnosing long bone fracture, USG can be used in detecting and diagnosing long bone fracture. Furthermore, there was a significant difference ($P < 0.001$) in the mean time taken to diagnose long bone fracture using USG (19.39 min) and x-ray (58.39 min). There was also a significant different in the post CMR angulations in both antero-posterior (AP) view ($P = 0.02$) versus lateral (LAT) view ($P = 0.01$) using USG and X-ray.

Conclusion: We found the usage of ultrasound is effective in early detection of long bone fracture especially in crowded ED and for non-stable trauma patient requiring transport to radiology suite. Furthermore it is very suitable

for long bone fracture assessment and adequacy during closed manipulation and reduction in emergency department since it provides real time, repeated ultrasound image of the studied long bones. Therefore it can be used as an adjunct for every doctor during CMR procedure in the future.

Supervisor:

Dr Shaik Farid Abdul Wahab

Co-Supervisor:

Dr Emil Fazliq Mohd

Associate Professor Dr Meera Mohaideen Abdul Kareem

MEDICATIONS ADHERENCE IN PATIENTS WITH SCHIZOPHRENIA: A COMPARISON BETWEEN INPATIENT AND OUTPATIENT

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MMed (Psychiatry)

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Introduction : Adherence to medication is essential to maximizing outcomes for individuals with schizophrenia as the consequences of poor adherence is devastating. The purpose of the present study was to compare between inpatient and psychiatric outpatient of their medication adherence and the factors affecting the adherence.

Method : A cross-sectional study was performed to examine the medication adherence in inpatient and psychiatric outpatient among 70 schizophrenic individuals using Medication Adherence Rating Scale (MARS). Factors affecting the adherence were examined. The study used Insight and Treatment Attitude Questionnaire (ITAQ) to assess patient's insight and Multidimensional Scale of Percieved Social Support (MSPSS) to assess social support. Brief Psychiatric Rating Scale (BPRS) was used to assess the severity of patient's psychopathology.

Result : Medication adherence among patients with schizophrenia were significantly poor. For inpatient group, 61% were non-adherent and 39% non-adherent were from outpatient group. Comparison between both groups found that there was significance difference in term of number of admission, percieved social support and psychopathology. Medication adherence, insight and other variables between both groups were not significantly different. Among factors affecting adherence, only the number of admission and psychopathology were significantly associated with medication adherence.

Conclusion : This study found that the medication adherence among patients with schizophrenia were poor either as outpatient or inpatient . Number of admission and psychopathology were associated with medication adherence.

Supervisor:

Dr Mohd Razali Salleh

A RANDOMIZED CONTROLLED TRIAL OF SUCROSE AS ANALGESIA USING NFCS SCORE FOR INFANTS BEYOND NEONATAL PERIOD DURING VENEPUNCTURE AND INTRAVENOUS CANNULATION

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MMed (Pediatrics)

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Introduction: To facilitate proper assessment, diagnosis and management, many children who presented to hospital end up with routine clinical procedures such as venepuncture and intravenous cannulation. Unfortunately, this procedures causing pain. Effective pain management during painful procedures in pediatric patients is vital, yet pain management practise is still less than optimal.

Objective: The aim of the study was to determine the role of sucrose 24% as analgesic effect during venepuncture and intravenous cannulation in infants 1 month to 12 months old.

Method: The study was a randomised controlled trial. It involved 85 infants who presented to HUSM, Kelantan, Malaysia. Patients were randomly assigned to 2 groups: a) sucrose 24% b) placebo (sterile water). Each of infants received 0.7 mls/kg of either sucrose 24% or placebo. The primary outcome measured by using NFCS score and secondary outcome by using crying time. Short term side effects of sucrose were observed during the study.

Results: The median NFCS score for sucrose 24% was 40 while median NFCS score for placebo was 42. Mann Whitney-U test was performed showed no statistical difference between intervention and control group. The median duration of crying was 300 seconds for both groups and there were no statistical difference between 2 groups. There was no adverse effect of sucrose 24% noted.

Conclusion: This study demonstrates that 0.7 mls/kg of sucrose 24% given 2 minutes prior to venepuncture and intravenous cannulation was not effective as analgesia in infants beyond neonatal period.

Supervisor:
Associate Professor Dr Noorizan Abdul Majid
Dr Mohd Rizal Mohd Zain

DEPRESSION AND LOW SELF-ESTEEM AMONG MALAY CHILDREN AND ADOLESCENTS OF SCHIZOPHRENIC PARENTS, AND ITS' ASSOCIATED FACTORS

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MMed (Psychiatry)

Department of Psychiatry, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kelantan, Malaysia

Introduction: Schizophrenia is a chronic mental illness which can give continuous pressures and burdens towards family members. With the improvement of psychiatric community services, many schizophrenic patients get married and have their own children. However, the effects of schizophrenia in parents towards their children need to be addressed and early interventions should be identified.

Objectives: The aim of this study is to determine factors associated with depression and low self esteem among children and adolescents of schizophrenia parents.

Methods: This is a cross sectional study which involved 118 children and adolescents of schizophrenic parents in Hospital Universiti Sains Malaysia, Kelantan. The duration of the study was from May 2012 to September 2012. The data were collected using sociodemographic questionnaires, Children Depression Inventory (CDI) Malay version, Rosenberg Self Esteem Scale (RSES) Malay version, Positive and Negative Syndrome Scale (PANSS) and Global Assessment of Functioning (GAF). Statistical analyses were performed using SPSS version 20.0 and *P*-value was significant at < 0.05 .

Results: The prevalence of depression and low self-esteem in children of schizophrenic parents was 2.5%, and 32.2%, respectively. Female children and adolescent age groups were reported to exhibit more symptoms of depression and low self-esteem as compared to male children and child age group. In multivariate analysis, it was found out that children's academic achievement is significantly associated with negative mood, whereas children's school attendance and awareness towards mental illness are associated with low self-esteem. Frequency of parents admissions due to relapse is associated with children's interpersonal problem. Parental illness severity (PANNS/GAF) or chronicity was not significantly associated with psychological problems in children.

Conclusions: Depressive symptoms and low self-esteem among children of schizophrenic patients were associated with a number of modifiable factors such as academic achievement, school attendance and children awareness about mental illness. Collaboration with the school systems in educational and screening programs for children may have some benefit in the future.

Supervisor:
Associate Professor Dr Mohd Jamil Yaacob

COMBINED EFFECTS OF LIGNOSUS RHINOCERUS (TIGER MILK MUSHROOM) SUPPLEMENTATION AND RESISTANCE TRAINING ON ISOKINETIC MUSCULAR STRENGTH AND POWER, ANAEROBIC AND AEROBIC FITNESS LEVEL, AND IMMUNE FUNCTIONS AMONG YOUNG MALES

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MSc (Sports Science)

Sports Science Unit, School of Medicine, Universiti Sains Malaysia, Health Campus, 16510 Kelantan, Malaysia

Introduction: Although exercise and dietary supplementations were postulated to be beneficial for health and physical fitness, the issue of combined effects of resistance training and Tiger Milk Mushroom supplementation is still lacking in the literature and not well documented.

Objective: This study was carried out to investigate the beneficial combined effects of 8 weeks of Lignosus Rhinocerus (Tiger Milk Mushroom) supplementation and resistance training on isokinetic muscular strength and power, anaerobic and aerobic fitness, and immune functions among young males.

Method: In this double blind placebo-controlled trial, 38 young males (19-25 years old) were assigned into four groups with 9 to 10 participants per group: Control (C) group, Tiger Milk Mushroom (TMM) group, resistance training (RT) group and combined resistance training and Tiger Milk Mushroom (RT&TMM) group. Participants in TMM group and RT&TMM group consumed two capsules of TMM (250mg per capsule) 7 days per week for 8 weeks. Participants in the control (C) group and RT group participants were consumed placebo capsules for 7 days per week for 8 weeks. Resistance training programme consisted of 10 different types of exercise which involved muscle of the upper and lower limbs. It was conducted three times per week for 8 weeks. Prior to the intervention period, pre-test was carried out to measure anthropometric measurements, isokinetic muscular strength and power, anaerobic and aerobic fitness. Blood samples were also withdrawn in order to determine immune function parameters through full blood counts and immunophenotyping. After 8 weeks of intervention period, all these parameters were measured again during post test.

Result: Positive effects observed in isokinetic muscular strength and power in combined RT & TMM group were peak torque of shoulder extension at 600.s-1, average power of shoulder flexion and extension at 3000.s-1, peak torque of knee flexion at 600.s-1, average power of knee flexion and extension at 3000.s-1. In addition, there were also increases in anaerobic power and capacity and estimated maximum oxygen consumption. Similarly, positive effects in RT alone group, were observed in the isokinetic muscular strength and power parameters such as average power of shoulder flexion at 3000.s-1, peak torque of knee flexion and extension at 600.s-1, average power of knee flexion and extension at 3000.s-1. Additionally, increases in anaerobic power and capacity, aerobic fitness, T lymphocytes (CD3 and CD4) and B lymphocytes (CD19) counts were observed in RT alone group.

Conclusion: Resistance training with dumbbells and elastic bands elicited increased isokinetic muscular strength and power, anaerobic and aerobic fitness and immune

functions among young males. However, combining resistance training with Tiger Milk Mushroom did not result in additional benefits.

Supervisor

Dr Chen Chee Keong

Co-Supervisor:

Dr Ooi Foong Kiew

Dr Wan Zuraidah Wan Abd Hamid

AMPUTATION-FREE PROBABILITY AND ITS PROGNOSTIC FACTORS AMONG HOSPITALIZED DIABETIC FOOT PATIENTS IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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MSc (Medical Statistics)

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Health Campus, 16150 Kelantan, Malaysia*

Introduction: Diabetic foot is a significant health care problem leading to hospitalisation, morbidity, amputation and mortality in diabetic patients. Ulceration, infection, gangrene, and amputation are significant complications of the diabetic foot and impact on quality of life.

Objectives: The objectives of this study were to determine the amputation-free probability and identify the prognostic factors of major amputation among hospitalised diabetic foot patients in Hospital USM.

Methods: A retrospective cohort study was conducted among 231 hospitalised diabetic foot patients in Hospital USM from 1st January 2007 until 31st December 2011 followed by 1 year follow up. Patients' medical records were retrieved and reviewed. Socio demographic, clinical characteristics and major amputation endpoint status was recorded. All patients who fulfilled the criteria were included in the study. The duration of major amputation-free was measured from the date of being diagnosed as diabetic foot until the date of major amputation. Kaplan-Meier Product Limit Estimates, Simple and Multiple Cox regression were performed to determine the statistically significant prognostic factors of major amputation among hospitalised diabetic foot patient.

Results: This study involved equal ratio of male and female patients and majority were Malay patients (95.7%). Most of the patients were married (87.9%). The major amputation-free probability among hospitalised diabetic foot ulcer patients in Hospital USM was 86.6% (95% CI: 81.1, 90.6). The adjusted prognostic factors that were found to be significantly influence the risk of having major amputation among hospitalized diabetic foot patients in Hospital USM were age at diagnosed of DFU (Adj. HR: 1.05, 95% CI: 1.00, 1.09, $P = 0.033$), gender (Adj.HR: 4.77, 95% CI: 1.52, 14.96, $P = 0.007$), duration of DM (Adj. HR: 2.76, 95% CI: 1.25, 6.12, $P = 0.012$), smoking status (Adj. HR: 4.19, 95% CI: 1.12, 15.65, $P = 0.033$) and status of DFU (Adj. HR: 2.59, 95% CI: 1.10,

6.07, $P = 0.029$).

Conclusion: Major amputation-free probability of hospitalized diabetic foot patients in Hospital USM was slightly higher than other studies. Older diabetic patients, female, having diabetes more than 10 years, smoker and recurrent DFU were found to significantly influence the risk of having major amputation among hospitalised diabetic foot patients in Hospital USM.

Supervisor:

Dr Aniza Abd Aziz

Co-Supervisor:

Associate Professor Dr Wan Mohd Zahiruddin Wan Mohammad

Associate Professor Dr Abdul Nawfar Sadagatullah

OCULAR MANIFESTATIONS AND GENETIC VARIATIONS OF LOW DENSITY LIPOPROTEIN RECEPTOR GENE IN MALAY PATIENTS WITH FAMILIAL HYPERCHOLESTEROLAEMIA

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MMed (Ophthalmology)

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Introduction: Familial hypercholesterolaemia is a genetic disorder of lipoprotein metabolism. The primary defect is a mutation in the gene specifying the receptor mediated uptake of low density lipoprotein. It is characterised by high level of plasma low density lipoprotein cholesterol, cholesterol deposition in tendon and skin with increased risk of premature coronary heart disease. Excess cholesterol leads to deposition of cholesterol in the body including the eye.

Objectives: The study was designed to describe the ocular manifestations (eyelid xanthelasma and cornea arcus), retinal nerve fibres layer thickness and low density lipoprotein receptor gene variation (single nucleotide polymorphism and mutation) and its association in Malay patients with familial hypercholesterolaemia.

Methods: The patients were selected from physician and eye clinic, Hospital Universiti Sains Malaysia. The patients selected fulfilled the diagnostic criteria by World Health Organisation (Dutch Lipid Clinic Network diagnostic criteria). The demographic data including age, sex, medical illness and pre treatment lipid profiles were analysed. The right eye was examined for eyelid xanthelasma, corneal arcus was assessed with slitlamp biomicroscopy and retinal nerve fiber layer thickness was assessed with Heidelberg retinal tomography II. Three milliliters of blood was taken for genetic analysis. Low density lipoprotein receptor gene variations were detected using denaturing high performance liquid chromatography followed by deoxyribonucleic acid sequencing.

Results: Fifty familial hypercholesterolaemia patients were recruited. Mean age was 46.2 year old (SD 14.4).

Both female and males were equally involved. Coronary heart disease was detected in 46.0% of patients. Mean total cholesterol was 6.64 mmol/L (SD 1.62 mmol/L) and mean low density lipoprotein cholesterol was 4.5 mmol/L (SD 1.61). Most patients were in possible (46%) followed by probable (30%) and definite familial hypercholesterolaemia (24%). The most common ocular manifestations were corneal arcus (86%) and xanthelasma was uncommon (2%). Mean retinal fibre thickness was 254.16 μm (SD 60.67). Low density lipoprotein receptor gene variations were detected in 32 patients (64%). Five mutation and 9 SNP including 2 novels LDLR gene mutation were detected; c.1705+117T>G in intron 11 and p.Asp139His in exon 4. c.940+36G>A, p.Glu201Lys and p.Asp304Asn had significant association with familial hypercholesterolaemia. There was significant association between genotype frequency of low density lipoprotein receptor gene of mutation; p.Glu201Lys with corneal arcus. The mutations of low density lipoprotein receptor gene; p.Cys255Ser and c.1705+117T>G were also significantly associated with retinal nerve fibre layer thickness. None of the low density lipoprotein receptor gene single nucleotide polymorphisms were found to have significant association with corneal arcus or mean retinal nerve fibre layer thickness.

Conclusions: Corneal arcus was more common than eyelid xanthelasma. Sixty four percent of patients had low density lipoprotein receptor gene variations. Five mutation and 9 SNP including 2 novels LDLR gene mutation were detected; c.1705+117T>G and p.Asp139His. Few low density lipoprotein receptor gene variations showed significant association with corneal arcus, mean retinal nerve fiber layer thickness and familial hypercholesterolaemia and they were potential marker for familial hypercholesterolaemia.

Supervisor:

Dr Wan Hazabbah Wan Hitam

Co-Supervisor:

Dr Liza Sharmini Ahmad Tajudin

DAYTIME SLEEPINESS IN ALLERGIC RHINITIS PATIENTS

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MMed (Otorhinolaryngology-Head and Neck Surgery)

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Introduction: Allergic rhinitis (AR) is a disease affecting not only the nose and eye, but sleep, emotion and impairment of daily activity. Many studies have been done to demonstrate the relationship between sleep and allergic rhinitis. Nocturnal sleep loss with secondary daytime fatigue can directly or indirectly reduce performance at work or school.

Objectives: The objectives of this study were to

evaluate relationship between daytime sleepiness and night-time symptoms on individuals with allergic rhinitis.

Methods: This study was conducted from March 2011 until March 2012 involving a total number of 466 subjects aged between 12 to 75 years old. Three hundred fifty four allergic rhinitis patients made up the test group and 112 healthy individuals were selected for the control group. All subjects were interviewed using night-time symptoms and Epworth Sleepiness Scale questionnaire (validated in Bahasa Melayu in 2002).

Results: Results show that, allergic rhinitis has gender preponderance with 1.4:1 female to male ratio and most patients (70%) belong to young adult and working age group (18 to 64 years old). Nearly 79% of allergic rhinitis patients' claims nasal obstruction as the most bothersome night-time symptoms. The prevalence of daytime sleepiness was 28.8% in allergic rhinitis group as compared to 24.1 % in the control group. The difference is not significant ($P = 0.886$). The relationship between nasal obstruction and daytime sleepiness is significant in the allergic rhinitis group ($P = 0.0036$) but not significant in the control group ($P = 0.646$).

Conclusion: the coexistence of daytime sleepiness and AR should not be neglected and should be emphasised amongst general practitioner, allergy physician and ear, nose and throat specialist. Allergic rhinitis patients should be routinely evaluated for daytime sleepiness and quality of sleep.

Supervisor:

Associate Professor Dr Baharudin Abdullah

Co-Supervisor:

Dr Hazama Mohamad

RED CELL ALLOIMMUNIZATION IN POST TRANSFUSION PATIENTS WITH HAEMATOONCOLOGIC DISEASE

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Introduction: Alloimmunization is common in transfused patients. Alloimmunization occurs when an incompatible antigen introduced in an immunocompetent host evokes an immune response. Because of intensive marrow depression patients with hematologic disease are transfusion dependent. It is often exacerbated by myelosuppressive chemotherapy or radiotherapy. The patients may experience such severe anaemia that red blood cell (RBC) transfusions are required for symptomatic palliation. Despite the understanding of red cell antigens and their clinical significance in transfusion medicine, fatalities due to alloimmunization still occur. Therefore, it has been advocated that these patients should receive blood that is matched for blood group antigens other than ABO and RhD. This was

because most of blood transfusion services match only red cell units for ABO and RhD antigens.

Objectives: The aim of the study is to estimate the prevalence of red cell antibody among haematologic diseases patients and to correlate the association of antibody development with other factors like age, gender, race, number of RBC transfused and diagnosis.

Methods: This cross-sectional study was conducted in Transfusion Medicine Unit, HUSM. Clinical and serological data of 216 haematologic patients who sought treatment in HUSM were collected and analysed prospectively. Blood samples were subjected to standard blood bank procedure for screening and antibody identification.

Results: RBC alloimmunization rate was 3.2%. Red cell antibodies were detected in only seven patients. Three patients were diagnosed as NHL and ALL, while only one with MM. Four patients developed single antibody, while three develop multiple antibodies. From our statistical analysis there were no significant association found between antibody development with age, gender and diagnosis of the patients. This was most likely due to very small sample size. However we noted all seven patients were Malay with lymphoproliferative disease and majorities were adult (71.4%) and male (71.4%) patients. Patients developed antibody after receiving two to eight units of red cell transfusion. One patient was positive for Direct Coombs Test with positive for both IgG and C3d.

Conclusion: As conclusion, the prevalence of RBC alloimmunisation in post-transfusion haematologic patients is low despite of required multiple transfusion. To do extended matching for all patients, in every transfusion are consider impractical and very costly. Therefore, it is important to prioritise which patients the extended antigen matching will be most beneficial to.

Supervisor:

Dr Noor Haslina Mohd Noor

Co-Supervisor:

AP Dr Rapiaah Mustapha

Dr Ilunihayati Ibrahim

VOCAL SYMPTOMS AND OBJECTIVE EVALUATION OF VOICE QUALITY IN PATIENTS WITH LARYNGOPHARYNGEAL REFLUX (LPR)

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Introduction: Laryngopharyngeal reflux (LPR) is one of a common condition seen in otolaryngological practice. LPR refers to backflow of stomach contents into laryngopharynx, where it comes in contact with tissue of the upper aerodigestive tract. It has been shown to be either the prime etiological factor or a significant aggravating factor in more than 50% of patients

with hoarseness. LPR is known to contribute to posterior acid laryngitis, laryngeal contact ulcers or granuloma formation, epithelial dysplasia and laryngeal cancer, chronic hoarseness, pharyngitis, sore throat, globus sensation, dysphagia, buccal burning, asthma, pneumonia, nocturnal choking and dental disease. These manifestations are believed to be the caused by direct contact of gastric content and injury to the pharyngeal or laryngeal mucosal surfaces.

Objective: To evaluate voice quality in laryngopharyngeal reflux (LPR)

Methods: Subjects were 38 adult participants. We recruited 18 participants in LPR group and control group of 20 participants, with the mean age of 44.0 and 40.35 respectively. Both groups underwent Vocal Symptoms Questionnaire interview, voice recording and ear, nose and throat examination. The voice was recorded and analyzed with Dr Speech's Vocal Assessment Version 4 (Tiger DRS, US). The mean LPR and control group were analyzed using Descriptive analysis, Mann-Whitney and Independent t test.

Results: Vocal Symptom Questionnaire showed the mean total vocal symptom were significantly greater in LPR group 6.1 (SD 30.9) than for the control group (5.59 (SD 10.67); $P < 0.001$). The vocal assessments were analysed in term of jitter, shimmer, harmonic to noise ratio and fundamental frequency. All the other assessment profile for mean were more than the normal value and the Mann-Whitney test were significant only for jitter ($P < 0.001$). Full ENT examination revealed 1 patient having tonsillar hypertrophy, 4 patients having hypertrophic inferior turbinate and 2 patients had otitis media with effusion. The laryngeal examination noted 8 patients had LPR laryngeal changes.

Conclusion: In the subjective vocal symptoms analysis, the LPR patients showed poor voice quality compared to control group. The objective voice result demonstrated that only jitter was affected in LPR patients. LPR patients do complain of voice problem but the overall voice quality of LPR patient is still within normal limit.

Supervisor:

Associate Professor Dr Baharudin Abdullah

Co- Supervisor:

Dr Nik Fariza Husna Nik Hassan

NEEDLE-RESIDUAL MATERIALS: AN EVALUATION OF ADEQUACY AND DIAGNOSTIC AGREEMENT BY USING THINPREPTM

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Introduction: Fine needle aspiration is one of the diagnostic tools in pathology. It can be valuable tool for both neoplastic and non-neoplastic lesions. Rinsing of needle-

residual materials after fine-needle aspiration procedure is found to be beneficial in establishing a diagnosis. It offers optimal count of diagnostic materials obtained. Adequate diagnostic materials are crucial for making an accurate diagnosis. Thus an effort must be made to recover all aspirated diagnostic materials to enable optimal microscopic examination. By maximising the recovery of diagnostic materials, it is hope that it could further help to increase the adequacy rate and diagnostic accuracy of fine-needle aspirations. The aim of this study was to determine the adequacy and diagnostic agreement of needle-residual materials processed by ThinPrep™.

Objective : To evaluate the adequacy and diagnostic agreement of needle-residual materials of fine-needle aspirations processed using ThinPrep™.

Method: This study was a prospective study on fine-needle aspirated materials obtained from breast, thyroid, lymph nodes and salivary glands lesions. For each case, the aspirated materials were directly smeared on glass slides as done routinely. The needle used was then vigorously rinsed by drawing in the ThinPrep™ medium in order to obtain the needle-residual materials. These materials were further processed into monolayered smears using the ThinPrep™ machine. The direct smears slides (the gold standard) were reviewed by pathologists on rotation and each was given a diagnosis as per routine testing. The needle-residual material smears [test method] were reviewed separately by one pathologist without knowing the diagnoses made on the direct smears. The diagnoses made on both methods were compared.

Result: A total of 118 cases comprising of 42 cases (35.6%) of thyroid lesions, 25 cases (21.2%) of lymph node lesions, 47 cases (39.8%) and 4 cases (3.4%) of salivary glands lesions. Needle-residual materials had lower adequacy rate (67.8%) compared to direct smears materials (83.1%). However, the diagnostic accuracy of needle-residual materials was comparable to direct smears.

Conclusion: Residual materials left in needles have sufficient materials for cytological assessment. Despite lower adequacy rate its diagnostic agreement was comparable to the direct smears materials.

Supervisor:

Professor Nor Hayati Othman

INFRARED THERAPY IN DIABETIC FOOT INFECTION

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MMed (Orthopaedic)

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Introduction: As the prevalence of diabetes mellitus steadily been increased over years, the diabetic foot complication is also continues to rise and give profound burden to patients and health care institution. Many modalities have

been exploited in order to hasten healing of diabetic foot infection and ulcer besides standard surgical debridement. Infrared therapy is being used for chronic recalcitrant diabetic ulcer. This study therefore manipulated the usage of infrared therapy to assist wound healing in acute post surgical debridement of diabetic foot.

Objective: The aim of the study is to determine the effect of infrared therapy in diabetic foot ulcer post debridement.

Methods: Thirty three patients with Wagner II and IV diabetic foot infection were enrolled in the study for two weeks duration, randomized into two groups, namely infrared group who received infrared therapy treatment and control group who does not. The wound of all patients dressed with saline on daily basis. Wound healing was assessed by measuring the granulation surface area via tracing technique.

Results: There was significant correlation between age and duration of diabetes in both groups ($P = 0.001$, 0.009). BMI and HbA1c values were positively correlated in both groups with $P = 0.001$. There was a reduction in wound size within two weeks in both groups, but statistically not significant ($P = 0.452$)

Conclusion: The wound surface area for infrared group does not significantly affected by the infrared therapy.

Supervisor:
Professor Dr Zulmi Wan
Co-supervisor:
Dr Abdul Nawfar Sadagatullah

THE EFFECTIVENESS OF CARDIOPULMONARY RESUSCITATION (CPR) TRAINING ON KNOWLEDGE AND ATTITUDE TOWARDS BASIC LIFE SUPPORT AMONG SECONDARY SCHOOL CHILDREN IN KOTA BHARU, KELANTAN

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Introduction: Out-of-hospital cardiac arrest (OHCA) is a major public health problem. It affects all communities worldwide. One of the most common causes of cardiac arrest is acute myocardial infarction. However, recognition of cardiac arrest is not always straightforward especially for laypersons. Therefore, the survival rates among OHCA victim still remain low. Early bystander CPR is one of the most important factors to improve rate of survival among OHCA. We targeted the school children because they are quick learners, easy to motivate and also competent to provide effective chest compression.

Objectives: The aim of this study was to determine the effectiveness of CPR training on knowledge and attitude among secondary school children in Kota Bharu, Kelantan. This study also serves as a starting point to create a database

that other centres in the nation will be able to add on to.

Methods: This is a prospective interventional study. It was conducted from January 2012 until June 2012. The validated questionnaire was designed based on AHA Guidelines 2010. Six secondary schools in Kota Bharu, Kelantan were chosen to be part of this study. Three schools were selected as a control group and remaining three as an intervention group. The study subjects were obtained from one class of Form 2, 3 and 4 based on simple randomization for both study groups. The intervention group was given a lecture, video show, pamphlet and practical session on CPR training. Meanwhile, the control group was given a booklet on hazard of smoking to overcome learning effect. The questionnaires were distributed pre-intervention and two weeks post-intervention for both study groups and collected on the same day by the researcher. Statistical analysis was used using software SPSS version 18.0.1.

Results: A total of 477 secondary school children were analyzed. It comprised of 226 respondents in the control group and 251 respondents in the intervention group. Majority of the study subjects were Malays. No significant difference in the distribution of study subjects according to form ($P = 0.356$) and school category ($P = 0.086$). Majority of the study subjects in the control 73.9% (167) and intervention groups 64.5% (162) had no CPR training prior to this study. Only 26.1% (59) from control group and 35.5% (89) from intervention group had been trained on CPR. The mean (SD) total knowledge scores for overall respondents was 62.43 (13.68) in the intervention group and 62.29 (12.11) in the control group out of possible maximum score of 100. For total attitude scores, the mean (SD) was 19.33 (4.51) in the intervention group and 17.85 (4.52) in the control group out of possible maximum score of 28. The mean differences of knowledge and attitude scores between both study groups were 8.31 ($P < 0.001$) and 2.39 ($P < 0.001$) respectively regardless of time.

Conclusion: The respondents on both study groups had more than average level of knowledge scores and good positive attitudes on resuscitation at baseline level. Following CPR training programme, it has proven to improve their level of knowledge and attitudes significantly as compared to those who were never been trained. Since majority of the students have no CPR training, our results suggest that children of all school should be provided with CPR training. The subject should be included in the school curriculum.

Supervisor:
Associate Professor Dr Nik Hisamuddin Nik Abd Rahman
Co-Supervisor:
Dr Chew Keng Sheng

DEVELOPMENT AND VALIDATION OF KNOWLEDGE, PERCEPTION AND PRACTICE (KPP) QUESTIONNAIRE ON RESPIRATORY TRACT INFECTION PROTECTIVE MEASURES AMONG MALAYSIAN HAJJ PILGRIMS 2012

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Introduction: Respiratory tract infection is a common infection among pilgrims during Hajj pilgrimage. A survey may provide information in preventing highly potential infection during Hajj pilgrimage.

Objective: To validate a newly developed knowledge, perception and practice (KPP) questionnaire on respiratory tract infection protective measures among Malaysian Hajj pilgrims.

Methods: After a detailed content and face validity evaluation, a self-administered questionnaire with 74 items was developed which assessed level of KPP towards respiratory tract infection protective measures. Data was collected from 303 pilgrims in 2012. Exploratory factor analysis (EFA) as data reduction for knowledge and perception domains was done using IBM SPSS 20.0. Further construct validity was evaluated on perception domain by Confirmatory Factor Analysis (CFA) using AMOS 18.0. All three domains including practice were checked for internal consistency.

Results: The mean (SD) of age of the respondents was 55.27 (SD 10.32) years old. Majority of them were Malay (98.0%) and there were a total of 184 of male and 119 female Hajj pilgrims. Most of them were already married (87.8%). Only 76 respondents were worked with government and the highest level of education background was from secondary school (41.3%). There were three components extracted for each knowledge and perception domains in EFA. The perception domain performed model fit since fitness indeces were satisfactory in CFA as chi-square (df), P -value = 17.62 (11), 0.091; AIC = 51.62; ECVI = 0.256; TLI/CFI = 0.977/0.988; RMSEA = 0.055; SRMR = 0.04; chi-square/(df) = 1.60. Internal consistencies (Cronbach's alpha) for KPP were 0.51, 0.78 and 0.78, respectively. However, the CFA for knowledge domain was not performed due to unidentified problem of the model. Otherwise, it was considered content validated under a single construct. A total of thirty-six items were retained in the final questionnaire.

Conclusion: The KPP was valid but less reliable only on knowledge domain. Thus, further, improvement should be performed to increase the validity and reliability of questionnaire.

*Supervisor:
Professor Syed Hatim Noor
Dr Aniza Abd Aziz
Associate Professor Dr Habsah Hasan
Dr Zeehaida Mohamed*

**A STUDY OF VISUAL EVOKED POTENTIAL (VEP) IN
TRAUMATIC OPTIC NEUROPATHY (TON) PATIENTS**

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Introduction: Traumatic optic neuropathy (TON) is quite a rare ocular problem but can cause severe and irreversible visual impairment. It commonly occurs in young men and majority of them involved in the motor vehicle accident (MVA). The causes of TON can be due to direct injury caused by disruption of the optic nerve or optic nerve impingement in the optic canal. In indirect optic nerve injury is due to transmission of the concussion force that lead to the optic nerve contusion that commonly occurs among head injury or mid facial trauma patients. For unresponsive patient, flash VEP is helpful to detect the presence of TON but is not a diagnostic tool in making a diagnosis of TON.

Objectives: The aims of this study were to evaluate optic nerve function using VEP, to determine visual acuity, to determine mean latency and amplitude of fVEP and to determine the association of mean fVEP latency and amplitude among age group, gender and visual acuity in TON patients at Hospital Universiti Sains Malaysia (HUSM), Kubang Kerian, Kelantan.

Methods: A prospective cross-sectional study was conducted among 18 of TON patients and 18 controls in Hospital Universiti Sains Malaysia (HUSM) that fulfilled the inclusion and exclusion criteria. Ocular examination including visual acuity, fVEP amplitude and latency were performed at 48 hours, at 1 week and 1 month of injury. Descriptive statistics including mean and standard deviation for numerical and percentage for categorical data were calculated. Repeated measures ANOVA and independent t-test analysis were performed to determine association factors with fVEP readings at certain time intervals.

Results: From 18 TON patients, majority of the patients were male (83.3%) and Malay (94.4%). Age of the patients ranged from 18 to 49 years old. At first 48 hours, out of 18 patients, 7 patients were comatose or intubated. Majority of them presented with poor vision of CF to PL with percentage of 27.8% ($n = 5$) while 16.7% ($n = 3$) presented with good vision from 6/6 to 6/12. Based on the measurement of the N1 latency, P1 latency and N1-P1 amplitude of fVEP readings among TON patients, this study shows that there was statistically significant reduction of the N1-P1 amplitude in TON patients compared to the readings in the control group ($P < 0.001$). However, there was no statistically significant difference of N1 and P1 latency between the two groups. In this study also, we found that there were significant association in between age groups with N1 latency of fVEP readings ($P = 0.043$) at one month of injury and in between age groups with P1 latency of fVEP readings ($P = 0.004$) at one month of injury. The N1-P1 amplitude of fVEP readings also showed significant association with visual acuity at 48 hours of injury ($P = 0.020$) and at 1 week of injury ($P = 0.032$). However,

there was no association between gender and fVEP readings in TON patients.

Conclusion: Majority of the TON cases were among head injury patients caused by MVA. There were difficulties in visual acuity assessment in about 1/3 of TON patients at first review in view of they were comatose and intubated. Therefore, in these patients, fVEP might be one of the reliable tools in monitoring optic nerve function since visual acuity examination was not possible.

Supervisor:

Dr Adil Hussein

Dr Hanizasurana

Co-Supervisor:

Associate Professor Dr Wan Hazabbah Wan Hitam

COMPARATIVE STUDY ON THE EFFECT OF RINGER'S LACTATE AND STEROFUNDIN® ISO IN PAEDIATRIC SURGICAL PATIENTS

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Introduction: The choice of right intravenous fluids during intraoperative period in paediatric anaesthesia is still debatable. The search of an ideal intravenous solution that can overcome the physiological changes associated in anaesthesia and surgery are important for the safety of paediatric patients undergoing surgery. A new isotonic solution with an electrolyte and acid-base pattern that is as physiological as plasma has been introduced.

Objectives: The goal of this study is to compare two solutions that are currently used during paediatric anaesthesia in attempt to search for the 'right' solution. We are also interested to document any electrolyte abnormality and acid-base changes when using both solutions in order to find the best solution for paediatric age group during the duration of surgery.

Methods: 138 paediatric patients who were subjected for surgery under general anaesthesia of less than 3 hours were enrolled in this study. They were divided into two groups and this study was done in a double-blind manner. All the patients received anaesthesia in a standard practice and blood samples were taken on 2 occasions, after induction of anaesthesia and before extubation. The blood samples were tested for electrolyte and acid-base values.

Results: There was a significant difference in glucose, potassium (K⁺) and chloride (Cl⁻) level between pre-infusion and post-infusion values with Ringer's Lactate solution. There was also a significant difference in pH, base excess, glucose, calcium, chloride (Cl⁻) and lactate level between pre-infusion and post-infusion values with Sterofundin® ISO. When comparing the differences of values of electrolytes and acid-

base at pre-infusion and post-infusion between both study solutions, only differences in the mean values of Calcium (Ca²⁺) levels were significant between these two study solutions (mean difference of Calcium in Ringer's Lactate 0.005 (SD 0.07) and Sterofundin® ISO 0.02 (SD 0.06). No significant differences were observed with other variables

Conclusion: Both Ringer's Lactate and Sterofundin® ISO showed variable effects in terms of electrolyte and acid-base balance in this study and none of these solutions seemed to be clearly superior in paediatric surgical patients undergoing minor surgery of less than 3 hours.

Supervisor:

Associate Professor Dr Saedah Ali

Co-Supervisor:

Dr Gnandev Phutane

OUTCOME OF HEAD INJURY IN RELATION TO FULL OUTLINE OF UNRESPONSIVENESS SCORE (FOUR) SCORE

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MMed (Emergency Medicine)

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Medical Sciences, Universiti Sains Malaysia Health
Campus, 16150 Kelantan, Malaysia*

Introduction: Head injury is one of the common problem which occur in those who involved in motor vehicle accident. Glasgow Coma Scale (GCS) is the most common scoring system used to assess the level of consciousness in these patient. Full Outline of Unresponsiveness (FOUR) Score is a new scoring system which was introduced in 2005, and has more detail neurology assessment.

Objectives: The objectives of this study were to determine the distribution of patients involved in head injury in relation to age, gender, computed tomography (CT) brain finding and the need for neurosurgical intervention, to determine the mean FOUR Score value for 28 days mortality, CT brain finding and the need for neurosurgical intervention, to determine the correlation of FOUR Score and GCS score in head injury patients and also to compare the mean difference of FOUR Score value in 4 different CT brain classification including the normal CT brain finding.

Method: This was cross sectional study involving 106 head injury patients presented to Emergency Department Hospital Universiti Sains Malaysia (HUSM) and Emergency Department Hospital Raja Perempuan Zainab II (HRPZ II) from 1st August 2011 till 29th February 2012. Patients who fulfill the inclusion criteria were selected for the study. All patients were assessed their level of consciousness using GCS and FOUR Score, and also collected their data regarding 28 days mortality, CT Brain findings and the need for surgical intervention.

Result: 106 patients were enrolled. 76.4% (n = 81) were male and 23% (n = 25) were female. Mean age group

was 33.4 (SD 17.8). Motor Vehicle Accident (MVA) was the common cause of head injury with 89.6% (n = 95) patients involved. From 106 of these patients, 17.0% (n = 18) patients had 28 days mortality. 76.4% (n = 81) patients had abnormal CT Brain and 22.6% (n = 24) patients had undergone neurosurgical intervention. In relation to FOUR Score, those who had 28 days mortality had much lower mean total FOUR Score value compared to those who were not with the mean difference and 95% CI of 6.22 (4.70, 7.73). Those who had normal CT Brain finding had much higher mean total FOUR Score value compared to those with abnormal finding with mean difference and 95% CI of 2.72 (1.49, 3.94). Patients who had undergone neurosurgical intervention had much lower mean total FOUR Score value compared to those who were not with the mean difference and 95% CI of 1.86 (0.16, 3.56). Correlation between FOUR Score and GCS Score was statistically significant with the correlation coefficient (r) of 0.94 with the P value < 0.001. By using Dunnett T3 test, normal vs diffuse CT Brain classification found to have the most significant mean difference with 95% CI of 4.43 (1.84, 7.02) and P value < 0.001. Followed by focal vs diffuse CT Brain classification with the mean difference and 95% CI of 2.57 (0.32, 4.82) and P value of 0.018.

Conclusion: There was a significant correlation between FOUR Score and GCS Score, with the correlation coefficient (r) of 0.94. Also known that, the use of FOUR Score is more detailed in the neurology assessment in order to determine the level of consciousness. So that, the use of FOUR Score as a scoring system is better in the assessment of consciousness level, especially in head injury patients. The figures from this study mandate further exploration about the use of FOUR Score in Malaysia, in order to enhance the knowledge and awareness about this scoring system.

Supervisor:

Dr Nik Ariff Nik Mohamad

Co-Supervisor:

Associate Professor Dr Rashidi Ahmad

THE ASSOCIATED FACTORS OF DIABETIC RETINOPATHY SEVERITY IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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MSc (Medical Statistics)

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Introduction: Diabetes mellitus (DM) and its complications are likely to become increasingly prevalent worldwide and would impose a heavy burden on the health system in Malaysia. One of the microvascular complications is diabetic retinopathy (DR). It is emerging as one of the important causes of visual impairment and blindness in both developing and developed countries.

Objectives: The aims for this study were to describe the proportions of DR according to severity and its associated factors among newly diagnosed diabetic retinopathy patients in Hospital Universiti Sains Malaysia.

Methods: A cross-sectional study design was conducted at Ophthalmology Clinic, Hospital USM using the medical record database from 2005 to 2011. A total of 216 DR patients' medical records were retrieved and reviewed. Socio-demographic factors, clinical parameters, co-morbidity, treatment characteristics, diabetes characteristics and DR severity outcome based on International Clinical Diabetic Retinopathy Severity Scale grading (mild non proliferative diabetic retinopathy (NPDR), moderate NPDR, severe NPDR and proliferative diabetic retinopathy (PDR) were extracted. Descriptive statistics and Ordinal Logistic Regression were applied using Stata SE/11.

Results: The mean (SD) age of DR in this study was 56.06 years old (SD 9.98). Majority were Malay (86.1%) and male (50.9%). Proportion of mild NPDR was 48.6% (95% CI: 40.0, 60.0), moderate NPDR was 28.2% (95% CI: 22.0, 40.0), severe NPDR was 6.9% (95% CI: 4.0, 11.0) and PDR was 16.2% (95% CI: 10.0, 22.0). Four significant adjusted associated factors that influenced DR severity were duration of DM more than ten years (OR: 3.33; 95% CI: 1.85, 5.99; P-value < 0.001), nephropathy (OR: 2.28; 95% CI: 1.32, 3.92; P-value 0.003), HbA1c (per 1% increase) (OR: 1.14; 95% CI: 1.02, 1.27; P-value < 0.018) and higher total cholesterol (OR: 2.63; 95% CI: 1.50, 4.59; P-value 0.001).

Conclusion: Patients having DM more than 10 years, having nephropathy, increase HbA1c by 1 percent and higher total cholesterol were at increased risk of developing more severe DR.

Supervisor:

Dr Aniza Abd Aziz

Co-Supervisor:

Associate Professor Dr Nor Azwany Bt Yaacob

Dr Siti Raihan Ishak

Candida albicans CANDIDEMIA: PROPORTION, ANTIFUNGAL SUSCEPTIBILITY PATTERN AND GENOTYPING

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MPH (Microbiology)

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Introduction: *Candida albicans* has been identified as the most prevalent pathogenic yeast causing infection in immunocompromised and immunocompetent patients, however infection due to *non-albicans Candida* species have been reported to increase dramatically on a global scale. This study described the prevalence of *Candida* species causing candidemia and the susceptibility profile of *C. albicans*.

isolated. Genotyping was performed to determine the genetic diversity of *C. albicans* cohort.

Objectives: The aims of this study were to determine the proportion, antifungal susceptibility pattern and genotypic characteristics of *Candida albicans* isolated from blood.

Method: This is a cross-sectional descriptive study. *Candida* species isolated from blood culture in Hospital Sungai Buloh from 1st March 2011 to 28th February 2012 were identified, and antifungal susceptibility pattern of *C. albicans* using Sensititre YeastOne™ were described. Demographic data and underlying illness of the patients were obtained from patients' notes. Genotyping was carried out using Multilocus sequence typing (MLST).

Results: Among 263 *Candida* species cause candidemia, *C. albicans* and non-*albicans* species were accounted for 31.6% (83 of 263) and 68.4% (180 of 263) of cases respectively. *C. tropicalis* isolated most commonly (n = 63) among the non-*albicans* *Candida*, followed by *C. parapsilosis* (n = 59) and *C. glabrata* (n = 38).

The proportion of azole-resistant *C. albicans* was alarming at 43.4%, while caspofungin and amphotericin B showed excellent in vitro activity against *C. albicans*. MLST analysis revealed high genetic diversity among this cohort of *C. albicans*.

Conclusion: *C. albicans* remained as the most frequently isolated *Candida* species in blood, but the prevalence of non-*albicans* *Candida* is on the rise. A significant proportion of *C. albicans* were resistant to azole group of antifungal. MLST of *C. albicans* strains provided an understanding of the genetic diversity of this organism.

Supervisor:

Dr Azian Harun

Co-Supervisor:

Dr Azizah Mustafa

USE OF WOMAC (WESTERN ONTARIO AND MCMASTER UNIVERSITY OSTEOARTHRITIS INDEX) AS AN INDICATOR FOR TOTAL KNEE REPLACEMENT IN PRIMARY OSTEOARTHRITIS OF KNEE

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MMed (Medicine Orthopaedics)

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Introduction: Total knee replacement (TKR) is an excellent procedure for patients above age of fifty with knee osteoarthritis (OA) presenting with moderate to severe pain and significant disability in daily function not responding to conservative treatment. However there is no simple yet practical tool to guide in indicating patients for the procedure. The WOMAC score has been extensively used both in clinical and experimental setting in assessing patients with knee osteoarthritis. It is reliable, responsive and extensively

validated. However its use to decide on need for TKR in patients with primary knee OA is limited.

Objectives: The aim of the study is to look at the difference in mean WOMAC score between those indicated for total knee replacement and those not indicated for total knee replacement. We also wanted to find the exact cutoff point on the WOMAC scale to indicate a patient with primary knee osteoarthritis for total knee replacement.

Methods: This is a comparative cross sectional study. It was done in 3 phases: 1) WOMAC score done for patients with primary knee osteoarthritis. 2) All the patients were assessed by either both or single arthroplasty surgeon on the need for total knee replacement based on history, clinical assessment and radiological findings. 3) Patients demographics taken and recorded. The second phase is blinded whereby the assessing arthroplasty surgeon does not know the score of the patient on the WOMAC scale. Several patients were assessed by both the arthroplasty surgeons to establish the internal consistency between the two surgeons.

Results: Seventy four patients were scored using the WOMAC scale and were separately assessed by two arthroplasty surgeons. There were 55 females and 19 males with mean age of 62.47 years. Majority of the patients were Malays (88%). Kappa statistics noted near perfect agreement (0.833) between the two assessing arthroplasty surgeon. There was a significant difference in the total WOMAC score as well as the three components of the WOMAC score between those patients who need TKR and those who do not. For those who need TKR the mean pain, stiffness and physical function score were 8.29, 4.12 and 30.21 respectively. The mean score for those who do not need TKR for pain, stiffness and physical function were 2.33, 1.93 and 9.63 respectively. The mean total WOMAC score for those who need TKR was 42.62 and those who do not need TKR was 13.88 (P < 0.001). The receiver operating characteristic (ROC) curve showed at the cutoff point of 30, the specificity of 91.18% sensitivity of 95.00% and positive predictive value was 93.24%.

Conclusion: The WOMAC score is an excellent tool that can be used to indicate TKR in primary knee OA. The study recommends that all patients with a score of 30 and above should be referred to an arthroplasty surgeon for proper assessment on need of TKR.

Supervisor:

Dr Shaifuzain Abdul Rahman

Dr Amran Ahmed Shokri

PROSPECTIVE EVALUATION OF OTTAWA ANKLE RULES IN ACUTE ANKLE INJURY

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MMed (Orthopedic Surgery)

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Background: Acute ankle injuries are one of the most common reasons for presenting to emergency departments. These patients are almost always routinely referred for radiography, whereas less than 15% have clinically significant fractures. The Ottawa Ankle Rules (OARs) have been designed to reduce the number of unnecessary radiographs ordered for these patients.

Objective: To evaluate the OAR for predicting ankle and/or midfoot fractures in Malaysian population whose sustained acute ankle injuries.

Methods: This prospective survey was conducted in the emergency department and orthopedic clinic of hospital university sains of Malaysia. The study group consisted of 73 patients aged 18 years and older who presented with acute ankle and/or midfoot injuries during 12 months. Radiography was performed for all patients after clinical evaluation findings were recorded. Main outcome measures of this survey were: sensitivity, specificity, positive predictive value, negative predictive value, and likelihood ratios (positive and negative) of the OARs.

Results: Twenty two ankle and 12 midfoot fractures were diagnosed. The decision rules had a sensitivity of 100% a specificity of 73.68% and a negative predictive value of 100% in detecting ankle fractures, a sensitivity of 100%, a specificity of 84.61%, and a negative predictive value of 100% in detecting midfoot fractures. Implementation of the OARs had the potential for reducing radiographs by 42.4%.

Conclusion: OARs are very accurate and highly sensitive tools for detecting ankle fractures. Implementation of these rules in our population would lead to significant reduction in the number of requesting for radiographs without missing any clinically significant fractures, thus reducing costs, radiation exposure and waiting times in emergency departments.

Supervisor:

Associated Professor Dr Amran Ahmed Shokri

MRI PATTERNS OF BRAIN INJURY IN NEONATAL HYPOXIC-ISCHEMIC ENCEPHALOPATHY: CORRELATION WITH NEUROLOGICAL FEATURES AND ULTRASOUND SCAN

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Background: Neonatal hypoxic-ischemic encephalopathy HIE is a major cause of infant mortality and morbidity with long-term neurological sequelae, estimated to occur in approximately 1 to 2 per 1000 live births. Early and accurate diagnosis is helpful not only for assessing prognosis but also for making treatment decisions. Clinical evaluation alone is often inadequate to provide an accurate prognosis.

MRI is an established investigation in the evaluation of neonates with suspected HIE. Different patterns of neonatal hypoxic-ischemic injury by conventional imaging sequences have been described in the Western countries. However, there is no proper study found yet here regarding the imaging findings in comparison with clinical diagnosis. The sensitivity of diffusion imaging in neonatal brain ischemia is also has not fully assessed. USG cranium is believed to be less sensitive than MRI for detecting hypoxic ischemic injury.

Objectives: To study MRI patterns of neonatal HIE comparing to clinical diagnosis, association between conventional and diffusion imaging and sensitivity of MRI comparing to USG in detection of neonatal hypoxic brain injury.

Methods : A total of ten full term neonates with clinical diagnosis of HIE admitted to NICU of Hospital Universiti Sains Malaysia were enrolled in this study. HIE severity was assessed according to Sarnat and Sarnat's staging system. All subjects underwent MRI and USG examinations within 6 weeks after birth once these subjects were stable for transportation. All images were interpreted by an experienced pediatric radiologist.

Results: 60% of subjects were clinically diagnosed moderate HIE (Grade II) and 40% with severe HIE (Grade III). Abnormality in the cortex was seen in 40% of subjects, 20% with abnormality in basal ganglia/ thalamus, 10% in both cortex and basal nuclei and another 30% had normal studies. Patterns of injury correlates with the severity of the HIE grading. No significant difference between conventional and diffusion imaging in detecting brain injury ($P > 0.05$) with fair Kappa agreement. MRI was found to have 100% sensitivity as compared to USG in detecting brain injury with diagnostic accuracy of 60%.

Conclusion: MRI patterns of neonatal hypoxic-ischemic injury correlated with the severity of the HIE grading. No significant difference between conventional and diffusion imaging in detecting brain injury. MRI is proved to be more sensitive for the detection of the injury as well as to evaluate the extension of it. . However, USG should still be regarded as a screening test in neonates.

Supervisor

Dr Noreen Norfaraheen Lee Abdullah

Co-Supervisor:

Dr Elinah Ali

Dr Noraida Ramli

CLASSROOM ACOUSTIC MEASUREMENTS AND AUDIOLOGICAL SCREENING OF YEAR 1 SCHOOL CHILDREN

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MSc (Audiology)

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Introduction: Noise is connected to a deteriorating quality of life, by interfering with speech, by accelerating and escalating the development of negative social behaviors such as irritability and neurosis, as well as interferes with attention and consequently performance and productivity. In classrooms the sound perception is obscured by ambient noise and reverberation. Excessive reverberation and ambient noise have a marked negative effect on speech perception by smearing or masking sound. While hearing loss is a common and considerable disability that harms educational performance of school children in developing countries unfortunately, school-aged children are rarely screened for hearing loss during routine clinical examination, and health authorities pay little attention to audiometric evaluation particularly in primary schools. This is usually attributable to the inadequate knowledge of parents, school authorities and healthcare providers on the outcomes of mild hearing loss. Therefore, hearing screening at school entry has been proposed for the early detection and rehabilitation of hearing impaired school children in the developing countries.

Objectives: The main objective of this study was to study the acoustic measurement of the classrooms and the status of hearing among children at entry school age. This study consisted of three parts. The first part of this study was about measuring the sound attenuation of sound treated booths while the second part of this study measured the noise levels and reverberation times in selected classrooms of the schools. The last part of this research was the main part whereby school children were screened for their ear and hearing status. This was done by choosing two primary schools, a public and a private school.

Methods: Noise was measured using sound level meter at 5 points in each classroom. Meanwhile the measurement of reverberation time was conducted using Sound Forge software. The data obtained showed that the attenuation values of broadband noise at different intensity levels for the two different sound treated booths were almost similar. The attenuation of pure tones at the lower frequencies (250, 500 and 1000 Hz tones) for the two sound treated booths showed that the UK made sound treated booth having higher attenuation values than the locally made, especially at higher intensity levels. For high frequency tones, the attenuation values for both sound treated booths were almost identical at all intensity levels. For the ear examination and hearing across sectional study was conducted in schools of Kota Bharu, Kelantan. A total of 227 student with a mean age of 6.5years (range 6-7 years) participated in this present study. Both ears were examined using otoscope, DPOAE, tympanometry and pure tone audiometer.

Results: Overall, the mean noise level in classrooms at the private school ranges from 52.1 to 67.6 dBA and the mean noise level in classrooms at the public school ranges from 54.8 to 76.7 dBA. The mean reverberation time obtained from this study is 0.51 (SD 0.05) seconds in private school and 0.76 (SD 0.16) seconds in the public school. Altogether 454 ears were examined, the otoscopic examination showed

101 abnormal right ears and 95 abnormal left ears and the most common finding was ear wax followed by otitis media. Thirty nine (17.2%) students failed (refer) DPOAE whereby 16 (7%) in the right ear and 11 (4.8%) left ear while 12 (5.2%) were referred in both ears. Tympanometry was abnormal in 66 (29%) right ears and 60 (26.4%) left ears. The pure tone audiometry (PTA) showed that 113 (50.2%) right ears and 125 (55.5%) left ears has hearing loss in single frequency. When hearing impairment was examined with PTA the use of four frequencies 31 (13.6%) students found to be impaired, 28 of them were mild and 3 moderately impaired. This impairment was bilateral in 14 (6.2%) children and 6 (2.6%) in the left ear, 11 (4.8) in the right ear. When the validity of DPOAE as a screening tool was examined against the PTA it showed a sensitivity of 95% and the specificity was 59%.

Conclusion: routine screening based on the identification of ear conditions will facilitate the detection of hearing impaired school-aged children which can be treated early to avoid possible complications and to avoid its impact on behavior and education.

Supervisor:

Professor Dr Din Suhimi Sidek

Co-Supervisor:

Associated Professor Dr Mohd Khairi MD Daud

Dr Mohd Normani Zakaria

ASSOCIATION BETWEEN COMPUTED TOMOGRAPHY GRADING SCALES OF ANEURYSMAL SUBARCHNOID HAEMORRHAGE AND OUTCOME RESULTS

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MMed (Radiology)

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Introduction: Fisher and Hijdra computed tomography (CT) grading scales are most favorable CT grading scales that are commonly used for quantification of amount of blood in aneurysmal subarachnoid haemorrhage (aSAH). Numerous studies have shown that the amount of blood in the subarachnoid spaces will affect the possibility of cerebral ischemia and final outcome. This study was carried out to investigate the association of Fisher and Hijdra CT grading scales with final outcome of the patients based on Glasgow outcome scale (GOS). The agreement between these two grading scales was also assessed. Apart from evaluation of the value of CT grading scales in predicting the fortune of patients with aSAH, the results of this study may be applicable in radiological reports of aSAH cases. The results of this research may also play a role in designing treatment protocol of such patients based on CT grading scales.

Objectives: The aims of this study were to determine association between Fisher CT grading scale of aSAH and outcome, to determine association between Hijdra CT grading

scale of aSAH and outcome, and to determine agreement between Fisher and Hijdra CT grading scales.

Methods: All patients who were admitted with aSAH in Hospital Universiti Sains Malaysia (HUSM) from January 2001 to December 2011 and had proper early CT scan images and their outcome 3 to 6 months after ictus based on GOS criteria could be obtained were included in this study. A total of 82 patients fulfilled the inclusion criteria. All CT images were reviewed by a radiologist with 8 years of experience and CT grading scales based on both Fisher and Hijdra methods performed for all subjects. Meanwhile, prognosis of subjects 3 to 6 months after ictus based on GOS criteria were recorded in the provided GOS questionnaire forms. Data collected either through folder notes or via direct phone call (telephone-based GOS interview). The association between the two CT grading scales and GOS were analysed by using chi-square and Fisher's exact test. Finally, Kappa statistics test was used to analyse the agreement between Fisher and Hijdra CT grading scales.

Results: Statistical analysis showed significant association between Fisher CT grading scale and outcome based on GOS ($P < 0.001$). Significant association between Hijdra grading scale and GOS was observed ($P < 0.01$). Similarly, there were significant association between amount of cisternal and ventricular bleed based on Hijdra grading method and GOS ($P < 0.01$ and $P < 0.05$, respectively). Finally, agreement between Fisher grading scale and Hijdra grading scale was found to be significant ($P < 0.001$); although statistically power of agreement was poor (kappa value < 0.2).

Conclusion: The results of the present study demonstrated the significant association between Fisher and Hijdra CT grading scales of aSAH with outcome of the patients. Therefore, either of these CT grading scales can be used routinely in the radiological reports of aSAH cases. Higher values of CT grading scales can predict poorer outcome and may affect the treatment strategy and imply the managing team for proper preventive therapy to avoid late complications such as delayed cerebral ischemia (DCI). We found significant agreement between Fisher and Hijdra CT grading scales in the present study. However, the power of agreement between these two scales was poor, likely reflects different method of scoring of Fisher and Hijdra grading.

Supervisor:

Dr Nik Munirah Nik Mahdi

EXPRESSION OF ALPHA-METHYLACYL-COA RACEMASE (AMACR) AND p63 IN DIFFERENTIATING BENIGN AND MALIGNANT FOCI OF PROSTATIC NEEDLE BIOPSY SPECIMEN

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Introduction: It remains challenging for pathologists to identify foci of prostate cancer based on minimal materials in needle biopsies. Traditionally, such situation is tackled by using a positive basal cell marker such as p63 to paradoxically highlight the absence of basal cells to confirm malignancy. Using such approach might lead to false negative results. Alpha-methylacyl-CoA racemase (AMACR) gene was noted to be over expressed in prostate cancer cells and since then it has emerged as a new promising positive marker for prostate cancer. In this study, we test the advantage of combining these markers to differentiate between the benign and malignant foci in prostate needle biopsy.

Method: A cross-sectional study was conducted on 268 foci which included 92 foci of benign, 106 foci of malignant, 34 foci of high-grade prostatic intraepithelial neoplasm (HGPIN) and 36 foci of atypical cells of cancer mimickers, identified from 86 prostatic needle biopsy specimens of archived paraffin-embedded tissue blocks followed by immunohistochemical stains for AMACR and p63. Moderate to strong cytoplasmic staining for AMACR was considered as positive whereas dark brown nuclear staining was considered positive for p63 even in a single cell.

Result: AMACR protein was expressed in 72 from 106 (67.9%) of unequivocal malignant foci supported by absence of basal cells. Both staining were non-contributory in 23 from 106 (21.7%) of unequivocal malignant foci. The other 7 (6.6%) foci were considered as HGPIN with positive p63 and AMACR staining. The remaining 4 (3.8%) foci that adjacent to voluminous tumour were found to be over diagnosed as malignant foci. Staining for these 4 foci demonstrated positive p63 and negative AMACR. Of 11 foci with atypical suspicious for malignancy, 8 foci were diagnosed as HGPIN. A total of 3 foci were considered malignant with absence of basal cells and positive for AMACR. In 25 foci with benign atypical foci, 3 foci of atypical adenomatous hyperplasia (AAH), atrophic gland and reactive atypia were considered malignant with negative for p63 and strongly positive for AMACR. Of 34 HGPIN specimens, 29 foci showed presences of basal cells with 19 from 29 foci were negative for AMACR staining and 10 from 29 foci demonstrated strong AMACR staining. A total of 14 foci from 92 benign foci showed strong positive for AMACR staining.

Conclusion: Enhancement of prostate cancer diagnosis using AMACR as a new positive marker complementing the traditional negative marker, p63 was demonstrated. In addition to benign and malignant foci, applying this strategy in ambiguous situation such as HGPIN and cancer-mimickers, will help the pathologist to achieve a definite diagnosis which explains their true biological behavior.

Supervisor:

Dr Sharifah Emilia Tuan Sharif

Co-Supervisor:

Dr Noor Laili Mohd Mokhtar

A STUDY OF THE EFFECTIVENESS OF AUTOFLUORESCENCE ENDOSCOPY IN DIAGNOSING UPPER AERODIGESTIVE TRACT TUMOURS

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Introduction: Early recognition of cancers involving the upper aerodigestive tract has prognostic implications and is critical for improving survival rate. Visual detection of these tumours has always depended on conventional white light endoscopy. Autofluorescence endoscopy, an emerging visual diagnostic tool, holds much promise in improving the delineation of such tumours. The aim of this study was to evaluate the effectiveness of autofluorescence endoscopy in detecting tumours involving the upper aerodigestive tract.

Objectives: To determine the diagnostic accuracy of autofluorescence endoscopy in detecting upper aerodigestive tract tumours and to study its correlation with findings from histopathological examination.

Methods: A cross-sectional prospective study was carried out in the Otorhinolaryngology Clinic, Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan from June 2011 till March 2012. Forty five selected patients with clinical evidence of suspicious lesions involving the upper aerodigestive tract were examined using conventional white light and autofluorescence endoscopy. Biopsy of the lesions were taken and sent for histopathological examination. The statistical analysis of sensitivity, specificity, positive and negative predictive values of autofluorescence endoscopy in detecting upper aerodigestive tract tumours were compared to histology of the biopsied specimens as gold standard.

Results: In comparison to histopathological examination, the sensitivity of autofluorescence endoscopy was 95.5% and specificity 73.9% with P value < 0.001. The positive and negative predictive values were 77.8% and 94.4% respectively. The Pearson-Chi square test showed presence of significant differences between the relationship of autofluorescence endoscopy and histological diagnosis in detecting upper aerodigestive tract tumours.

Conclusion: Autofluorescence endoscopy was effective in detecting upper aerodigestive tract tumours. Its feature of differentiating between benign and malignant tumours makes it ideal to be used as an adjunct to white light endoscopy.

Supervisor:

Associated Professor Dr Baharudin Abdullah

Co-Supervisor:

Dr Muhamad Yusri Musa

Dr Ramiza Ramza Ramli

A SURVEY ON KNOWLEDGE, ATTITUDE AND CONFIDENCE LEVEL ON RAPID SEQUENCE INTUBATION AND EMERGENCY AIRWAY MANAGEMENT AMONG DOCTORS IN EMERGENCY DEPARTMENT

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Introduction: Rapid sequence intubation (RSI) is often described as the cornerstone of emergency airway management and is a very important aspect of patient care in emergency department (ED) especially for critically ill patient and during resuscitation. Failure to achieve airway control can lead to complications and even death. ED doctors are expected to master this important clinical skill in order to provide safe care to patient.

Objectives: To determine the knowledge, attitude and confidence level on RSI and emergency airway management among ED doctors and to identify associated factors that contributing to satisfactory knowledge, positive attitude and having confidence.

Methods: This was a cross-sectional study conducted at ED of 3 Ministry of Health Hospital in State of Pulau Pinang and Hospital Universiti Sains Malaysia in State of Kelantan using a validated self-administered RSI and emergency airway management questionnaire comprised of demographics, 12 items for knowledge, 11 items for attitude, and 10 items for confidence level. Statistical analyses using Multiple Logistic Regression were performed to identify significant associated factors.

Results: Of 107 respondents, 43 were residents of emergency medicine, 30 were medical officers and 34 were house officer. Median score of knowledge is (9/12), attitude (54/55) and confidence level (30/50). 50.1% (n = 54) of ED doctors were found to have satisfactory knowledge, 58.9% (n = 63) were found to have positive attitude, and 51.4% (n = 55) were found to have confidence. The mean score were found to be moderate (8.29) for knowledge, good for attitude (52.76), and poor for confidence (29.50). Duration of working experience in ED was found significantly associated with satisfactory knowledge ($P < 0.001$). Attendance to Advanced Cardiac Life Support (ACLS) course was found significantly associated with positive attitude ($P = 0.029$) and duration of working experience in ED ($P = 0.007$) and attendance to Malaysian Trauma Life Support (MTLS) course ($P = 0.018$) were found to significantly associated with having confidence on RSI and emergency airway management.

Conclusion: This study demonstrated that ED doctors have moderate level of knowledge, good level of attitude, and low level of confidence on RSI and emergency airway management and there is opportunity for further improvement via training.

Supervisor:
Dr Abu Yazid Md Noh

PANDEMIC INFLUENZA A (H1N1) 2009: THE ASSOCIATION OF DEMOGRAPHIC, CLINICAL CHARACTERISTIC AND TYPE OF SPECIMEN WITH RT PCR TEST POSITIVITY AND Ct VALUE

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Introduction: Pandemic (H1N1) 2009 influenza A emerged in Mexico in March 2009, rapidly spread worldwide, with the first pandemic (H1N1) 2009 infection reported in Malaysia on May 15. Malaysia first death related to the influenza A (H1N1) virus was reported on 23 July 2009. Numerous reports have described the epidemiological and clinical characteristics of influenza A (H1N1) 2009 infected patients in elsewhere but not in our local settings. It is stated that the clinical features of this pandemic H1N1 (2009) is indistinguishable with the seasonal influenza. In this study, is conducted describe clinical characteristic of patients infected with pandemic (H1N1). The patient characteristics, clinical features and outcomes of a patients hospitalised with confirmed cases of pandemic (H1N1) 2009 and negative cases were also compared. This study is conducted determined the relevance and importance factors significantly associated with the positivity of H1N1. The correlation of pandemic (H1N1) 2009 viral load with disease severity still unclear but we hypothesize that severe disease are associated with the higher burden of the viral load.

Objectives: The aim of this study were to determine the correlation of cycle threshold (CT) values of the influenza A polymerase chain reaction (PCR) which reflect the viral load with disease severity, social demographic, clinical characteristic and type of specimen sent.

Methods: This retrospective study involved 270 hospitalised patients, with laboratory H1N1 real-time RT-PCR test was performed at Hospital Raja Perempuan Zainab II (HRPZII), Kelantan in 2009 and 2010. 70 of the patients were H1N1 confirmed cases and 200 patients were negative cases. Relevant data from medical records were reviewed and recorded.

Results: In contrast to other study, half (54.3%) of the positive H1N1 cases involved children under the age of two years old. Other clinical characteristics were not much differed from other study. In comparison between positive and negative cases, fever and cough were the most common symptoms in both groups. The only distinguishing symptoms were headache and reduced oral intake. For the co-morbid illness, asthma was the commonest comorbidity in both positive and negative cases. Pregnancy was found to be more

frequent in positive cases and statistically significant different with negative cases. Using multiple logistic regression, headache, reduced oral intake and pregnancy were the factors associated with positivity of pandemic (H1N1) 2009 infection. For the confirmed cases of pandemic H1N1, half of the patients (50%) had cycle threshold (Ct) value more than 30 indicates lower viral load. Ct value was found significantly higher in patients presented with pneumonia. No significance difference of mean Ct value between survived and death patients and among other clinical characteristic. There was no correlation of the Ct value with the day onset of fever.

Conclusions: Majority of the patients infected with pandemic H1N1 2009 infection in this study involved patient less than 2 years old. The initial presentation between positive and negative cases was difficult to distinguish, but headache, reduced oral intake and pregnancy were more associated with confirmed cases of pandemic (H1N1) 2009 infection. Among positive cases, patients presented with pneumonia had lower Ct value indicate higher viral load which may require more aggressive treatment.

Supervisor:
Associate Professor Dr Hajah Fauziah Mohamad Idris

THE VALIDATION OF THE MALAY VERSION SINO-NASAL OUTCOME TEST 22 (SNOT-22) IN CHRONIC RHINOSINUSITIS PATIENTS

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Introduction: Chronic rhinosinusitis (CRS) is a major otorhinolaryngology diagnosis and affects 14% of the general population. CRS is a disease of general population and it has been recognised to affect patient's quality of life but there has been no quantitative data that demonstrate the health burden that CRS may incur. Thus, valid, reliable and responsive instruments should be developed to assess this physical, mental, emotional, social and professional impact on CRS patients especially in Malaysia population.

Objectives: To translate Sino-Nasal Outcome Test-22 into the Malay language and to determine the feasibility, validity and reliability of the Malay version of SNOT-22.

Methods: This was a cross sectional study conducted at the ORL-HNS general clinic and rhinology clinic in HUSM. 70 CRS respondents were involved and 39 healthy participants recruited for the control group. The Malay translated SNOT-22 and a previously Malay validated SF-36 were administered by the respondents. The translation used forward, backward and respondent testing and has been reviewed for face and content validity. The Malay version of SNOT-22 was administered again at two to four weeks interval retesting 55 patients with CRS. The statistical analysis used was feasibility, cronbach's

alpha, intraclass correlation coefficient, Pearson's correlation coefficient and factor analysis.

Results: Regarding feasibility of this test, the response rate of each question items was 97.2% in the initial test and 100% in the retest. All items in SNOT-22 have means ranging from 1.10–2.64 with standard deviations ranged from 0.933–1.486. The Cronbach's alpha was high that is 0.89 in the initial test. The average intraclass correlation coefficient (ICC) was high that is 0.90 indicating good test-retest reliability. Factor analysis showed that Malay version SNOT-22 have four unique constructs that is the rhinological symptoms, ear or facial symptoms, sleep and psychological function. Discriminant validity demonstrate that Malay version SNOT-22 was able to discriminate between control group and patients ($t = 15.33$; $P < 0.001$). Concurrent validity findings showed that the subscale of Role Physical (RP) in Malay version SF-36 statistically correlates significantly with ear or facial symptoms ($r = -0.259$, $P < 0.05$) and psychological issues ($r = -0.304$, $P < 0.01$) in Malay version SNOT-22. Bodily Pain (BP) domains in Malay version SF-36 also statistically significant with psychological issues ($r = 0.498$, $P < 0.01$) within Malay version SNOT-22. Most of the domains within Malay version SNOT-22 were weakly correlated with the scales of Malay version SF-36. However, validity of the Malay version SNOT-22 as a reliable and valid tool for quality of life assessment is established by fulfillment of content, construct, and discriminant validity.

Conclusions: The translation of the Malay version SNOT-22 was acceptable. Feasibility was present and scaling assumptions were met. The reliability was excellent and validity is established. SNOT-22 is recommended for Malaysia's clinicians and researchers as a patient reported measure of outcome in sino-nasal disorders such as rhinosinusitis and nasal polypsis.

Supervisor:

Associate Professor Dr Baharudin Abdullah

Co-Supervisor:

Dr Ramiza Ramli

THE FIVE-YEAR SURVIVAL RATE AND PROGNOSTIC FACTORS OF NASOPHARYNGEAL CARCINOMA PATIENTS IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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MSc (Medical Statistics)

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Introduction: Nasopharyngeal carcinoma (NPC) was the fourth most common cancer in Malaysia. Different studies reported different prognostic factors that influence the survival of NPC patients.

Objectives: To determine the five-year survival rate, the median survival time, the survival probabilities between factors and the prognostic factors of NPC patients in Hospital Universiti Sains Malaysia (USM).

Methods: One hundred and thirty four NPC cases confirmed by histopathology in Hospital USM between 1st January 1998 and 31st December 2007 that fulfilled the inclusion and exclusion criteria were retrospectively reviewed. All the data needed were reviewed and recorded in data extraction sheet. Kaplan-Meier product of limit, simple and multiple cox regression tests were performed to obtain the survival rate, median survival time, survival probabilities between factors and significance prognostic factors that influence the survival of NPC patients.

Results: This study involved 76.1% male patients and 23.9% female patients. Majority of patients (81.3%) were Malay. The commonest symptoms among NPC patients were neck swelling (73.1%) followed by nasal presentations (60.4%). Most of patients presented with WHO type III (69.4%), T4 (47.4%), N3 (32.1%), Mo (82.1%) and stage III-IV (79.1%). The overall five-year survival rate of NPC patients was 38.0% (95% CI: 29.06, 46.92). The overall median survival time of NPC patients was 31.30 months (95% CI: 23.76, 38.84). The significance prognostic factors that influence the survival of NPC patients were older age (HR 1.03, 95% CI: 1.01, 1.04), metastases (HR 2.52, 95% CI: 1.01, 6.28) and stage IV (HR 4.50, 95% CI: 1.66, 9.88).

Conclusion: The five-year survival rates and median survival time of NPC patients in Hospital USM were lower compared to other studies. Age, metastases and stage were significance prognostic factors that influence the survival of NPC patients in this study.

Supervisor:

Associate Professor Dr Norsa'adah Bachok

Co-Supervisor:

Professor Dr Syed Hatim Noor

A COMPARATIVE STUDY OF PATIENT CONTROLLED ANALGESIA (PCA) DEXMEDETOMIDINE COMBINED WITH MORPHINE VERSUS PCA MORPHINE ALONE IN POSTOPERATIVE MAJOR ORTHOPAEDIC PATIENTS

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MMed (Anaesthesiology)

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Introduction: Managing acute post-operative pain is a major challenge in anaesthesia and poorly managed pain will results in various morbidities. There are many strategies to improve the quality of pain management including advocating multimodal analgesia and prevent unwanted adverse events

related to the analgesia drugs. The introduction of the novel α_2 -adrenoceptor agonists, dexmedetomidine has gained its popularity for its use as analgo-sedative, anxiolytic and sympatholytic agent. The aim of this study is to determine whether adding dexmedetomidine to intravenous patient-controlled analgesia (PCA) morphine could improve analgesia while reducing opioid related side-effects in major orthopaedic surgery in major orthopaedic surgery.

Method: This prospective, randomised, single-blinded study was done in 56 adult orthopaedic patients undergoing elective major orthopaedic surgery under general anaesthesia. Pre-operatively patients were assessed, graded and given a standard balanced anaesthesia. Patients were randomised into 2 groups receiving either PCA morphine 1 mg plus dexmedetomidine 5 μ g/mL (PCAMD) or PCA morphine 1 mg/mL (PCAM) alone. Post-operatively, both were assessed in terms of haemodynamic parameters (systolic and diastolic blood pressure and heart rate), sedation score, pain score, respiratory depression, total morphine requirement and side effects over 24 hours period of PCA use. Following completion of study, patients were asked regarding their satisfaction towards APS offered and post-operative anxiety level. The data collected was analysed.

Results: There were no difference in gender, weight, nature of operative intervention and ASA classification except age. The blood pressure changes, respiratory rate, pain score, patient's satisfaction and anxiety level were similar in both group ($P > 0.05$). There was significant difference in terms of heart rate during the first 4 hours postoperative period and sedation score at 1st and 6th hour. The opioid requirement in PCAMD group was lower compared to PCAM group (19.4 ± 13.1 vs 32.6 ± 13.6 mg). There was a significant difference in the incidence of nausea and vomiting in morphine group ($P = 0.001$) and dry mouth in dexmedetomidine group ($P = 0.001$). Other side effects such pruritus, drowsiness and constipation were found to be insignificant. Patient's satisfaction and post-operative anxiety were found to be similar in both groups.

Conclusion: Adding dexmedetomidine as an adjunct to morphine in PCA can reduced total opioid requirement to about 40% and also thus reduced nausea and vomiting.

Supervisor:
Dr Gnandev Phutane
Co-Supervisor
Dr Mohd Nikman Ahmad

IDENTIFICATION OF CAUSES OF ANAEMIA AMONG BLOOD DONOR DEFERRAL IN HOSPITAL TENGKU AMPUAN AFZAN, KUANTAN, PAHANG

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Introduction: The Transfusion Unit of Hospital Tengku Ampuan Afzan Kuantan, Pahang is actively involved in running blood donation services and arranging mobile drives. The unit covers mostly the districts in West Pahang area. Pre-donation screening is a very important aspect in providing safe blood to recipients, as it aims to recruit healthy voluntary blood donors. Only healthy individuals with certain criteria can be selected as the potential blood donor. The criteria include age, weight, level of hemoglobin, medical illness, high risk behavior etc. Low haemoglobin is one of the commonest causes of rejection among potential blood donors. Since iron deficiency anaemia and thalassemia are of high prevalence in Malaysia, thus anaemia among the deferred blood donors was investigated in this direction in this study.

Objectives: The aim of this study was to identify the causes of deferred blood donors in Blood Bank Services of HTAA and to find out the significance of anaemia as a previously reported major cause for deferrals. Further causes of the anaemia among the deferred donors with low haemoglobin were also investigated.

Methods: A cross sectional study was done from January 2011 until September 2011 at Hospital Tengku Ampuan Afzan, Kuantan, Pahang. Three hundred and ninety eight (398) samples were collected from deferred donors using PDN enrolment form. Out of 398 deferred donors, 169 samples were low haemoglobin, only 79 blood samples were collected from consented deferred donor. The samples then were tested for full blood picture, serum ferritin levels and haemoglobin analysis. Statistical analysis including independent t test and chi square test were done.

Results: The commonest cause of deferred blood donors in this study is low haemoglobin level (42.5%) with female predominantly (62.5%). Out of these, 24.1% were having iron deficiency anaemia and about 13.9% were detected as thalassemia carrier/haemoglobinopathy whereby β thalassemia trait (3.0%), α thalassemia trait (1.8%), Hb E trait (1.2%) and Hb H disease (0.6%).

Conclusion: High prevalence of anaemia and iron deficiency was detected in this study. Public awareness regarding healthy life style and regular check up is recommended to minimise the deferral rate. Thalassemia trait also can be detected among low hemoglobin level deferred donors. Thus mobile blood service can be one of the screening tools for detecting thalassemia trait in the healthy population. A new setting of haemoglobin criteria for donor deferral is also recommended according to the reference range obtained for particular population. This is due to large discrepancy in the rate of low haemoglobin deferral between men and women when using the current cut-off haemoglobin values.

Supervisor:
Associate Professor Dr Suhair Abbas
Co-Supervisor:
Dr Abdul Rahim Hussein
Dr Salman Mohd Sahid

WORK ENVIRONMENTS AND BACK PAIN AMONG NURSES IN HOSPITAL UNIVERSITI SAINS MALAYSIA

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Introduction: Profession as a nurse needs dedication and patience to endure all the challenges. This profession exposes them to many occupational hazards including biological, chemical, physical, ergonomic, and psychosocial. As much as sick people rely on nurses to take good care of them, it is not being given importance to secure nurses health in return. From study of occupational health problems among nurses in Malaysia the most emphasize hazards is hepatitis B, acquired immunodeficiency syndrome, tuberculosis, cytotoxic drugs, anesthetic agents, needle stick injury, back pain, and stress.

Objectives: In this study, the general aim is to determine prevalence of back pain and also association of work environments toward back pain among nurses in Hospital Universiti Sains Malaysia (HUSM) Kubang Kerian, Kelantan, Malaysia.

Methods: This was a cross-sectional study involved 130 nurses from wards and clinics in Hospital Universiti Sains Malaysia which was conducted from September 2012 till May 2013. All respondents were chosen through simple random sampling from ward and clinic nurses lists. Validated English version and Malay translation of Modified Nordic Musculoskeletal Questionnaire and Roland Morris Disability Questionnaire for back pain characteristics and severity were used in this study. Prevalence of back pain was determined with its 95% CI while associated factors and its relation with back pain was analysed using multiple logistic regression analysis.

Results: Out of 130 respondents, majority were Malays (90.8%) and females (94.6%). Age of respondents ranged from 23 to 58 years old with mean of 41.5 years old (SD 10.56). Prevalence of nurses having back pain in life for this study was 71.6% (95% CI: 61.1,82.1) with low back pain type was the highest among all back pain (48.6%, 95% CI: 37.0,63.1). From multivariate analysis using multiple logistic regression, significant associated factors for back pain after controlling for potential confounders were total household income (OR: 3.54, 95% CI 1.23,10.15, $P = 0.019$) and BMI (OR: 4.47, 95% CI 1.55,12.86, $P = 0.005$).

Conclusion: Prevalence of back pain among nurses in HUSM is high, corresponds with other studies in Malaysia and South East Asia. In this study, significant associated risk factors are total household income and BMI.

Supervisor:
Dr Mohd Yusof Sidek

Co-Supervisor:
Associate Professor Dr Wan Mohd Zahiruddin Wan Mohd

PROPHYLACTIC OXYGEN SUPPLEMENT DURING ADULT PROCEDURAL SEDATION AND ANALGESIA WITH KETOFOL IN EMERGENCY DEPARTMENT HUSM: A RANDOMIZED CONTROLLED TRIAL

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Introduction: Being the core skills in emergency medicine, Procedural sedation and analgesia (PSA) have gain popularity. Quite often, administrating prophylactic supplemental oxygen during PSA has been the practice as pharmacologically; drugs used in PSA can cause respiratory depression and may lead to other adverse events. This study was conducted to clarify the necessity of prophylactic supplemental oxygen using Ketofol.

Objectives: The objectives of this study are to determine the association between prophylactic supplemental oxygen and the adverse events and also the association between prophylactic supplemental oxygen and the efficacy of PSA using Ketofol.

Method: A randomised controlled trial was conducted for 6 months on adult patients who presented to ED HUSM and fulfilled the inclusion criteria. Patients were randomised either to receive prophylactic supplemental oxygen at 3 L per minute by nasal cannula or room air prior to PSA. Intravenous Ketofol (combination of Ketamine: Propofol) was used as the PSA agent. The demographic and physiological data, presence or absence of adverse events and the efficacy of PSA were recorded using the standard PSA recording form. The primary outcome was the incidence of adverse events and the efficacy of PSA. The adverse event in each group was compared using chi-square while the numerical variables describing the socio-demographic data were run through the independent t test.

Results: 80 patients were enrolled into the study. They were randomized into 'with oxygen' group (52.5%) and 'without oxygen' group (47.5%). The mean and standard deviation for age and weight in the 'with oxygen' group are 36.40 (SD 17.347) and 67.83 (SD 8.261) respectively. The 'without oxygen' group had mean and standard deviation of 38.11 (SD 17.145) and 63.84 (SD 9.876). However P-value showed no significant difference of mean in age and weight. For 5 variables which are oxygen desaturation, apnea, clinically apparent pulmonary aspiration, excitatory movements and unpleasant recovery reaction, P-value showed that there were no significant association between oxygen supplement and the variables. Regarding efficacy of PSA, (51.4%) of patients from 'with oxygen' group and (35.1%) 'without oxygen' group had an efficacious PSA. However, the P-value showed no significant

association between oxygen supplement and efficacy of sedation.

Conclusion: Neither the adverse events nor the efficacy of PSA using Ketofol had any association with prophylactic supplemental oxygen. Therefore, prophylactic supplemental oxygen is not necessary for patients undergoing PSA with Ketofol.

Supervisor:
Dr Tuan Hairulnizam Kamauzaman
Co-Supervisor:
AP Dr Nik Hisamuddin Nik Abdul Rahman

DESFLURANE VERSUS SEVOFLURANE AS INHALED ANAESTHETIC INDUCTION IN SPONTANEOUS GENERAL ANAESTHESIA

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Introduction: Sevoflurane and desflurane are inhalational agents that are commonly used. However desflurane is pungent despite having fast onset and offset compared to sevoflurane. This study was designed to compare both agents as inhaled induction agent in facilitating laryngeal mask airway (LMA) insertion for spontaneous general anaesthesia.

Objectives: The aims were to compare the duration of induction and LMA insertion, ease of LMA insertion, airways complications and haemodynamic responses during induction of inhalational agents and LMA insertion.

Method: This was a randomised, single blinded, prospective study, involving 60 premedicated, ASA I or II adult patients whom were planned for emergency or elective surgeries under spontaneous general anaesthesia. They were premedicated and given intravenous fentanyl 2µg/kg prior to induction. Patients were pre-oxygenate for three minutes then mixed with 50% NO₂ for 2 minutes. Inhalational induction was performed in titrated dose. Duration of induction and LMA insertion were recorded. End tidal concentration and MAC at LMA insertion, airway complications during induction and LMA insertion were recorded. Haemodynamic trend at induction, LMA insertion until three minutes post- LMA insertion were recorded.

Results: The duration for induction and successful LMA placement in desflurane were longer with mean 106.4 sec (SD 27.7) and 265.3 sec (SD 99.1) compared to sevoflurane 83.4 sec (SD 23.0) ($P \leq 0.05$) and 178.9 sec (SD 47.7) ($P \leq 0.01$) with mean end tidal concentration desflurane was 4.25 (SD 0.53) and sevoflurane was 4.33 (SD 0.78) and mean MAC_{1.27} (SD 0.35)/ 2.21 (SD 0.60). Both have comparable number of attempt and similar ease of insertion. Desflurane has similar airway complication with sevoflurane. Desflurane

appeared with more stable haemodynamics. Desflurane has significantly increase BP/MAP and PR during insertion compared to sevoflurane.

Conclusion: Premedication, opioid and nitrous oxide facilitate desflurane induction and LMA insertion. Airway qualities were better with sevoflurane however haemodynamic changes were better in desflurane.

Supervisor:
Dr Rhendra Hardy Mohamad Zain
Co- Supervisor:
Dr Mohd Nikman Ahmad

SEXUAL HEALTH KNOWLEDGE, ATTITUDE AND FACTORS TOWARDS PRE-MARITAL SEXUAL ACTIVITY AMONG SEXUALLY ABUSED CHILDREN

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MMed (Paediatric)

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Introduction: Sexual education is very important to prevent unwanted pregnancy, abortions and HIV/AIDS and Sexual Transmitted Disease (STDs) in adolescent. A lot of study was done to assess the sexual and reproductive health knowledge of the adolescent and their attitude towards pre-marital sexual activity. However no data available on assessing the sexual knowledge of sexually abused children.

Objective: The objectives of this study were to describe the knowledge on sexual and reproductive health and to determine the level of attitude towards pre-marital sexual activity among children sexual abused and to determine the factors associated with their attitude towards pre-marital sexual activity.

Methods: This was a cross-sectional study. It was conducted among 88 female who were admitted in Hospital Universiti Sains Malaysia (HUSM) for cases of children sexual abuse under Suspected Child Abuse and Neglect (SCAN) using a self administered validated questionnaire. Knowledge and attitude were described as frequency and percentages. Based on the median score, the attitude was categorised into permissive and nonpermissive attitude. Simple and multiple binary logistic regression were used to analysed the factors associated the attitude.

Result: The knowledge items with the lowest percentages of correct responses included: penile discharge during ejaculation contains sperm (5.7%), pregnancy may not occur if having sexual intercourse once only (26.1), having vaginal washing after sexual intercourse prevents pregnancies (19.3%). A large number of participants knew sexual abstinence is the best method to prevent pregnancy (68.2%). However, Simple and multiple logistic regressions revealed that none of the factors were significant.

Conclusion: The sexual health knowledge among

sexually abused children was inadequate in certain important aspects and they were at risk of having permissive attitude toward pre-marital sexual activity. However, this study revealed none of the factors were significant.

Supervisor:

Dr Nor Rosidah Ibrahim

Co-Supervisor:

Dr Norsarwany Mohamad

Dr Azriani Ab Rahman

ASSOCIATION OF MELANOCORTIN 4 RECEPTOR (MC4R) GENE MUTATION, PHYSICAL ACTIVITY, AND FOOD INTAKE BETWEEN NORMAL AND OVERWEIGHT MALAY CHILDREN

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Introduction: Overweight and obesity has become an alarming issue worldwide and the problem is on the rise. Obesity arises when there is energy imbalance where energy intake exceeding energy expenditure. It can be resulted from the interaction between genetic, behavioral and environmental factors. Melanocortin 4 receptor (MC4R) mutation is the most common known monogenic cause of human obesity that impairs energy homeostasis by increasing food intake and decreasing energy expenditure. MC4R mutation N62S which was found in children of Pakistani origin was found to partially impair the receptor function which might cause obesity. On the other hand, behavioral factors leading to obesity include increased energy intake and reduced physical activity.

Objectives: The aims of the study were to determine the presence and frequency of MC4R mutation N62S among Malay children, and to determine the influence of mutation N62S, physical activity level and total caloric intake on overweight.

Methods: One hundred and twenty children of the age of 9–11 years were recruited and analysed for the presence of mutation N62S through high resolution melt (HRM) analysis; activity counts by using accelerometer GT3X+ (Actigraph, UK); physical activity level based on activity count; and total caloric intake and percentage of fat intake goal achieved per day through the subjects' food diary analysis by DAPlus software (Esha Research, USA).

Results: N62S mutant was not found in all Malay children from both of the normal and overweight groups. No significant difference was found between the two groups in terms of activity count ($P = 0.282$) and total caloric intake ($P = 0.179$). No association was found between BMI status and physical activity level ($P = 0.660$). Normal weight children achieved significantly higher percentage of fat intake goal

than overweight children with the mean (standard deviation) of 91.17 (SD 40.91) and 63.60 (SD 27.98) %, respectively ($P < 0.001$).

Conclusions: The absence of N62S mutant in the Malay children in the present study might be due to its low prevalence. The belief that overweight children take in more energy and fat, and have lesser energy output than nonoverweight children was not proven in the present study.

Supervisor:

Dr Mohd Nidzam Bin Jawis

Co-Supervisor:

Dr Surini binti Yusoff

A COMPARISON STUDY OF SERUM MAGNESIUM LEVEL AMONG GOOD AND POORLY CONTROLLED TYPE 2 DIABETES PATIENTS IN HUSM, KELANTAN

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Introduction: Insulin is the most important factor that control the level of plasma and intracellular magnesium. Insulin may modulate the shift of magnesium from extracellular to intracellular space. Intracellular magnesium is critical cofactor for many enzymes in carbohydrate metabolism. It also play role as part of the activated Mg-ATP complex required for all of the rate limiting enzyme of glycolysis and regulate the activity of all enzymes involved in phosphorylation reaction. Many studies have found low intracellular and extracellular magnesium in chronic type 2 diabetic patient.

Objectives: The study aims is to compare the level of serum magnesium in type 2 diabetic patients in between good diabetic control and poor diabetic control in HUSM and to determine the correlation between serum magnesium level and HbA1c, lipid profile as well as estimated glomerular filtration rate eGFR.

Methods: A comparative cross sectional study was conducted and 155 patients, consisting of 75 good control ($HbA1c \leq 7.0\%$) and 80 poor control ($HbA1c > 7.0\%$) diabetic patients who fulfill the inclusion and exclusion criteria were recruited. The blood for serum magnesium, lipid profile and renal profile were taken. The mean of serum magnesium had been analysed using independent t-test and the correlation between serum total magnesium and HbA1c, lipid profile and eGFR were analyzed using Pearson correlation.

Results: The proportion of hypomagnesemia among study subject was 8.64% and hypomagnesemia is high among poor diabetic control. The mean \pm SD of serum total magnesium in good control patient is significantly higher 0.94 mmol/L (SD 0.10) compared to poor control 0.88 mmol/L (SD 0.10) with P value less than 0.001. The correlation of serum magnesium and HbA1c was statistically significant with

P value of 0.007 and Pearson correlation was -0.217. There is no significant correlation between serum total magnesium with total cholesterol, triglyceride, HDL, LDL as well as eGFR.

Conclusions: There was a significant correlation between serum magnesium and glycaemic control as measured by HbA1c. The subjects with poor diabetic control had significantly lower magnesium status than good diabetic control. This study support the current recommendation by ADA that only diabetic patients at high risk of hypomagnesaemia (poor diabetic control) should have serum magnesium assessed and oral magnesium supplementation will be given only if hypomagnesaemia can be proved.

Supervisor:

Professor Madya Hesanan Nordin

Dr Zulkarnain Mustapha

Co-Supervisor:

Dr Harmy Yusoff

A RANDOMISED CONTROLLED TRIAL ON THE EFFECT OF GONADOTROPHINS WITH LETROZOLE VERSUS GONADOTROPHINS ALONE AMONG WOMEN UNDERGOING IVF/ICSI USING ANTAGONIST PROTOCOL IN HOSPITAL SULTANAH NUR ZAHIRAH KUALA TERENGGANU

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MMed (Obstetric & Gynaecology)

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Introduction: At present use of Assisted Reproductive Technique for women with infertility problems has been a great challenge, as there are various protocols being used for the IVF/ICSI cycle, newer regimen are being used as ovulation induction agents in order to improve the outcome of pregnancy. This allows a better success which could represent a potential cost saving in assisted reproduction services without compromising the patient's benefit.

Objective: This study was performed to evaluate the effectiveness of Letrozole when used together with FSH as ovulation induction agent in women undergoing IVF/ICSI in Hospital Sultanah Nur Zahirah in the Reproductive Unit.

Methods: A prospective randomised controlled trial was conducted from the 1st April 2010 till 31 March 2012 in the Reproductive Unit, Hospital Sultanah Nur Zahirah. It involved 164 participants, they were randomised into 2 groups. One group of 82 participants received FSH alone and another 82 participants received Letrozole along with FSH. The primary outcomes were to compare the effectiveness of Letrozole in terms of pregnancy rate and also other factors such as endometrial changes, number of mature follicles, total dose of FSH used, number of days of FSH stimulation and prevalence of OHSS.

Results: The pregnancy rate between both groups

did not show any significant difference (8.5% compared to 10.9%). The mean number of follicles in the Letrozole-FSH group were 4.2 compared to the FSH group with 4.3 which did not show any significant difference ($P = 0.395$). The endometrial thickness of Letrozole-FSH group was 10.74 mm and in the FSH group was 10.84 mm, the difference was statistically not significant ($P = 0.546$). The incidence of OHSS in the FSH group was 2.43% and there was no case of OHSS in the Letrozole-FSH group. However the difference was statistically not significant ($P = 0.497$). The mean dose of FSH received in the Letrozole-FSH group was 2178 IU and in the FSH group was 2307 IU, this difference was statistically significant ($P = 0.001$). As for the total number of FSH stimulation in the Letrozole-FSH group was 9.69 days and 10.25 days in the FSH group, this difference was also significant ($P = 0.001$). The other factors such as duration, cause and type of infertility did not show any statistical significance.

Conclusion: Adjunctive use of Letrozole together with gonadotrophins as ovulation induction in IVF/ICSI significantly reduces the total dose of FSH being used thus reducing the duration of ovarian stimulation, however there were no differences in term of number of mature follicles, endometrial thickness or pregnancy rate in both groups. Therefore, the use of Letrozole may form an effective low cost ovulation induction for women undergoing IVF/ICSI.

Supervisor:

Dr Wan Abu Bakar Yusoff

Co-Supervisor:

Dr Nik Ahmad Zuky Nik Lah

Dr Nasir Tak Abdullah

HYPERCOAGULABLE STATE AMONG THALASSEMIA MAJOR PATIENTS

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Introduction: Increased incidence of thromboembolism among thalassemia patients had triggered various studies to determine hypercoagulable state among thalassemia patients. Several factors for the hypercoagulable state had been identified such as red blood cell membrane disruption, chronic platelet activation and defect in coagulation pathway.

Objectives: The objectives of this study were to determine the level of Protein C, Protein S and Antithrombin III among thalassemia major patients and to compare the level of these natural anticoagulants between thalassemia major patients and healthy controls.

Methods: A case control study was conducted in Hospital Universiti Sains Malaysia (HUSM). Thirty six thalassemia patients who came for regular blood transfusion

and twenty healthy blood donors for normal control were recruited. Blood samples were collected and analysed for Protein C, Protein S, Free Protein S and Antithrombin III using ACL Elite Pro coagulometer.

Results: The results showed mean Protein C, Protein S and Free Protein S levels were significantly lower in thalassemia patients (54.54 ± 13.22 , 94.41 ± 18.73 and 70.09 ± 12.32 ; respectively) compared to normal controls (94.14 ± 16.34 , 105.12 ± 16.79 and 99.79 ± 17.33 ; respectively). Mean Antithrombin III showed no significant difference compared to normal controls (116.09 ± 27.28 and 124.36 ± 12.49 respectively). There were no significant differences of mean Protein C, Protein S, Free Protein S and Antithrombin III between splenectomised and non splenectomised patients. No thromboembolic events were documented in this study.

Conclusion: Significantly decreased Protein C and Protein S in thalassemia patients suggest hypercoagulable state in those patients. However further studies need to be done to look for other parameters contributing to hypercoagulable state in thalassemia patients. A normal antithrombin level could be due to protective effect of regular transfusion, a further study need to be done to prove this hypothesis. Besides, thromboembolic event can be subclinical, therefore a further study is needed to follow up the patients and to detect subclinical thrombosis.

Supervisor:

Dr Rosnah Bahar

Co-Supervisor:

Professor Rosline Hassan

Dr Rusmawati Ismail

EXCESSIVE DAYTIME SLEEPINESS AMONG UNDERGRADUATE MEDICAL STUDENTS IN UNIVERSITI SAINS MALAYSIA

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Introduction: Sleepiness is an ill-defined symptom, experienced by almost everyone at some of their time. It is a problematic when it disrupts daily living. Sleepiness problem has two primary causes: lifestyle factors, including sleep deprivation and medication effects, and sleep disorders, including sleep-disordered breathing, narcolepsy and idiopathic hypersomnia. Excessive daytime sleepiness (EDS) is one of the important symptoms of having obstructive sleep apnea syndrome (OSAS).

Objectives: This study was to determine the prevalence and the associated factors of excessive daytime sleepiness (EDS) among undergraduate medical students in Universiti Sains Malaysia (USM).

Methods: A cross-sectional study was conducted among

368 year two and year three undergraduate medical students. The information on socio-demographic characteristics, health behavior characteristics and co-morbidities characteristics were collected using self-administered questionnaires. The severity of daytime sleepiness were measured by the Epworth Sleepiness Scale (ESS) and the depression, anxiety and stress level were measured by using Depression, Anxiety and Stress Scale (DASS) questionnaire. The ordinal logistic regression was used to analyze the associated factors.

Results: A total of 311 participants out of 368 have returned the questionnaire (84.5%). Approximately 69% of the respondents were females and 62.1% were Malays. There were 54% of year two medical students while the other 46% were year three medical students. The overall prevalence of EDS among undergraduate medical students in USM was 42.7% (95% CI; 0.52, 0.70). The associated factors of EDS included year of study [adjusted odds ratio (OR) = 0.55 (95% confidence interval (CI); 0.33, 0.91); P value = 0.021], body mass index (BMI) status (obese) [adjusted OR = 0.10 (95% CI; 0.01, 1.01); P value = 0.051], race (Chinese) [adjusted OR = 0.58 (95% CI; 0.32, 0.97); P value = 0.039], anxiety level (mild) [adjusted OR = 2.68 (95% CI; 1.26, 5.68); P value = 0.010], anxiety level (moderate) [adjusted OR = 3.70 (95% CI; 1.76, 7.75); P value = 0.001], anxiety level (severe) [adjusted OR = 4.76 (95% CI; 1.06, 21.42); P value = 0.042], stress level (mild) [adjusted OR = 3.37 (95% CI; 1.47, 7.30); P value = 0.004] and stress level (moderate) [adjusted OR = 5.42 (95% CI; 2.05, 14.35); P value = 0.001].

Conclusion: For those who in year two have higher risk of getting EDS compared to year three medical students while those who were Malays have higher risk of getting EDS compared to Chinese. For those who normal BMI have higher risk of getting EDS compared to obese students. For those who mild, moderate and severe anxiety were at higher risk of getting EDS compared to normal anxiety while those who mild and moderate stress were at higher risk of getting EDS compared to normal stress. Year of study, BMI status, race, anxiety and stress level were significantly found to be associated with EDS among undergraduate medical students.

Supervisor:

Professor Dr Syed Hatim Noor

Co-Supervisor:

Dr Sarimah Abdullah

HOW SAFE IS HI-SPEED BURRING IN SPINE SURGERY? AN IN VITRO STUDY OF HEAT GENERATION IN BOVINE SPINE WITH VARIABLE ROTATIONAL SPEED

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MMed (Orthopaedic)

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Introduction: Bone burring is a common procedure in spinal surgery. Unwanted frictional heat produced during bone burring results in thermal injury to the bone and adjacent neural structure. One of the important and relevant parameters influencing the bone temperature rise during bone burring is rotational speed of the bur.

Objectives: This study intends to find out the appropriate rotational speed and safe bone margin to minimise the risk of thermal injury to bone and neural tissue during bone burring in spinal surgery.

Methods: This laboratory based animal study utilized the bovine spine bone and the tests were conducted using steel round bur. The bone temperatures were measured simultaneously with thermocouple at the distances of 1 mm, 3 mm and 5 mm from burring site during burring process. The bone burring was done with four different rotational speeds of 35 000rpm, 45 000rpm, 65 000rpm, and 75 000rpm.

Results: This study showed that the bone temperatures were significantly elevated by increasing the rotational speed. The threshold temperature of 47 °C was reached when bone burred for 10 sec with the rotational speed of 45 000 rpm. The mean bone temperatures measured at 1 mm from burring site for all four different rotational speeds were always higher than those measured at the distance of 3 mm and 5 mm and the difference was statistically significant ($P < 0.001$). There was no significant difference between mean bone temperature measured at the distance of 3mm and 5 mm ($P > 0.05$).

Conclusion: Taking the 47 °C as threshold temperature for causing the significant impairment to regenerative capacity of bone, the rotational speed of lower than 45 000 rpm is preferred to minimise the thermal injury to bone tissue. The safe bone margin of 3 mm from burring site is concluded based on the findings of minimal bone temperature rise at the distance of 3 mm from burring site.

Supervisor:

Associate Professor Dr Abdul Halim

A STUDY ON THE EFFECT OF CABERGOLINE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AND METABOLIC SYNDROME

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MMed (Internal Medicine)

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Introduction: The prevalence of Type 2 Diabetes Mellitus in Malaysia among adult aged 30 and above is 14.9% and 41% increase in the prevalence of individuals with abdominal adiposity. The rise in prevalence of type 2 diabetes in recent decades parallels the rise in obesity in worldwide. Newer classes of medical treatments for T2DM are promising for modification of disease progression, but they are expensive

and there is little experience with use of these agents over the long term.

Objectives: The general objective of this study was to determine the effect of cabergoline on metabolic parameters and abdominal adiposity among patients with type 2 diabetes mellitus and metabolic syndrome. The metabolic parameters included glycaemic control, insulin resistance and lipid profile. Abdominal adiposity was determined by weight and waist circumference. This study also done to determine the effect of cabergoline on plasma adiponectin.

Methods: 40 eligible and consented patients from Endocrine clinic, Hospital Universiti Sains Malaysia (HUSM) were recruited. They were allocated into 2 groups; cabergoline and control group with 20 patients in each group. The cabergoline group will receive intervention with cabergoline 0.5 mg twice weekly and the control group will continue with their usual medication. After 3 months intervention period, all the investigation will be repeated including anthropometric measurements and metabolic parameters.

Results: In term of glycaemic control, the mean difference of fasting blood sugar level was not significant in both study group ($P = 0.100$). It showed the same finding in the mean difference of HbA1c with $P = 0.87$. The mean difference of insulin resistance in both study groups was also not significant ($P + 0.254$). The mean lipid profile changes also statistically not significant in both study group in term of total cholesterol, LDL, HDL and triglyceride level. Comparison of the mean weight changes in both groups was not significant ($P = 0.143$). The mean difference of waist circumference also statistically in significant ($P = 0.120$). The changes in plasma adiponectin level in both study subjects showed similar finding.

Conclusion: By adding cabergoline to usual care; did not significantly improved abdominal adiposity, glycaemic control, lipid profile and adiponectin level in type 2 diabetes mellitus and metabolic syndrome.

Supervisor:

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A COMPARATIVE STUDY ON OUTCOMES OF SOCIALLY ABUSED SUBSTANCE AND NON-SOCIALLY ABUSED SUBSTANCE USERS IN MVA PATIENTS

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Introduction: Socially abused substances are endemic in Malaysia. It increases both the social and financial burden

to the health sector of the country and impairs the total national productivity. Understanding the outcome of the socially abused substances and non socially abused substances users in motor vehicle accidents (MVA) will provides a better understanding towards managing this problem in Malaysia.

Objectives: To study the outcome of MVA in drug and non drug user patients, in the emergency department, specifically on comparing the severity of injury ISS (injury severity score), the length of hospital stay and the mortality percentage in MVA of substance and non-substance users in MVA patients (substance and non-substance users).

Methods: This was a prospective cross sectional study of one year duration started from November 2001 till October 2012. The protocols for this study received the approval of the Ethics Committees at Universiti Sains Malaysia, USMKK/PPP/JEPeM[241.3(11)] It involved all adult motor vehicle accident patients presented to Emergency Department in Hospital University Sains Malaysia. All eligible patients who were admitted in various zones accordingly, were randomized (simple random sampling) and met the study criteria, were included. The severity of injury will be determined by applying the injury severity score (ISS). Urine sample was collected from all MVA patient and a dip stick test was performed to determine the presence of drugs. Subsequently, the patients were followed up until discharged from the hospital. The length of hospital stay and the mortality outcome were reviewed.

Results: Out of 78 patients who were enrolled in the study, 56.4% (n = 44) of patients were found to be non-substance users, while 43.6% (n = 34) of patients were found to be substance users. There was no statistically significant difference between the ISS (injury severity score) among substance and non substance users, $P = 0.237$. By using simple logistic regression analysis, we found that there was also no association between the substance usage and severity, $P = 0.454$. The mean length of stay for substance and non substance was about 4.14 days (SD 6.20) and 4.20 days (SD 7.96), respectively. The relationship between mortality percentage and the groups of the patient (substance and non substance users) was also not statistically significant, $P = 0.252$.

Conclusion: Our study revealed that the substance abuse did not affect the severity of injury, length of hospital stay and mortality percentage of patients who were involved in motor vehicle accidents. A better defined severity of injury according to injury severity scoring system would probably facilitates the selection of patients in the future study.

Supervisor:

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COMPARISON STUDY ON DEVELOPMENT OF HEPARIN DEPENDENT ANTIBODIES AND CLINICAL OUTCOMES AMONG ACUTE CORONARY SYNDROME PATIENTS RECEIVING ANTI-COAGULANT THERAPY IN HUSM

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Introduction: Heparin induced thrombocytopenia (HIT) is an immune mediated, adverse effect of heparin therapy which frequently associated with venous and arterial thrombosis. Antibodies that recognised complexes of platelet factor 4 (PF4) and heparin are linked to the pathogenesis of HIT and thrombotic complication. HIT was defined as unexplained thrombocytopenia, relative dropping of platelet count $> 50\%$ from baseline or absolute platelet count $< 150 \times 10^9/L$ during or after heparin therapy and positive detection of heparin-PF4 antibody.

Objectives: The aims of this study were to compare the incidence of heparin-dependent antibodies development and thrombotic outcomes in three months time among ACS patients treated with UFH, LMWH (Enoxaparin) and Fondaparinux, also to identify the factors associated with formation of heparin dependent antibodies.

Methods: A prospective cohort study of ACS patients admitted to HUSM was conducted from January 2011 until June 2012. The patients were assigned for UFH, LMWH or Fondaparinux based on clinician decision. Platelet count were measured at baseline before start heparin, at end of therapy and at one month post-treatment. Heparin-PF4 antibodies were measured by ELISA method (ASSERACHROM HPIA, Diagnostica Stago, France) at end of therapy and at one month post-treatment. All patients were follow-up for three months for end-point thrombotic outcomes.

Results: A total of 125 ACS patients were enrolled in this study. Sixty-three patients treated with UFH, 57 patients treated with Fondaparinux and 5 patients with LMWH (Enoxaparin). Six UFH treated patients (9.5%) noted to have heparin-PF4 antibody positive at one month follow-up, none were observed in Fondaparinux and LMWH treated group. Significant association was found between male gender and smoking status among heparin antibody positive UFH patients. However There were no significant different in thrombotic development rate between heparin antibody positive and negative group of patients at both one month and three month. UFH treated patients showed lower mean platelet count at end of therapy and at one month follow-up compared to Fondaparinux treated patients. A total of 27.2% ACS patients showed platelet count dropped at the end of therapy and at one month post-treatment, however not fit for definition of HIT.

Conclusion: The development of heparin dependent antibodies among ACS patients was low as compared to non-immune associated thrombocytopenia (HIT type 1). UFH is quite safe to be use in ACS patients as it is given in short duration of treatment. However regular monitoring of platelet count and symptoms related to thrombosis is needed to ensure safety. Availability of Fondaparinux would be an alternative anti-thrombotic therapy in ACS patients.

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STUDY OF ANTIMICROBIAL SENSITIVITY TESTING ON STENOTROPHOMONAS MALTOPHILIA ISOLATES IN HUM

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Introduction: *Stenotrophomonas maltophilia* has emerged as an important nosocomial pathogen capable of causing wide spectrum of infections. Treatment of this pathogen is difficult as it poses resistant to many antimicrobial agents and this reducing the options available for the treatment. Trimethoprim Sulphamethoxazole (TMP-SMX) remains as the drug of choice for treatment of *S. maltophilia* infections. However, there were increasing reports in TMP-SMX resistant. Pertaining to this, a study to look for sensitivity pattern of *S. maltophilia* isolates towards other antimicrobial and study of antimicrobial combinations to look for synergism is very important in helping the management of this infection. Study on efficacy of disk diffusion test that is commonly used for sensitivity testing also need to be compared with other standard MIC test such as E-test for better definition of sensitivity result.

Objectives: The aim of this study are to describe the antimicrobial sensitivity pattern of *S. maltophilia* isolates using E-test and disk diffusion, to determine the antibiotic sensitivity pattern agreement between disk diffusion and E-test on *S. maltophilia* isolate and to describe synergistic effect of selected antimicrobial combinations on *S. maltophilia* isolates.

Methods: This is a descriptive cross sectional study done in Hospital Universiti Sains Malaysia. A total of 84 isolates were collected from various clinical specimens during twelve month study period (collected from April 2011 until March 2012). From 84 isolates, 45 were tested for comparison of the antimicrobial sensitivity testing result using Disk diffusion and E-test. Then, for all 84 isolates, antimicrobial combinations were done and results interpreted as synergism, indifference or antagonism. Data analysis was done using

SPSS software version 18.0.

Result: We found that besides TMP-SMX, tigecycline and ciprofloxacin also had a good in vitro activity against *S. maltophilia*. For agreement study, disk diffusion is as good as E-test for *S. maltophilia* isolates tested for Trimethoprim sulphamethoxazole and imipenem without any disagreement noted. For ceftazidime, piperacillin tazobactam and tigecycline, good agreement also observed with Kappa value 0.672, 0.787 and 0.651 respectively. Antimicrobial combination with the highest synergistic effect was TMP-SMX plus ceftazidime.

Conclusions: As TMP-SMX is the treatment of choice for *S. maltophilia* infections, other alternatives such as tigecycline and ciprofloxacin may be considered for the treatment. Disk diffusion was comparable with E-test for TMP-SMX, imipenem, ceftazidime, piperacillin tazobactam and tigecycline for testing *S. maltophilia* isolates and combination of TMP-SMX plus ceftazidime was the most effective combination in vitro.

Supervisor:

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