

## **Abstracts of Dissertations December 2013 Exit Assessment Exercise**

### **A RETROSPECTIVE STUDY TO COMPARE CLINICAL OUTCOMES OF BARE-METAL STENT VERSUS DRUG-ELUTING STENT IN LEFT MAIN CORONARY INTERVENTION: A LOCAL HOSPITAL'S EXPERIENCE**

Dr Kok Ying Lung Henry, Department of Medicine & Geriatrics, Tuen Mun Hospital (November 2013 Cardiology Exit Assessment Exercise)

**Background** Left main percutaneous coronary intervention (LMPCI) has become a recommended treatment since 2010 based on data largely derived from the Caucasian and Korean populations. Although drug-eluting stents (DES) is thought to bring better outcome than bare-metal stents (BMS) in LMPCI, data collected were not as distinct. Local Chinese safety and efficacy data were lacking as well. The aim of this study is to compare the clinical outcomes of LMPCI between BMS and DES stenting and to compare our local Chinese data to overseas results.

**Method and results** This a retrospective study. Six months clinical data of Chinese patients who had LMPCI from 1/1/1997 to 31/3/2013 were analyzed. There were no difference detected in the demographic data between the BMS and DES groups except lower left ventricular function, and higher surgical risks were found in the BMS group. Procedural success rate was 100%. Angiographic and procedural characteristics did not differ statistically between the 2 groups. Major adverse cardiac event (MACE) at 1,3,6 months; all cause mortality, cardiac mortality, non-cardiac mortality, target lesion and vessel revascularization rates, stent thrombosis rates, and procedural complications rate were statistically the same among the 2 groups. All cause mortality rates were 15.2% in the BMS group and 5.4% in the DES group. MACE rates at 6 months were 21.2% in the BMS and 8.1% in the DES group. Survival analysis could not detect any differences in MACE rates and mortality rates between the 2 groups. When descriptive statistics and survival analysis were applied to the distal or bifurcation subgroup of left main disease, no statistical significant difference observed. Data were also comparable to international study results.

**Conclusions** Both BMS and DES performed equally well in 6 months after LMPCI in terms of all cause mortality, cardiac mortality, MACE at 1,3,6 months. The same results apply to distal or bifurcation left main disease.

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### **LOCAL STUDY ON PROGNOSTIC FACTORS FOR PATIENTS SUFFERED FROM ISCHEMIA RELATED CARDIOGENIC SHOCK, WITH INSERTION OF INTRA-AORTIC BALLOON PUMP (IABP) AND INPATIENT REVASCULARIZATION**

Dr Lip Tin Lam, Department of Medicine, North District Hospital (November 2013 Cardiology Exit Assessment Exercise)

**Background** Cardiogenic shock carried a significant mortality in patients with acute myocardial infarction. Other than pharmacological treatment, intra-aortic balloon pump was also one of the traditional tools for patients in cardiogenic shock. But recent studies<sup>(4, 12)</sup> failed to demonstrate the beneficial effect on 30 days mortality. While the use of intra-aortic balloon pump remained controversial, this study was to identify the predictors of inpatient mortality in patients with ischemic cardiogenic shock with IABP inserted and

revascularization done.

**Methods and Results** This was a retrospective observational study involving 42 patients recruited between September 2000 and September 2013 in North District Hospital. The mean age was 60.4 years old, male patients accounted for 88.1% (37/42). 47.6% of them received thrombolytic therapy and inotrope infusion was given in 83.3% of patients. The overall inpatient mortality was 28.6%. The poor prognostic factors were age more than 75 years old ( $p=0.097$ , borderline significance), history of hypertension ( $p=0.088$ , borderline significance), history of smoking ( $p=0.091$ , borderline significance), respiratory failure required ventilator support ( $p=0.015$ ), globally impaired left ventricular ejection fraction ( $p=0.027$ ), high serum creatinine level ( $p=0.012$ ) with low glomerular filtration rate (GFR) ( $p=0.004$ ), great change in serum creatinine level ( $p=0.019$ ) and GFR ( $p=0.057$ ) and high serum white cell count ( $p=0.074$ , borderline significance). Short time lag from onset of shock to percutaneous coronary intervention as well as high systolic blood pressure in emergency department (AED) were also shown to be significant poor prognostic factors ( $p=0.044$  and  $0.041$  respectively).

**Conclusion** The major poor prognostic factors for inpatient mortality included respiratory failure requiring ventilator support, globally impaired left ventricular ejection fraction, high serum creatinine level, low GFR, great change in serum creatinine level and GFR. With early identification of these factors, timely intervention and management might improve the final outcome.

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## **DIFFERENTIATION OF TAKOTSUBO CARDIOMYOPATHY AND ANTERIOR ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION IN FEMALE WITH INTEGRATED SCORE OF ECG FEATURES AND CLINICAL FACTORS**

Dr Wong Chi Wing, Department of Medicine & Geriatrics, Tuen Mun Hospital (November 2013 Cardiology Exit Assessment Exercise)

Takotsubo cardiomyopathy (ABS) often mimics anterior ST-segment elevation myocardial infarction (A-STEMI) and the condition tends to occur in postmenopausal women after a stressful event. In contrary, female suffering A-STEMI represents a minority of entire acute coronary syndrome. Studies have proposed specific ECG criteria to differentiate ABS and A-STEMI. The predictive value with ECG criteria alone was, however, felt to be insufficient. We propose an integrated scoring system with ECG features and cardiovascular risk factors. Thirty consecutive female patients with ST-segment elevation pattern of ABS and 90 female patients with A-STEMI were divided into two set. Multiple ECG features appear predictive of ABS in univariate analysis according to our first set of patients similar to several published literatures. However, only absence of cardiovascular risk factors, anterior Q wave, reciprocal ST-segment depression and V1 ST-segment elevation remain independently predictive of ABS by multivariate analysis. A proportional  $\beta$ -regression coefficient value of 1 point was assigned to each factor and our Takotsubo predictive score were then validated on second set of patients. Analyzing the ECG criteria alone, the score failed to exclude A-STEMI with high certainty. However, specificity was enhanced to 99% who fulfilled all four criteria after integration of cardiovascular risk factors. Despite of the lower sensitivity, the integrated score of ECG features and cardiovascular risk factors might reliably exclude A-STEMI in female patients. Our study is unique that we evaluated the contribution of each ECG features and the potential of integrating the clinical parameters in prediction of ABS.

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## **A PRACTICAL PROTOCOL OF CONTINUOUS VENOVENOUS HEMODIAFILTRATION USING COMMERCIAL CITRATE-CONTAINING REPLACEMENT SOLUTION**

Dr Lui Mei Sze, Department of Medicine, Queen Mary Hospital (November 2013 Critical Care Medicine Exit Assessment Exercise)

**Introduction** Regional citrate anticoagulation (RCA) is effective in prolonging filter function, and confers less risk of bleeding. In recent years, commercial preparation of citrate-containing replacement solution is available which facilitates wider use of RCA in critically ill patients with improved metabolic profile.

**Objectives** To assess the feasibility and safety of a protocol using Prismocitrate 18/0 (GambroDasco, Sondalo, Italy), a new formulation of pre-dilution replacement solution with altered citrate content, coupled with calcium-free dialysate (Prismocal B22) for continuous venovenous hemodiafiltration in patients admitted to the Adult Intensive Care Unit (AICU)

**Methods** Asian medical patients admitted to the AICU of Queen Mary Hospital who were indicated for continuous renal replacement therapy were invited. Those with significant liver impairment, history of advanced cirrhosis, septic shock refractory to high dose vasopressor, were excluded. The protocol adopted fixed flow rates of blood and Prismocitrate 18/0 (pre-dilution replacement) at 120ml/minute and 1000ml/hour respectively. Dialysate (Prismocal B22) flow rate was adjusted according to body weight to achieve the ultrafiltration dose of 25-35 ml/kg/hour. Normal saline ran at 100ml/hour as the post-dilution solution. CVVHDF is performed using Prismaflex machine with AN69 ST 100 filter (Gambro Industries). Pre-filter and post-filter calcium levels targeted between 0.3-0.5 mmol/l. Calcium chloride 10% was infused to keep serum ionized calcium level between 1.0-1.2mmol/l.

**Results** 31 eligible subjects (16 males, 15 females, age 26-85) with 32 sessions were analysed. Five sessions were withdrawn. The pre and post-filter ionized calcium were consistent between 0.3-0.5mmol/l. 23 sessions completed the CVVHDF therapy without filter clotting, with median filter lifespan 29.5 hours (interquartile range 14-39). Filter clotting was reported in 3 subjects, after CVVHDF for 26, 38, 53 hours respectively. Catheter malfunction were found in 2 of the cases with filter clotted. Among the cohort, no disturbance in sodium level was reported. No adverse events related to hypocalcemia, hypophosphatemia, hypomagnesemia or citrate accumulation were reported in the study subjects. Mild hypophosphatemia and hypomagnesemia developed mainly after prolonged CVVHDF (>24 hours). Baseline lactate level  $\geq 4.5$  mmol/l was found to be a sensitive marker of intolerance to the citrate CVVHDF regimen with acidemia. Metformin-associated lactic acidosis (MALA) was an exception.

**Conclusion** The current CVVHDF protocol using Prismocitrate 18/0 as replacement solution and Prismocal B22 dialysate is feasible and safe.

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## **USE OF COLISTIN IN INTENSIVE CARE UNITS OF HONG KONG: A RETROSPECTIVE OBSERVATIONAL STUDY**

Dr Yu Chin Wing, Intensive Care Unit, North District Hospital (November 2013 Critical Care Medicine Exit Assessment Exercise)

**Background** The emerging infection due to multidrug resistant microorganisms has rekindled the usage of colistin, which was once nearly abolished mainly due to its

nephrotoxicity. The prevalence and the safety of colistin therapy in critically ill patients in Hong Kong, however, have not been studied.

**Objectives** 1. To review the bacteriology led to colistin therapy in critically ill patients in Hong Kong. 2. To review the dosage and route of colistin, the hospital length of stay, the mortality and the rate of acute kidney injury among these patients.

**Method** A retrospective observational study was performed on the patients whom received intravenous or inhalational Colistin during their admission to an adult ICU over a 3-year period from 2010 to 2012. Exclusion criteria included those ICUs with less than 5 relevant cases and where the medical records for data retrieval were not available before predefined time.

**Results** 157 cases from 7 adult ICUs were eligible for this study. One out of these 7 ICU contributed 64.3% of the cases. The average age of the patients was 60.7 +/- 15.7. The most common causative organism triggered the usage of colistin was Carbapenem-resistant *Acinetobacter* species (67.5%, n= 106), followed by *Pseudomonas* species (13.4%, n = 21). All cases received intravenous colistin, while 4 cases received concomitant inhalational colistin. The total daily dosage of intravenous colistin was of 2.51 +/- 1.01mU. The APACHE II score and APACHE IV score were 26.3 +/- 18.0 and 87.9 +/- 35.4 respectively. The ICU mortality, inhospital mortality and 30-days mortality were 40.1%, 59.2% and 49.0%, respectively. According to the serum creatinine level, with referenced to RIFLE criteria (Risk, Injury, Failure, Loss and End-stage kidney disease) and the need of renal replacement therapy, the rate of acute kidney injury for those received at least 48 hours of colistin was 36.8% (n = 39). Among them 15.1% (n=16) was at Risk, 12.3% (n=13) was Injury, 9.4% (n = 10) was Failure, while no case had Loss or End-stage kidney disease.

**Conclusion** The most common microorganism led to colistin therapy in ICUs of Hong Kong was Carbapenem-resistant *Acinetobacter*. Mortality and acute kidney injury in critically ill patients treated with colistin was not uncommon, however, these outcomes were also attributed by different confounding factors. Further studies will be valuable to investigate the most optimal dosage of colistin with minimal harmful effects.

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## **A STUDY OF POINT-OF-CARE TEST TO DIAGNOSE SYPHILIS IN HONG KONG** Dr Koh Chiu Choi, Department of Health (December 2013 Dermatology & Venereology Exit Assessment Exercise)

**Background** In Hong Kong, most patients with syphilis are managed under Social Hygiene Clinic(SHC). In this study, the basic characteristics, demographic data of newly diagnosed syphilis patients in Social Hygiene Clinic in 2012 will be studied.

'Point-of-care' test (POC) syphilis test is available and used by some outreach medical team of non-government organization (NGO) in screening syphilis. This study aims to determine the use and significance of POC syphilis test in screening syphilis among high risk people in Hong Kong.

**Objective** (1) To study the basic characteristics, demographic data of newly diagnosed syphilis patients from SHC. (2) To study the utility of POC test in screening syphilis among high risk people in Hong Kong. (3) To study whether different stage of syphilis have any impact on the use of POC syphilis test. (4) Study diagnostic performance between two different brands of POC syphilis test commonly used in HK for screening syphilis.

**Method** Information about the basic characteristics, demographic data of all 1,004 newly diagnosed syphilis patients from SHC in 2012 were retrieved from database and analyzed. Besides, POC syphilis tests were performed to investigate its performance in diagnosing syphilis. Patients with age above 18 years old will be recruited from two Social Hygiene Clinic for the POC syphilis tests. New patients attending social hygiene clinics, patients with newly diagnosed syphilis, and patients with history of treated syphilis were recruited from October 2012 to February 2013. Two different POC syphilis tests (Determine Syphilis Treponemal Pallidum Test, Standard Diagnostics Bioline3.0Test) were performed. Clinical notes for patients were reviewed by Medical Officer to record the clinical information and basic demographic data.

**Results** In 2012, 1,004 patients were newly diagnosed to have syphilis. Fifty two percentage newly diagnosed syphilis patients from SHC were male and 47.9% were female. The majority of newly diagnosed syphilis patients (96.02%) were Chinese. For marital status, most syphilis patients were married/cohabited (56.97%). For sexual orientation, majority of syphilis patients were heterosexual (90.74%). Seventy five percentages of syphilis patients claimed to have had no casual sex/commercial sex within 3 months. 98.21% of syphilis patients claimed has no sexual contact with commercial sex workers within 1 year. Most syphilis patients were asymptomatic (57.3%). The source of referral was mainly “Self Attend” (42.93%) and “Referral from Hospital Authority” (39.6%). Partner notification was done in only 29.47% of newly diagnosed syphilis patients and 58.17% of patients had failed partner notification because of “no traceable partner” (30.78%), ‘refuse by clients” (27.39%). A total 356 patients were recruited in the study to perform POC syphilis test. The stage of syphilis of those patients was as follows: Late Latent Syphilis (LLS) (67.3%), Early Latent Syphilis (ELS) (8%), Secondary Syphilis (SS) (11.7%), and Primary Syphilis (PS) (12.3%). Overall result for Determine syphilis test were as follows: sensitivity 56.1%, specificity 100%, positive predictive value (PPV) 100%, negative predictive value (NPV) 73.8%. Overall result for Bioline syphilis test was as follows: sensitivity 57.4%, specificity 100%, positive predictive value 100%, and negative predictive value 73.8%.

**Conclusion** Majority of newly diagnosed syphilis patients from SHC in 2012 were asymptomatic (57.3%). Partner notification was unable to be done in 58.17% of them. Screening of syphilis is important in Hong Kong. Determine POC and Bioline POC syphilis test has high specificity, positive predictive value but low sensitivity and negative predictive value. They are not suitable to use as a standard screening test for syphilis.

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## **DERMATOMYOSITIS: 10-YEAR RETROSPECTIVE REVIEW OF CASES IN THE SOCIAL HYGIENE SERVICE AND ITS ASSOCIATION WITH MALIGNANCIES**

Dr Ng Shun Chin, Department of Health (December 2013 Dermatology & Venereology Exit Assessment Exercise)

**Background** Dermatomyositis is a rare autoimmune disease which can be associated with internal malignancies. Limited data is available on the disease’s profile in the local Chinese population.

**Aim** This study aimed to be an updated epidemiology review to improve our understanding of dermatomyositis and its associated malignancies in Hong Kong.

**Methods** A retrospective, multi-centre, observational study was carried out to anonymously review the medical records of dermatomyositis patients in the local government dermatological clinics.

**Results** Sixty-five Chinese patients were included in the study. The peak of onset was at the age of 51-60 with female predominance. 66.2% and 49.2% patients had the pathognomonic signs of heliotrope rash and Gottron's papules. Shawl sign was significantly more common in male patients. There were forty-three, nineteen and two patients of classic, amyopathic and juvenile patients with dermatomyositis respectively. Most of the skin biopsies demonstrated interface dermatitis. 87.7% of patients were ANA positive and Jo-1 antibody was not correlated to pulmonary diseases. Twentythree patients had cancers with the male sex and older age being the risk factors. Nasopharyngeal cancer was overrepresented and most cancers were detected within the first year of diagnosis of dermatomyositis. The mainstay of systemic treatment was oral prednisolone. Dermatomyositis carried a poor prognosis and the 1-year and 5-year survivals were 85.9% and 75% respectively.

**Conclusion** This study is the largest one conducted in Hong Kong and most of its findings were in keeping with other Chinese and Western series except the lack of correlation of Jo-1 antibody to pulmonary disease.

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## **RELIGIOUS FASTING DURING THE MONTH OF RAMADAN IN PEOPLE WITH DIABETES MELLITUS**

Dr Hui Yin Lam Elaine, Department of Medicine, Queen Mary Hospital (November 2013 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

Religious fasting during the Islamic month of Ramadan involves abstaining from food and drink from sunrise to sunset for approximately 30 days. Most Muslim adults take two meals a day during Ramadan - Suhur (the meal before sunrise) and Iftar (the meal after sunset). Although the Koran exempts sick people from the duty of fasting, many Muslims with diabetes may not perceive themselves as sick and choose to fast.

The practice of fasting among diabetic patients has not been explored in the United Kingdom. To improve the understanding of the factors that influence the decision to fast, we conducted a questionnaire-based survey in a specific group of diabetic Muslims, namely pregnant diabetic women, who are at increased risk of potential complications of prolonged fasting. In our survey of 46 women from 4 specialist clinics in Northwest London, only 9% fasted. The influence of Imams (religious advisors) was as important as healthcare professionals in advising about fasting.

Secondly, prolonged fasting is accompanied by 'feasting' after sunset, leading to repeated and extreme glycaemic fluctuations during the 30 days of Ramadan. Therefore, we evaluated the glycaemic variability in 9 patients with diabetes who had a history of hypoglycaemia using continuous glucose monitoring. All of them had pre-Ramadan assessment according to International guidelines on optimal management of diabetes during Ramadan. The glycaemic variability during fasting and non-fasting periods of Ramadan was similar, suggesting that pre-Ramadan assessment was useful in minimising glycaemic excursions during Ramadan.

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## **A RETROSPECTIVE REVIEW OF CLINICAL CHARACTERISTICS OF 30 PATIENTS WITH MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 (MEN1) IN PUBLIC HOSPITALS IN HONG KONG**

Dr Lee Ka Wah, Department of Medicine, Yan Chai Hospital (November 2013 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

**Background** Multiple Endocrine Neoplasia type 1 (MEN1) is a rare but important endocrine disease. Optimal management requires multidisciplinary care with understanding of its clinical characteristics. Chinese data was scarce and awareness of the special features of MEN1 was necessary.

**Objectives** To retrospectively review the clinical characteristics of 30 MEN1 patients from several regional hospitals in Hong Kong and identify the effect of screening on time of presentation. Comparison with the literature was also made.

**Methods** From 2000 -2013, clinical information of thirty patients with the diagnosis of MEN1 was retrieved via electronic patient's record or clinical notes. Demographic data, baseline clinical characteristics, mode of management and outcome were evaluated.

**Results** Among 30 patients with the diagnosis of MEN1, all patients have parathyroid involvement, 66.7% of patients have pituitary involvement and 66.7% of patients have pancreas involvement. Hypercalcemia and related manifestations were the most common initial presentation (40%) followed by hypoglycemia (26.7%). Concerning tumors subtype, there were more insulinoma (33.3%) and non-functioning pituitary tumor (40%) but less gastrinoma(13.3%)and prolactinoma (13.3%) compared with the literature. Mutational analysis and family screening were performed in 66.7% and 60% of patients respectively. Active screening results in earlier diagnosis of parathyroid and pituitary disease when compared with those without screening. (Parathyroid  $p=0.007$ ; Pituitary  $p=0.007$ )

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## **A RETROSPECTIVE STUDY OF ADRENAL INCIDENTALOMAS IN TWO HONG KONG REGIONAL HOSPITALS**

Dr Tsang Kwok Ying Ingrid, Department of Medicine, Tseung Kwan O Hospital (November 2013 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

**Objectives** To study the clinical course, biochemical and radiological features of adrenal incidentaloma.

**Methods** The medical records of clinical, laboratory, and radiological investigations of 83 patients, who had active follow-up at the endocrine clinics of 2 regional hospitals (Tseung Kwan O Hospital and Our Lady of Maryknoll Hospital) for the presence of adrenal incidentaloma, during the period January 2005 to December 2010, were reviewed retrospectively. Patients' demographics, co-morbidities, details of biochemical and radiological evaluations were assessed. Operation was offered if the tumour size was more than 4cm, suspicious imaging phenotype or if there was a hypersecreting tumour.

**Results** Eighty-three patients were included (male:female = 40:43). The mean age at diagnosis was 58 years old (inter-quartile range 50-59). Hypertension was the most common co-morbidity, followed by obesity. The commonest indication for imaging were gastrointestinal symptoms (n=21, 25.3%) and abnormal lung shadow (n= 20, 24.1%). The median size of the adrenal incidentalomas when discovered was 2 cm (interquartile range 1.4-2.6cm).

During a median follow-up period of 36 months (inter-quartile range 24-62), only 4 patients (4.8%) showed significant mass enlargement of greater than 1cm. One of them received an operation, and the histology revealed cortical adenoma. Detailed endocrinological workup revealed 6 (7.2%) functional tumours, which included 4 tumours responsible for Cushing's

syndrome, 1 Conn's adenoma, and 1 pheochromocytoma. All functional tumours were identified at first presentation. For the non-functional tumours, none of them became functional during the follow-up period or neither was there any malignant transformation.

A total of eight patients (9.6%) underwent adrenalectomy owing to large tumour (n=4), interval tumour growth of more than 1cm (n=1), calcification of the tumour on CT (n=1) and functional tumour (n=2), one with subclinical Cushing's syndrome and the other had pheochromocytoma. The most common histological diagnosis was adrenal cortical adenoma (n=3), and others included myelolipoma (n=2), pheochromocytoma(n=1), oncocytoma (n=1) and ganglioneuroma (n=1). No primary adrenocortical carcinoma was found.

**Conclusion** The baseline clinical characteristics, indications for imaging, and associated co-morbidities of the studied population were largely comparable to those reported in the western countries. In this series, 7.2% of AIs were hormonal producing tumour, all identified at the beginning; therefore hormonal workup is mandatory in all patients with AI. No additional functional or malignant tumour was detected, after follow-up for a median period of 36 months. Majority of the adrenal tumours were benign and non-functional, therefore conservative approach may be appropriate.

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## **EUS-GUIDED FINE NEEDLE ASPIRATION OF PANCREATIC LESIONS: EXPERIENCE IN A REGIONAL HOSPITAL IN HONG KONG AND LITERATURE REVIEW**

Dr Ho Yim Ha, Department of Medicine & Geriatrics, Kwong Wah Hospital (December 2013 Gastroenterology & Hepatology Exit Assessment Exercise)

**Background** Advances in imaging methods have increased the number of incidentally found small pancreatic lesions. It is important to differentiate whether a pancreatic lesion is malignant or benign, as malignant tumor of pancreas carry a high mortality. Endoscopic ultrasound-fine needle aspiration (EUS-FNA) allows early and accurate tissue diagnosis, which is essential for the definitive treatment and subsequent improved survival of treated patients.

**Objectives** To review the operating performance of endoscopic ultrasound-fine needle aspiration (EUS-FNA) in patients with pancreatic lesions and factors affecting the diagnostic accuracy of EUS-FNA.

**Methods** This retrospective and descriptive study was performed by recruiting patients who underwent EUS of the pancreatobiliary region in Kwong Wah Hospital over a period of five years from 1st January 2008 to 31st December 2012. A total of 78 patients received EUS of the pancreatobiliary system during this period. Of these 78 patients, a total of 50 patients underwent EUS-FNA of their pancreatic lesions and were further evaluated for the purposes of this study.

**Results** Of the 50 patients, 26 patients (52%) had a final diagnosis of malignancy and 24 patients (48%) had a final diagnosis of benign lesions. The diagnostic yield was 37/50 (74%). The sensitivity, specificity, positive predictive and negative predictive values of the diagnostic test were 89% (95% CI 67-99%), 100% (95% CI 81-100%), 100% (95% CI 80-100%) and 90% (95% CI 68-99%) respectively. The diagnostic accuracy was 70%. In our study, the only EUS characteristic affecting the likelihood of finding a malignant lesion was the solid nature of the lesion (P=0.007). No complication in terms of infection, bacteremia, acute pancreatitis, hemorrhage or peritonitis was recorded.



**Conclusion** EUS-FNA of pancreatic lesions is an effective and safe procedure in establishing a tissue diagnosis of pancreatic lesions, especially in those with solid lesions.

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## **A HOSPITAL-BASED STUDY ON RISK FACTORS OF RECURRENT *CLOSTRIDIUM DIFFICILE* ASSOCIATED DISEASE IN HONG KONG**

Dr Tsang Kai Fung, Department of Medicine & Geriatrics, Princess Margaret Hospital (December 2013 Gastroenterology & Hepatology Exit Assessment Exercise)

**Background** The incidence and severity of *Clostridium difficile* associated disease (CDAD) is increasing worldwide. Risk factors of CDAD were identified in many studies. However, risk factors of recurrent CDAD are not well established. Local data are limited.

**Aim** The primary objective is to determine recurrence rate and identify risk factors of recurrent CDAD. The complications and outcome of recurrent CDAD are assessed.

**Methods** A 30-month multi-centre retrospective cohort study was conducted in three hospitals. Five hundred and seventy five patients suffering from CDAD were recruited. They were divided into recurrent and non-recurrent group.

**Results** Sixty five patients developed recurrent CDAD. The recurrence rate was 11.3%. Multivariate logistic regression analysis was performed. Patients taking proton pump inhibitor (PPI) (adjusted OR 2.006, 95%CI 1.135–3.546,  $P=0.017$ ) had significantly higher risk of recurrent CDAD. PPI use more than the World Health Organization (WHO) defined daily dose further increased the risk (adjusted OR 3.573, 95%CI 1.107–11.533,  $P=0.033$ ). Naso-gastric (NG) tube feeding (adjusted OR 2.177, 95%CI 1.237–3.834,  $P=0.007$ ) and serum albumin less than 25g/L (adjusted OR 2.037, 95%CI 1.118–3.711,  $P=0.020$ ) also significantly increased the risk of recurrent CDAD.

**Conclusions** Risk factors of recurrent CDAD included use of PPI, NG tube feeding and serum albumin less than 25g/L. PPI use more than the WHO defined daily dose further increased the risk. Judicious use of PPI and regular review on need of NG tube feeding are important measures to prevent recurrence of CDAD. Morbidity, mortality and thus burden on the health-care system might then be reduced.

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## **THE PREVALENCE OF DEPRESSION IN CHINESE PATIENTS WITH INFLAMMATORY BOWEL DISEASE—A PILOT STUDY IN TWO REGIONAL HOSPITALS**

Dr Wong Sai Ho, Department of Medicine, Yan Chai Hospital (December 2013 Gastroenterology & Hepatology Exit Assessment Exercise)

Studies on depression in Chinese patients with inflammatory bowel disease are scanty. According to overseas study, there is strong association between inflammatory bowel disease and depression. Some believe that depression is the etiology of inflammatory bowel disease. Others believe that the disease activity of inflammatory bowel disease positively correlates with the risk of development of IBD. Our study is to investigate the prevalence of depression in Chinese patients with inflammatory bowel disease in two regional hospitals.

**Method** Patients with diagnosis of IBD followed up in two regional hospitals were invited to join this study. All patients needed to fulfill the pre-set inclusion criteria. Depression risk

was assessed by Chinese version Patient Health Questionnaire version 9. (PHQ-9) Patients' demographic data was obtained. Disease activity of Crohn's disease and ulcerative colitis was measured by Harvey Bradshaw index and Simple Clinical Colitis Activity index respectively. Prevalence of depression was calculated. Risk factors for the development of depression in patients with inflammatory bowel disease were determined. Multi-variable regression test was performed to test each control variable.

**Result** 151 patients met the inclusion criteria. 3 patients refused to participate in this study. 148 patients were assessed. 58.8% were male patients. 39 patients were suffering from Crohn's disease. The prevalence of depression in Crohn's disease group was 30.77% whereas the prevalence of depression in ulcerative colitis group was 18.34%. Multi-variable regression analysis showed the disease activity positively correlated with PHQ-9 score.

**Conclusion** Depression is common in patients with inflammatory bowel disease. The more severe the inflammatory bowel disease as well as the higher PHQ-9 score is, the greater the risk of suffering from depression. Routine screening of depression in high risk groups is important.

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## **FIVE YEAR MORTALITY AND SUBSEQUENT FRACTURES IN OLDER PATIENTS SUFFERING FROM FIRST HIP FRACTURE**

Dr Lui Sau Fong, Department of Medicine & Geriatrics, Tuen Mun Hospital (November 2013 Geriatric Medicine Exit Assessment Exercise)

**Background** Hip fracture is well known to cause significant morbidities and mortalities, the first year mortality rate ranged from 10 to 28 % and 40% of survivors were unable to walk independently. With the aging population, it is estimated that the incidence of hip fracture will increase in coming decades, especially in Asia. Subsequent fractures are common among survivors of first hip fracture, identifying factors associated with increased mortality and characteristic of patients with subsequent fracture are important.

**Objective** To determine the 5 year mortality rate and it associated risk factors as well as the incident of subsequent fractures in our locality.

**Method** This is a retrospective cohort study conducted in Tuen Mun Hospital and Pok Oi Hospital in 2007. Patients aged 65 or above and suffered from first episode of hip fracture were recruited. 334 eligible patients were enrolled into the study, death of patients and occurrence of subsequent fracture within 5 years were recorded. Cox regression analysis was used to determine the independent risk factors associated with 1 year and 5 year mortality as well as occurrence of subsequent fracture. Further analysis for risk factors of institutionalization by logistic regression was also performed.

**Results** The 1-year mortality rate in our study was 19.5% (n=65) and the 5-year mortality rate was 53.9 % (n=180). Female sex and higher post fracture MFAC score were associated with less mortality both at 1 year (HR 0.823, p=0.032 and HR 0.499, p =0.015 respectively) and 5 year (HR 0.451, p<0.0001 and HR 0.875, p=0.015 respectively). Incident of subsequent fracture was 14.07 % and incident for subsequent hip fracture was 0.022 per person-year. The mean duration for occurrence of second fracture was 26.11 months. Chronic lung disease (HR 2.835, p=0.010) and longer length of stay (HR 1.012, p=0.010) were associated with higher risk of subsequent fracture. Further analysis for institutionalization found that dementia (OR 3.335, p=0.006) and living alone (OR: 2.550, p=0.017) were associated with higher rate of institutionalization.

**Conclusion** The 1 year mortality rate in our study was similar to other studies. Lower mobility level after hip fracture and male sex were associated with higher mortality at 1 and 5 year. Chronic lung disease was associated with higher rate of subsequent fracture. Post fracture rehabilitation to restore patients' mobility level was important and may reduce mortality, patients with chronic lung disease may benefit from active screening and treatment for osteoporosis.

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## **VALIDATION AND CLINICAL UTILITY OF THE HONG KONG MONTREAL COGNITIVE ASSESSMENT (HK-MOCA) IN CHINESE OLDER ADULT IN HONG KONG**

Dr Yeung Pui Yu, Department of Rehabilitation, Kowloon Hospital (November 2013 Geriatric Medicine Exit Assessment Exercise)

**Background** With population aging globally, the impact of dementia is set to accelerate in the coming years, in that dementia is a disable chronic disease that will increase the burdens to caregivers as well as health and social care systems. Management of dementia requires prompt and careful identification. Awareness of the pre-dementia condition of mild cognitive impairment (MCI) can prompt the patient to regular surveillance and early initiation of multi-disciplinary intervention when evidence of dementia is present. There are various screening instruments for cognitive impairment and the Hong Kong version of Montreal Cognitive Assessment (HK-MoCA) is a valid cognitive screening instrument for patients with cerebral small vessel disease in Hong Kong.

**Objectives** This study aimed to generalize the validity of HK-MoCA in identification of MCI and dementia in Chinese older adults and to determine the optimal cut-off points for detecting MCI and dementia. Besides, item analysis of cognitive domains and discriminatory ability of the HK-MoCA in differentiating subtypes of dementia (Alzheimer's disease, vascular and mixed type) will be performed.

**Methods** This was a cross-sectional validation study. 272 eligible subjects (dementia, n = 130; MCI, n = 93; normal controls, n = 49) were recruited from cognition clinic and memory clinic of a local public hospital and administered the HK-MoCA and the Cantonese version of Mini-Mental State Examination (CMMSE). On top, a semi-structured mental status examination and a detailed neuropsychological battery were performed for making a final cognitive diagnosis by experienced geriatricians and psycho-geriatricians according to DSM-IV criteria for dementia and Petersen's criteria for MCI. The HK-MoCA scores were validated against the expert diagnosis. Statistical analysis was performed using the receiver operating characteristic method and regression analysis. In addition, comparison had been made with CMMSE and Global Deterioration Scale (GDS).

**Results** The optimal cut-off score for the HK-MoCA to differentiate cognitive impaired persons (MCI and dementia) from normal controls was 21/22 after adjustment of education level, giving sensitivity of 0.928, specificity of 0.735 and area under curve (AUC) of 0.920. Moreover, cut-off score to detect MCI was 21/22 with a sensitivity of 0.828, specificity of 0.735 and AUC of 0.847. For comparison, CMMSE score to detect MCI was 26/27 with a sensitivity of 0.785, specificity of 0.816 and AUC of 0.857. Last of all, the optimal cut-off score to detect dementia was 18/19 with a sensitivity of 0.923, specificity of 0.918 and AUC of 0.971. Good reliability and internal consistency were demonstrated in this study. In item analysis, the HK-MoCA total score and its cognitive domains' scores successfully discriminated at least two of the groups (NC, MCI and dementia). In contrast, all of them

showed no difference among the three subtypes of dementia (Alzheimer's disease, vascular and mixed type).

**Conclusion** The HK-MoCA is a useful cognitive screening instrument for use in Chinese older adults in Hong Kong. A score of less than 22 should prompt further diagnostic assessment. It has comparable sensitivity for the detection of patients with MCI compare to CMMSE.

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## **THE CLINICAL SIGNIFICANCE OF POST-RADIOTHERAPY PLASMA EBV DNA IN NASOPHARYNGEAL CANCER**

Dr Lau Kwan Hang Thomas, Department of Clinical Oncology, Prince of Wales Hospital (December 2013 Medical Oncology Exit Assessment Exercise)

**Background** In nasopharyngeal cancer (NPC), plasma or serum EBV DNA has been shown to correlate with cancer stage and prognosis, and has been used to monitor treatment response and detect recurrence. The NPC 0502 trial, which is a multi-centre prospective randomised phase III trial, aims to determine the benefit of adjuvant chemotherapy using gemcitabine and cisplatin in patients with residual plasma EBV DNA following primary radiotherapy (RT) or chemoradiation (NCT00370890). The current study aims to determine if post-RT plasma EBV DNA serves as a valid prognostic marker in the screening cohort of 0502 trial.

**Methods** Data of subjects screened for post-RT plasma EBV DNA at Prince of Wales Hospital for the NPC 0502 trial (n=348), were collected. Their demographic information including age, gender, stage at diagnosis, type of primary treatments, and clinical outcome were analysed.

**Results** Two hundred and eighty-six patients (82.2%) were post-RT EBV DNA negative, and sixty-two (17.8%) were post-RT EBV DNA positive. More patients in the EBV DNA positive group were at more advanced stages (UICC/AJCC stage IVA and IVB = 43.5%) compared with the EBV DNA negative group (22.7%). More patients in the positive group had local or distant relapses (66.1%) compared with the negative group (14.0%). At a median FU period of 3.39 years (95% C.I. 3.18 – 3.65), the median relapse free survival of the EBV DNA positive group was 1.41 years, while that of the EBV DNA negative group was not reached (p<0.0001). The three-year relapse free survival rate of the EBV DNA positive group was 35.3%, while that of the EBV DNA negative group was 86.5% (p<0.001). Post-RT EBV DNA was the only independently significant prognostic factor across all endpoints in multivariate analysis.

**Conclusion** Post-RT plasma EBV DNA served as a valid prognostic marker in the 0502 screening cohort. Patients with residual post-RT EBV DNA have a poor prognosis. Further studies to define the optimal treatment in this group of patients are warranted.

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## **TOWARDS RATIONALIZING ACUTE MANAGEMENT OF SPONTANEOUS INTRACEREBRAL HAEMORRHAGE - USING CLINICAL AND RADIOLOGICAL PARAMETERS TO PREDICT EARLY NEUROLOGICAL DETERIORATION IN PRIMARY SPONTANEOUS INTRACEREBRAL HAEMORRHAGE**

Dr Ng Yee Wah, Department of Rehabilitation, Kowloon Hospital (November 2013 Neurology Exit Assessment Exercise)

**Background** Readily available predictors of early neurological deterioration upon

admission can help the clinical decision in managing acute intracerebral haemorrhage.

**Aim** To determine the clinical risk factors for early neurological deterioration (END) in primary spontaneous intracerebral haemorrhage patients who were initially put on conservative treatment

**Methods** Clinical and radiological data were collected from a retrospective cohort of ICH patients who were initially managed conservatively. Only patients admitted within 6 hours of symptoms onset were included. END was defined as new onset of neurological deficits and or deterioration in the presenting neurological deficits within 48 hours from time of admission. Ultraearly haematoma growth (uHG) was obtained to compare with haematoma volume in predicting END. Potential predictors and factors associated with END ( $p < 0.05$ ) were analyzed with binary logistic regression.

**Results** One hundred and four patients were recruited. 38 patients (36.5%) developed END. Haematoma volume  $\geq 10$  ml, midline shift and intraventricular extension of haematoma (IVH) were significant predictors of END in final equation of regression. Ultraearly haematoma growth was also an independent predictor. It did not appear superior to haematoma volume in predicting END. ROC analysis showed both haematoma volume and uHG could be used for predicting END. Various threshold volume was explored for each location. For BG ICH, threshold volume  $\geq 15$  ml (sensitivity=0.77, specificity =0.84 and Youden's index =0.61) was preferred. For lobar ICH, threshold volume  $\geq 25$  ml (sensitivity-0.85, specificity=0.67 and Youden's index) was more appropriate. It was less predictable for thalamic ICH. Only volume less than 2 ml was less likely to develop END.

**Conclusions** Haematoma volume  $\geq 10$  ml (within 6 hours of symptom onset), midline shift, IVH were significant predictors of END. Age  $\geq 80$  was marginally significant. Both baseline haematoma volume and uHG could predict END. Ultraearly haematoma growth did not appear superior to baseline haematoma volume in predicting END. Threshold volume cut-off was different for respective locations. For BG ICH, threshold volume  $\geq 15$  ml was preferred. For lobar ICH, threshold volume  $\geq 25$  ml was more appropriate. It was less predictable for thalamic ICH. Only volume less than 2 ml was less likely to develop END.

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## **IMPACT OF SMOKING ON THE RISK OF RECURRENCE OF TUBERCULOSIS**

Dr Huang Shan Shan, Department of Health (December 2013 Respiratory Medicine Exit Assessment Exercise)

**Objective** To study the risk factors for tuberculosis (TB) recurrence, with focus on evaluating the association between smoking and TB recurrence using a nested case-control study.

**Method** Cases of recurrent pulmonary TB within 2 years after commencement of treatment were identified from a cohort of patients from the TB registry in 2006 to 2008. Using frequency matching, three controls per case matched by sex and the year of starting anti-tuberculosis treatment were randomly selected from the rest of the cohort. The independent risk factors for TB recurrence were identified by univariate and multivariable analyses.

**Results** The risk of recurrence in this study was 0.78% (70/8928 patients). Smoking non-significantly increased the odds (confidence interval, CI) of recurrent TB to 1.5 (0.8-3.0) in multivariable analysis. Only alcoholism (OR 4.4, CI 1.1-17.9) and positive sputum

culture results at 2-month or 3-month (OR 2.9, CI 1.1-7.8) were independent predictors of recurrence.

**Conclusion** Further studies on this potentially important health issue may be warranted. The incorporation of smoking cessation program into TB control practice may help to reduce its recurrence.

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## **FACTORS AFFECTING THE TREATMENT OUTCOMES OF COMPLICATED PARAPNEUMONIC EFFUSION (CPE) AND EMPYEMA THORACIS IN TWO LOCAL HOSPITALS IN HONG KONG**

Dr Kwok Chun Lee, Department of Medicine & Geriatrics, Tuen Mun Hospital (December 2013 Respiratory Medicine Exit Assessment Exercise)

**Background** Pleural infection is an old disease which still imposes significant mortality and morbidity nowadays. The incidence of pleural infection is observed to be increasing worldwide over the past decades, and the bacteriology is also changing with time. Prompt diagnosis and appropriate management remain a challenge for physicians.

**Objectives** To analyze the various characteristics of CPE and empyema thoracis, with an aim to identify factors that predicting failure of medical therapy.

**Methods** This is a retrospective case series study. It recruited patients admitted to Tuen Mun Hospital and Pok Oi Hospital with a diagnosis of empyema thoracis or complicated parapneumonic effusion from January 2008 to December 2012. Patients' age-sex profile, symptomatology, biochemical, microbiological and radiological features, procedures including pleural drainage and intrapleural fibrinolysis, surgical intervention and mortality were obtained. Predictors for poor outcome were analyzed.

**Results** Total 93 patients were included in this study, including 77 male patients (82.8%) and 16 female patients (17.2%). 64 cases (68.8%) were successfully treated with medical therapy which included antibiotics plus thoracentesis or tube thoracostomy, with or without intrapleural fibrinolysis. 29 cases (31.2%) failed medical therapy, among which 17 cases (18.3%) required further surgical intervention and another 12 cases (12.9%) died during the index admission. Univariate analysis revealed that pleural thickening on contrast CT thorax ( $p=0.037$ ), positive bacterial culture of pleural fluid ( $p=0.027$ ) and growth of staphylococcus in pleural fluid ( $p=0.010$ ) were significant predictors of medical treatment failure. Multivariate analysis showed growth of staphylococcus in pleural fluid ( $p=0.019$ , Odd ratio 9.007, 95% CI 1.440 – 56.326) was an independent predictor of medical failure. There was a trend of pleural thickening on contrast CT thorax ( $p=0.061$ , Odd ratio 4.045, 95% CI 0.940 – 17.418) to predict medical failure. However, this didn't reach statistical significance.

**Conclusion** Successful rate of medical treatment for CPE/empyema was 68.8% in this study. Growth of staphylococcus in pleural fluid was an independent predictor of medical failure. There was a trend of pleural thickening on contrast CT thorax to predict the failure of medical therapy, but this did not reach statistical significance. Early surgical referral should be considered in suitable candidates.

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# THE EVALUATION OF THE HONG KONG CHINESE VERSION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE ASSESSMENT TEST (CAT) FOR MEASUREMENT OF HEALTH-RELATED QUALITY-OF-LIFE IN PATIENTS WITH BRONCHIECTASIS

Dr Yip Choi Wan, Department of Medicine, Haven of Hope Hospital (December 2013 Respiratory Medicine Exit Assessment Exercise)

**Background and objectives** Bronchiectasis is a common respiratory disease causing chronic sputum production and recurrent exacerbation, and hence affecting the health-related quality-of-life of the patients. A simple instrument that can assess the impact of disease is useful in clinical practice. A recently introduced Chronic Obstructive Pulmonary test (COPD) assessment test (CAT) is an 8-item questionnaire for COPD patients, which shows good and valid measurement properties. This study is conducted to evaluate the validity, internal consistency, sensitivity, reliability and responsiveness of the Hong Kong Chinese version of the CAT in patients with bronchiectasis for measuring the health-related quality of life by correlation with St. George's Respiratory Questionnaire (SGRQ-HK).

**Study Design and Method** A prospective cohort study was conducted on stable bronchiectasis patients at local extended care chest hospital, Haven of Hope Hospital in HKSAR, from the period December 2012 to September 2013. The baseline characteristics, physiological parameters and scoring of the CAT (Chinese) and SGRQ-HK were assessed. Concurrent validity with SGRQ-HK, test-retest reliability, internal consistency, sensitivity and responsiveness of the CAT were assessed. Stepwise multiple regression analyses will be performed to identify the factors that best predicted the scoring of CAT.

**Results** There were total 58 patients recruited with 19 males and 39 females. The mean age was  $59.9 \pm 13.2$  years. The common causes of bronchiectasis were idiopathic (30 patients, 51.7%), followed by post-infection of lung (18 patients, 31.0%). The presentations of patients were sputum production (96.6%), cough (89.7%), exertional dyspnea (65.5%), hemoptysis (43.1%) and cough disturbed sleep (39.7%). The mean CAT score was  $14.6 \pm 7.6$  (range 2-36), with 31.0% classified as mild, 48.3% as moderate, 17.2% as severe and 3.5% as very severe impact. Six patients had exacerbation of bronchiectasis and so the responsiveness of the questionnaires was assessed. The CAT score showed strong correlation with every domain and total score of SGRQ-HK, with the highest between the CAT and the total score of SGRQ-HK ( $r = 0.832$ ,  $p$  value  $< 0.001$ ). It also showed good internal consistency with Cronbach's  $\alpha$  coefficient 0.861, sensitivity, test-retest reliability and responsiveness.

**Conclusion** CAT (Chinese) is a validated tool to assess the health-related quality-of-life of patients with bronchiectasis. It is also a reliable and responsive test to exacerbation of bronchiectasis. It had advantage over the SGRQ-HK as it was more concise and user-friendly in clinical practice.

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Note: For obtaining the full dissertation, please contact the author directly.