Abstracts of Dissertations
June 2011 Exit Assessment Exercise

CLINICAL OUTCOMES OF INTRA-ABDOMINAL HYPERTENSION IN MECHANICALLY VENTILATED CHINESE PATIENTS IN INTENSIVE CARE UNIT

Dr Chan Yuen Sze, Intensive Care Unit, Princess Margaret Hospital (May 2011 Critical Care Medicine Exit Assessment Exercise)

Objective The aim of this study is to collect the incidence of intra-abdominal hypertension (IAH) in mechanically ventilated patients in local intensive care unit (ICU), and to study the impact of IAH on ICU outcomes.

Design and setting Prospective observational study conducted at a medical-surgical ICU in a regional hospital.

Patients One hundred and nineteen mechanically ventilated critically ill Chinese patients admitted from January to April 2010 were enrolled into the study.

Methods and Main Results Intra-abdominal pressure (IAP) was measured eight hourly for the first seven ventilator-days. IAH was defined as sustained elevation of IAP $\geq$ 12mmHg. Abdominal perfusion pressure (APP) and renal filtration gradient (FG) were calculated. ICU mortality was the primary outcome. Secondary outcomes included hospital mortality, 28-day ventilator-free days, 30-day ICU-free days, dialysis status, SOFA score, renal and respiratory SOFA sub-scores. The results showed that the cumulative incidence of IAH in the first seven ventilator-days was high. Positive fluid balance was found to be the only significant risk factor of developing IAH. ICU length-of-stay was shown to be longer in patient with IAH. However, IAP was unsatisfactory as a predictor of ICU outcomes even using a higher cut-off value of 25mmHg. APP $\leq$ 60mmHg and FG $\leq$ 50mmHg were shown to have better prognostic values in predicting ICU outcomes.

Conclusion IAH was common in mechanically ventilated patients in this local ICU population, and was associated with longer ICU length-of-stay. APP and FG were superior as predictors of ICU outcomes when compared to IAP.

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CLINICAL CHARACTERISTICS, OUTCOMES AND PROGNOSTIC FACTORS FOR SURVIVAL OF PATIENTS WITH MYCOBACTERIUM ADMITTED TO INTENSIVE CARE UNIT: A LOCAL PERSPECTIVE

Dr Ho Ka Yee, Anaesthesia & Intensive Care Unit, Tuen Mun Hospital (May 2011 Critical Care Medicine Exit Assessment Exercise)

Background *Mycobacterium tuberculosis* (MTB) infection is endemic in Hong Kong. The annual incidence is ten times higher than that of western countries (1). The reported hospital mortality of MTB admitted to intensive care unit (ICU) was 67-81% (2). Poor prognostic factors in this subgroup have been identified in oversea studies. Hong Kong, as a developed city with high MTB endemicity, has no published data focusing on these patients yet.

Objectives To describe clinical characteristics and outcomes, identify poor prognostic factors and formulate an equation to predict the 60-day mortality.

Design and setting Retrospective study in a mixed surgical and medical ICU in a tertiary hospital in Hong Kong.

Patients Critically ill patients diagnosed to have active MTB from January 2004 to December 2009.

Results Ninety one patients were identified as potential subjects. Nine patients had nontuberculous mycobacterial (NTM) infection and 13 patients admitted with MTB as co-morbidity were excluded. Sixty-nine patients (aged 56.30± 16.50 years) admitted for MTB were included. Thirty percent of patients were above 65 year-old. Forty percent had underlying cardio-respiratory co-morbidities. Seventy percent presented with respiratory and constitutional symptoms. Sixty-eight percent admitted to ICU for respiratory failure. Thirty-six percent had both pulmonary and extrapulmonary MTB. Fifty percent had smear-positive MTB. Thirteen percent developed cavitations on CXR and 21.74% showed miliary CXR patterns. Seventy-five percent had upper zones involvement and 5.80% had no consolidation. Eight-four percent were put on invasive mechanical ventilator, 17.39% on renal replacement therapy and 75.36% required vasopressors. Fifteen percent developed MTB drugs related hepatotoxicity. The hospital mortality for all subjects is 60.87% and 70.69% for patients put on mechanical ventilations. The total Acute Physiological and Chronic Health Evaluation (APACHE) Score II, Sequential Organ Failure Assessment (SOFA) and Murray Lung Injury Score (Murray score) were higher in non-survivors. By multivariate Cox proportional hazards model, anti-tuberculosis (anti-TB) regimen containing $\leqq$ 3 drugs (HR 2.28, 95% CI: 1.19-4.39, p= 0.01), $\geqq$ 3 quadrants of Chest X Ray (CXR) involvement (HR 2.26, 95% CI: 1.20-4.25, p= 0.01), Alkaline phosphatase (ALP) $\geqq$ 3 times of upper normal limit (UNL) (HR 2.35, 95% CI: 1.11-4.98, p= 0.03), pH $\leqq$ 7.2 on ICU admission or during the first week of anti-TB regimen (HR 2.32, 95% CI: 1.18-4.55, p=0.02), acute kidney failure (AKF) (HR 2.28, 95% CI: 1.13-4.59, p= 0.02) and mean arterial pressure (MAP) $\leqq$ 60 mmHg (HR 3.43, 95% CI: 1.61-7.29, p=0.00) were identified as poor prognostic factors contributing to mortality. We derived a simple scoring formula to facilitate the prediction of mortality of patients. Giving one point to each of the factor, the sum of the points is the mortality predicting score. Mortality rate is 14% if score 0-1 point; 65% if score 2-3 points and 100% if score 4-6 points.

Conclusion Diagnosis of MTB remains a challenge as clinical symptoms and CXR findings do not always present classically. A high index of suspicion is always necessary. The above mortality predicting formula can be utilized to identify the prognosis of patients who received one week of intensive care support.

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VENTILATOR ASSOCIATED PNEUMONIA (VAP) IN INTENSIVE CARE UNIT, INCIDENCE, PATIENTS CHARACTERISTICS AND OUTCOME

Dr Kwan Ming Chit, Intensive Care Unit, Pamela Youde Nethersole Eastern Hospital
(May 2011 Critical Care Medicine Exit Assessment Exercise)

Background Various clinical diagnostic criteria for ventilator associated pneumonia (VAP) had been evolved but data on comparing the diagnostic accuracy amongst various criteria is scarce. Furthermore, despite there was a scoring system

developed to assess the severity and to stratify the mortality risk of VAP, there is no published data to validate such scoring system.

Objective To identify and compare the incidence of VAP with adoption of various clinical diagnostic criteria and to validate the VAP-PIRO (Predisposition, Insult, Response, Organ Dysfunction) score in a local Chinese cohort.

Design A prospective, observational, cohort study performed in a general medical-surgical adult Intensive Care Unit (ICU) in a local tertiary care centre.
Intervention: None

Methods A prospective, observational cohort study was performed including 269 patients admitted to ICU who had been intubated and mechanically ventilated for more than 24 hours. VAP was diagnosed by utilizing various clinical criteria including National Healthcare Safety Network NHSN-PNU1, Clinical Pulmonary Infection Score (CPIS) and Johanson criteria. Clinical characteristics and the time when VAP was diagnosed were compared. Moreover, the VAP-PIRO score of each VAP case was calculated. The medical resource use and mortality in each PIRO risk group was compared. The data was finally compared to the original VAP-PIRO cohort.

Results Of 269 patients admitted to ICU during a 8-month period there were in total 59 VAP cases by using NHSN-PNU1 criteria. The VAP incidence was 47.81 per 1,000 ventilator days. By using CPIS and Johanson criteria, only 47 and 42 VAP cases were diagnosed respectively (Incidence: 38.08 per 1,000 ventilator days and 34.04 per 1,000 ventilator days). The mean duration when VAP was diagnosed was 5.30 days and there was no significant difference in time amongst the three diagnostic criteria used. VAP-PIRO score was unable to stratify medical resource use and mortality in our cohort of patient.

Conclusion A higher incidence VAP was observed as compared to CPIS and Johanson criteria when NHSN-PNU1 criteria was adopted in the diagnosis of VAP. No significant delay in the diagnosis of VAP was envisaged amongst the three diagnostic criteria used. Although there was a trend towards higher mortality in patients with higher VAP-PIRO score, it cannot significantly differentiate mortality and usage of medical resources in our cohort.

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THE USE OF RENAL RESISTIVE INDEX AND NGAL IN PREDICTION OF ACUTE KIDNEY INJURY IN ICU PATIENTS WITH SEPTIC SHOCK

Dr Ngai Chun Wai, Intensive Care Unit, Queen Mary Hospital (May 2011 Critical Care Medicine Exit Assessment Exercise)

Background Acute Kidney Injury is a common complication of septic shock and it carries high mortality and morbidity. However, there is no good marker to predict its occurrence. NGAL is a novel renal biomarker showing promising result in the prediction of acute kidney injury in patients across different clinical settings. Another potential marker is Doppler based resistive index of renal interlobar artery, which has been shown to be useful in identifying those patients with septic shock who will develop acute kidney injury.

Objective To evaluate the predictive value of RI and NGAL in the early detection

of acute kidney injury in patients with septic shock.

Design A prospective, observational study in a 20-bed medical / surgical intensive care unit of a university teaching hospital.

Patients All patients presented with septic shock during the study period, excluding those with chronic renal failure (serum creatinine >120μmol/l)

Measurement Within the first 24 hours after the introduction of vasopressor, resistive index was determined by two independent operators by Doppler ultrasonography, and the plasma and urine were collected for NGAL measurement. The presence of acute kidney injury was evaluated at Day 3, according to the RIFLE criteria. RI and NGAL were compared between patients with "Acute kidney injury" (RIFLE class-I/F) and "No acute kidney injury" (no RIFLE class and RIFLE class-R).

Results During the period from August 2010 to January 2011, 30 patients with septic shock were recruited. 18 patients were classified as the group of "Acute kidney injury" and the other 12 patients as the group of "No acute kidney injury". More patients in the group of "Acute kidney injury" had pre-existing diabetes mellitus. No other significant difference was found between the two groups including baseline serum creatinine. Patients with acute kidney injury had significantly higher RI (mean = 0.73 vs. 0.58, $p<0.001$) at enrollment compared with patients with no acute kidney injury. Concerning NGAL, patients with acute kidney injury had significantly higher plasma (median = 177.87 vs. 88.53ng/ml, $p=0.001$) and urine (median = 169.7 vs. 52.5ng/ml, $p<0.001$)) NGAL at enrollment compared with patients with no acute kidney injury. Receiver operating characteristic curve (ROC curve) for RI, plasma and urine NGAL as a predictor of acute kidney injury on Day 3 had an area under curve of 0.866, 0.87 and 0.898 respectively.

Conclusion Resistive index, plasma NGAL and urine NGAL all appear to be good predictors of acute kidney injury in patients with septic shock.

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TRANSPECTORAL ULTRASOUND-GUIDED CATHETERIZATION OF THE AXILLARY VEIN: AN ALTERNATIVE TO STANDARD CATHETERIZATION IN ICU

Dr Tsai Nga Wing, Polly, Intensive Care Unit, Queen Mary Hospital (May 2011 Critical Care Medicine Exit Assessment Exercise)

Background Central venous (CV) access in ICU setting is often obtained through either internal jugular, subclavian or femoral veins. This technique is usually based on landmarks in the pre-ultrasound era. Subclavian vein catheterization is associated with failure and complications due to injury to the nearby lung parenchyma and subclavian artery. Femoral vein approach is associated with increased risk of line sepsis. The axillary vein lies outside of the thoracic cage and can be easily imaged. It is a potentially new ICU approach, especially for those patients with head and neck pathologies. In fact, many local cardiologists are now inserting pacing wires via the axillary vein puncture under fluoroscopic guidance (as a widely used technique) rather than via the subclavian vein. In various overseas small scale studies, there is a minimal risk of pneumothorax, and the observed occasional puncture of the axillary artery can be easily handled by manual compression. At present, no large study or local data is available to assess the potential of this technique.

Methods A descriptive, prospective and observational study of a series of cases, describing the success rate with ultrasound guided procedure, and the possible complications arising from axillary vein cannulation. The degree of experience will be stratified into 2 tiers based on the cumulative number of axillary lines inserted by each operator.

Results A total of 30 patients were enrolled during a 9 month period from July 2010 to March 2011. The overall failure rate was 3.3%. Experienced hands had a shorter drape to venous puncture time (120 seconds vs 240 seconds, *P=0.009*). There was no reported case of catheter related bloodstream infection, pneumothorax or nerve injury. Inadvertent arterial puncture occurred in 10% of case, all by inexperienced hands, which was managed by manual compression without consequence. Axillary vein depth was associated with overweight (defined as body mass index > 25kg/m2) (2.45cm vs 1.88cm, *P=0.033*). Vein diameter, however, was not associated with body build or blood pressure. Right sided cannulation tended to have a higher chance of malposition into the internal jugular vein.

Conclusion Transpectoral ultrasound guided catheterization of the axillary vein offers a reasonable good choice to traditional methods of central venous cannulation by bedside in the ICU setting, with few complications noted. It shares the advantages of the subclavian approach but reduces the risk of pneumothorax or hemothorax due to its extra-thoracic position. The utilization of 2D ultrasonography in identifying the axillary vein further reduces the risk.

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THE PATTERN OF TEMPORAL CHANGES IN SERUM FREE THYROXINE LEVELS AFTER RADIOACTIVE IODINE THERAPY AND THE FACTORS INFLUENCING THE THERAPEUTIC RESPONSE TO RADIOACTIVE IODINE THERAPY IN HYPERTHYROIDISM

Dr. Au Yeung Yick Cheung, Department of Medicine, Queen Elizabeth Hospital
(May 2011 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

Background Radioactive iodine therapy (RAI) is a common modality of treatment for hyperthyroidism. Different clinical factors have been found to predict the response to RAI. The temporal course of change in serum free T4 (fT4) level after RAI is not well studied.

Objective The objectives of this study were 1. to assess effectiveness and short-term safety of RAI in our own population of hyperthyroid patients; 2. to evaluation usefulness of clinical parameters and fT4 levels during follow up in predicting the outcome after RAI; and 3. to explore temporal patterns of serum fT4 level after RAI.

Study design Patients who received RAI between 1st July 2009 to 31st March 2010 were recruited. Clinical assessment and blood tests were arranged according to a pre-defined protocol. A successful outcome was defined as achievement of hypo- or euthyroidism at week 24 and week 48.

Results and conclusion A successful outcome was obtained in 67.9% and 87.5% among subjects given the first and second dose of RAI respectively.Female sex was the strongest independent predictor for success. Other factors including age, family history, etiology of hyperthyroidism, type, dosage and duration of ATD, duration of

ATD discontinuation before RAI, serum fT4 level at RAI and presence of anti-thyroid microsomal antibody were not associated with outcome. The widest fluctuations in fT4 levels occurred between week 6 to week 12. Close monitoring during this period is recommended. The short-term adverse effects of RAI were mild and well tolerated.

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CLINICAL FEATURES AND OUTCOME OF RENAL INSUFFICIENT DIABETIC PATIENTS WITH AND WITHOUT ALBUMINURIA

Dr Ho Kwok Yip, Department of Medicine & Geriatrics, Tuen Mun Hospital (May 2011 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

Introduction The initial evidence of diabetic nephropathy in type 2 diabetic patients is the development of microalbuminuria. However, it has been reported that a considerable portion of patients with renal insufficiency were normoalbuminruic. Local data on the prevalence and clinical characteristics of normoalbuminuric and albuminuric renal insufficient diabetic patients is limited. Also the mortality, renal and cardiovascular outcomes in patients with renal impairment with and without albuminuria remain unclear.

Methods A retrospective analysis was performed in a cohort of 1497 diabetic patients referred for diabetes complications screening from 1st January 2006 till 30th June 2007. The renal function of type 2 diabetic patients was assessed by eGFR, as calculated by the abbreviated Modification of Diet in Renal Disease Study Group (MDRD) formula. The proportion of renal insufficient (eGFR < 60ml/min/1.73m^2) patients with different degrees of albuminuria and their clinical features were analyzed. Clinical outcomes and the serum creatinine levels collected within 6 months of the last follow-up date were retrieved from the Computer Management System (CMS) or patient's charts. Primary outcome was renal replacement therapy (RRT) or death. Secondary outcomes were: a) the change of eGFR for all the living patients not underwent RRT and b) development of subsequent cardiovascular events (myocardial infarction, revascularization procedures, and hospitalizations due to ischemic heart disease, congestive heart failure or stroke).

Results Of 1389 type 2 diabetic patients, 216 (15.6%) had an eGFR < 60ml/min/1.73m^2. The prevalence of normo-, micro-, and macroalbuminuria was 25.1% (n=43), 24.0% (n=41), and 50.9% (n=87) respectively after excluding patients not fulfilling the preset criteria. When compared to macroalbuminuric patients, those with normoalbuminuria were older; less frequently affected by diabetic retinopathy and had a lower systolic blood pressure at baseline. After a median follow-up of 36 months, none of the normoalbuminuric patients died, while the percentages of deaths were 9.8% (n=4), and 23.0% (n=20) among patients with micro- and macroalbuminuria respectively. Also twelve patients (13.8%) of macroalbuminuric group required RRT (log-rank test $p<0.001$ for death or RRT). The eGFR levels of both microalbuminuric and macroalbuminuric patients deteriorated significantly at the end of follow up. In addition, 15.8% (n=9) of living non-RRT macroalbuminuric patients progressed to end stage renal failure. For the development of cardiovascular events, the percentages of cases were 2.3% (n=1), 24.4% (n=10), and 33.3% (n=29) among patients with normo-, micro- and macroalbuminuria. In the multivariate cox regression analysis, only macroalbuminuria showed significantly increased risk for primary outcome [hazard ratio, HR (95% CI) 5.41, (1.56-18.71; P=0.008)] while both microalbuminuria [HR 11.93, (1.46-97.34; P=0.021)] and macroalbuminuria [HR 18.84, (2.53-140.48; P=0.004)] were significantly associated with subsequent

cardiovascular events.

Conclusions Normoalbuminuric renal insufficiency is not an uncommon finding in type 2 diabetic patients. However, the risks of mortality, requirement of RRT and development of cardiovascular events in normoalbuminuric renal insufficient diabetic patients were lower when compared to patients with albuminuria. Both microalbuminuria and macroalbuminuria were significant predictors of cardiovascular events.

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SOLUBLE RECEPTOR FOR ADVANCED GLYCATION END-PRODUCTS IN CHINESE PATIENTS WITH TYPE 1 DIABETES MELLITUS

Dr. Lam King Yun Joanne, Department of Medicine, Queen Mary Hospital (May 2011 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

Introduction The receptor for advanced glycation end-products (RAGE) is a multi-ligand member of the immunoglobulin superfamily of transmembrane cell surface molecule and plays an important role in the development of diabetic vascular complications. Experimental studies have shown that the soluble forms of the receptor, which lack the transmembrane and cytoplasmic domain of the full-length receptor, can function as a decoy for RAGE ligands and may have therapeutic potential. Soluble RAGE (sRAGE) detected in the human circulation comprises of a heterogeneous population generated either by cleavage of the membrane-associated receptor or by alternative splicing (esRAGE). The pathophysiological significance of endogenous circulating soluble RAGE in human diabetes is unclear. The objective of this study is to determine the serum levels of sRAGE and esRAGE in patients with type 1 diabetes compared with non-diabetic controls, and their relationship with glycemic control.

Research Design and Methods Ninety-four Chinese type 1 diabetic patients and 91 age-matched healthy non-diabetic subjects were recruited. Clinical and biochemical parameters were collected. HbA1c was measured in whole blood using ion-exchange high-performance liquid chromatography. Circulating sRAGE and esRAGE levels in serum were measured using enzyme-linked immunosorbent assays.

Results Type 1 diabetic patients had significantly higher serum sRAGE (964.6pg/ml [678.8-1147.0] vs. 717.4pg/ml [504.8-1026.9], $p=0.001$) and esRAGE levels (390.0pg/ml [292.0-480.5] vs. 291.8pg/ml [211.6-406.7], $p<0.001$) than controls. Both serum sRAGE and esRAGE levels were increased in type 1 diabetic patients regardless whether they have microvascular complications or not. In both diabetic and control subjects, serum log(sRAGE) correlated with log(esRAGE) ($r=0.82$, $p<0.001$ and $r=0.75$, $p<0.001$ respectively). In type 1 diabetic subjects, log(sRAGE) correlated with serum creatinine ($r=0.28$, $p=0.007$), and inversely with log(triglycerides) ($r=-0.26$, $p=0.007$), whereas log(esRAGE) correlated with serum creatinine ($r=0.33$, $p=0.001$) only. There were no associations between serum sRAGE and esRAGE with glycemic control.

Conclusions Serum sRAGE and esRAGE levels are increased in Chinese type 1 diabetic subjects with or without microvascular complications, and there are no associations with glycemic control.

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PREVALENCE, PREDICTORS OF ASYMPTOMATIC URINARY TRACT INFECTION IN CHINESE T2DM PATIENTS AND ITS COMPLICATIONS AND INFLUENCE ON ALBUMIN-CREATININE RATIO - A LOCAL RETROSPECTIVE STUDY AND LITERATURE REVIEW

Dr. Leung Hoi Sze, Department of Medicine & Geriatrics, Our Lady of Maryknoll Hospital (May 2011 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

Objectives This is a retrospective study examining the prevalence, risk factors and longer-term consequences of asymptomatic urinary tract infection (UTI) in Type 2 diabetic patients. This study also evaluates whether asymptomatic UTI significantly influences the level of albumin-creatinine ratio (ACR).

Methods 731 Type 2 diabetic patients were screened for asymptomatic UTI. The ACR before and after antibiotics treatment was measured in order to determine the effect of asymptomatic UTI on ACR.
Patients were followed up for 5 years to determine the effect of asymptomatic UTI on renal function.

Results The prevalence of asymptomatic UTI was 8.6% in this study (63 out of 731 patients). Advanced age and female gender were risk factors for asymptomatic UTI.
There was no significant change of ACR after successful treatment of asymptomatic UTI. [Mean pre-treatment ACR = 12.3±19 mg/mmol Vs post-treatment ACR = 8.9±13 mg/mmol; P=0.12; Median pre-treatment ACR = 4.4 (1.5-108) mg/mmol Vs post treatment ACR = 4.2 (1.5-88) mg/mmol]
In these subjects, the presence of asymptomatic UTI did not lead to significant decline in renal function as compared to those without asymptomatic UTI (relative decrease in estimated Glomerular Filtration Rate (eGFR) of 9.3% vs 7.5%; P= 0.47).

Conclusion Asymptomatic urinary tract infection does not affect ACR in Type 2 diabetic patients. It may not be necessary to screen for and rule out asymptomatic UTI when assessing ACR as an evaluation of early diabetic nephropathy. The presence of asymptomatic UTI does not lead to severe complication or significant decline in renal function after 5 years of follow-up. Therefore, being time and resources-consuming, routine screening for asymptomatic UTI in Type 2 diabetic patients is not cost-effective.

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CROSS-SECTIONAL STUDY: ENDOCRINE DYSFUNCTION IN PATIENTS WITH ACTIVE PULMONARY TUBERCULOSIS

Dr Lock Ka Yuen, Department of Medicine & Geriatrics, Our Lady of Maryknoll Hospital (May 2011 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Background Pulmonary tuberculosis remains a significant problem in many developing countries and an upsurge of tuberculosis has recently been observed in many developed countries. Though overt endocrine dysfunction is rare in patients with tuberculosis, subclinical endocrine dysfunction is very common. Some of the deficiencies like adrenal dysfunction can lead to serious consequences.

Objectives The aim of this dissertation is to evaluate the prevalence of endocrine

dysfunction, including adrenocortical function, thyroid function and gonadal function in patients with active pulmonary tuberculosis, and to evaluate what parameters are correlated with or predictive of endocrine dysfunction.

Setting Three hospitals (district, community and chest) within Kowloon West Cluster

Design 47 patients with active pulmonary tuberculosis requiring admission to the study sites were recruited. ACTH-stimulation test, thyroid function test, and measurement of LH/ FSH (and testosterone in male patients) were performed for the subjects.

Results 17 patients (36.2%) had subclinical adrenal insufficiency, 5 patients (16.7%) had sick euthyroid syndrome and 7 male patients (29.2%) had biochemical hypogonadism in this cohort of patients.

Conclusions Substantial proportion of the subjects had subclinical adrenal insufficiency, sick euthyroid syndrome and biochemical hypogonadism, although none developed overt manifestations or significant clinical consequences related to these endocrine dysfunctions, it is possible that in the absence of or with delayed in treatment, it could ultimately emerge into overt endocrine dysfunction with potential life-threatening consequences.

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THE IMPACT OF THE INTERNATIONAL ASSOCIATION OF DIABETES AND PREGNANCY STUDY GROUPS (IADPSG) AND THE WORLD HEALTH ORGANIZATION 1999(WHO 1999) DIAGNOSTIC CRITERIA ON THE MANAGEMENT OF GESTATIONAL DIABETES MELLITUS IN A REGIONAL HOSPITAL

Dr. Ng Man Yuk, Department of Medicine & Geriatrics, Tuen Mun Hospital (May 2011 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

The IADPSG guidelines gave us a worldwide panel opinion of screening and the diagnostic cutoff for gestational diabetes mellitus. However, different hospitals used different screening methods and guidelines.

Objective To study the prevalence of gestational diabetes mellitus, the effects on treatment care and the maternal and neonatal adverse outcomes by different diagnostic criteria. (WHO 1997, WHO 1999 and IADPSG)

Method From January to December 2009, 339 patients, who had delivered singleton babies with prior 75 gram OGTT done in TMH, were recruited in the study. The risk-based selective screening and WHO 1997 diagnostic criteria were used. Patients were categorized into four groups according to the WHO 1999 and the IADPSG diagnostic cutoff. Their baseline characteristics and the maternal and neonatal adverse outcomes were compared.

Results Seventy-two patients were categorized into Group 1 (Nil-GDM) who had normal glucose tolerance. Eight patients in group 2 (I-GDM) were categorized as gestational diabetes by IADPSG fasting plasma glucose while categorized as normal glucose tolerance by the WHO diagnostic criteria. On the contrary, 72 patients in group 3 (W-GDM) were diagnosed as having gestational diabetes by the WHO

diagnostic criteria and not by the IADPSG fasting and 2-hour post-OGTT plasma glucose. Seventy-two patients in group 4 (WI-GDM) had gestational diabetes by both criteria. There was no maternal and neonatal mortality in this study. About 87.5% and 12.5% of patients in group 4 (WI-GDM) attained satisfactory glycaemic control by diet therapy and insulin therapy respectively. The adverse neonatal and maternal outcomes in group 4 (WI-GDM) were not statistically significantly different from that in group 1 (Nil-GDM) except the rate of caesarean sections. Group 2 (I-GDM) patients had unfavourable characteristics: a higher pre-pregnant BMI (24.84±SD4.93 kg/m^2), gestational weight gain (mean 19.00±SD6.92kg), rate of pre-eclampsia or pregnancy induced hypertension(12.5%), baby birth weight (3.28±SD0.35kg and 3.27±SD0.38 kg after exclusion of preterm deliveries) and preterm delivery rate (25%) when compared to other groups. They were the patients diagnosed as gestational diabetes mellitus by IADPSG but would be missed by WHO 1999 criteria, with a modest elevation of their fasting plasma glucose at 5.1-6.9mmol/l. The prevalence of gestational diabetes was increased from 0.27% by the WHO 1997 diagnostic criteria to 3.57% by the WHO1999 diagnostic criteria among local Chinese women who delivered singleton baby in 2009 in the study. The expected increase in prevalence of gestational diabetes by the IADPSG criteria could not be demonstrated in this study as the 1-hour post-OGTT plasma glucose value was lacking.

Conclusion Intensive intervention among gestational diabetes patients could reduce adverse neonatal and maternal outcomes as compared to mothers of normal glucose tolerance. The IADPSG was able to further recruit mothers with slight elevation of fasting plasma glucose who might have risks of adverse outcomes and could be missed by the WHO diagnostic criteria. Introduction of the IADPSG diagnostic criteria might help to further improve the overall outcomes but this should be balanced with an exaggerated increase in healthcare system demand and patients' anxiety.

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COLONOSCOPY FINDINGS IN SURVEILLANCE STUDIES OF PATIENTS WITH ACROMEGALY

Dr Wong Wai Sheung, Department of Medicine, North District Hospital (May 2011 Endocrinology, Diabetes & Metabolism Exit Assessment Exercise)

Background Acromegaly is well known to cause a wide range of metabolic and cardiovascular complications and is associated with increased risk of malignancy, resulting in significant morbidities and reduced life expectancy. Colorectal cancer is one of the commonest malignancies in acromegalic patient. It has been proved that the incidence of colorectal cancer can be reduced by colonoscopy surveillance followed by polypectomy and those patients at high risk in colorectal cancer benefit most from colonoscopy surveillance. Although higher prevalence of colorectal neoplasm in acromegalic patient has been observed, the association between colorectal neoplasm and acromegaly is still controversial. The issue is further complicated by the fact that the prevalence of colorectal neoplasm is confounded by many factors including age, sex, hereditary and environmental factors. In order to have appropriate management in acromegalic patient with colorectal neoplasm, local data is needed

Diabetes mellitus and high body mass index are common in acromegalic patients while obesity and diabetes are also the risk factors of colorectal neoplastic polyp. The inter-relationship between acromegaly, metabolic complication of acromegaly and colorectal neoplastic polyp would be reviewed

Objective

1. To describe the characteristics of colonoscopy findings in acromegalic patients
2. To evaluate the prevalence and the risk of colorectal neoplastic polyp in acromegalic patient compared with non-acromegaly population.
3. To describe the relationships between acromegaly, its metabolic complication and colorectal neoplastic polyp
4. To identify the predictive factor of colorectal neoplastic polyp in patient with acromegaly

Study design Medical records of all patients who were diagnosed with acromegaly from 2000 to 2010 in Prince of Wales Hospital were reviewed. Only those acromegalic patients who had undergone at least one colonoscopy were recruited into this study. A total of sixty-six acromegalic patients were identified and each patient was paired with two age- and sex- matched control for analysis of colonoscopy findings. Subjects in control group were recruited from patients diagnosed with irritable bowel syndrome or subjects undergoing colonoscopy surveillance study in Chinese population in Hong Kong. Demographical data and colonoscopy findings of both groups were collected and analyzed.

Result Acromegalic patients were found to have a higher prevalence of colorectal neoplastic polyp (31.8% vs 18.9%, p= 0.043), more diverticular disease (12.7% vs 3.1%, p = 0.009) compared with age- and sex- matched control group (table 4).

1. Colorectal polyps in acromegalic patient were larger in size (5.67 mm vs 3.92 mm , p = 0.011) and advanced colonic polyps were more commonly detected in patients with acromegaly (16.7% vs 1.5%, p < 0.001) compared with control group (table 4,5).
2. Acromegaly was an independent risk factor for the colorectal neoplastic polyp and the odds ratios was 2.44 (95% CI 1.06-5.64) compared with control group after all confounding factor being adjusted. Diabetes mellitus and high body mass index were not shown to be confounding factors of colorectal neoplastic polyp in this study (table 7).
3. Age was an independent predictive factor of colorectal neoplastic polyps in acromegalic patient (table 7).

Conclusion Acromegalic patients have 2.4 fold higher risk of colorectal neoplastic polyp. Advanced colonic polyps are more frequently detected in patient with acromegaly. Acromegaly is an independent risk factor of colorectal neoplastic polyp. Therefore, colonoscopy surveillance should be offered to patient with acromegaly. Patient‘s age is an important factor in selecting higher risk acromegalic patient for colonoscopy surveillance.

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SPONTANEOUS BACTERIAL PERITONITIS IN HONG KONG – CLINICAL FEATURES, PROGNOSIS AND PREDICTORS OF MORTALITY: A SINGLE CENTRE EXPERIENCE

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(June 2011 Gastroenterology and Hepatology Exit Assessment Exercise)

Background Spontaneous bacterial peritonitis (SBP) is a serious complication in cirrhotic patients despite early recognition and treatment with effective antibiotics. Local data on the natural history of SBP are limited.

Aim This study was designed to evaluate the clinical features and prognosis of patients who were admitted for SBP in a single centre in Hong Kong, and to identify the predictors of mortality in these patients.

Methods This is a retrospective study examining all the patients who were admitted to the Medicine Unit for SBP from January 2007- December 2010 inclusive. There were a total of 59 patients with 72 episodes of confirmed SBP. Spontaneous bacterial peritonitis was diagnosed based on a polymorphonuclear cell count in ascitic fluid of >250 cells/mm3 in the absence of data compatible with secondary peritonitis.

Results The mean age of the cohort was 64 and 46 (78%) of the 59 cases occurred in men. All the cases are Childs Pugh class B or C. Microorganisms were isolated in 15(25.4%) cases: Gram negative in 13(87.73%), Gram positive in 2(13.3%). Escherichia Coli (8 cases, 53.3%) was the most common organism isolated. One-year recurrence rate was 30%. In-hospital mortality rate was 30.5% and the main causes of death were uncontrolled sepsis (38.9%), liver failure (30.5%) and hepatorenal syndrome (22.2%). Mortality rates at 6 months and 1 year were 50% and 70%. Renal dysfunction, which is defined as creatinine level greater than 1.5mg/dL(132.6umol/L) without pre existing renal disease and an increase in 50% in those with pre existing renal disease ($p<0.001$, 95% CI 2.216-12.274, OR 5.215), high serum bilirubin ($p=0.009$, 95% CI 1.001-1.008, OR 1.005) and the presence of co-morbidity and immunosuppressive factors ($p=0.008$, 95%CI 1.29-5.317, OR 2.619) were independent predictors of mortality in SBP patients. Renal dysfunction was the only independent predictor of in-hospital mortality (HR 10.9, $p<0.001$, 95% CI 3.0-39.949) and 1-year mortality (HR 5.06, $p=0.002$, 95%CI 1.828-13.997).

Conclusions Spontaneous bacterial peritonitis remains a serious complication with significant mortality and poor prognosis, especially in patients with renal dysfunction. All patients surviving an episode of SBP should be given antibiotic prophylaxis and evaluated for liver transplantation. Cefotaxime remained an effective empirical treatment for SBP in our locality.

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IS A REPORTING SYSTEM FOR GASTRITIS OR DUODENITIS (MODIFIED LANZA SCALE) REPRODUCIBLE?

Dr. Chu Wai Ming, Department of Medicine, Queen Mary Hospital (June 2011 Gastroenterology & Hepatology Exit Assessment Exercise)

Background and study AIM The modified Lanza scale (Lanza FL, 1984) has been widely utilized to grade the degree of gastritis and duodenitis in endoscopic endpoint trials.1, 2, 3, 4, 5, 6 However, the inter-rater or intra-rater reproducibility of this scale has never been validated. The objective of this study is to measure the inter-rater and intra-rater reliability of the modified Lanza Scale. (Clinical Trials.gov ID NCT00852150).

Methods Before conducting the study, calibration on the reporting of the modified Lanza Scale was performed in 50 patients by two investigators (WMC and FHN). In this study, one investigator performed the esophagogastroduodenoscopy that was videotaped, and those videos were reviewed by another investigator without communication. Two investigators graded the severity of gastritis and duodenitis independently to measure inter-rater reliability. Investigator WMC reviewed the video again to measure the intrarater reliability. The results of the two analyses were blinded.

The inter-rater and intrarater agreements were measured by Cohen's Kappa coefficient.

Results A total of 385 patients were included and analyzed. The inter-rater K coefficient for gastritis and duodenitis was 0.827 [95% confidence interval (0.776, 0.878), $p < 0.001$] and 0.899 [95% confidence interval (0.817, 0.924), $p < 0.001$] respectively. The intrarater K coefficient for gastritis and duodenitis was 0.881 [95% confidence interval (0.838, 0.924), $p < 0.001$] and 0.919 [95% confidence interval (0.843, 0.995), $p < 0.001$] respectively.

Conclusion Reporting System for Gastritis or Duodenitis (Modified Lanza Scale) is a reproducible scoring system with good inter and intra observer agreement.

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RISK FACTORS PREDICTING REBLEEDING OF GASTROINTESTINAL ANGIODYSPLASIA IN A COHORT OF CHINESE PATIENTS

Dr Lee Ming Kai, Department of Medicine and Geriatrics, Tuen Mun Hospital. (June 2011 Gastroenterology and Hepatology Exit Assessment Exercise)

Angiodysplasia has been increasingly recognized as an important cause of gastrointestinal bleeding. These lesions are found in the stomach and duodenum of around 2% of patients with upper gastrointestinal haemorrhage1. It is also the 2nd leading cause of lower gastrointestinal bleeding in the elderly, after diverticulosis 2-3 Its presentation ranges from acute, recurrent bleeding to chronic anaemia resulting in very frequent hospitalizations and transfusions. With the advancement in endoscopic therapy, it has replaced surgery as the first line treatment for angiodysplasia. Endoscopic therapy has been proven to be useful to arrest bleeding from angiodysplasia and the long term blood transfusion requirement is also reduced4. However, a substantial risk of rebleeding has been reported5,6,7. Rebleeding episodes often carries significant morbidity as these patients are usually elderly. Pharmacological therapy such as octreotide and hormonal therapy has been studied to prevent angiodysplasia rebleeding and some of these studies yielded promising results. Nevertheless, the use of these pharmacological agents was limited as a significant proportion of patients experienced side effects8,9, 10,11,12. As such, applying these pharmacological treatments only to those patients with high risk of rebleeding is a reasonable strategy. In this regard, identification of risk factors that can accurately predict recurrence of haemorrhage from angiodysplasia is important. Although there were a few studies examining the factors predicting rebleeding of angiodysplasia, the results were conflicting7,12,13. Moreover, the behaviour of angiodysplasia in Asian is not entirely the same as that in the western countries14, 15. Therefore, this study was conducted to look into the risk factors that predict further bleeding episodes in a cohort of Chinese patients with gastrointestinal haemorrhage due to angiodysplasia.

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PYOGENIC LIVER ABSCESS: A 5-YEAR EXPERIENCE IN A REGIONAL HOSPITAL IN HONG KONG

Dr Lee Ting Lam, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (June 2011 Gastroenterology & Hepatology Exit Assessment Exercise)

Background and Aim The aetiology and management of pyogenic liver abscess (PLA) differ over time. The aim of this study was to describe a 5-year experience in

the management of PLA in a regional hospital in Hong Kong.

Methods All patients with a discharge diagnosis of PLA at Pamela Youde Nethersole Eastern Hospital from July 2005 to June 2010 were retrospectively reviewed. The demographic characteristics, clinical parameters, laboratory findings, radiological features, microbiologic profiles and treatment outcomes of PLA were analyzed.

Results A total of 123 patients were included in this study. Fever and leukocytosis were the commonest presenting symptom and laboratory finding respectively. *Klebsiella pneumoniae* was the commonest (59.3%) causative agent identified. Cryptogenic cause accounted for 61.8% of PLA. Antibiotic treatment plus percutaneous aspiration or drainage of PLA was the commonest treatment modality, being used in 85 patients (69.1%) and the success rate was 96.5%. Overall inpatient mortality was 4.9%. A seasonal variation in incidence of PLA was observed. *Klebsiella pneumoniae*-associated liver abscess was associated with a cryptogenic cause ($p<0.01$), necessity of intensive care unit admission ($p=0.03$) and underlying diabetes mellitus ($p=0.03$). Female gender was associated with a longer mean duration of hospitalization ($p=0.012$) and development of complications ($p=0.028$).

Conclusion *Klebsiella pneumoniae*-associated liver abscess of cryptogenic origin was the predominant cause of PLA. Most patients responded to antibiotic treatment plus percutaneous aspiration or drainage of PLA. The clinical features and treatment outcome of patients with PLA in this study were comparable to previous studies conducted in Hong Kong and other parts of Asia.

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TO COMPARE DIFFERENT PRE-ENDOSCOPIC SCORING SYSTEMS IN PREDICTION OF THE NEED FOR THERAPEUTIC ENDOSCOPY AND HOSPITAL BASED INTERVENTION IN PATIENTS WITH UPPER GASTROINTESTINAL BLEEDING

Dr Lui Ka Luen, Department of Medicine & Geriatrics, Tuen Mun Hospital (June 2011 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Gastrointestinal bleeding is a common reason for hospitalization. Some studies have already shown that many “low risk” patients can be managed at outpatient setting with elective endoscopy without admission by using a number of scoring systems e.g. Rockall score , Glasgow Blatchford bleeding score (GBS), Baylor bleeding score (BBS) etc.

Objective To test the GBS, pre-endoscopic Rockall, pre-endoscopic Baylor scores (pBBS) and Addenbrooke’s pre-endoscopic stratification (APES) in identifying low risk patients who presented with upper gastrointestinal bleeding not requiring therapeutic endoscopy, blood transfusion or surgery.

Study design A retrospective observation study

Setting A regional district hospital

Patient and intervention Patients who were admitted with a principal diagnosis of upper gastrointestinal hemorrhage at emergency department between 1 January 2007

and 30 June 2007 and who arrived at the endoscopy room or the operating theatre for a upper endoscopy within 72 hours

Outcome GBS, pre-endoscopic Rockall, pBBS and APES are retrospectively calculated for all patients, and the need for therapeutic endoscopy, blood transfusion, surgery were determined during upper endoscopy

Definition Endoscopic intervention was defined as any type of intervention for hemostasis including, but not limited to injection, thermal coagulation, use of haemoclips, variceal ligation devices, injection of sclerosant, glue and use of argon plasma coagulation.(APC). Hospital based intervention was defined as any endoscopic treatment, or blood transfusion or surgery needed

Results Currently among 607 patients, one hundred and eighty four patients (30.3%) need hospital based intervention. The mean GBS was significantly higher in patients who need hospital based intervention (8.4 vs 4.3). We identify 76 patients as low risk with GBS equal to zero. A threshold of 0 (low risk) predicted the need for both therapeutic endoscopy and hospital based intervention with 100% sensitivity, 100% negative predictive value and zero negative likelihood ratio. However, Rockall score and pBBS were unable to serve the purpose. The Area under the curve (AUC) of receiver operating characteristic (ROC) curve of GBS in prediction of need of endoscopic intervention and hospital based intervention were 0.735 95%CI [0.687-0.782] and 0.800 95%CI [0.764-0.835] respectively. They are significantly better than pre-endoscopic Rockall and pBBS. The addition of APES to GBS score can identify 19 more patients without the need of endoscopic or hospital based intervention for patient with GBS less than 5.

Conclusion Glasgow Blatchford bleeding score and Addenbrooke's pre-endoscopic stratification were superior to pre-endoscopic Rockall and pre-endoscopic Baylor score in identifying patient who need endoscopic or hospital based intervention. The combination of Glasgow Blatchford bleeding score and Addenbrooke's pre-endoscopic stratification would identify more low risk patient who did not need any endoscopic and hospital based intervention. And preendoscopic scoring would be a potential cost saving approach to triage patient presenting with upper gastrointestinal bleeding.

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THE CONTINUOUS METHACETIN BREATH TEST CAN ASSESS LIVER FUNCTION AND PREDICT CLINICAL OUTCOME IN CHRONIC HEPATITIS B

Dr. Lui Yan Ni, Department of Medicine & Therapeutics, Prince of Wales Hospital
(June 2011 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Non-invasive tests that reliably assess liver function have important clinical implications in chronic hepatitis B (CHB).

Aim To assess liver function in different stages of CHB using continuous methacetin breath test (BreathID®).

Methods Methacetin-containing ^{13}C-carbon atoms were administered orally and metabolized by the liver into acetaminophen and carbon dioxide ($^{13}CO_2$). Decreased exhalation of $^{13}CO_2$ would reflect impaired liver function. Exhalation of $^{13}CO_2$ was

measured as the peak percentage of ^{13}C recovered (PDR-peak). Sixty-seven CHB patients were prospectively recruited: 18 had compensated CHB without cirrhosis (group 1); 24 had compensated CHB cirrhosis (group 2); and 25 had decompensated CHB (group 3).

Results Mean PDR-peak for groups 1, 2 and 3 was 43.1 ± 10.1 %/hour, 25.4 ± 8.2 %/hour, and 9.8 ± 4.1 %/hour, respectively (*P* <0.001). PDR-peak correlated well with MELD score (r=-0.681, *P* <0.001). BreathID® identified compensated CHB without cirrhosis with an AUROC of 0.957 (at a cut-off PDR-peak of >31.2 %/hour), and decompensated CHB with an AUROC of 0.990 (at a cut-off PDR-peak of <17.7 %/hour), respectively. During a mean follow-up period of 390 days, 4 out of 67 patients died of liver-related mortality. The cumulative transplant-free survival was 96.7% in patients with PDR-peak above 5.0 %/hour (*versus* 0% in patients with PDR-peak below 5.0%/hour). BreathID® had a positive predictive value of 74.0% and a negative predictive value of 82.0% for prediction of significant oesophageal varices with an AUROC of 0.773.

Conclusions BreathID® is a reliable assessment of liver function in CHB and demonstrated potential clinical implications.

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A HOSPITAL-BASED RETROSPECTIVE STUDY OF CROHN'S DISEASE IN HONG KONG

Dr Ng Ho, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (June 2011 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Crohn's disease is uncommon in the Chinese population. There are few local data regarding the epidemiological and clinical characteristics of Crohn's disease in the Chinese population in Hong Kong.

Aim To describe the demographic characteristics, clinical features and treatment outcomes of Crohn's disease in a hospital-based cohort of Chinese patients.

Methods This is a descriptive and retrospective study of all ethnic Chinese patients with Crohn's disease diagnosed at Pamela Youde Nethersole Eastern Hospital from 1st January 2000 to 31st December 2010.

Results There were 46 Chinese patients diagnosed with Crohn's disease, with a declining incidence over the study period. A male predominance was observed (M:F = 1.9:1). Familial clustering was not observed. Forty-two patients were above the age of 16 (A2 and A3 phenotypes). Their major presenting symptoms were abdominal pain (69%), diarrhea (45.2%) and per rectal bleeding (31%). Ileocolonic Crohn's disease was the commonest pattern of involvement (55%). The overall annual hospitalization rate decreased after the first year of diagnosis. Presence of upper gastrointestinal involvement (L4 phenotype) was observed in 13 patients (31%) and was significantly associated with Crohn's disease-related hospitalizations (P=0.005). Twenty-seven patients (64%) were treated with azathioprine as maintenance therapy and 4 (9.5%) needed anti-tumor necrosis factor-α therapy for refractory Crohn's disease.

Conclusion The incidence of Crohn's disease in this locality has declined over the past 10 years. L4 phenotype is a risk factor of Crohn's disease-related hospitalization.

Step-up therapy is appropriate in treating local Chinese patients with Crohn's disease.

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CONTINUOUS USE OF ANTIPSYCHOTICS AND ITS ASSOCIATION WITH MORTALITY AND HOSPITALIZATIONS IN INSTITUTIONALIZED OLDER PEOPLE WITH BEHAVIORAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA (BPSD): AN 18-MONTH INTER-SPECIALTY PROSPECTIVE COHORT STUDY

Dr. Chan Tuen Ching, Department of Medicine, Queen Mary Hospital (June 2011 Geriatric Medicine Exit Assessment Exercise)

Background Previous meta-analysis suggested that antipsychotics were associated with short-term increase in mortality in dementia patients with behavioral and psychological symptoms (BPSD). In 2005, the Food and Drug Administration (FDA) issued a "black box" warning on the use of antipsychotics in BPSD. Subsequent observational studies, however, showed conflicting results. Several retrospective studies suggested that current user of antipsychotics did not experience a higher mortality. In view of the abovementioned controversies and the lack of suitable pharmacological alternative for BPSD, further research on this topic is indicated.

Objective The aim of this study is to investigate the relationship between continuous use of antipsychotics for more than 6 months and mortality as well as hospitalization in a large group of older people with BPSD residing in residential care homes for elderly (RCHE).

Subject and method It was an inter-specialty (Geriatrics and Psychiatry) prospective cohort study conducted in RCHEs of Hong Kong Western and Southern Districts from July 2009 to December 2010. Older residents were stratified into the exposed group (use of antipsychotics for more than 6 months) and control group (non-users). Demographics, co-morbidity according to Charlson Co-morbidity Index (CCI), Barthel Index [BI(20)], Abbreviated Mental Test (AMT), vaccination status for Human Swine Influenza (HSI), seasonal influenza and Pneumococcus were collected at baseline. Subjects were followed up for 18 months. All-cause mortality and hospitalizations were recorded.

Results 599 older people with dementia from nine RCHEs were included into the study. 199 older people were in the exposed group and 400 older people were in control group. The 18-month mortality rate for the exposed group was 25.1% while that for control group was 28.2% (P=0.38). The exposed group had a lower rate of all-cause hospitalization than that of the control group [56 (0-167) per 1000 person-months vs 111 (56-278) per 1000 person-months; median (interquartile range), $p<0.001$]. The rate of hospitalizations for acute conditions was also lower in exposed group [56 (0-111) per 1000 person-months vs 111 (0-222) per 1000 person-months, $p<0.001$]. The difference remained statistically significant after ordinal logistic regression.

Conclusion The continuous use of antipsychotics for more than 6 months for BPSD was not associated with increased mortality among institutionalized older people. In addition, appropriate use of antipsychotics can lead to decreased hospitalization.

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A REVIEW OF PATIENTS WITH PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) FEEDING IN THE GERIATRIC UNIT OF A REGIONAL HOSPITAL IN HONG KONG

Dr Wong Wai Kwan, Department of Medicine and Geriatrics, United Christian

Hospital (June 2011 Geriatric Medicine Exit Assessment Exercise)

PEG feeding is infrequently performed in Hong Kong. There were 63 patients, who aged 60 or above, undergone PEG in the past eleven years in our hospital. The mean age was 77.9 year old. 47.6% of them needed tube feeding because of head and neck malignancy, and the next common indication was advanced dementia. Dysphagia was the symptom that led to tube feeding in 88.9% of subjects. Most patients switched from nasogastric (NG) tube to PEG because of difficult NG tube insertion or frequent NG tube dislodgement. Occurrence of pneumonia did not reduce after PEG placement. Wound infection was seen in 12.7% of cases. 15.9% of cases had PEG tube dislodgment. The complication rate was higher in the advanced dementia group, and the length of stay for the index admission was also longer in this group. The major complication rate was 3%, no procedure-related mortality was reported. The 30-day, 3-month, 6-month, and 1-year mortality were 13.7%, 24.7%, 32.9%, and 41.1% respectively. There were more patients institutionalized and physically restrained after PEG insertion.

PEG was performed on very limited number of patients in our hospital. Possible reasons are inadequate knowledge on the justifications and benefits of PEG, lack of a well constructed follow-up protocol, refusal of PEG by patient and economic cost of PEG feeding. Meanwhile, inappropriate patient selection for PEG placement was also observed.

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SURVIVAL, PROGRESSION AND PROGNOSTIC FACTORS IN PATIENTS WITH MYELODYSPLASTIC SYNDROME

Dr Wu Saliangi, Department of Medicine, Queen Elizabeth Hospital (May 2011 Haematology & Haematological Oncology Exit Assessment Exercise)

Introduction Myelodysplastic syndrome (MDS), a clonal haematopoietic stem cell disease, is considered a malignant disease due to its propensity to progress into acute leukaemia. Treatments for MDS include haematopoietic growth factors, immunosuppressive therapy, DNA-hypomethylating agents, lenalidomide and transplantation.

Objectives This study was conducted to assess the overall survival, leukaemia-free survival and prognostic factors of various treatment modalities in patients with MDS.

Methods We retrospectively analysed 128 patients who were diagnosed to have MDS in Queen Elizabeth Hospital and Queen Mary Hospital between 1 January 2000 and 31 December 2009. Their demographic characteristics, clinical and haematological parameters at diagnosis and initiation of treatment were recorded respectively. Overall survival (OS) and leukaemia-free survival (LFS) were evaluated. Logistic regression was employed to determine if the clinical parameters at initiation of treatment were independently associated with treatment response.

Results Seventy-seven (70%) MDS patients died with a median survival of 23 months. Twenty-eight (25.5%) of MDS patients transformed to acute leukaemia. WHO classification, percentage of bone marrow blasts, IPSS and WPSS were significant predictors in OS and LFS. Only 35% of MDS patients received active treatment other than supportive transfusion. Twenty patients were treated with cyclosporin and three patients (15%) responded with major erythroid response. Six

patients were treated with thalidomide and one patient (16.7%) responded with major erythroid response. Three patients were treated with azacitidine but none of them responded. One patient was treated with decitabine and improvement in blood count was noted. Twelve patients were treated with conventional chemotherapy and eight patients (66.7%) responded. Twenty patients underwent allogeneic stem cell transplantation and eighteen patients (90%) responded.

Conclusion Besides allogeneic stem cell transplantation, there is no curative treatment available for MDS patients. Clinical trials and research on novel agents should be encouraged.

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A MATCHED CASE-CONTROL STUDY OF HCV-INFECTED AND HIV-HCV CO-INFECTED PATIENTS IN HONG KONG: DIFFERENCES IN BASELINE CHARACTERISTICS AND TREATMENT RESPONSE TO COMBO THERAPY.

Dr. Chan Man Chun, Jacky, Department of Medicine and Geriatrics, Princess Margaret Hospital (June 2011 Infectious Disease Exit Assessment Exercise)

Background Chronic liver disease due to concomitant hepatitis C virus (HCV) infection has become an important cause of morbidity and mortality among human immunodeficiency virus (HIV) infected patients. The treatment of HCV infection in these patients, however, has been associated with a lower rate of response.

Objective To describe the clinical features of patients with HIV-HCV co-infection and to evaluate the differences in baseline characteristics and treatment outcome between coinfected and monoinfected patients after standard therapy.

Method A retrospective case-control study with review of adult patient records of a regional tertiary hospital between Jan 2004 and Dec 2010. A total of 25 cases with HCV-HIV coinfection were compared with 50 patients with HCV monoinfection, matched with age, sex and HCV genotype.

Results No significant differences in baseline characteristics were seen among the two groups. 10 patients in the coinfected group and 38 patients in the control group completed treatment. The sustained virological responses (SVR) rate in the HIV-HCV coinfected group was 36%, while 69% patients with HCV monoinfection achieved SVR ($p=0.08$). Early virological response (EVR) (OR 85.17 95% CI 8.4-862, $p< 0.001$) was an independent predictor for SVR.

In conclusion, there is an increasing incidence of HIV and HCV coinfection in our community. The background clinical characteristics are similar among the coinfected group and monoinfected group. The treatment response rates are generally poorer in the coinfected patients but the result in our study was statistically insignificant.

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A REVIEW OF COLISTIN USE IN PATIENTS WITH CARBAPENEM-RESISTANT ACINETOBACTER INFECTIONS

Dr. Kwong Tsz Shan, Department of Medicine, Queen Elizabeth Hospital (June 2011 Infectious Disease Exit Assessment Exercise)

Background Colistin (polymyxin E) is increasingly used for the management of infections caused by carbapenem-resistant acinetobacter (CRA).

Objective To describe a single-center experience on the use of colistin for the management of CRA infections.

Methods This was a retrospective study done at Queen Elizabeth Hospital. Patients who had CRA infections and were prescribed colistin from January 2008 to June 2010 (30-month period) were enrolled. Clinical characteristics of CRA infections were reviewed. Primary endpoint was 30-day all-cause mortality. Secondary endpoint was the microbiological response. Side effects including nephrotoxicity (rise in serum creatinine by $\geq$ 50% from baseline or need of renal replacement therapy) and neurotoxicity during treatment were reviewed.

Results There were 86 patients enrolled. The most common site of infection was the respiratory tract (60.5%) followed by primary bacteremia (15%). 30-day all-cause mortality was 39 (45.3%) with 32 (37.2%) who died during the course of colistin treatment. Patients who died received a significantly lower colistin dosage in the univariate analysis (p=0.012). The mortality rates for colistin dosage of 1-2 million IU/day, 3-4 million IU/day and 4.5-6 million IU/day were 56.8%, 40.5% and 25% respectively, indicating a trend of lower mortality with a higher dosage used. Sixty-six patients were eligible for the analysis of nephrotoxicity and 17 (25.8%) developed acute renal impairment during treatment.

Conclusion This study showed a high mortality rate of CRA infections despite colistin treatment. A lower mortality rate was seen with higher colistin dosage used. Since high colistin dosage is a known risk factor for nephrotoxicity, further studies are worth carrying out to define the optimal dosage of colistin.

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A COMPARISON STUDY OF EXTRAPULMONARY AND PULMONARY TUBERCULOSIS IN HONG KONG

Dr Sophia Lamb, Department of Medicine, Queen Mary Hospital (June 2011 Infectious Disease Exit Assessment Exercise)

Aim To compare and review the clinical presentation, co-morbidity, drug resistance and six month mortality of patients with extrapulmonary tuberculosis (TB) and pulmonary TB.

Method This is a two year retrospective study comparing 115 extrapulmonary TB patients with 115 pulmonary TB patients.

Results Extrapulmonary patients were younger than pulmonary patients with a median age of 53 years versus 73 years (p<0.001). They presented more commonly with lymphadenopathy (p<0.001). More extrapulmonary patients had chronic renal failure (p<0.002) and Human Immunodeficiency Virus (HIV) infection (p=0.005). They had a higher median erythrocyte sedimentation rate (61 mm/h vs. 48 mm/h, p=0.017), and lactate dehydrogenase level (309 U/L vs. 197 U/L, p=0.006). They had a lower median hemoglobin (10.7 g/dL vs. 11.7 g/dL, p=0.002), white blood cell count (7.4 x 10^9/L vs. 8.5 x 10^9/L, p=0.039), and lymphocyte count (0.9 x 10^9/L vs. 1.1 x 10^9/L, p=0.051).

There was no difference in mortality between extrapulmonary and pulmonary groups. Multivariate analysis identified age > 60 years (Odds Ratio [OR] 2.4, 95% Confidence interval [95% CI] 0.98 – 5.77, *p*=0.054), presentation with decreased general condition (OR 3.5, 95% CI 1.46 – 8.34, *p*=0.005), hypertension (OR 2.7, 95% CI 1.16 – 6.38, *p*=0.021), radiological old TB (OR 2.6, 95% CI 1.25 – 5.52, *p*=0.014), and pleural effusion (OR 3.2, 95% CI 1.45 - 7.03, *p*=0.004) as independent risk factors for mortality.

9.1% of all cases had culture evidence of drug resistance. HIV infection (*p*=0.001) and intravenous drug usage (*p*=0.001) were the two risk factors identified for resistance.

Conclusion There are important differences in demographics, clinical presentation and risk factors for extrapulmonary compared with pulmonary TB. Mortality is related to age and co-morbidity.

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A RETROSPECTIVE ANALYSIS OF LUNG ABSCESS IN TWO REGIONAL HOSPITALS IN HONG KONG: A 10-YEAR EXPERIENCE, FROM 1999 TO 2008

Dr Lung Kwok Cheung, Integrated Medical Service, Ruttonjee Hospital (June 2011 Infectious Disease Exit Assessment Exercise)

Objective To evaluate the clinical presentation, risk factors, management and outcomes of lung abscesses in adult patients

Methods A retrospective review and analysis of 79 patients with diagnosis of lung abscess from January 1999 to December 2008 was conducted.

Results The mean age (+/-SD) was 58.8 +/- 16.3 years, with a male predominance. Cough, fever and sputum production were the most common presenting symptoms. Fifty cases (63.3%) were primary lung abscesses while 29 patients (36.7%) belonged to secondary cases. Eleven different organisms were identified with the commonest being Pseudomonas (20.2%) followed by Staphylococcus aureus (13.9%). Beta-lactam antibiotics (74.7%) were most frequently used. The mean (+/-SD) duration of parenteral and oral antibiotics was 21.0 +/- 13.1 and 23.8 +/- 50.7 days respectively. Eight (10.1%) patients required percutaneous catheter drainage in addition to antibiotic therapy. The mean (+/- SD) length of hospitalization was 28.8 +/- 15.8 days. Overall mortality rate was 7.6%. All survivors had complete cure and no relapse at 6 months. Patients with primary lung abscess were younger (p=0.029), with less leucocytosis (p=0.028), had larger abscess size (p=0.017), larger number of abscess per patient (p=0.18), shorter hospital stay (p=0.004), and lower in-hospital mortality (p=0.023).

Conclusion Most patients with lung abscess responded well to an average of 6 weeks of antibiotic(s) alone. Majority recovered from the disease with no relapse at 6 months in this cohort. Primary cases have significantly better clinical outcomes compared with secondary cases.

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CLINICAL OUTCOME AND ITS PREDICTIVE FACTORS OF HUMAN IMMUNODEFICIENCY VIRUS INFECTED PATIENTS WITH IMMUNOLOGIC FAILURE DESPITE VIRAL SUPPRESSION: STUDY FROM A TERTIARY REFERRAL CENTRE IN HONG KONG

Dr. Tang Hing Cheung, Department of Medicine, Queen Elizabeth Hospital (June 2011 Infectious Disease Exit Assessment Exercise)

Background Some of the individuals infected with human immunodeficiency virus (HIV) have unsatisfactory CD4+ T cell recovery despite satisfactory viral suppression after highly active antiretroviral therapy (HAART). This was termed immuno-virological discordance.

Method Retrospective review was performed to study treatment-naiveHIV-infected patients with a baseline CD4+ cell count below 200cells/μL (n =168), under the care of the Queen Elizabeth Hospital from January 2003 to December 2008. Patients having satisfactory virological response (HIV-1 ribonucleic acid (RNA) below 50copies/mL) after 12 months of HAART were recruited. Immunological non-responders were defined as those having CD4+ cell count below 200cells/μL after 12 months of HAART. Complete responders are defined as those having CD4+ cell count increased to greater than or equal to 200cells/μL. Baseline characteristics and treatment outcomes were studied.

Results Fifty-nine immunological non-responders and 109 complete responders were included in the analysis. Immunological non-responders were significantly older and had lower initial CD4+ cell count before HAART. They had higher risk of developing new AIDS-related events (P <0.001). Specifically during the initial 12 months of HAART, there were significantly more immunological non-responders had new AIDS events, mainly opportunistic infections (P <0.001). Immuno-virological discordance was identified as a risk factor (odds ratio 6.5, P = 0.026) for AIDS events within the first 12 months of HAART. There wasno significant difference in mortality between both groups.

Conclusions Immuno-virological discordance was a predictor for developing AIDS-related events. Expanded screening in at-risk groups should be promoted to detect HIV infections at earlier stages.

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THE USE OF SINGLE AGENT SORAFENIB IN THE TREATMENT OF ADVANCED HEPATOCELLULAR CARCINOMA (HCC) PATIENTS WITH UNDERLYING CHILD-PUGH B LIVER CIRRHOSIS: EFFICACY, SAFETY AND SURVIVAL BENEFITS

Dr Chiu Wing Yan Joanne, Department of Medicine, Queen Mary Hospital (June 2011 Medical Oncology Exit Assessment Exercise)

Background HCC is a common malignancy especially in patients with chronic liver disease. It often presents late. Sorafenib is the only systemic treatment for advanced HCC proven to have survival benefit. Previous studies included predominantly patients with Child-Pugh A liver cirrhosis, and the use of sorafenib in patients with poor liver function is controversial. This study aimed to explore the efficacy, tolerability and survival benefits of using sorafenib in Child-Pugh B patients.

Methods Advanced HCC patients treated with sorafenib at Queen Mary Hospital,

Hong Kong were analyzed retrospectively. Treatment outcomes were analysed according to their respective Child-Pugh status.

Results The baseline demographic parameters were comparable between 108 Child-Pugh A and 64 Child-Pugh B patients. Both clinical benefit rate (21.3% vs 25.0%; p=0.58) and progression free survival (median: 3.2 months vs 2.8 months; p=0.31) were similar among two groups. The overall survival was significantly longer in Child-Pugh A patients (median: 6.1 vs 3.9 months, p=0.009). The most common grade 3/4 adverse events (AEs) were hand-foot-syndrome (13.5%), diarrhea (9.9%) and rash (7.0%). Grade 3/4 leukopenia, thrombocytopenia, and anemia occurred in 2.9%, 5.3%, and 8.8% of the patients respectively. Child-Pugh A and B patients experienced similar incidence of most AEs. Nonetheless, Child-Pugh B patients experienced more anemia (71.4% vs 50.5 %, p=0.01), gastrointestinal bleeding (15.6% vs. 5.6 %, p=0.05) and hepatic encephalopathy (10.9% vs. 1.9%, p=0.01).

Conclusions Child-Pugh A and B patients tolerated sorafenib similarly and derived comparable clinical and PFS benefit. Child-Pugh B patients were more susceptible to developing cirrhotic complications thus vigilant surveillance is needed.

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PRESENCE OF AN IN-SITU COMPONENT IS ASSOCIATED WITH REDUCED BIOLOGICAL AGGRESSIVENESS OF INVASIVE BREAST CANCER

Dr Wong Hiu Yan Hilda, Department of Medicine, Queen Mary Hospital (June 2011 Medical Oncology Exit Assessment Exercise)

Background The metastatic propensity of primary invasive ductal carcinoma (IDC) of the breast correlates with axillary node involvement and expression of the proliferation antigen Ki67, whereas ductal carcinoma in situ (DCIS) do not metastasize. To clarify whether concomitant DCIS affects IDC prognosis, Ki-67 expression and lymph node status of size-matched IDC subgroups with (IDC-DCIS) and without DCIS (pure IDC) were compared.

Methods Tumor data obtained from 1355 consecutive female patients undergoing surgery for primary breast cancer were analyzed. Subgroups were defined by the association of IDC with or without DCIS, as well as by size and receptor expression.

Results Corrected for IDC size, IDC-DCIS was more often ER-positive (p = 0.002), PR-positive (p = 0.114) and/or HER2-positive (p < 0.0005) than was pure IDC. Ki-67 was lower in IDC-DCIS than in pure IDC (p = 0.02), and declined as the DCIS component enlarged (p < 0.01). Node involvement and lymphovascular invasion in IDC/DCIS increased with the size ratio of IDC to DCIS (p < 0.01). Although preliminary at a median follow-up of 29.3 months, 5-year cancer-specific disease-free survival favored IDC-DCIS over size-matched pure IDC (97.4% *vs.* 96.0%).

Conclusion IDC co-existing with DCIS is characterized by lower proliferation rate and metastatic propensity than pure IDC, especially if the ratio of DCIS to IDC size is high. It may be postulated that IDC-DCIS is biologically distinct from pure IDC, reflecting an incremental pathway of tumor evolution involving an intermediate DCIS precursor.

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DIABETES MELLITUS AND BASELINE PERITONEAL TRANSPORT STATUS IN CONTINUOUS AMBULATORY PERITONEAL DIALYSIS PATIENTS

Dr. Hau Lap Man, Department of Medicine, Alice Ho Mui Ling Nethersole Hospital (May 2011 Nephrology Exit Assessment Exercise)

Background Diabetic nephropathy is a major cause of end stage renal failure (ESRF) in Hong Kong (HK). Continuous ambulatory peritoneal dialysis (CAPD) has been the major modality of renal replacement therapy in HK, due to the adoption of "peritoneal dialysis first policy". High peritoneal membrane permeability has been suggested as associated with high mortality and CAPD technique failure. Most diabetic patients with ESRF have multiple micro- and macro-vascular complications at the start of dialysis. They may already have significant peritoneal micro-vascular disease which would increase the peritoneal membrane permeability to solutes and water during peritoneal dialysis. Conflicting clinical observations have been reported with regard to peritoneal transport permeability in diabetics.

Objectives To compare the peritoneal characteristic by using the peritoneal equilibration test (PET) in diabetic and non-diabetic ESRF patients, who has just started CAPD. The relationship between peritoneal permeability and glycemic control would be analyzed.

Methods Medical records of 237 ESRF patients, who have newly started CAPD and have a standard PET performed within 6 months of commencement of CAPD, during the period from 1st January, 2005 to 31st December, 2010, were reviewed. Diabetic group was defined for patients having diabetic nephropathy causing ESRF and for patients having diabetes as co-morbidity. The PET and ultrafiltration results between diabetic and non-diabetic groups were compared. Subgroup analysis on the diabetic ESRF patients was then performed to assess the relationship between glycemic control and transport status.

Results The percentages of high transporter, low transporter, high average transporter and low average transporter were 18.1%, 3%, 56.1% and 22.8% respectively. There was no difference between DM patients having DM nephropathy as the cause of ESRF and DM patients having DM as co-morbidity. More high transporters on creatinine transport and less net ultrafiltration volume was found among the ESRF patients having diabetes. Glucose transport was similar in DM and non-DM groups. There was no statistically significant association between glycemic control and transporter status.

Conclusions Our findings suggest diabetic ESRF patients have higher peritoneal membrane permeability, which seemed not associated with glycemic control.

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VITAMIN D STATUS IN CHINESE RENAL TRANSPLANT RECIPIENTS - RELATIONSHIP WITH CARDIOVASCULAR DISEASE

Dr. Ma Kam Man Maggie, Department of Medicine, Queen Mary Hospital (May 2011 Nephrology Exit Assessment Exercise)

Cardiovascular disease (CVD) is the leading cause of morbidity and mortality in kidney transplant recipients. Conventional strategies to prevent cardiovascular

complications include lifestyle modification and aggressive management of traditional cardiovascular risk factors. There is emerging evidence that vitamin D deficiency may be linked to cardiovascular disease (1, 2). There is also data to show that vitamin D deficiency affects up to 85% of Caucasian renal transplant patients (3). Such information is lacking in Chinese renal transplant patients. We studied 108 local Chinese with stable allograft function at 144.2±91.6 months after transplantation. 15.7% of the patients had experienced cardiovascular event(s) after kidney transplantation. The prevalence rates of vitamin D deficiency or insufficiency were 43.6% and 54.2% respectively, while 53.2% had hyperparathyroidism. 25-hydroxyvitamin D (25(OH)D) was negatively associated with parathyroid hormone (PTH) (p=0.000). Serum creatinine (p=0.005) and duration of dialysis (p=0.003) were significantly associated with PTH whereas phosphate (p=0.007) were inversely related to PTH. Serum 25(OH)D level was not associated with cardiovascular disease, diabetes mellitus, hypertension, or malignancy, but lower levels of 25(OH)D were found in patients with history of acute rejection (45.3±11.9 nmol/L Vs 54.2±16.0 nmol/L, p=0.03). We conclude that vitamin D deficiency is prevalent among renal transplant recipients. The impact of vitamin D deficiency on cardiovascular health is not established in the current study. Vitamin D has a possible immunomodulatory role and its deficiency is associated with acute rejection. Further studies are needed to delineate the role of vitamin D supplementation in renal transplant recipients.

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PREDICTING THE 12-MONTH MORTALITY FOR PERITONEAL DIALYSIS PATIENT BY THE "SURPRISE QUESTION"

Dr Pang Wing Fai, Department of Medicine & Therapeutics, Prince of Wales Hospital
(May 2011 Nephrology Exit Assessment Exercise)

Background Long term dialysis is life-saving for patients with end stage renal disease (ESRD). However, in ESRD patients with multiple comorbid conditions, dialysis may actually be futile, and conservative management is advisable. Previous studies in hemodialysis patients suggest that the "surprise question" could help to identify a group of patients who have a high mortality risk and should receive priority for palliative care interventions. However, the same instrument has not been tested in peritoneal dialysis (PD) patients.

Objective The objective of this study was to explore the prognostic value of the "surprise question" in PD patients.

Method This is a prospective cohort study of 367 prevalent PD patients from the dialysis unit of Prince of Wales Hospital. For all recruited patients, three clinicians independently answered the "surprise question" *Would I be surprised if this patient died within the next 12 months?* According to their clinical impression of individual patient. Clinical data were blinded from the clinicians when they answered the question. Patients are then classified into "Yes" (yes, surprised) and "No" (no, not surprised) groups. Data of demographics, comorbid conditions, baseline clinical and biochemical parameters were recorded. All patients were then followed for twelve months for survival analysis.

Results Of the 367 patients, 109 (29.7%) were classified in the "No" group and 258 (70.3%) in the "Yes" group. The patients in the "No" group were older, had a high prevalence of pre-existing ischemic heart disease, cerebrovascular disease, and

peripheral vascular disease. The “No” group also had higher Charlson’s comorbidity score and malnutrition inflammation score. At 12-month, 44 patients died; the mortality for the “No” and “Yes” groups were 24.8% and 6.6%, respectively. Multivariate analysis showed that being classified as “Not surprised if dies in the next 12 months” was an independent predictor of 12-month mortality. In this model, this label confers a 4.298 fold excess in mortality than the others (95%CI, 1.780 – 10.375, p = 0.001).

Conclusion The “Surprise question” has the potential of helping to identify a group of PD patients who have a high short term mortality, and may contribute to the decision of referring PD patients for early palliative care assessment.

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PROSPECTIVE, RANDOMIZED CONTROLLED TRIAL FOR APPLICATION OF BODY COMPOSITION MONITORING TO HEMODIALYSIS PATIENTS

Dr Tam Chun Hay, Department of Medicine, Queen Elizabeth Hospital (May 2011 Nephrology Exit Assessment Exercise)

Since most of the patients receiving hemodialysis (HD) are oliguric or anuric, the achievement of a normal hydration state during HD is very important. Overhydration is well documented to be related to hypertension, pulmonary edema, heart failure, left ventricular hypertrophy and other adverse cardiovascular events[1, 2].

Currently, normal post-HD hydration state is quantified in the form of dry weight, which is determined by clinical parameters like interdialytic weight gain, ultrafiltration rate and the absence of hypotensive episodes during HD. However, such clinical parameters are not always conclusive and are even sometimes contradictory[3].

Moreover, the optimal dry weight of individuals would not always stay unchanged and may be varied with time. In our renal dialysis unit, titration of dry weight over time would be carried out by nephrologists, according to symptoms and signs of fluid overload like ankle swelling or pulmonary congestion. The assessment is mainly based on clinical experience and may have inter-observer variation.

Whole-Body Impedance Spectroscopy (BCM) is a new method which aims to provide objective information about the hydration state of an individual. This can be performed by using a body composition monitor. The procedure is easily applicable, non-invasive and takes only around 2 minutes. BCM has been validated in multicentre simultaneous comparisons with isotope dilution methods, which are considered gold standard for measuring intra- and extracellular volumes[4].The blinded BCM predictions of dialysis target weight also corresponded well with the clinical achieved dry weight.

Besides providing information about overhydration status (OH) in a subject, BCM machine can also provide information on other body composition parameters like lean tissue index (LTI), fat tissue index (FTI), etc, in one single measurement. Recent studies have tried to elaborate the role of lean tissue mass and fat content to survival among patients on hemodialysis[5, 6]. In the studies, mid-arm muscle circumference was used as a surrogate for muscle mass, and tricuspid skin fold thickness as a surrogate for body fat. Hemodialysis patients with higher muscle mass and fat are

shown to have better overall survival.

BCM has gaining popularity in different countries, but the experience of application of BCM in chronic hemodialysis patients in Hong Kong is rather limited.

We conducted a prospective, randomized controlled trial to examine the role of monitoring hydration status using BCM machine on the cardiovascular event outcome in chronic HD patients. We hypothesized that using BCM machine for assessment of hydration status and dry weight in chronic HD patients in satellite centre would be superior in terms of cardiovascular outcomes, fluid control and cerebrovascular outcomes, compared with traditional clinical assessment. We would also examine the effect on cardiovascular risk factors like blood pressure control, inflammatory markers and nutrition parameters.

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RETROSPECTIVE STUDY ON HYPOCALCAEMIA AFTER TOTAL PARATHYROIDECTOMY AMONG DIALYSIS PATIENTS

Dr Wong Siu Man, Department of Medicine, Alice Ho Miu Ling Nethersole Hospital
(May 2011 Nephrology Exit Assessment Exercise)

Objectives Secondary and tertiary hyperparathyroidism is very common among dialysis patients which is associated with significant morbidities. Parathyroidectomy (PTx) is often needed when medical therapy fails. Post-operative hypocalcaemia is a common complication after PTx. Apart from searching for predictors of hypocalcaemia, influences on its occurrence by pre-operative calcium and active vitamin D loading doses are to be investigated.

Subjects and Methods Retrospective study was carried out among dialysis patients who had undergone total PTx without autotransplantation. Post-PTx hypocalcaemia was defined as albumin-adjusted calcium nadir < 2mmol/L within 2 weeks post-PTx. Parameters under analysis included age, duration and modality of dialysis, pre-operative calcium, phosphate, calcium-phosphate product, alkaline phosphatase (ALP), parathyroid hormone, weight of excised glands, as well as parathyroid scintigraphy report if available. Pre-operative loading doses of calcium and active vitamin D were recorded.

Results Patients under care by Prince of Wales Hospital and Alice Ho Miu Ling Nethersole Hospital (AHNH) were referred for PTx in AHNH when indicated. Total 83 dialysis patients with PTx done from March 1999 to July 2010 were included for analysis. 61 patients achieved total PTx with 4 parathyroid glands excised successfully. Among them 52.5% developed hypocalcaemia. Comparison of different parameters was made between hypocalcaemic and non-hypocalcaemic patients. By multivariate analysis, hypocalcaemic patients had significantly lower pre-operative calcium (p=0.004), higher ALP (p=0.006), younger age (p=0.015) and higher phosphate (p=0.015). For pre-operative calcium and active vitamin D loading doses, significantly different loading intensities from the two renal units was found. However, there was no significant impact on post-PTx hypocalcaemia.

Conclusion For dialysis patients who undergo PTx, lower pre-operative calcium, higher ALP, younger age and higher phosphate are found to be significant predictors of post-PTx hypocalcaemia. Patients who have these features should be closely monitored with more aggressive replacement of calcium and vitamin D after PTx.

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FACTORS ASSOCIATED WITH THE RISK OF THYMOMA AT THE PRESENTATION OF MYASTHENIA GRAVIS

Dr Cheung Kit Yan, Department of Medicine & Geriatrics, Tuen Mun Hospital (June 2011 Neurology Exit Assessment Exercise)

Background Thymoma is found in 10-15% of patients with myasthenia gravis (MG). Thymoma associated MG is considered to be a more severe disease and all thymoma patients are indicated for thymectomy. It is unclear whether certain clinical or serological findings of MG patients at the time or early after the diagnosis can predict the presence of thymoma.—

Objective To determine the demographic, clinical as well as autoimmune antibody characteristics that may differentiate between thymoma associated MG and non-thymoma associated MG in the early course of the disease. Comparison for the clinical courses during the whole follow-up period of MG patients with or without thymoma was also made.

Methods We retrospectively evaluated MG patients followed up at Tuen Mun Hospital in Hong Kong from year 2000 to 2010. Myasthenia gravis was diagnosed by the typical history and signs of fluctuating and fatigable muscle weakness with its associations with the following variables: the titre of anti-acetylcholine receptor antibody, an unequivocal clinical improvement in response to anticholinesterase inhibitors, and a decremental pattern on repetitive nerve stimulation test and the status of thymoma on imaging study. The baseline characteristics, clinical presentation, courses of disease during the early and the whole follow-up periods, treatments offered, anti-acetylcholine autoantibody titers as well as the other associated autoimmune diseases were recorded and compared between the groups with or without thymoma.

Results A total of 184 MG patients who fulfilled the criteria were identified and followed up. Thymoma was diagnosed in 19.6% of them. The mean age of patients with thymoma was older (55.08 vs 44.56; $p=0.042$); female sex was more prevalent (female vs male ratio of 1.4 vs 1) but the sex ratio was similar when compared with those without thymoma. Although the presenting symptoms and baseline MGFA scores were similar, thymoma associated patients had a significantly more rapid deterioration of MG and more severe disease with higher mean of maximum MGFA score (2.81 vs 1.26; $p<0.001$) within the first 6 months of follow-up, and were also more likely to develop generalized MG eventually (83.3% vs 38.5%; $p<0.001$) when compared with non-thymoma group. All thymoma patients had positive anti-acetylcholine receptor antibody and a higher titre was recorded. Their long term outcome was comparable to non-thymoma associated MG patients with similar MGFA score on last follow up. Autoimmune disease was present in 37% of patients overall with thyroid disease being the commonest association. Using multivariate logistic regression model, a high MGFA score at 6 months (MGFA 3-5) and a very high anti-AChR titre (>19nmol/L) were predictive of thymoma.

Conclusion Myasthenia gravis patients at risk of thymoma could be identified during the early course of the disease. A high MGFA score at 6 months and a very high anti-AChR titre predicted the occurrence of thymoma.

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