Abstracts of Dissertations
June 2018 Exit Assessment Exercise

COMPARISON OF INSTANTANEOUS WAVE-FREE RATIO (IFR) WITH FRACTIONAL FLOW RESERVE (FFR), DETERMINATION OF NEW IFR AND IVUS AREA CUTOFF BY FFR AND CORRELATION OF FFR WITH CLINICAL OUTCOME

Dr Chu Man Wah, Department of Medicine, Queen Elizabeth Hospital (May 2018 Cardiology Exit Assessment Exercise)

Background/Objectives It has been known for decades that presence of reversible ischaemia is the major determinant of prognosis for patients with ischaemic heart disease. Fractional flow reserve (FFR) is the standard of assessment for ischaemia and is recommended by international guidelines. Instantaneous wave free ratio (iFR) is now emerging as a new adenosine free index for assessment of ischaemia. Sometimes anatomical assessment like lumen area by intravascular ultrasound may be helpful especially when physiological assessment is not feasible.

In the first part of our study, we would like to vadilate iFR with FFR in our locality. A specific iFR threshold was then defined based on FFR 0.8 as cut off to determine ischaemic versus non ischaemic coronary artery stenosis.

In the second part of the study, new proximal to mid left anterior descending artery (p-mLAD) intravascular ultrasound minimal lumen area (IVUS MLA) cutoff was determined with FFR. IVUS MLA was a parameter correlated with ischaemia, with wide cutoff ranged from 2.4mm^{2}to 4.4mm^2 from previous studies, with lower thresholds in Asian population than in western population. In this study, we would focus on IVUS MLA over proximal to mid left anterior descending artery segment and determine a new p-mLAD IVUS MLA cutoff to predict FFR 0.8in our locality.

In the third part of the study, we would like to validate FFR 0.8 or less as a good cutoff for guiding PCI by comparing outcomes with logistic regression model.

Methods This was a retrospective study of 103 patients with indications for coronary angiography, IVUS assessment and functional study of the coronary artery stenosis including iFR and FFR. Further intervention and stenting were guided by FFR 0.8 or less. The primary objectives were to correlate iFR with FFR and to determine specific iFR cutoff point to predict FFR 0.8. The secondary objective was to determine p-mLAD IVUS MLA to predict FFR 0.8. Also, patients were followed up for 1 year for any major adverse cardiovascular outcome (MACE) defining as a composite of death from any cause, non fatal myocardial infarction or unplanned target vessel revascularization within 12 months after procedure. We then compared the outcome of patients requiring PCI and the outcome of patients not requiring PCI.

Results This study showed iFR strongly correlated with FFR (Spearman's coefficient = 0.8, P=0.001). On receiver-operating characteristic analysis, the optimal iFR cutoff point for FFR 0.8 was 0.91 with an overall accuracy of 93%, sensitivity and specificity of 86% and 83%, respectively. The p-mLAD MLA also correlated with FFR with best cut off value of 3.5mm^2, with an overall accuracy of 83%, with sensitivity and specificity of 80% and 72% respectively. There was no significant difference of 1year MACE in PCI group versus non PCI group by logistic regression analysis (P = 0.27).

Conclusions In conclusion, iFR 0.91 closely correlates with FFR 0.80 with an overall accuracy 93%. Thep-mLAD MLA also correlates with FFR with best cut off value of 3.5mm^2. FFR 0.8 is a good cutoff point for guiding PCI.

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EFFICACY AND SAFETY OUTCOMES OF TRANSCATHETER AORTIC VALVE IMPLANTATION IN BICUSPID VERSUS TRICUSPID AORTIC VALVE STENOSIS

Dr Fong Yan Hang, Department of Medicine, Queen Elizabeth Hospital (May 2018 Cardiology Exit Assessment Exercise)

Background Transcatheter aortic valve implantation (TAVI) has been developed as an option for treatment of symptomatic severe aortic stenosis in the past decade with expanding indication. However, bicuspid aortic valve has been viewed as a contraindication to TAVI. Limited data is available comparing the efficacy of TAVI for bicuspid vs tricuspid AS.

Objective Our study aims at evaluating the efficacy and safety of TAVI in bicuspid vs tricuspid AS in our Hong Kong Chinese population.

Methods Data of consecutive patients undergoing TAVI in a regional hospital in Hong Kong from December 2010 to July 2017 was collected and analyzed.

Results A total of 97 patients were included, of which 18 had a BAV (18.6%) and 79 had a TAV (81.4%). Baseline characteristics were similar between the two groups. Procedural success was high in both groups (98.7% vs 100%, p=1.0). There were no significant differences between groups in terms of valve function after TAVI, rate of pacemaker implantation, stroke, vascular complications, bleeding complications and acute kidney injury. There were no differences in mortality at 30 days (1.3% vs 0%, p=1.0); 6 months (7.6% vs 11.1%, p=0.623) and at 1 year (14.3% vs 12.5%, p=0.983).

Conclusion Compared with tricuspid AS, TAVI in bicuspid AS had similar efficacy and safety outcomes in our population.

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A RETROSPECTIVE REVIEW ON CATHETER ABLATION OF IDIOPATHIC VENTRICULAR ARRHYTHMIAS IN A REGIONAL HOSPITAL IN HONG KONG

Dr Lau Chak Kwan, Department of Medicine, Pamela Youde Eastern Nethersole Hospital (May 2018 Cardiology Exit Assessment Exercise)

Objectives To review catheter ablation procedures and clinical outcomes of idiopathic ventricular arrhythmias (VAs) in a regional hospital in Hong Kong

Background Idiopathic VAs is a distinct subgroup among VAs, which consists of around 10% of all VAs. Patients with idiopathic VA can present with frequent premature ventricular complex (PVC), non-sustained VT (NSVT) or ventricular tachycardia (VT). Other than medication, catheter ablation is becoming one of the standard alternative treatments in symptomatic patients in idiopathic VAs. Outcomes of catheter ablation for idiopathic Vas were promising with high success rates and low complication rates from previous studies. However, most data had come from foreign centres and local data for catheter ablation of idiopathic VAs are scarce.

Method Patients with idiopathic VAs (frequent PVCs, NSVT or VT) undergoing catheter ablation from 2007 to 2017 in Pamela Youde Nethersole Eastern Hospital (PYNEH) were analyzed retrospectively. Patients' demographics, mapping and ablation procedures were reviewed. Clinical outcomes including acute procedural success rate, long term success rate and complications were analyzed.

Result There were 41 patients and 43 ablations in total. The acute procedural success rate was 83.7%. The follow up duration was 38.5 ± 28.5 months (mean ± standard deviation). The long term success rate for patients having successful ablation at one year was 80.6%. 73.2% of all the VAs were outflow tract VAs (right ventricular outflow tract and left ventricular

outflow tract). 12.2 % were fascicular VT. Successful catheter ablation can effectively lower the anti-arrhythmic drugs use after procedure up to one year. Complication rate was low. There was no cardiac tamponade, heart block or mortality.

Conclusion Catheter ablation is an effective and safe treatment for idiopathic ventricular arrhythmias, with an acute procedural success rate of 83.7% and a long term success rate of 80.6% at one year. Successful catheter ablation can effectively lower the antiarrhythmic drugs use after procedure up to one year.

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EFFECT OF CHRONIC KIDNEY DISEASE ON LEFT ATRIAL APPENDAGE OCCLUSION OUTCOMES: A SINGLE-CENTRE RETROSPECTIVE ANALYSIS

Dr So Chak Yu, Department of Medicine & Therapeutics, Prince of Wales Hospital (May 2018 Cardiology Exit Assessment Exercise)

Objectives We aim to study the impact of chronic kidney disease (CKD) on the outcomes of left atrial appendage occlusion using the registry data of a university affiliated tertiary centre.

Background The presence of CKD paradoxically increases both risk of thromboembolism and bleeding in patients with non-valvular atrial fibrillation (NVAF).

Methods Consecutive patients who underwent LAAO using Watchman or Amplatzer Cardiac Plug (ACP)/Amulet devices from June 2009 to August 2017 at Prince of Wales Hospital, Hong Kong were retrospectively analyzed and compared based on the presence or absence of CKD (eGFR cutoff of 60 ml/min using CKD-EPI equation). Study outcomes included device success rate and complication rate (defined according to the 2016 Munich Consensus Document), annual risk of stroke or transient ischemic attack (TIA), annual risk of major bleeding and event free survivals.

Results A total of 196 patients underwent LAAO (mean age 72±8 years; 65.3% males), 36.2% had CKD and 4.6% had severe renal impairment (eGFR <30ml/min). The mean CHA2DS2-VASc (5.09±1.51 vs 3.69±1.43, P<0.001) and HASBLED (3.39±0.91 vs 2.68±0.98, P<0.001) scores were significantly higher in patients with CKD. The device success rates were similar (97.2% vs 97.6%, p=1.0) in the two groups. The observed annual stroke/TIA risks and major bleeding risks were significantly lower than the estimated risks based on CHA2DS2-VASc and HAS-BLED scores respectively (annual stroke risks: 0.77% vs 6.99% in CKD patients, 1.53% vs 4.51% in non-CKD patients, 1.32% vs 5.40% in overall; annual major bleeding risk: 1.55% vs 5.89% in CKD patients, 1.22% vs 3.76% in non-CKD patients, 1.32% vs 4.53% in overall; all P<0.05). CKD patients received a larger stroke risk reduction (reduction of 88.9% vs 66.1%, P<0.001) and a similar major bleeding risk reduction (reduction of 73.7% vs 67.4%, P=0.19) than non-CKD patients. Despite a higher mortality rate during follow-up (13.0% vs 7.4%, p=0.03), CKD patients had similar stroke/TIA-free, major bleeding-free and MAE-free survivals (all p=NS). However, CKD patients had a significantly higher rate of peri-procedural complications (12.6% vs 3.2%, p=0.016) and cardiac tamponade (8.5% vs 0.8%, p=0.01) during LAAO.

Conclusions The presence of CKD did not affect the efficacy of LAAO in reduction of stroke/TIA and major bleeding in patients with NVAF. However, LAAO in CKD patients is associated with a higher risk of peri-procedural complications, especially cardiac tamponade. This finding and its exact mechanism requires further analysis.

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EFFECT OF CYP2C19 POLYMORPHISMS ON GLICLAZIDE PHARMACOKINETICS, TREATMENT RESPONSE AND RISK OF

HYPOGLYCAEMIA IN CHINESE

Dr Chow Yee Kwan Elaine, Department of Medicine & Therapeutics, Prince of Wales Hospital (June 2018 Clinical Pharmacology & Therapeutics Exit Assessment Exercise)

Background It has been suggested that gliclazide is metabolised predominantly by cytochrome P450 (CYP)2C19 rather than CYP2C9 in contrast to other sulphonylureas. Loss-of-function *CYP2C19 *2* and *3* polymorphisms are common in Chinese, with up to 20% being poor metabolisers. The effect of CYP2C19 polymorphisms on gliclazide treatment response has not been studied.

Methods In Study 1, 15 healthy Chinese subjects were given an oral dose of gliclazide 80mg. Gliclazide pharmacokinetics were compared between CYP2C19 extensive metabolisers (EM n=4, *CYP2C19 *1/*1*), intermediate metabolisers (IM n=7, **1/*2 or *1/*3*) and poor metabolisers (PM n=4, **2/*2, *2/*3, or *3/*3*).

In Study 2, 476 incident sulphonylurea monotherapy users with T2D were identified from the Hong Kong Diabetes Register enrolled between 1995 and 2007. The risk associations of *CYP2C19*2* and **3* variants as a combined group with monotherapy failure, attainment of target HbA1c and hospitalization due to severe hypoglycaemia were evaluated using Cox proportional hazards model or logistic regression analyses with adjustment for covariates.

Results In study 1, gliclazide plasma area-under-the-curve (AUC) was higher by nearly two-fold in CYP2C19 PM as compared with IM and EM ($p<0.001$). Apparent oral clearance was significantly lower in PM as compared with IM and EM (Mean(SD) 0.70(0.12), 1.22(0.22) and 1.52(0.47) ml/min/kg respectively, $p = 0.005$).

In study 2, there was a trend towards lower risk of sulphonylurea failure in CYP2C19 PM (n=66, 14%) as compared with IM (n=209) and EM (n=192). There was a trend towards lower risk of monotherapy failure with each additional copy of loss of function CYP2C19 allele in non-gliclazide users (n=233) with an adjusted hazard ratio (HR) of 0.82 (95% CI 0.65-1.03, p=0.09). No such relationship was found in gliclazide users (n=234). There was no association of CYP2C19 genotype with attainment of HbA1c <7% or severe hypoglycaemia.

Conclusions *CYP2C19 *2* or **3* polymorphisms reduced gliclazide oral clearance in healthy Chinese but did not significantly influence treatment response or hypoglycaemic risk in Chinese patients with T2D.

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THE PREVALENCE, RISK FACTORS AND OUTCOMES OFICU DELIRIUM IN A LOCAL INTENSIVE CARE UNIT

Dr Lee Yin Yin Candice, Department of Intensive Care, Kwong Wah Hospital (May 2018 Critical Care Medicine Exit Assessment Exercise)

Background Intensive Care Unit (ICU) delirium is extremely common among critically ill patients and is associated with adverse outcomes including increased mortality, ventilator days and length of stay. ICU delirium is likely to be multifactorial and multiple risk factors have been identified. While the prevalence of ICU delirium has been reported to range from 30 to 80%, local data are lacking. This study aims to determine the prevalence of ICU delirium at a local ICU over a 3-month period, and to evaluate the risk factors and outcomes associated with this condition.

Methods This is a retrospective, observational study conducted during the period of November 2017 to January 2018. Patients admitted to the Kwong Wah Hospital ICU during the study period were evaluated for the presence of delirium by means of the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) (Traditional Chinese version) and the Richmond Agitation-Sedation Scale (RASS) two times per day. The period prevalence

of ICU delirium was determined. Clinical data were correlated with the presence of ICU delirium and the independent risk factors were identified. The outcomes associated with ICU delirium were also evaluated.

Results The period prevalence of ICU delirium during the study period was found to be 30.5%. Five independent risk factors for ICU delirium were identified with multivariate analysis, namely old age (≥65), presence of at least one chronic disease, comatose state during ICU stay, exposure to benzodiazepine, and the duration of sedation. ICU delirium was linked to higher ICU and 30-day mortality, longer ICU length of stay, hospital length of stay, and ventilator days in the bivariate analysis, but not in the multivariate analysis.

Conclusion This study revealed that the prevalence of ICU delirium in the local patient population is comparable to the figures quoted in the literature. The independent risk factors identified are in keeping with other studies. Although a linkage to adverse outcomes is found, a larger sample size is needed to determine a definite association.

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CLINICAL CHARACTERISTICS AND TREATMENT OUTCOME OF CHINESE PATIENTS WITH SUBACUTE THYROIDITIS IN REGIONAL HOSPITALS IN HONG KONG

Dr Ma Chun Kit, Department of Medicine and Geriatrics, Tuen Mun Hospital (May 2018 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Background Although subacute thyroiditis is a relatively uncommon entity among different ethnicities, the treatment is completely different from other causes of thyrotoxicosis. Therefore it is important to identify this group of patient and treat accordingly. The data of epidemiology, clinical features and treatment outcomes are lacking. There were few studies published regarding this entity, especially in Chinese population.

Objective To review the clinical characteristics, including the manifestations, laboratory findings and treatment outcome in Chinese patients with subacute thyroiditis.

Method This was a retrospective case series carried out in two regional hospitals in New Territories West, Hong Kong. Ethnic Chinese patients, who were diagnosed to have subacute thyroiditis from 2006 to 2016, were in the recruitment.

Results Sixty-two patients were included in the analysis. The ratio of male to female was 1:3.5. The mean age was 42.8 +/- 10.0 years old. Seasonal variation was not significant. Signs and symptoms (e.g. thyrotoxicosis, thyroid pain), laboratory investigation (e.g. elevated erythrocyte sedimentation rate (ESR)), imaging investigation results (e.g. reduced uptake in thyroid scan) were all compatible with previous studies. Non-steroidal anti-inflammatory drugs (NSAIDS) and glucocorticoid were used for symptomatic control. There was no significant difference in baseline characteristic, symptoms, investigation results and treatment modalities, between groups of patients with or without hypothyroid phase, and between transient or permanent hypothyroidism.

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A LOCAL STUDY OF ETIOLOGIES, ANTERIOR PITUITARY FUNCTION, AND RADIOLOGICAL FEATURES OF PATIENTS WITH ADULT-ONSET CRANIAL DIABETES INSIPIDUS

Dr Ng Hoi Yee Ivy, Department of Medicine and Geriatrics, United Christian Hospital (May 2018 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

From December 1999 to June 2017, 69 patients with biochemically confirmed cranial diabetes insipidus (CDI) of adult onset attending follow-up at two local hospitals were reviewed.

Intracranial masses were the most common cause of CDI (35%), excluding those in which CDI developed after surgery. Of these, germinomas were most frequent (13%). Langerhans cell histiocytosis (10%) was the second most common cause of CDI. Polyuria and polydipsia occurred in all patients (100%), while symptoms of hypogonadism (30%), visual disturbance (25%), and headache (17%) were the most frequent associated clinical manifestations. Headache and visual disturbance were much more common in patients with intracranial masses than those who had idiopathic CDI (headache, 33% vs 7.4%, P=0.03; visual disturbance, 58% vs 0%, P=<0.01). 60.4% of patients had at least one concurrent anterior pituitary hormone deficiency (APHD) on presentation of CDI, of which gonadotropin deficiency was the most common (53.6%). APHDs and multiple pituitary hormone deficiencies (MPHD) were more likely to be present in those with intracranial masses compared to those who had idiopathic CDI (APHDs, 75% vs 41%, P=0.03; MPHDs, 58% vs 3.7%, P=<0.01). 13% of patients developed additional hormone deficiencies, while 8.7% of patients had partial recovery of their pituitary function upon follow-up. After a median follow-up of 10.1 years (range 0.5-30.8 years), 39.1% of patients remain idiopathic with no underlying cause found for their CDI. Those with moderate to severe pituitary stalk thickening were more likely to have an underlying diagnosis compared to those with mild pituitary stalk thickening (100% vs 20%; P=<0.01). The evolution of hormonal deficiencies, MRI abnormalities, and etiologies suggests the need for prolonged and continued clinical, hormonal and imaging surveillance after the diagnosis of CDI.

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THE CLINICAL AND METABOLIC CHARACTERISTICS OF KETOSIS-PRONE TYPE 2 DIABETIC PATIENTS IN HONG KONG

Dr Wong Kwong Yi, Department of Medicine and Geriatrics, Kwong Wah Hospital (May 2018 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Introduction Ketosis-prone type 2 diabetes mellitus (DM) is a unique and under-recognized clinical entity characterized by unprovoked adult onset diabetes with severe hyperglycemia and ketosis similar to type 1 DM, but with clinical and biological features typical of type 2 DM. Hyperglycemic crisis with ketosis in these individuals appears to be related to acute and reversible β cell dysfunction with subsequent insulin independence and acceptable glycemic control on diet and/or oral agents during follow-up. In African-American and Hispanic population, about 25 to 50% of new onset diabetic ketoacidosis (DKA) were classified as ketosis-prone type 2 DM. Although similar cases with typical clinical features also reported in Chinese, data on the prevalence amongst a cohort of adult patients presented with unprovoked DKA has been scarce.

Aim To study the prevalence, clinical and metabolic characteristics and clinical course of ketosis-prone type 2 diabetic patients in Kwong Wah Hospital

Method Medical records of patients admitted for unprovoked DKA from January 2000 to January 2017 were reviewed. Ketosis-prone type 2 DM was defined by: 1/ Ability to discontinue insulin use for > 1 year after the index DKA or 2/ Preserved pancreatic β cell reserve as defined by C peptide level pre-/post-glucagon stimulation. Patients not fulfilling the criteria were defined as classical type 1 DM.
Demographic, biochemical and immunological data were collected. Anti-diabetes treatment at 6 months, 12 months and latest follow up; BMI, glycemic control, occurrence of hypertension, dyslipidemia, and diabetic complications at the latest follow-up were recorded.

Results 277 patients (180 males and 97 females, mean age 48±18) with 300 episodes of DKA, were admitted during the study period. 207 admissions for DKA were provoked, with poor drug compliance/drug failure (51.7%) and infection (39.6%) being the most common precipitating causes. Among the 93 patients in 93 admissions for unprovoked DKA, upon excluding 2 patients with inappropriate data, 49 (53.8%) patients were classified as (ketosis-prone) type 2 DM while 42 (46.2%) patients were classified as type 1 DM. Ketosis-prone type 2 DM patients were more likely to be male, obese, with a stronger family

history and higher prevalence of metabolic syndrome when compared with type 1 DM patients. Anti-GAD65 autoantibody was positive in 67.6% and 0% of type 1 and ketosis-prone type 2 DM patients respectively. Around 80% of ketosis-prone type 2 DM patients were able to discontinue insulin 1 year after DKA. There was no relapse of DKA throughout the follow-up period. Up to 90% of these patients remained insulin independent with reasonable glycemic control (mean A1c 6.9%±1.3%) after a mean follow-up duration of 96.1±61.8 months, although more patients developed hypertension, dyslipidemia and nephropathy during this period.

Conclusion Unprovoked ketosis-prone type 2 DM is a common entity in our locality. These patients are typically obese, middle-aged male with strong family history of DM. They present acutely with DKA but β cell function recovers markedly after control of hyperglycemia, so that up to 80% of patients can wean off insulin therapy within one year. Prognosis is good and can be further improved with early commencement of insulin sensitizers such as metformin or pioglitazone. In the long run, ketosis-prone type 2 DM patients demonstrated a clinical course similar to classical type 2 DM patients.

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ASSOCIATION BETWEEN CHRONIC HEPATITIS B AND HUMAN IMMUNODEFICIENCY VIRUS INFECTION WITH HEPATIC STEATOSIS AND LIVER FIBROSIS BY NON-INVASIVE ASSESSMENT

Dr Chu Pui Shan Jenny, Department of Medicine & Geriatrics, Princess Margaret Hospital
(May 2018 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Non-alcoholic fatty liver disease (NAFLD) is the most common liver disorder worldwide, with a global prevalence of 10-30%; locally 27% and is on the rise. Previous studies have demonstrated that chronic hepatitis B or HIV infection is associated with hepatic steatosis and fibrosis. Non-invasive assessment of steatosis and fibrosis has become more common in clinical practice, allowing earlier detection and intervention with significant reduction in risk.

Objectives This pilot study aims to investigate liver fibrosis and steatosis in Chinese HIV-HBV coinfected individuals using non-invasive tools, and compare them with HIV and HBV monoinfected individuals, to assess whether HIV-HBV coinfection would display significant increase in the degree of steatosis and fibrosis.

Methods A pilot cross-sectional study was conducted in a single local center, Princess Margaret Hospital. Patients were recruited according to their chronic hepatitis B and HIV infection status. Non-invasive assessments with transient elastography and controlled attenuation parameter were performed to assess hepatic steatosis and fibrosis, and correlate with clinical parameters.

Results Results demonstrated the association of liver steatosis with metabolic risk factors in line with prior studies, despite there being no difference in steatosis between groups according to their HBV or HIV status. Significant fibrosis was associated with hepatic steatosis, hypertension and waist circumference.

Conclusion Liver steatosis is common in both HBV and HIV infected individuals and is associated with metabolic risk factors, and fibrosis seemed to be linked to underlying steatosis. Future longitudinal studies with larger cohorts would be helpful.

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A LARGE COHORT STUDY EXAMINING THE EFFECTS OF LONG-TERM ENTECAVIR ON HEPATOCELLULAR CARCINOMA AND HBSAG SEROCLEARANCE

Dr Ko Kwan Lung, Department of Medicine, Queen Mary Hospital (May 2018 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Real world studies examining reduction of risk of hepatocellular carcinoma(HCC) in patients receiving antivirals are limited by the small-sized cohort, data heterogeneity in electronic database and short follow-up duration. We aim to examine the long-term outcome of patients receiving entecavir treatment on HCC incidence and HBsAg seroclearance.

Methods Incidence of HCC in 1225 entecavir-treated patients between 2002 and 2015 was compared with the expected HCC incidence estimated using the REACH-B, GAG-HCC and CU-HCC scores. Standardized incidence ratios(SIR) were calculated. Impact of entecavir treatment on HBsAg seroclearance was explored.

Result The median follow-up of the cohort was 6.6 years, with 66 incidence cases of HCC. Using the REACH-B model, the reduction of HCC risk was significant from year 6 onward with SIR of 0.68 (95% CI 0.535-0.866) at year 10. In subgroup patients without cirrhosis, consistent risk reduction was observed since the fifth year and SIR reached 0.51 (95% CI 0.271-0.704) by year 10. Benefit in cirrhotic patients were demonstrated when using the GAG-HCC and CU-HCC score, with SIR at year 10 being 0.38 (95% CI 0.259-0.544) and 0.46 (95% CI 0.314-0.659) respectively. The cumulative rate of HBsAg seroclearance was 5.2%. HBsAg level at third year of treatment and baseline-to-3-year percentage reduction of HBsAg were predictive of subsequent HBsAg seroconversion.

Conclusions Long-term entecavir therapy was associated with significant reduction in the risk of HCC in the real world. However, HBsAg seroclearance rate remained low. Additional therapy should be considered in patients with adverse predictive factor for subsequent HBsAg seroclearance.

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FIBROSIS EVOLUTION IN CHRONIC HEPATITIS B PATIENTS ACROSS A 10-YEAR INTERVAL

Dr Mak Lung Yi, Department of Medicine, Queen Mary Hospital (May 2018 Gastroenterology & Hepatology Exit Assessment Exercise)

Introduction and aims The degree of liver fibrosis in chronic hepatitis B (CHB) infection influences outcome and management. Existing data describing the long-term dynamic changes of liver fibrosis is limited. This study aimed to evaluate the evolution of liver fibrosis in CHB across a 10-year period.

Methods CHB patients with prior liver stiffness measurement (LSM) by transient elastography 10-years ago were recruited for follow-up LSM. Fibrosis stages were classified according to EASL-ALEH guidelines. Fibrosis progression/ regression was arbitrarily defined as ≥10% change from baseline respectively.

Results 459 HBeAg-negative patients (224 treatment-naïve and 235 treatment experienced) were recruited. The median age at baseline LSM was 42.6 years and 56.2% were male. Compared to 10-years ago, the proportion of patients with advanced fibrosis and cirrhosis was significantly reduced from 16.3% to 5.7% ($p<0.001$). Fibrosis progression and regression was observed in 22.2% and 62.9%, respectively. Treatment with nucleos(t)ide analogues (OR 0.524), metabolic syndrome (OR 2.264) and higher CAP (OR 1.008) were independent factors for fibrosis regression/ progression. LS change demonstrated good negative correlation with the duration after HBsAg loss (ρ = -0.50, $p<0.001$). Persistent HBeAg-positivity was associated with similar pattern of fibrosis evolution as HBeAg-negative patients. LS were higher both at baseline (14.0 vs. 6kPa) and at 10-year (9.1 vs. 4.9kPa) in patients with liver-related complications compared with those without.

Conclusion CHB-related liver fibrosis changed dynamically across 10-years. Metabolic syndrome and hepatic steatosis were associated with fibrosis progression, while antiviral therapy was associated with fibrosis regression. Patients with HBsAg loss demonstrated time-dependent LS decline.

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DIAGNOSTIC YIELD AND CLINICAL IMPACT OF CAPSULE ENDOSCOPY ON MANAGEMENT OF PATIENTS WITH SUSPECTED SMALL BOWEL BLEEDING

Dr Sun Chia Li Carly, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (May 2018 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Small bowel bleeding accounts for 5% of gastrointestinal bleeding but can cause frequent hospitalizations or blood transfusions. Small bowel capsule endoscopy (CE) has emerged as the first-line investigation in patients with suspected small bowel bleeding.

Objectives To determine the diagnostic yield of CE in identifying bleeding sources in patients with suspected small bowel bleeding and its impact on clinical management, rebleeding rate, and factors associated with positive CE and rebleeding within one year.

Methods This retrospective study recruited patients who underwent CE for investigation of suspected small bowel bleeding in a regional hospital, from 1st July 2007 to 31st December 2016.

Results Amongst the 334 recruited patients, the mean age was 64.9 ± 16.0 years and 183 (54.8%) were men. Clinically significant lesions were identified on CE in 135 (40.4%) patients and the most common finding was small bowel angiodysplasia (34.8%). Diagnosis of bleeding sources by CE led to specific treatment in 72 (53.3%) patients. The median follow-up was 50 months. The overall and one-year rebleeding rates were 20.5% and 11.3%, respectively, which were significantly lower in patients with negative CE than those with positive CE. Ongoing overt bleeding (p=0.003) and more frequent hospital admissions related to gastrointestinal bleeding (p=0.034) were independent factors associated with positive CE, and more frequent hospital admissions prior to CE (p=0.006) was the only independent factor associated with rebleeding within one year. Capsule retention was observed in 3 (0.9%) patients.

Conclusion Capsule endoscopy was a practical and non-invasive investigation for patients with suspected small bowel bleeding, and could guide subsequent clinical management.

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THE RELATIONSHIP BETWEEN HEPATITIS B CORERELATED ANTIGEN (HBCRAG) AND CHRONIC HEPATITIS B OUTCOMES IN HBEAG NEGATIVE PATIENTS

Dr To Wai Pan, Department of Medicine, Queen Mary Hospital (May 2018 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Hepatitis B core-related antigen (HBcrAg) is a novel serological marker for hepatitis B virus. It correlates well with serum HBsAg, HBV DNA and intrahepatic cccDNA levels. However, long-term data regarding the predictive value of HBcrAg is limited. We aim to determine the relationship between HBcrAg levels after spontaneous HBeAg seroconversion and hepatocellular carcinoma (HCC).

Methods 207 chronic hepatitis B patients with a documented time of HBeAg seroconversion were enrolled. HBcrAg and HBsAg were checked within 3 years (as baseline), at 5 years and 10 years after HBeAg seroconversion. HBV DNA was measured at the baseline. Multivariable cox regression model was used to investigate the predictors for the development of HCC and ROC analysis was used to determine the cut-off value of HBcrAg.

Results Fourteen patients developed HCC during a median follow-up duration of 13.1 years. The median level of HBcrAg at baseline was significantly higher in the HCC patients when compared with patients without HCC (5.68 vs 4.78 log IU/ml respectively; p=0.003). Cox proportional hazards model indicated that age of HBeAg seroconversion older than 40 years (hazard ratio (HR): 4.60; p=0.049), presence of baseline cirrhosis (HR: 6.23; p=0.003) and a higher baseline HBcrAg (HR: 1.75; p=0.032) were independently associated with HCC development. A cut-off value of baseline HBcrAg level ≥ 5.21 log IU/ml yielded an AUROC of 0.74 with a negative predictive value of 97.7%.

Conclusion High HBcrAg level within 3 years after HBeAg seroconversion was independently associated with the development of HCC in chronic hepatitis B patients.

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ELDER ABUSE – A RETROSPECTIVE ANALYSIS IN A TERTIARY REFERRAL CENTRE IN HONG KONG

Dr Cheng Hau Yan, Medical Unit, Hong Kong Buddhist Hospital (May 2018 Geriatric Medicine Exit Assessment Exercise)

Objectives The primary objective is to describe the characteristics and outcome of elder abuse presented to a tertiary referral centre in Hong Kong. The secondary objective is to review the handling of elder abuse in Hong Kong and identify any service gap.

Methods This is a retrospective, single-centred study. Records of patients aged 60 or above admitted to Queen Elizabeth Hospital from 1st July 2012 to 30th June 2017 with diagnosis codes of E967.9, E960.0, E961 to E969 were retrieved using the Clinical Data Analysis and Reporting System. The Clinical Management System and hospital records were reviewed for case inclusion and data collection.

Results and conclusion Forty-two patients were included for analysis. The median age was 77 years with interquartile range 8.75 years. The most common type of abuse was physical abuse. Spouse was the perpetrator in 45.2% of abuse. Eighteen patients were cognitively impaired, while twenty-two had impairment in basic activities of daily living. A significant proportion of abuse occurred in residential care homes for the elderly (21.4%), which deserves attention. Multi-disciplinary approach is adopted in managing elder abuse. Service gap exists from the society level with inadequate resources and emphasis on the problem, to the healthcare setting with lack of education and awareness.

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THE CLINICAL PROFILE OF HONG KONG CHINESE WITH NON-TRANSFUSION DEPENDENT THALASSAEMIA

Dr Chan Ka Lok, Department of Medicine & Geriatrics, Princess Margaret Hospital (May 2018 Haematology & Haematological Oncology Exit Assessment Exercise)

Introduction Non-transfusion dependent thalassaemia (NTDT) is a thalassaemia syndrome describing patients who are not transfusion dependent but clinically more severe than carriers. The natural course of the disease, which shows heterogeneity across geographical regions, was not well defined.

Method NTDT patients were recruited in this single centre study (N=109, Age=51±16(years)). Retrospective data was retrieved from past medical records; Blood tests, MRI T2* of the liver and heart, liver elasticity, and echocardiography were performed cross-sectionally after subject recruitment. Primary outcomes included the clinical characteristics and the prevalence of complications in NTDT. The secondary outcome was determining the risk factors for complications.

Results The proportions of patients with deletional HbH disease (DHbH), non-deletional HbH disease (NHbH) and β-thalassaemia intermedia (β-TI) were 63%, 21% and 16% respectively. The age at presentation was the earliest in NHbH (median [range] = 8[1-35] years, $p<0.01$). Patients with NHbH and β-TI had lower haemoglobin level at presentation ($p<0.01$); were more likely to receive blood transfusion ($p=0.01$), require splenectomy ($p<0.01$) and have splenomegaly ($p=0.04$). Common complications included liver iron overload (62%), liver fibrosis (25%), gallstones (50%), diabetes (17%), hyperuricaemia (48%), renal hyperfiltration (38%), proteinuria (39%), and bacterial infection (18%). In multivariable regression analysis, advanced age was associated with liver fibrosis, gallstones, diabetes, worse GFR and proteinuria; liver iron overload was associated with increased transaminase, liver fibrosis and infection.

Conclusions DHbH disease was the most common but clinically the mildest form of NTDT. The disease showed diverse severity in terms of age at presentation, transfusion requirement and complication profile.

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Cancer-associated venous thromboembolism: a 10-year retrospective cohort in Hong Kong

Dr Cheung Ka Man, Department of Medicine & Therapeutics, Prince of Wahes Hospital
(May 2018 Haematology & Haematological Oncology Exit Assessment Exercise)

Background Venous thromboembolism (VTE) is a common cause of morbidity and mortality in cancer patients. The incidence of cancer-associated thrombosis (CAT) in Hong Kong Chinese is increasing.

Subjects and methods We conducted a single-centre retrospective study in Hong Kong Chinese patients suffered from VTE and cancer. Clinical Data Analysis and Reporting System (CDARS) were used to identify cancer patients with ICD-9 codes of malignancy (140-149; 150-159; 160-165; 170-175; 176; 179-189; 190-199; 200-208; 230-234; 235-238 and 239). Among the identified cancer patients, those who suffered from phlebitis and thrombophlebitis (451), portal vein thrombosis (452), other venous embolism and thrombosis (453) and pulmonary embolism (415.1) were selected for detail analysis.

Results Between year 2007 to 2016, 41,495 cancer patients were identified and 924 of them had VTE. The estimated incidence was 2.23%. Brain cancer, gynaecological cancer and pancreatic cancer were associated with highest incidence of VTE (7.4%, 5.35% and 4.28% respectively). 55.52% patients developed VTE within one year after cancer diagnosis. Presence or absence of symptoms did not correlate with the levels of PE ($P=0.169$). Of the 734 patients received treatment with anticoagulants, 32 had recurrent VTE within the first six months of treatment. LMWH and warfarin demonstrated similar incidence of recurrent thrombosis ($P=0.288$) and major bleeding ($P=0.111$).

Conclusion The incidence of cancer-associated thrombosis in Hong Kong Chinese is comparable to Caucasian population. LMWH and warfarin showed similar efficacy and safety as treatment for patients suffered from CAT.

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Clinical Features, Treatment Outcomes and Prognostic Factors of Acquired Hemophilia A– A Retrospective Multicenter Analysis

Dr Lau Wai Nga Grace, Department of Medicine & Geriatrics, Princess Margaret Hospital (May 2018 Haematology & Haematological Oncology Exit Assessment Exercise)

Background Acquired hemophilia A (AHA) is a rare bleeding disorder, caused by inhibitors against factor VIII (FVIII), which may result in potentially life-threatening bleeding. Although the presenting features have been described in the literature, there is limited data on AHA among Chinese patient.

Objectives The aims of the study were to evaluate the presenting features, treatment, and outcomes of patients with AHA in ourlocal population,toidentify the predictors of normalization of aPTTafter immunosuppressive therapyand overall survival; and toinvestigate the patient characteristics that predict normalization of aPTT bysteroid alonewithin 6 weeks.

Methods This was a retrospective multi-center study which recruited 108 patients diagnosed with AHA between 1stJanuary 2002 and 31stDecember 2016. Prognostic factors for normalization of aPTTand overall survival were analyzed.

Results Normalization of aPTTwas anindependentpredictorof overall survival(OR 0.14, 95% CI 0.07-0.27, P<0.001). Patients with ECOG performance status ≤2 were more likely to attain normal aPTT (HR 2.09, 95% CI 1.28-3.42, P 0.003) while patients with underlying autoimmune diseases were less likely to achieve normal aPTT (HR 0.46, 95% CI 0.23-0.91, P 0.027).

Female (OR 3.73, CI 1.15-12.2, P 0.028)and an inhibitor titer≤20 BU/ml(OR 4.3, CI 1.36-13.63, P 0.013)predicted a higher.

Conclusion Achievement of normalization of aPTTwas associated with improved survival. Identification of patients who are more likely to respond to steroid alone within 6 weeks may avoidunnecessary immunosuppressantsand thus reduce treatment-related adverse events. This findingmay help devise personalized treatment strategies.

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NATURAL HISTORY AND OUTCOME OF PATIENTS WITH MYELOPROLIFERATIVE NEOPLASM (MPN) TREATED WITH CONVENTIONAL THERAPIES, PEGYLATED-INTERFERON, AND RUXOLITINIB A PROSPECTIVE OBSERVATIONAL STUDY

Dr Leung Man Kit Garret, Department of Medicine, Queen Mary Hospital (May 2018 Haematology & Haematological Oncology Exit Assessment Exercise)

Objectives Philadelphia-negative classical myeloproliferative neoplasm includes polycythaemia vera (PV), essential thrombocythemia (ET) and primary myelofibrosis (PMF). This study aimed to define the natural history and prognostic factors of the disease and to determine the outcome of patients treated with conventional therapies, pegylated-interferon (PEG-IFN) and ruxolitinib.

Methods This study recruited two MPN patient cohorts. A retrospective cohort was

recruited from January 2012 to December 2016 investigating the natural history and prognostic factors. Another prospective cohort was recruited from January 2016 to December 2017. Prospective data was collected at a 3-month interval for a study period of 2 years. Quality of life (QoL) was assessed using the Myeloproliferative Neoplasm Symptom Assessment Form Total Symptom Score (MPN-SAF TSS).

Results The retrospective cohort included 285 patients (PV=63, ET=171, PMF=28, MPN-U=23). At ten years, 10% would progress from PV/ET to MF, 18% from MF to AML and 1% from ET directly to AML. In PV and ET patients, age over 50 years (p=0.002), hypertension (p=0.030) and without aspirin prophylaxis (p<0.001) were associated with increased risk of vascular complications. Age over 60 years and splenomegaly were risk factors for disease transformation. Patients were classified to low (no risk factor), intermediate (1 risk factor) or high (2 risk factors) risk groups with the corresponding progression-free survival of 25.5, 17.4 and 12.9 years, and overall survival of 27.2, 15.5 and 15.2 years. The prospective study analysed 125 patients. Hydroxyurea had the most favourable side effect profile. PEG-IFN and ruxolitinib had comparable efficacy to conventional treatments in achieving a hematologic response. Ruxolitinib was the only agent shown to improve QoL with more than 50% and 90% reduction in mean MPN-SAF TSS at 3 and 18 months, at the expense of tuberculosis and hepatitis B reactivation in 6% and 27%.

Conclusion Apart from identifying the natural history and prognostic indicators, this is the first prospective study directly comparing the treatment outcome of conventional therapies, PEG-IFN, and ruxolitinib. A treatment algorithm was proposed based on these findings.

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FLUDARABINE, MITOXANTRONE, DEXAMETHASONE PLUS RITUXIMAB VS BENDAMUSTINE PLUS RITUXIMAB AS FIRST LINE TREATMENT IN LOW GRADE NON- HODGKIN B LYMPHOMA

Dr Tang Hoi Ki Karen, Department of Medicine, Queen Mary Hospital (May 2018 Haematology & Haematological Oncology Exit Assessment Exercise)

Rituximab plus fludarabine, mitoxantrone and dexamethasone (R- FND) and rituximab plus bendamustine (R- B) are both commonly used regimens for the treatment of low grade non-Hodgkin lymphoma (LG- NHL). There are yet data to compare the efficacy of fludarabine based treatment versus bendamustine. Utilizing a retrospective analysis, we compare the efficacy and safety of both regimens in clinical practice. From December 2009 to December 2016, 96 LG- NHL patients were treated with either R- FND or R- B. Sixty-five patients were treated with R- FND and 31 treated with R- B. Overall response rate was 97% for R- FND and 90% for R- B. The complete response rate was 86% in R- FND group compared with 67% in the R- B groups (p value = 0.034). The median follow- up was 57.8 months for R- FND and 28.3 months for R- B. R- FND significantly prolonged event free survival compared with R- B (p value= 0.003, median not reached in R- FND vs 58 months in R- B). There was no difference in the progression free survival and overall survival between the two groups. R- B was better tolerated and by far, and was less toxic in terms of hematological toxicity and infection rates compared with R- FND. In conclusion, balancing the efficacy and toxicity of both regimens, R- B may be a better option for treatment of LG- NHL in a daily clinical practice.

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KNOWLEDGE, ATTITUDE, AND PRACTICE SURVEY ON HIV PRE-EXPOSURE PROPHYLAXIS IN HONG KONG

Dr Chik Thomas Shiu Hong, Department of Medicine & Geriatrics, Princess Margaret Hospital (June 2018 Infectious Disease Exit Assessment Exercise)

Introduction Incidence of HIV infection has been rising in Hong Kong. Pre-exposure

prophylaxis (PrEP) is an effective method to reduce HIV transmission. This study was performed to assess the knowledge, awareness, and practice of PrEP in Hong Kong.

Methods A paper-based questionnaire survey was performed at an HIV clinic and a non-governmental organization in Hong Kong between November 2017 and February 2018. The questionnaire examined the knowledge, awareness, and practice of PrEP. Factors associated with PrEP awareness and willingness to use PrEP were identified.

Results 526 individuals participated in the study, including 220 persons living with HIV (PLHIV), 306 with negative or unknown HIV sero-status, of whom 142 were men who had sex with men (MSM). 292 participants were aware of PrEP. Gender, sexual orientation, seeking partner through internet or networking apps, not having diagnosed sexually transmitted infection and no commercial sex visit in recent three months were associated with PrEP awareness. More than 80% of participants favored PrEP regardless of their HIV sero-status. Age 40 years old or less was associated with willingness to use PrEP. Medication cost, drug side effects and resistance, and need for regular follow up were identified as main worries of PrEP use. Community based follow up was preferred by HIV-negative participants.

Conclusion PrEP was highly accepted by PLHIV and high risk non-HIV populations. Future PrEP implementation could target younger age population for their higher willingness to use PrEP. Community based programs and low medication cost could increase PrEP uptake.

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A RETROSPECTIVE STUDY ON THE USE OF CAPECITABINE AND IRINOTECAN IN COMBINATION (XELIRI) IN PATIENTS WITH METASTATIC COLORECTAL CANCER

Dr Wong Kwan Hung, Department of Clinical Oncology, Prince of Wales Hospital (June 2018 Medical Oncology Exit Assessment Exercise)

Introduction The combination of irinotecan and capecitabine has been shown to be active in patients with metastatic colorectal cancer (mCRC) in many phase II trials. However, there is a wide variation in the schedules and tolerability of these 'XELIRI' or 'CAPEIRI' regimens reported in the literature. In this retrospective study at the Prince of Wales Hospital, we assessed the efficacy and safety of a modified bi-weekly XELIRI regimen in Chinese patients.

Methods Patients who received XELIRI (irinotecan 180 mg/m2 on day 1, followed by oral capecitabine 1000 mg/m2 on day 2 to day 8, twice per day on a 14-day cycle, for the first and second-line treatment of mCRC over a 6-year period, were selected from the pharmacy record. Patient's demographics, tumor characteristics, treatment records, survival data, and toxicity profiles were retrieved from the medical charts.

Results A total of 266 patients were included in this study. The median age was 62 years old, 66% of patients were male, and 26% had liver-limited metastasis. The overall response rate was higher in patients who received XELIRI as first-line than second-line treatment (28% vs 8%, p-value = 0.0005), in those who had received concomitant bevacizumab (35% vs 15%, p-value = 0.0357), and in those whose primary tumor was in the colon compared with the rectum (22% vs 9%, p-value = 0.0204). The median overall survival was longer in patients who received XELIRI as first-line treatment (15.7 months vs 11.3 months, p-value = 0.01) and had resection of primary tumor (14.9 months vs 8.6 months, p-value = <0.001). Overall, 8 (3%) patients developed grade 3-4 non-hematological adverse events and the most common toxicity was diarrhea (n=5, 2%); 51 (19%) patients developed grade 3-4 hematological adverse events and the most common toxicity was neutropenia (n=42, 16%). Nine (3%) patients developed neutropenic fever. In terms of treatment compliance, 97 (37%) patients required dose interruptions, and 23 (9%) patients stopped chemotherapy due to poor tolerance to treatment related toxicities.

Conclusion In this cohort of Chinese patients with metastatic colorectal cancer, the biweekly regimen of modified XELIRI has manageable toxicity profile and modest activity.

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PREVALENCE AND OUTCOME IMPACT OF DEPRESSION AND FRAILTY AMONG PERITONEAL DIALYSIS POPULATION IN A LOCAL DIALYSIS CENTRE

Dr Chan Chun Kau Gordon, Department of Medicine & Therapeutics, Prince of Wales Hospital (June 2018 Nephrology Exit Assessment Exercise)

Background Depression and frailty are increasingly being recognized as contributing factors to the adverse clinical outcome of peritoneal dialysis (PD) patients. Depressed patients have multiple physical and psychological symptoms, and have poor adherence to dialysis and medical therapy. Frailty refers to a state of increased vulnerability caused by decline in physical reserve and function, and is caused by malnutrition, chronic inflammation, and repeated infection. However, the interaction between depression and frailty in PD patients remains uncertain.

Objective We determine the prevalence of depression and frailty in prevalent PD patients. We further dissect the internal relationship between depression and frailty, and their relative contribution to the adverse clinical outcome in PD patients.

Methods This is a prospective observational study. We recruited 267 prevalent PD patients between 2015 and 2016. Depression was identified by Patient Health Questionnaire (PHQ-9). Frailty was identified by a validated Frailty Score. All cases were followed for one year. Outcome measures included number and duration of hospitalisation, peritonitis rate, and all-cause mortality.

Results Of the 267 patients, 197 patients (73.8%) were depressed, and 157 (58.8%) were frail. There was a substantial overlap between depression and frailty. Although depression and frailty were associated the number and duration of hospitalisation by univariate analysis, the association became insignificant after adjusting for confounding factors by multivariate analysis. Both depression and frailty were associated with one-year mortality by univariate analysis, but only frailty was an independent predictor of patient survival by multivariate analysis (adjusted hazard ratio 1.424, 95% confidence interval 1.011-2.005. $p = 0.043$).

Conclusion Depression and frailty were common among Chinese PD patients. Frailty, but not depression, was an independent predictor of one-year mortality. Further studies are needed to determine the benefit of treatment for frailty in PD patients.

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LONG TERM CONTROL OF PARATHYROID HORMONE AND OTHER BIOCHEMICAL PARAMETERS AFTER PARATHYROIDECTOMY IN DIALYSIS PATIENTS WITH SECONDARY HYPERPARATHYROIDISM

Dr Chan Zi, Department of Medicine & Geriatrics, United Christian Hospital (June 2018 Nephrology Exit Assessment Exercise)

Background Secondary hyperparathyroidism (SHPT) is common among patients on dialysis. Parathyroidectomy is a well-established treatment for severe SHPT refractory to medical treatment. However little is known about the long term control of parathyroid hormone (PTH), serum calcium and phosphate after parathyroidectomy.

Methods This is a single-centre retrospective study on 80 dialysis patients who underwent parathyroidectomy between 2003 and 2016. Data on baseline demographics, surgical details, biochemical parameters and medication dosage were collected. Target ranges were defined using KDIGO 2009 guideline.

Results Following parathyroidectomy, percentage of PTH within-target increased to 21.4%, 17.0% and 31.3% at 1, 2 and 5 years, from 8.8% pre-operatively. It only reached statistical significance at first year (p=0.01). There were no significant change in percentage of serum calcium and phosphate within-target in long term. Fifty-Five percent patients had PTH recovery (defined by PTH ≥2 times upper normal limit) at 5 years. High pre-operative phosphate (p=0.037) and post-operative phosphate at 1 month (p=0.018) were associated with increased PTH recovery, high pre-operative active vitamin D dosage was associated with decreased recovery (p=0.009). Age (p<0.001), year 1 calcium below-target (p=0.003) and high active vitamin D dosage (p=0.026) were associated with increased all-cause mortality.

Conclusion Parathyroidectomy had small effect in achieving PTH target, while significant proportion of patients had PTH below-target in long term. The percentage of calcium and phosphate within-target did not change significantly. Certain pre- and postoperative parameters may affect PTH recovery. Careful monitoring of serum calcium, titration of calcium supplement and vitamin D dosage post-operatively are needed.

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LONGITUDINAL CHANGES OF NF-κB DOWNSTREAM MEDIATORS AND PERITONEAL TRANSPORT CHARACTERISTICS IN NEW PERITONEAL DIALYSIS PATIENTS

Dr Fung Wing Shing Winston, Department of Medicine & Therapeutics, Prince of Wales Hospital (June 2018 Nephrology Exit Assessment Exercise)

Background The success of peritoneal dialysis (PD) depends on the semi-permeable peritoneal membrane, which is not a passive structure, but is constantly changing in response to exposure to unphysiological dialysis solutions and peritonitis insult. Previous studies showed a progressive increase in sub-mesothelial fibrosis and angiogenesis in serial peritoneal biopsies from PD patients over time. The regulation of peritoneal transport remained to be fully elucidated, but intra-peritoneal cytokines, notably interleukin-6 (IL-6), cyclo-oxygenase-2 (COX-2), and hepatocyte growth factor (HGF), probably play important roles. In the present study, we investigate the relation between longitudinal changes in PD effluent cytokine levels and the corresponding alterations in peritoneal transport parameters over 1 year.

Methods We studied 46 new PD patients who had peritoneal equilibration test performed shortly after PD was started and then one year later. Dialysate-to-plasma creatinine level at 4 hours (D/P4), mass transfer area coefficient of creatinine (MTAC), and ultrafiltration (UF) volume were taken as peritoneal transport parameters. Concomitant PD effluent levels of IL-6, COX-2 and HGF were measured and compared. The effect of peritonitis episode during that year and the type of PD solution are also analyzed.

Result There were significant correlations between baseline as well as one-year PD effluent IL-6 and COX-2 levels with the corresponding D/P4 and MTAC. The change in PD effluent IL-6 and COX-2 levels from baseline to one year also correlated with the change in D/P4 and MTAC during the same time. In contrast, PD effluent HGF did not showed any significant correlation with the corresponding D/P4 and MTAC, both at baseline and one year later. After one year, patients who had peritonitis had higher PD effluent IL-6 (26.6 ± 17.4 vs 15.1 ± 12.3 pg/ml, p = 0.037) and COX-2 levels (4.97 ± 6.25 vs 1.60 ± 1.53 ng/ml, p = 0.007) than those without peritonitis, and the number of peritonitis episode during follow up period significantly correlated with the PD effluent IL-6 and COX-2 levels after one year. No significant difference in PD effluent HGF level after 1 year of dialysis are noted between patient with and without peritonitis. There was no significant difference in any cytokine level between patients who received conventional and low glucose degradation product PD solutions.

Conclusion PD effluent IL-6 and COX-2 levels significantly correlate with the concomitant

peritoneal transport characteristics. Patients who had peritonitis during the follow up period had higher PD effluent IL-6 and COX-2 levels after one year than patients without peritonitis. Our result suggests that intra-peritoneal IL-6 and COX-2 play important roles in the short-term regulation of peritoneal transport.

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COLD ISCHEMIA TIME AND RENAL GRAFT OUTCOMES: A PAIRED ANALYSIS COMPARING FIRST AND SECOND GRAFTS FROM THE SAME DONOR IN TWO LOCAL RENAL TRANSPLANTATION CENTERS

Dr Kwok Lap Ming, Department of Medicine, Yan Chai Hospital (June 2018 Nephrology Exit Assessment Exercise)

Study Background Cold ischemia time (CIT) is considered a potentially modifiable risk factor of renal transplantation outcomes. Overseas studies have shown conflicting results and local data is scanty. The objective of this study is to investigate the influence of CIT on renal transplant outcomes by comparing the first and second grafts from the same donor in two local renal transplantation centers.

Design, setting, participants and measurements This study retrospectively reviewed 222 patients who underwent cadaveric renal transplantation at two transplantation centers in Hong Kong from January 2001 to September 2016. Paired kidneys (derived from the same donor, transplanted to different recipients) were analyzed. Recipients from deceased donors whose contralateral kidneys were not transplanted, renal transplantation of the paired kidneys not performed at the same center or with simultaneous operations were excluded. Delayed graft function (DGF), acute rejection within one year after transplantation, renal function at one year after transplantation, surgical, infective and metabolic complications were compared using McNemar's test. Mixed effects logistic regression models were used to analyze risk factors of DGF. Patient and graft survival was assessed with paired log-rank test.

Results Of the 222 recipients from the 111 donors, the mean CIT of recipients receiving first and second kidney grafts were 9.5 ± 3.9 h and 15.1 ± 4.4 h respectively. There were no significant differences between paired recipients in DGF, acute rejection within one year after transplantation, renal function at one year after transplantation, surgical, infective and metabolic complications. Patient survival, death-not-censored and death-censored graft survival were similar regardless of CIT under paired analysis (p-values = 0.30, 0.37 and 0.72 respectively)

Conclusion Although CIT is of clinical interest as a modifiable pre-transplantation risk factor, there is no effect on patient and graft outcomes including patient and graft survival in this study, which allows full utilization of renal grafts with different CIT.

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EVALUATION OF NON-MOTOR SYMPTOMS OF PARKINSON'S DISEASE PATIENTS IN A CHINESE POPULATION IN HONG KONG

Dr Luk Ching On Vivi-anne, Department of Medicine, Queen Elizabeth Hospital (May 2018 Neurology Exit Assessment Exercise)

Background and Aim of the Study Non-motor symptoms (NMS) of Parkinson's Disease (PD) are prevalent and have a significant impact on quality of life. However, they often go unrecognized by clinicians. The original Non-motor Symptoms Questionnaire (NMSQuest) was devised in 2006 as a self-administered rapid screening tool to aid early detection of these symptoms. However, a standard Hong Kong Chinese version for use in our local population is lacking. This study aimed to translate and validate a standard Hong Kong Chinese version of the NMSQuest (HK-NMSQuest) to assist in identification of NMS in local PD patients. The NMS profiles of a cohort of PD patients were then analyzed using the HK-NMSQuest.

Patients and Methods The study was divided into two parts. In the Validation Study, 78 PD patients were recruited from Queen Elizabeth Hospital. They completed the HK-NMSQuest, and then underwent a gold standard clinical evaluation of NMS for validation. Respective sensitivity, specificity, positive predictive value, negative predictive value in relation to the gold standard were estimated. Internal consistency reliability was also analyzed. This was followed by the Prevalence Study, where a second cohort of 59 PD patients was enrolled. They completed the validated HK-NMSQuest. Their NMS profiles including symptom prevalence were examined and correlations with other parameters (including patient demographics, disease duration, motor severity etc.) were drawn. Regression analysis was performed to build a prediction model of NMS total score.

Results In the Validation Study, the mean age was 67.0 ± 8.3 years, 56% were male, and median disease duration was 8 years (IQR 6 years). From the gold standard evaluation, the prevalence of NMS ranged from 22.7% (orthostatic hypotension) to 90.5% (nocturia). Among the items validated, the sensitivities were high for urgency (87.2%), nocturia (86.6%) and drooling (75.9%). The sensitivities were low for excessive daytime sleepiness (29.4%) and orthostatic hypotension (41.2%). The average sensitivity was 65.4%. The specificities for the validated symptoms were high, with an overall specificity attaining 84.7%. Cronbach's α, the measure of internal consistency reliability, was the highest in the attention/memory domain at 0.78. The mean Cronbach's α was 0.60.

In the Prevalence Study of HK-NMSQuest, the mean age was 64.2 ± 9.2 years, 59.3% were male, and median disease duration was 9 years (IQR 9 years). The mean age at PD onset was 54.5 ± 10.4 years and their H&Y stages ranged from 0 to 5, with a median of 2 (IQR 2). The median NMSQuest score was 10, all patients reported to have at least one NMS. The most prevalent NMS domain was 'urinary symptoms' including nocturia (76.3%) and urgency (67.8%). Bowel incontinence (8.5%) and delusions (10.2%) ranked the lowest.

The NMS total score was also found to have significant association with education level ($p=0.009$), levodopa equivalent daily dose (LEDD) ($r_s = 0.476$; $p<0.001$) and HK-MoCA score ($r_s = -0.385$, $p=0.004$). It was, however, not associated with patient's age, H&Y stage or disease duration. Multiple linear regression model showed that UPDRS Part 2 ($p<0.001$), UPDRS Part 3 ($p=0.004$) and HK-MoCA ($p=0.022$) scores were independent predictors of NMS total score.

Conclusion HK-NMSQuest was shown to be a reliable and valid clinical tool for screening NMS in our local PD population. NMS is prevalent in PD patients. The NMS burden was not related to age, disease duration or H&Y staging, but predictable by UPDRS and HK-MoCA. Early detection and management of NMS holds an important place in the holistic care of PD patients.

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MRI VOLUMETRICS IN PARKINSONIAN SYNDROMES

Dr Ma Ka Yan, Department of Medicine & Therapeutics, Prince of Wales Hospital (May 2018 Neurology Exit Assessment Exercise)

Background Recent MRI post-processing technological advancement allows automatic and rapid quantification of regional brain volumes. We aimed to explore the ability of such method in differentiating (1) between different parkinsonian syndromes and (2) between parkinsonian syndromes with normal controls.

Method Total of 36 subjects with various Parkinsonism syndromes (10 idiopathic Parkinson's disease, [IPD], 18 multiple system atrophy [MSA], 8 progressive supranuclear palsy [PSP]) and 36 controls were recruited retrospectively (age 44 to 88 years old). 100% and 78% of the patients underwent MRI and FDG-PET, respectively and all controls received MRI brain. The volume of the region of interests (ROI) in MRI brain was measured by an automatic software (Accubrain). Differences in volume of each ROI among IPD, MSA PSP and controls were analysed. Receiver operating characteristic curve analysis was used to

evaluate the diagnostic ability by area under curve (AUC) and to select the cut off value of individual ROI with the maximal sensitivity and specificity.

Results In patients with IPD, the ratio of globus pallidus volume to total intracranial volume (ICV) was significantly larger than that of MSA and PSP groups (p-value= 0.011, MSA<IPD p=0.018, PSP<IPD p=0.018) and the ratio of 0.189% had sensitivity of 70%, specificity of 67.4% to differentiate from atypical parkinsonism with AUC=0.771. The ratio of caudate volume to ICV was smaller in all parkinsonism syndromes than controls (p value=0.000) and the ratio of 0.411% had sensitivity of 80.6%, specificity of 72.2% to differentiate parkinsonian syndromes from controls with AUC=0.829.

Conclusion The ratio of globus pallidus volume to ICV has fair ability to differentiate IPD from atypical parkinsonism while ratio of putamen volume to ICV has good ability to differentiate parkinsonian syndromes from normal controls.

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OUTCOME OF STROKE IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: A NESTED CASE-CONTROL STUDY

Dr Tsoi Lap Kiu Kelvin, Department of Medicine & Geriatrics, Tuen Mun Hospital (May 2018 Neurology Exit Assessment Exercise)

Objectives Stroke in systemic lupus erythematosus (SLE) patients may cause severe disability. The outcome of Chinese SLE stroke patients are unclear. This study aims to evaluate the outcome of stroke in patients with SLE in comparison with matched non-SLE patients.

Methods This is a case control study. Patients who fulfilled ≥4 American College of Rheumatology (ACR) criteria for SLE and had a history of stroke were identified from our SLE database. The outcome of stroke in these patients was evaluated retrospectively and compared with a group of randomly selected age and gender-matched non-SLE patients (in a 1:3 ratio) admitted to our stroke unit within the same period.

Results In total, 40 SLE patients (age 53.7±11.5, 88% women) with stroke were identified from our database (stroke prevalence 0.39/100 patient-year). A control group of 120 non-SLE patients (age 52.8±14.8, 87.5% women) with stroke were randomly selected from our stroke database. All were ethnic Chinese. The prevalence of atherosclerotic risk factors was similar between the two groups, except SLE patients had a higher proportion of patients with atherogenic index of plasma (AIP) > 0.21, which means high atherosclerotic risk (p=0.002). In SLE patients, the median time to stroke since diagnosis was 30 months. Ischemic stroke was more common in SLE than non-SLE patients (90% vs 63%; p=0.001). Among patients with ischemic stroke, SLE patients had more extensive infarction than controls on brain scan (69.4% vs 28.0%; p<0.002). The mean 90-day modified Rankin Scale mRS score was significantly higher in SLE patients than controls (1.7±2.0 vs 0.9±1.4; p=0.004). mRS distribution of two groups also differed significantly (p = 0.003). SLE group had more functional dependent status (mRS score 3-6) at 90 days post-stroke than controls (32.5% vs 8.3 %; p<0.001). Logistic regression showed that SLE was an independent risk factor for a poor stroke outcome after adjustment for age, sex, history of stroke, various atherosclerotic risk factors and the type of stroke (ischemic vs hemorrhagic) (Odd Ratio OR 10.20; 95% confidence interval CI 2.7 – 39.0; p = 0.001). Subgroup analysis of patients with ischemic stroke showed that SLE was associated with a poorer functional outcome after adjustment for the same confounding covariates and the extent of stroke (OR 44.7; CI 2.9 – 690.9; p=0.006). There was no significant difference in the 30-day stroke mortality between SLE and non-SLE patients (7.5% vs 2.5%; p=0.166). However, SLE patients had a higher incidence of post-stroke epilepsy than controls (22.5% vs 3.3%; p=0.001). Upon a mean follow-up time of 7.5±5.2 years, more recurrent stroke (ischemic or hemorrhagic) developed in SLE stroke patients (40.5%) than in non-SLE stroke patients (14.3%) (p =0.001). For the same period, more non-SLE stroke patient (84.9%) than SLE stroke patients (45.2%) survived (P < 0.001).

Conclusions Stroke in SLE patients had more ischemic stroke and the infarct size was more extensive than matched controls. The functional outcome of stroke was poorer in SLE patients. Stroke recurrence, post-stroke epilepsy and all-cause mortality were significantly higher in SLE than non-SLE patients. Further studies on prevention and treatment of stroke in this group of patients are needed to improve the outcome of stroke in SLE patients.

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VALUE OF HIGH-RESOLUTION SONOGRAPHY IN THE DIAGNOSIS OF CARPAL TUNNEL SYNDROME IN LOCAL CHINESE POPULATION

Dr Wong Ho Ming June, Department of Medicine & Geriatrics, Caritas Medical Centre (May 2018 Neurology Exit Assessment Exercise)

OBJECTIVE To determine the usefulness of high-resolution sonography in the diagnosis of carpal tunnel syndrome (CTS) in patients with clinical suspicion of having the condition.

MATERIALS AND METHODS Thirty patients who were referred to the electrodiagnostic unit of a regional hospital in Hong Kong for CTS between January and October 2017 and 58 healthy volunteers were recruited into this prospective study. Fifty-six wrists from the patient group and 111 wrists from the control group were evaluated by high-resolution sonography (HRS) within 2 weeks of the nerve conduction study (NCS). The cross-sectional area (CSA) of median nerve was measured by HRS at 2 levels: distal wrist crease (CSAc) and proximal one-third of the pronator quadratus muscle of the forearm (CSAp). Sensitivity, specificity and accuracy of CSA in diagnosing CTS were determined with clinical evaluation set as the reference standard.

RESULTS CSA of median nerve at distal wrist crease was found to be significantly enlarged in patients with CTS (13.5mm2) when compared to the control group (8.7mm2) ($p=0.000$). Using the receiver operating characteristic (ROC) curve, the area-under-the-curve (AUC) of CSAc, difference in CSA at distal wrist crease and pronator quadratus levels (ΔCSA) and ratio between CSA at wrist and forearm (WFR) were found to be 0.931, 0.931 and 0.893 respectively ($p=0.000$), when clinical diagnosis was used as the reference standard. CSAc was assessed to be the best HRS parameter for diagnosing CTS, which had a sensitivity of 82.1%, specificity of 91.9% and accuracy of 88.6% when the cutoff was set at 11 mm2.

CONCLUSION High-resolution sonography is a useful, non-invasive tool for the diagnosis of CTS and is a valuable complementary test to NCS.

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BLOOD EOSINOPHIL AND RISK OF EXACERBATION IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENTS: A RETROSPECTIVE COHORT ANALYSIS

Dr Chan Ming Chiu, Department of Medicine & Geriatrics, Princess Margaret Hospital (June 2018 Respiratory Medicine Exit Assessment Exercise)

Background Blood eosinophil is an easily available biomarker to reflect the eosinophilic inflammation in COPD patients, yet its association with exacerbation was inconclusive. It was uncertain which measurement, eosinophil percentage or absolute eosinophil count, should be used and what was the optimal cutoff.

Methods 247 COPD patients followed up in Princess Margaret Hospital were included. Blood eosinophil during stable disease state, baseline demographics and exacerbation data in 12 months before and 12 months after the index complete blood count (CBC) were recorded.

Results Patients with blood eosinophil $\geq$ 2% was associated with more frequent

exacerbations than patients with eosinophil < 2% in the 12 months before the index CBC (Mean exacerbation 1.12 in the high eosinophil group vs 0.68 in the low eosinophil group, p =0.026) and in the 12 months after the index CBC (Mean exacerbation 1.07 in the high eosinophil group vs 0.34 in the low eosinophil group, p < 0.001). Adjusted odds ratio for exacerbation in 12 months after the index CBC for blood eosinophil ≥ 2% was 2.98. Comparing blood eosinophil percentage with absolute eosinophil count for exacerbation prediction using receiver operating characteristics curve, the area under the curve of eosinophil percentage was significantly higher than that of absolute eosinophil count (0.678 vs 0.640, p = 0.010). The optimal blood eosinophil cutoff for exacerbation prediction was 2.8%.

Conclusion Blood eosinophilia was associated with higher exacerbation risk in COPD patients. Further studies are required to determine the treatment strategy to reduce exacerbations in eosinophilic COPD patients.

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PROGNOSIS OF MALIGNANT PLEURAL EFFUSION IN LUNG CANCER: A LONGITUDINAL STUDY

Dr Chiang Ka Yan, Department of Medicine, Queen Mary Hospital (June 2018 Respiratory Medicine Exit Assessment Exercise)

Background Malignant pleural effusion (MPE) due to lung cancer is an important condition in Hong Kong. Data informing its prognosis and outcomes is lacking. This study aims to identify factors predicting survival and the need of repeated thoracocentesis in patients with MPE related to lung cancer.

Methodology A longitudinal cohort study on adult subjects diagnosed with MPE and lung cancer at Queen Mary Hospital from 2011 onward was performed. Prognostic factors of survival were analyzed with Cox regression model. Predictors of the need of repeated thoracocentesis were identified by logistic regression analysis.

Results 509 medical records were screened and 233 subjects were eligible for inclusion. 93% of MPE was adenocarcinoma. Better performance status (p<0.001), lower morbidities burden (p=0.04), absence of distant metastasis (p=0.001), higher blood albumin level (p<0.001) and use of anti-cancer treatment (p<0.001) were associated with better survival in patients with lung cancer and MPE. 36 (50.7%) subjects in the subgroup receiving best supportive care, 54 (42.5%) subjects on oral targeted therapies and 12 (34.3%) subjects on systemic anti-cancer therapy required repeated thoracocentesis at later course of the disease (p= 0.25). Higher blood albumin (p=0.039) and definitive MPE control measure upon diagnosis (p<0.001) including pleurodesis or indwelling pleural catheter insertion, were associated with reduced likelihood of subsequent pleural intervention.

Conclusion Survival of patients with MPE and lung cancer was prolonged with anti-cancer treatments, though the lifetime need of repeated thoracocentesis was not significantly reduced. Early definitive MPE control measures were required to reduce the need of repeated pleural drainage.

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PREVALENCE AND RISK FACTORS OF OSTEOPOROSIS IN COPD PATIENTS IN A GOVERNMENT HOSPITAL IN HONG KONG

Dr Tseng Cee Zhung Steven, Department of Medicine & Geriatrics, Kwong Wah Hospital (June 2018 Respiratory Medicine Exit Assessment Exercise)

Introduction Chronic Obstructive Pulmonary Disease (COPD) is a prevalent and morbid disease globally. In addition to its disabling pulmonary manifestations, COPD has extra-pulmonary components. It is increasingly recognized that many patients with COPD

have co-morbidities that have a major impact on their quality of life and survival. Osteoporosis is a well-known co-morbidity in COPD patients, and it poses a significant fracture risk. This is of particular importance as vertebral fractures can impair lung function and COPD patients are already at increased operative risks.
Despite increasing interest on the topic, prevalence of osteoporosis in COPD patients in Hong Kong remains unknown. It is likely under-detected and thus under-treated. As a chronic illness, there are effective treatment modalities available for osteoporosis. Early detection, as well as early intervention may significantly affect management and outcome in COPD patients.

Aim To determine the prevalence of osteoporosis in COPD patients at a local hospital and identify risk factors for osteoporosis in COPD patients

Methods This prospective cross-sectional study evaluated 111 COPD patients with dual-energy X-ray absorptiometry(DEXA) scans for bone mineral density(BMD) of the hip and lumbar spine. Demographic data including body mass index (BMI), smoking and alcohol habits, lung function test parameters, co-morbidities, medications, exacerbation frequency, use of long term oxygen therapy (LTOT), history of fractures, *Modified Medical Council Research Council(mMRC) Dyspnea scale and* COPD Assessment Test (CAT) score were all recorded.

Results A total of 14(*12.6%*) COPD patients were osteoporotic, 64 patients (*57.7%*) had osteopenia, while 33(*29.7%*) had normal BMD. Compared with non-osteoporotic COPD patients, COPD patients with osteoporosis were characterized by a lower BMI(*19.72 ± 3.62 vs 22.94 ± 4.7, p = 0.016*), less years quitted smoking(*7.88 ± 4.73 vs 12.19 ± 8.86, p = 0.014*), more commonly on a proton-pump inhibitor([PPi], *42.8% Vs 13.4%, p = 0.018*), lower FEV_1/FVC%(*43.36 ± 7.98 vs 48.94 ± 12.33, p = 0.034*), FEV_1 actual in liters(*0.89 ± 0.44 vs 1.25 ± 0.56, p = 0.026*), FVC actual in liters(*2.03 ± 0.76 vs 2.50 ± 0.78, p = 0.039*) and higher CAT score (*16.07 ± 6.51 vs 12.09 ± 6.06, p = 0.025*). In a multivariate regression including BMI, gender, years quitted smoking, LTOT, FEV_1/FVC ratio, FEV_1 Actual, FVC, PPi, and CAT score, only the use of a PPi (*odds ratio[OR] 4.781, 95% confidence interval [95% CI] 1.135 – 20.129; p = 0.033*) and BMI (*OR 0.760, 95% CI 0.614 – 0.939; p = 0.011*) were significantly associated with risk of osteoporosis in COPD.

Conclusion The prevalence of osteoporosis in COPD patients is 12.6% in a local hospital in Hong Kong, which is higher than some of then reported prevalence in the local general population. Meanwhile, majority of patients were osteopenic (57.7%). The use of PPi and BMI were identified as independent risk factors for osteoporosis in COPD patients.

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EFFECT OF TREAT-TO-TARGET STRATEGIES AIMING AT REMISSION ON CAROTID ATHEROSCLEROSIS IN EARLY RHEUMATOID ARTHRITIS - A RANDOMIZED CONTROLLED STUDY

Dr Tam Ho Pui Lydia, Department of Medicine & Therapeutics, Prince of Wales Hospital
(June 2018 Rheumatology Exit Assessment Exercise)

Background Inflammation is a contributing factor of accelerated atherosclerosis in rheumatoid arthritis (RA). Effective control of disease activity improves cardiovascular outcomes, but there is no consensus on which target to aim for. The objective of our study is to determine the efficacy of two tight-control treatment strategies aiming at simplified disease activity score (SDAI) remission (SDAI ≤3.3) compared to DAS28 remission (DAS28 <2.6) in the prevention of carotid atherosclerosis in early RA patients.

Methods This was a 1-year open-label study with 120 early RA patients randomized to receive tight-control treatment. Group 1 (n=60) aimed at SDAI ≤3.3 and group 2 (n=60)

aimed at DAS28<2.6. Carotid intimal media thickness (cIMT) and plaques were measured at baseline and month 12. A post-hoc analysis was performed to evaluate if achieving sustained remission could prevent progression of carotid atherosclerosis.

Results At month 12, the proportion of patients achieving SDAI and DAS28 remission were comparable and no significant changes were seen in the cIMT or plaques between the two groups. Due to the limited availability of biologic DMARDs (bDMARD), the main difference of treatment between the two groups was a higher use of combination conventional DMARD therapy in group 1. A post-hoc analysis was performed by including all 110 patients with carotid ultrasound done at month 12 to ascertain the independent predictors associated with the change in cIMT and plaques. Multivariate analysis showed that achieving sustained SDAI remission at month 9 and 12 was an independent explanatory variable associated with improvement of the maximum (max) cIMT.

Conclusion With a limited availability of bDMARDs, treatment strategies targeting at SDAI or DAS28 remission did not show significant changes on clinical outcomes or carotid atherosclerosis at 1 year. However, achieving sustained SDAI remission was associated with a significant improvement in the max cIMT.

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MYOSITIS-SPECIFIC AUTOANTIBODIES AND THEIR CLINICAL ASSOCIATIONS IN IDIOPATHIC INFLAMMATORY MYOPATHIES IN HONG KONG

Dr Wong Tak Lung Victor, Department of Medicine & Geriatrics, Kwong Wah Hospital (June 2018 Rheumatology Exit Assessment Exercise)

Background Myositis-specific autoantibodies (MSAs) have been shown to predict clinical features and have prognostic implications in patients with idiopathic inflammatory myopathies (IIMs), with anti-melanoma differentiation-associated gene 5 antibody (anti-MDA5 Ab) and anti-transcriptional intermediary factor antibody (anti-TIF1 γ Ab) being associated with potential life-threatening complications. However, testing of autoantibodies in inflammatory myopathy is not routinely performed in Hong Kong due to its cost and limited availability. The aim of the study is to investigate the prevalence of MSAs and their associated complications in Hong Kong Chinese patients with IIMs.

Methods A total of 201 consecutive patients with IIMs being followed up in the Rheumatology clinics of participating regional hospitals from July 2016 to January 2018 were recruited. Clinical characteristics, treatment history and disease complications such as interstitial lung disease (ILD), rapidly progressive interstitial lung disease (RP-ILD) and malignancies were documented. Immunoblot assay was used to detect the presence of MSAs in all the participants.

Results Out of the 201 patients with IIMs, 122 (60.7%) had dermatomyositis while 79 (39.3%) had polymyositis. 79.1% of patients had at least one MSA or myositis associated autoantibody (MAA) positive. The most common MSAs were anti-MDA5 Ab (28, 13.9%) and anti-TIF1γ Ab (28, 13.9%), followed by anti-Jo-1 Ab (25, 12.4%). Anti-MDA5 Ab was present exclusively in dermatomyositis and was strongly associated with digital ulcers, clinically amyopathic dermatomyositis (CADM) and RP-ILD (all p<0.001). Anti-TIF1γ Ab was strongly associated with refractory rash and malignancy (both p<0.001). Anti-Jo-1 Ab was strongly associated with interstitial lung disease (ILD) (p=0.001) and was negatively associated with malignancy (p=0.006). By logistic regression with adjustments for confounders, independent risk factors of development of RP-ILD included anti-MDA5 Ab positivity (OR 14.5, p=0.001), CADM (OR 13.9, p=0.015) and history of pulmonary tuberculosis (OR 12.2, p=0.026). By Cox regression with adjustment of confounders, independent risk factors for malignancy included anti-TIF1γ Ab positivity (HR 3.55, p=0.002), dermatomyositis (HR 3.82, p=0.009) and family history of cancer (HR 3.40, p=0.038). In 45 newly diagnosed IIM patients, 32 (71.1%) had dermatomyositis and 13 (28.9%) had polymyositis. Kaplan Meier analysis showed that the 6-month mortality in patients

with anti-MDA5 Ab was 47.5%, compared to 11.1% in those without anti-MDA5 Ab. Anti-MDA5 was associated with significantly lower survival than those without (p=0.002) by log rank test.

Conclusion The local data on MSA profiles and their clinical associations were established. Anti-MDA5 Ab was associated with CADM, RP-ILD and poorer survival, while anti-TIF1γ Ab was associated with malignancy in Hong Kong Chinese patients with IIMs. MSA testing enables early confirmation of these diseases with potentially life-threatening complications, and will have an important impact on the management of pulmonary disease and vigilance of malignancy screening.

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