Abstracts of Dissertations
December 2012 Exit Assessment Exercise

A RETROSPECTIVE ANALYSIS OF PROGNOSTIC FACTORS AND OUTCOMES OF INVASIVE KLEBSIELLA *PNEUMONIAE* INFECTION

Dr Chan Hing Ling Betty, Department of Medicine & Geriatrics, Tuen Mun Hospital (December 2012 Advanced Internal Medicine Exit Assessment Exercise)

Background Klebsiella *pneumoniae* infection is associated with significant morbidity and mortality. Moreover, it is associated with metastatic infections. With widespread use of antibiotics, resistant strains of Klebsiella *pneumoniae* are causing a threat to the community. This study aims to determine the clinical characteristics and possible predictors of mortality in patients with invasive Klebsiella *pneumoniae* infection.

Objective To study host risk factors, microbiological characteristics and prognostic factors on mortality of patients with invasive Klebsiella *pneumoniae* infection.

Study design A retrospective observational study on patients with invasive Klebsiella *pneumoniae* infection from year 2009 to 2011.

Results This study included 377 patients with Klebsiella *pneumoniae* bacteraemia from January 2009 to December 2011. There were 219 male and 158 female, age ranged from 30-104 years (mean 70, $\pm$ SD 14.2 years). The overall 30-day mortality rate was 26.5%. The rate of metastatic infections was low in this cohort at 3.7%, and liver abscess as primary source of infection (43%) caused the largest proportion of metastatic infections.

Multivariate analysis identified that platelet count of less than $100x10^9$/L on admission (Odds ratio (OR)=2.857, 95% Confidence interval (CI)=1.272-6.419, p=0.011), active malignancy (OR=3.761, 95% CI=1.814-7.797, p<0.001), primary diagnosis as pneumonia (OR=3.170, 95% CI=1.468-6.846, p=0.003), respiratory failure (OR=8.712, 95% CI=1.808-41.994, p=0.007), disseminated intravascular coagulopathy (OR=2.515, 95% CI=1.131-5.591, p=0.024), and shock (OR=5.565, 95% CI=2.562-12.088, p<0.001) were independent predictors of 30-day mortality.

Conclusion Klebsiella *pneumoniae* bacteraemia was associated with high 30-day mortality. Platelet count below 100 x 10^9/L upon admission, active malignancy, primary source of infection as pneumonia, respiratory failure, disseminated intravascular coagulopathy and shock were independent predictors of poor outcome. The incidence of metastatic infection may have been underestimated in this study. However, the propensity of Klebsiella *pneumoniae* infection for dissemination should be considered at all times. Active search for possible sites of infection, early initiation of antibiotics and drainage of all collections are the keys to success in managing these patients.

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A REVIEW OF DRONEDARONE AND SOTALOL IN THE TREATMENT ATRIAL FIBRILLATION: EXPERIENCE FROM A REGIONAL HOSPITAL COMPARING DRONEDARONE AND SOTALOL IN PACEMAKER PATIENTS WITH PAROYXSMAL AF

Dr Chan Myles, Department of Medicine, Tseung Kwan O Hospital (December 2012 Cardiology Exit Assessment Exercise)

Background Atrial fibrillation is the most common cardiac arrhythmia. Rate vs. rhythm control in AF has been a longstanding debate. From the likes of large trial such as AFFIRM, a rhythm control strategy has shown no benefit, with a trend towards harm.

However, there are instances when a rhythm control strategy may sometimes be preferred. Thus, there is a need for safe and effective antiarrhythmic drugs. The majority of older anti-arrhythmic drugs have limited efficacy but significant adverse side effects that limit their use.

Dronedarone is a new antiarrhythmic drug based on amiodarone, designed to emulate its antiarrhythmic properties while eliminating its adverse effects. From large trials, it has been shown to have fewer adverse effects while sacrificing its efficacy. We aim to study the effect of dronedarone vs a traditional antiarrhythmic drug, sotalol in a group of paroxysmal atrial fibrillation patients with pacemakers, and review the evidence supporting this drug.

Method This was a prospective cohort crossover study. A total of 12 patients being seen in the Tseung Kwan O Hospital pacemaker clinic were given dronedarone for 4-6 months followed by sotalol for 4-6 months or vice versa. We looked at the effect of the studied drug on pacemaker parameters including the AF burden, longest period of AF, changes in pacemaker lead thresholds at the end of each drug period. Patients were asked to describe their AF symptoms according to the CCS-SAF scale. Any adverse events and hospitalizations were documented, and blood for renal function was assessed at the end of each drug period. Data was analyzed by means of Student's T-test.

Results There was no significant difference in the AF burden or the longest period of AF whether the patient was on dronedarone or on sotalol. No significant differences were found with pacemaker lead pacing thresholds. No significant difference was found with regards to symptoms. The atrial tachyarrhythmia recurrence rate defined as detected AF/ atrial rate >180 bpm for >60 seconds was >90%. There was a significant elevation in the creatinine level of 19 mmol/l while on dronedarone (p=0.01). One patient was hospitalized for heart failure symptoms during treatment with sotalol.

Conclusion Dronedarone appears to have similar efficacy to sotalol in controlling AF, with minimal difference in the AF parameters, symptoms, and minimal effect on pacing thresholds. Of interest is the very high asymptomatic AF recurrence rate >90%, suggesting very limited 'efficacy' of the drugs. Past studies of antiarrhythmic drug efficacy required self-reported symptoms suggesting of AF recurrence or by interval ECGs, which likely leads to many 'missed' episodes. Our study was by continuous monitoring by pacemaker, which we believe provides the most accurate measurement of AF recurrence. An older pacemaker based study suggested that sotalol may only be as effective as a betablocker.

The efficacy of antiarrhythmics based on previous studies show at best a 60% suppression of AF, which may be overestimated. We may need to review our expectations of dronaderone and the whole armamentarium of antiarrhythmic drugs. We have yet to see a truly effective antiarrhythmic drug that justifies any adverse effects.

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IMPLANTATION DEPTH AND CONDUCTION DISTURBANCES AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION

Dr Cheong Yan Yue Adrian Piers, Department of Medicine & Therapeutics Prince of Wales Hospital (December 2012 Cardiology Exit Assessment Exercise)

Background Transcatheter aortic valve implantation (TAVI) using the CoreValve prosthesis is a recently-developed treatment for severe symptomatic aortic stenosis. Conduction disturbances and pacemaker implantation after TAVI are frequently occurring complications. Valve implantation depth in the left ventricular outflow tract may be a major predictor of conductions disturbances after TAVI.

Methods and results Data were collected in a two-centre registry of patients undergoing TAVI using the CoreValve prosthesis from 2007 to 2012. A total of 210 patients were included in the analysis. By multivariate analysis, valve depth quartile was the strongest independent predictor of 30-day pacemaker implantation (Hazard ratio [HR] 1.81; 95% confidence interval [CI] 1.18-2.77), followed by PR interval (HR1.02; 95% CI 1.01-1.03). VD quartile was also the strongest independent predictor of new LBBB (HR 1.49; 95%CI 1.12-1.98) and CHB (HR 1.50; 95% CI 1.00-2.25), followed by QRS duration (HR 1.02; 95% CI 1.01-1.04). The use of the AccuTrak system did not result in a more shallow VD.

Conclusions Valve implantation depth is an independent predictor of left bundle branch block, complete heart block and pacemaker implantation at 30 days in patients undergoing TAVI with the CoreValve prosthesis.

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A SINGLE CENTRE EXPERIENCE OF RIGHT VENTRICULAR SEPTAL PACING : A RETROSPECTIVE REVIEW

Dr Kong Chi Ming, Department of Medicine, Yan Chai Hospital (December 2012 Cardiology Exit Assessment Exercise)

Background Pacing from the right ventricular apex (RVA) might be associated with adverse effects such as heart failure and atrial fibrillation. Hence alternate site pacing has been advocated to improve ventricular dyssynchrony in those patients indicated for permanent pacemaker implantation for bradyarrhythmias. Right ventricular outflow tract (RVOT)/high septum and RV mid-septum pacing are the two common alternate pacing sites being investigated.

Purpose The first part of the review will evaluate those patients with RVOT /high septal or mid/low septal pacing performed for bradyarrhythmias in Yan Chai Hospital including procedure details, technique and complications. The second part will review those factors affecting the RV septal pacing. Lastly, analyses will be performed to compare the difference between these two groups of patients.

Method This is an observational retrospective study. One hundred and eighty patients had undergone successful permanent single or dual chamber pacemaker implantation with RVOT/high septal or mid/low septal pacing in Yan Chai Hospital Cardiac Unit from June 2006 to December 2011. The mean follow-up time was 35.3months (range: 0.2 months to 70 months).

Results All one hundred and eighty patients had successful implantation of RV septal active fixation leads in one single procedure. 107(59.4%) of them were men and 73(40.6%) were women. The mean age at the time of implantation was 76.2yrs (51yrs to 97yrs). Forty seven patients (26.1%) had sick sinus syndrome (SSS); forty three patients (23.9%) had paroxysmal atrial fibrillation (PAF) with spontaneous/drug induced pauses; and ninety patients (50%) had advanced heart blocks or junctional bradycardia.

The mean baseline LV ejection fraction (LVEF) was 65.3%+/- SD 11.85 (24.5% to 89%). During the latest follow-up the mean LVEF was 61.5%+/- SD13.36 (range: 36% to 85.3%);

(95% CI -6.2 to -1.8; P<0.001). As a whole, there was a statistically significant decrease in LVEF (-6.1%) during the study period.

The mean baseline QRS duration before pacemaker implantation was 98.3ms+/-SD 22 (68ms to 180ms) and the mean post-implantation QRS duration while forced ventricular pacing (VP) was 136.7ms+/- SD 20.3 (88ms to 198ms). Majority of patients had dual chamber DDDR pacemaker implanted (141patients; 78.3%) while remaining thirty nine patients (21.7%) had single chamber VVIR pacemaker implanted. Ten patients received MRI compatible pacemakers.

Venous assess routes included: 139 (77.2%) axillary punctures, 16 (8.9%) subclavian punctures and 25 (13.9%) with cephalic vein cut-down.

Active fixation lead at right ventricular outflow tract (RVOT)/high septal was performed in ninety seven patients (53.9%) while active screw-in leads were implanted at RV mid/low in eighty three patients (46.1%).

The mean implantation time was 17min+/-SD 11.6 (5mins to 120mins). Acute/subacute lead complications were observed in seven patients (3.9%) shortly after the procedures; including six lead dislodgements and one haemopericardium. Two patients (1.1%) had long term lead complications with unsatisfactory electrical parameters during the follow-up requiring reimplantation of RV leads. No procedure related death was noted.

Twenty eight patients (15.6%) developed congestive heart failure during the follow-up period requiring hospital admissions. Thirty two patients (17.8%) passed away during the follow-up due to various diseases. Eight patients (4.5%) died of cardiac causes.

There was no statistically significant difference between the RVOT/high septal group and the RV mid/low septal pacing group in terms of the change in LVEF, procedural complication or cardiac death; but the decline in LVEF for RVOT/high septal pacing was less than RV mid/low septal group. In those patients who were highly pacemaker dependent (VP>90%); there was statistically significant deterioration in LVEF in both RVOT/high septal pacing group and the RV mid/low septal pacing group over time.

In the subgroup analysis, right atrial low septal (RALS) pacing together with RVOT/High septal pacing did not offer superiority over RALS with mid-low septal pacing group for AF burden and cardiac function.

Conclusion Routine RV septal pacing for bradyarrhythmias is feasible and safe for permanent pacing. There was no statistically significant difference between the RVOT/high septal and RV mid/low septal pacing group for the procedural complications, change in LVEF and expected survival; although RVOT/high septal pacing seemed to preserve LVEF slightly better than RV mid/low septal group. For those patients who are highly pacemaker dependent for bradyarrhythmias, exploration of other pacing methods might be needed for better preservation of LVEF in future.

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PROGNOSTIC VALUE OF CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY IN PATIENTS WITH KNOWN OR SUSPECTED CORONARY ARTERY DISEASE – A STUDY IN LOCAL CHINESE POPULATION

Dr Kwok Chun Kit Kevin, Department of Medicine, Queen Elizabeth Hospital (December 2012 Cardiology Exit Assessment Exercise)

Objective The aim of this study is to assess the prognostic value of Coronary Computed Tomography Angiography (CCTA) in patients with known or suspected coronary artery disease (CAD).

Background Compared with conventional invasive coronary angiography, Coronary Computed Tomographic angiography (CCTA) is found to have a high diagnostic accuracy for detection of obstructive CAD. However, while there is a large body of data regarding the prognostic value of CCTA for major adverse cardiac events in Western population, its prognostic role in local Chinese patients with known or suspected CAD has not been studied.

Methods 1038 consecutive patients with known or suspected CAD undergoing CCTA in Queen Elizabeth Hospital between 1st January 2005 and 31st December 2009 were retrospectively studied for the occurrence of major adverse cardiac events. Baseline clinical characteristics, cardiovascular risk factors and CCTA findings were analyzed. CCTA results were categorized as 1) normal coronary arteries, 2) nonobstructive CAD (<50% diameter stenosis) and 3) obstructive CAD (≥50% diameter stenosis). Composite endpoint of cardiac events including cardiac death, non-fatal myocardial infarction, unstable angina requiring hospitalization and revascularization were compared between different CCTA groups.

Results During a mean follow-up of 58 months, a total of 115 events were reported, among which more than 90% occurred in patients with abnormal CCTA. Patient with abnormal CCTA tended to be male, older, hypertensive, diabetic and had past history of myocardial infarction or known CAD (all $p<0.001$). The presence of coronary stenosis on CCTA (Hazard ratio [HR] 14.62, 95% confidence interval [CI] 6.63- 32.27, $p<0.001$), particularly obstructive CAD (HR 21.69, CI 10.59-44.43, $p<0.001$), LMN (HR 12.45, CI 3.54-43.74, $p<0.001$) and LAD lesions (HR 13.33, CI 7.31- 24.28) were strong independent predictors of future adverse cardiac events in multivariate model adjusted for baseline cardiovascular risk factors. Event-free survival rate was significantly lower in patients with obstructive CAD than those with normal coronary arteries. On the other hand, normal CCTA group had an annual event rate of 0.19% only, which was comparable to the event rate in healthy low-risk individual (<1% per year). Patients with normal CCTA had excellent prognosis despite the concomitant presence of cardiovascular risk factors.

Conclusions CCTA provides prognostic information in patients with suspected or known CAD. Patients with normal CCTA have an excellent long-term prognosis when there is no evidence of atherosclerosis. Abnormal CCTA, particularly obstructive lesions, predicts future adverse cardiac events and allows risk stratification.

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A STUDY ON THE LONG TERM EFFECT OF RIGHT VENTRICULAR OUTFLOW TRACT PACING ON LEFT VENTRICULAR SYSTOLIC FUNCTION : A LOCAL HOSPITAL EXPERIENCE

Dr Ng Tit Kei, Department of Medicine & Geriatrics, Kwong Wah Hospital (December 2012 Cardiology Exit Assessment Exercise)

Background It is well accepted that chronic right ventricular apical(RVA) pacing can lead to left ventricular systolic dysfunction. Whether pacing at right ventricular outflow tract (RVOT) can prevent this detrimental effect is still unknown. Previous studies comparing RVA and RVOT yielded inconsistent results about the superiority of the RVOT pacing. The aim of this study is to investigate the effect of *chronic* RVOT pacing on left ventricular systolic function

Method 51 patients implanted with permanent pacemaker with ventricular leads positioned in RVOT were included. They were divided into frequent pacing group and infrequent pacing group according to their mean cumulative ventricular pacing percentage (CumVP%), using 10% as the dividing line. The change in ejection fraction and changes in LV end systolic and diastolic volumes after pacing were compared between these 2 groups.

Result Mean CumVP% of frequent pacing group (n=34) and infrequent pacing group (n=17) was 83% and 3% respectively. The absolute EF change in the frequent pacing group was -11% vs +4% in the infrequent pacing group (p=0.004). Mean CumVP% > 10% (p=0.004), change in heart rate after pacing (p=0.021) and current diuretic use (p=0.002) were the 3 factors associated with ejection fraction change after pacing. Subsequent multivariate analysis showed that mean CumVP% and current diuretic use had independent association with post pacing ejection fraction change. The end-systolic volume change in frequent pacing group was +13.51ml while in infrequent pacing group it was -1 ml, but the difference was not statistically significant (p=0.095)

Conclusion Chronic right ventricular outflow tract pacing can worsen left ventricular systolic function

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A REVIEW OF A SINGLE CENTER EXPERIENCE IN PACING / IMPLANTABLE CARDIOVERTOR DEFIBRILLATOR (ICD) LEAD EXTRACTION

Dr Wong Cheuk Hon, Department of Medicine, Tseung Kwan O Hospital (December 2012 Cardiology Exit Assessment Exercise)

Background With the expansion of indication for device therapy, rising infection rate, devices recall and need of device upgrading. The Demand of lead extraction is on the rise. With the development of various percutaneous techniques and tools, percutaneous lead extraction can be achieved with high success rate and low mortality rate.

Aim The aim of this study was to examine contemporary indications, techniques, clinical results and complications of transvenous leads extraction in a local center (Queen Elizabeth Hospital)

Methods This is a retrospective cohort study of consecutive patients underwent lead extraction procedure in Queen Elizabeth Hospital. Patients as well as leads characteristics, indications, technical details of lead extraction procedures, microbiological results, clinical results and complications were analyzed.

Results From December 2004 to March 2010, a total of 41 lead (include 3 ICD leads) extractions from 22 extraction procedures in Queen Elizabeth Hospital were identified and analyzed. All leads were extracted for infective causes. The mean implantation time for extracted leads was 40 months. 50% of patients required more than one tool or technique for extraction procedure. Complete procedural success rate was 50%. Clinical success rate was 77%. Major complication rate was 4.5% and minor complication rate was 9%.

Conclusions These findings suggest that extraction of chronically implanted electronic devices (CIED) can be achieved with a reasonable high success rate and a low complication rate in local center.

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RETROSPECTIVE EVALUATION OF FRACTIONAL FLOW RESERVE VERSUS ANGIOGRAPHY FOR GUIDING THE DEFERRAL OF CORONARY REVASCULARIZATION IN PATIENTS WITH MODERATE CORONARY ARTERY DISEASE IN A LOCAL HOSPITAL

Dr Yan Chun Ting, Department of Medicine & Geriatrics, Kwong Wah Hospital (December 2012 Cardiology Exit Assessment Exercise)

Objectives The purpose of this study was to investigate the 1-year outcome of deferring coronary revascularization guided by fractional flow reserve versus angiography in patients with moderate coronary artery disease in a local hospital

Background The Fractional Flow Reserve Versus Angiography for Multivessel Evaluation (FAME) study clearly demonstrated that fractional flow reserve-guided percutaneous coronary intervention improves outcomes compared to an angiography-guided strategy. But the reports about the applicability of the FAME study results to the population in our locality were rare.

Methods A retrospective review of 110 patients in Kwong Wah Hospital between 1st July 2008 and 30th June 2011, who had moderate coronary stenosis based on angiographic assessment alone or based on fractional flow reserve in addition to angiography, was performed to look for the clinical outcomes in terms of major adverse cardiac events of the two groups.

Results The median number of indicated lesions was 2 in the fractional flow reserve-guided group versus 1 in the angiography-guided group. The median number of stents used was 1 in the fractional flow reserve-guided group and zero in the angiography-guided group. Revascularization rate was 0% in the fractional flow reserve-guided group and 2% (n=1) in the angiography-guided group. After 1 year, major adverse cardiac events had occurred in 3 patients (5%) in the fractional flow reserve-guided group and in 1 patient (2%) in the angiography-guided group (P=0.624). At 1 year, 83% (n=50) of the patients were free from angina in the fractional flow reserve-guided group compared with 68% (n=34) in the angiography-guided group (P=0.059).

Conclusions Fractional flow reserve-guided strategy resulted in a similar, if not superior, functional status and major adverse cardiac events compared with angiography-guided strategy in patients with moderate coronary stenosis in Hong Kong.

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NON-ALBICANS CANDIDAEMIA IN CRITICALLY ILL PATENTS – A 5-YEAR LOCAL EXPERIENCE

Dr Lo Yick Cheung, Integrated Medical Service, Ruttonjee Hospital (November 2012 Critical Care Medicine Exit Assessment Exercise)

Background *Candida albicans* has been the most common cause of fungal bloodstream infections in critically ill patients. However, infections due to non-*albicans Candida* species have been increasing recently.

Candida species produce a wide spectrum of diseases, ranging from superificial mucocutaneous disease to invasive illnesses, such as hepatosplenic candidiasis, *Candida* peritonitis, and systemic candidiasis.

The management of serious and life-threatening invasive candidiasis remains challenging in view of delays in diagnosis and lack of reliable diagnostic methods that allow detection of both fungaemia and tissue invasion by *Candida* species.

Objective To determine the clinical features, risk factor and outcome of critically ill patient with non-*albicans* candidaemia.

Design retrospective, observational study

Setting The study was conducted in 3 Intensive Care Units (ICU) in Hong Kong (Queen Mary Hospital, QMH; Pamela Youde Eastern Hospital, PYNEH and Ruttonjee Hospital, RH)

Patients All patients with intensive care unit acquired candidaema or with candidaemia that need ICU care was included. Study period from 1st Jan 2007 to 31st Dec 2011.

Methods Data collected included demographic characteristics, comorbidities, exposures to antibiotics and antifungals, and ICU – related factors, such as total parental nutrition, blood product transfusions, invasive procedures, central venous catheter use, haemodialysis, and mechanical ventilation.

Results Total 111 patients with Candidaemia were identified during the 5 years of study period (Point prevalence, 6.7 per 1000 ICU admissions).

Among the 111 patients with episodes of candidaemia, 45 had albicans candidaemia and 66 had non-*albicans* candidaemia. *Candida* non-*albicans* was the predominant species. The distribution of *Candida* non-*albicans* species was *Candida glabrata* 23/111 (20.7%), *Candida tropicalis* 23/111 (20.7%), *Candida parapsilosis* 16/111 (14.4%), *Candida krusei* 3/111 (2.7%), *Candida guilliermondii* 1/111 (0.9%).

The speciality of patient, presence of central venous catheter, recent abdominal surgery, history of recent organ and marrow transplant and pre-existing neutropenia were associated with non-*albicans* candidaemia in univariable analysis. But none of the above factor showed any statistical significance association after multivariable logistic regression analysis.

APACHE II score, history of diabetes mellitus, patients suffered from active malignancy, mechanical ventilation use and recent abdominal surgery were associated with mortality in univariable analysis. Multivariable logistic regression analysis revealed that only patients with mechanical ventilation and recent history of abdominal operation were independently associated with death. (Odds ratio[OR]:0.314, 95% Confidence interval [CI] 0.143 – 0.689, P value 0.004; OR:0.08, 95% CI 0.008-0.839, P value 0.035). Among the studied critically ill patients with candidaemia, mortality was comparable between those with *Candida albicans* species and *Candida* non-*albicans* blood-stream infection. (32/45 [71.1%] vs 46/66 [69.7%], p=0.479).

Conclusion In this study data revealed an overall increase in prevalence of Candidaemia. Non-*albicans* candidaemia were becoming more predominates. The epidemiology of candidaemia in Hong Kong seems to be differ from other countries in Asia-Pacific, North America and Europe.

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METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) COLONIZATION AND INFECTION IN AN ICU OF A LOCAL REGIONAL HOSPITAL – A RETROSPECTIVE COHORT STUDY

Dr Siu Kin Lok, Intensive Care Unit, North District Hospital (November 2012 Critical Care Medicine Exit Assessment Exercise)

Objective To identify the risk factors associated with the development of Methicillin resistant *Staphylococcus aureus* (MRSA) infections among the MRSA colonizer in a local population of intensive care unit (ICU) patients.

Design Retrospective cohort study

Setting An adult intensive care unit of a 12-14 beds regional hospital.

Patients The subjects of the study were patients with positive MRSA screening of the PCR test upon admission to ICU from January 2008 to May 2011. Data were collected from the hospital electronic information system and the medical files.

Results Between January 2008 and May 2011, a total of 126 patients with positive PCR for MRSA upon ICU admission were included in the study. There were total 23 patients with documented MRSA infections among them. In univariate analysis, accommodation in institution, a history of hypertension, use of antimicrobials in the past 3 months, sepsis upon admission, operation done during current admission, use of quinolone, positive MRSA of the pooled swab for screening upon discharge and the hospital length of stay were found statistically significant.

Conclusion The study demonstrated a number of risk factors associated with MRSA infections among the MRSA colonizers in a local intensive care population.

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THERAPEUTIC HYPOTHERMIA AFTER CARDIAC ARREST: A SURVEY OF PRACTICE IN ICUS IN HONG KONG

Dr Yeung Wai Tak Alwin, Intensive Care Unit, Pamela Youde Nethersole Eastern Hospital (November 2012 Critical Care Medicine Exit Assessment Exercise)

Background Previous studies showed that therapeutic hypothermia after out-of-hospital ventricular fibrillation arrest significantly improved neurological outcome and survival. This retrospective case series aims to examine the practice of therapeutic hypothermia in resuscitated post cardiac arrest patients in Hong Kong.

Methods Post cardiac arrest patients with therapeutic hypothermia in eight local ICUs from January 2007 to June 2012 were identified. Baseline demographic characteristics, clinical data on the cardiac arrest, cooling profile and patient outcomes were recorded. Statistical analyses were performed to identify factors associated with good neurological outcome at hospital discharge.

Results 124 patients underwent therapeutic hypothermia within the aforesaid time period. Majority was out-of-hospital arrest (73.4%) and male (71.8%). The median age was 59. The initial presenting cardiac rhythm was shockable in 58.1%. 33.3% of the patients enjoyed good neurological outcome. The hospital mortality was 48.4%. The median cooling rate and time from ROSC to target temperature were 0.48°C/hour and 7 hours respectively. The median actual duration of mild hypothermia was 16.5 hours. Multivariate logistic regression analysis revealed that an older age, a longer downtime and a higher blood glucose range during therapeutic hypothermia had a reduced odds ratio for good neurological outcome while a shockable presenting rhythm was the strongest independent predictor for good neurological

outcome (OR 38.54, 95% CI 6.07-244.48, $p<0.001$).

Conclusions Therapeutic hypothermia is probably underutilized in Hong Kong. It is most beneficial for patients with an initial shockable rhythm. More studies are to be done to identify optimal ways to attain rapid cooling and maintain hypothermia.

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A STUDY ON PREVALENCE OF SEXUALLY TRANSMITTED INFECTIONS AND BEHAVIORAL RISK FACTORS AMONG MEN WHO HAVE SEX WITH MEN IN SOCIAL HYGIENE CLINICS IN HONG KONG

Dr. Chung Chun Kin, Social Hygiene Service, Department of Health (December 2012 Dermatology and Venereology Exit Assessment Exercise)

Background and Objectives The prevalence of sexually transmitted infections (STI), social demographic information and behavioral risk factors among men who have sex with sex (MSM) is not well studied in Hong Kong. This study aims to determine the prevalence of STI among the MSM population attending Social Hygiene Clinics (SHC) and to identify the risk factors which may increase their risk of acquiring STI.

Methods From 1st August 2011 to 30th April 2012, 259 MSM attending Yau Ma Tei Male Social Hygiene Clinic and Wan Chai Male Social Hygiene Clinic were recruited. Patients were screened by a standard sexually transmitted diseases (STD) screening protocol including blood serum test and swab tests over the oropharyngeal, urethral and rectal regions. Patients were required to complete a structured questionnaire to study their social-demographic and sexual practice behavior with the assistance by trained nursing staff. Clinical data of patients were recorded.

Results The three most prevalent STD among MSM in Social hygiene clinics in Hong Kong were syphilis (19.9%), genital warts (19.5%) and non-gonococcal urethritis (14.5%). HIV prevalence was 8.6%. High risk sexual behavior like multiple sexual partners, group sex, soft drugs use before sex and inconsistent use of condom were common.

Multivariate logistic regression analysis demonstrated that seeking sex partners through sauna (OR=2.66, 95%CI=1.31-5.42, p=0.007), past history of STD (OR=2.0, 95%CI=1.0-4.0, p=0.05), age group (p=0.016), receptive role of anal sex (OR=0.41, 95%CI=0.2-0.87, p=0.019) were independently associated with STD diagnosed within six months before the date of recruitment. Subjects with age ≥36 were less likely to have STD (OR=0.29, 95%CI=0.13-0.68, p=0.004) than age 18-25.

Conclusion STI was prevalent among MSM attending SHC in Hong Kong. Many patients had high risk sexual behavior. HIV prevalence reached 8% among this group of patients.

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PREVALENCE OF CUTANEOUS MALIGNANCIES AND PHOTO-RELATED SIDE EFFECTS OF CHINESE PATIENTS TREATED WITH PHOTOTHERAPY: A FIRST SINGLE-CENTRE RETROSPECTIVE COHORT STUDY IN HONG KONG

Dr Lai Yik Kiu Dominic, Social Hygiene Service, Department of Health (December 2012 Dermatology & Venereology Exit Assessment Exercise)

Objectives To determine the prevalence of phototherapy-related cutaneous malignancies and photo-related side effects and their associations with the corresponding

phototherapy-related parameters in Hong Kong Chinese patients

Study design Single-centre retrospective cohort study

Patients and method 122 patients who previously received either PUVA, BBUVB or NBUVB in Yaumatei Dermatological clinic were recruited. Their phototherapy records and clinical records were reviewed. They were interviewed and whole body skin examinations were performed.

Main outcome measures Demographic data; any predisposing factors for skin cancer development; details of the phototherapy received; any occurrence of lentigines, actinic keratosis, Bowen's disease, squamous cell carcinoma, basal cell carcinoma or melanoma

Results One out of 79 patients treated with PUVA therapy developed pre-malignant skin lesions: PUVA keratosis with moderate epidermal dysplasia and actinic keratosis. None out of 122 patients treated with PUVA, BBUVB or NBUVB developed non-melanoma skin cancer or melanoma. Higher number of lentigines occurred in patients who received PUVA therapy when compared to patients treated with BBUVB or NBUVB and the development of PUVA lentigines is dose dependent.

Conclusion Phototherapy is likely to be a safe treatment modality in Hong Kong Chinese patients in view of the absence of non-melanoma skin cancer or melanoma in patients receiving PUVA dosage less than the recommended maximum lifetime cumulative dose of 1500J/cm^2 and in patients receiving BBUVB or NBUVB therapy despite of the small sample size of this study. Pre-malignant skin conditions can occur if high cumulative doses of PUVA, approximately 4000J/cm^2 in our study, are received. Lifetime skin cancer surveillance is mandatory in patients who received high cumulative dose of PUVA therapy.

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EVALUATION OF EFFICACY AND TOLERABILITY OF AZATHIOPRINE IN MODERATE-TO-SEVERE ATOPIC DERMATITIS IN ADULT CHINESE PATIENTS WITH PRE-TREATMENT THIOPURINE METHYLTRANSFERASE ASSESSMENT

Dr Wong Sze Man, Social Hygiene Service, Department of Health (December 2012 Dermatology & Venereology Exit Assessment Exercise)

Background Azathioprine (AZT) has been proposed as off-label option in treating moderate-to-severe atopic dermatitis which often failed to be controlled with the topical treatment alone. Local data on azathioprine in treating adult Chinese patients with refractory atopic dermatitis was lacking.

Objective We sought to evaluate efficacy and tolerability of azathioprine in adult Chinese patients with moderate-to-severe atopic dermatitis refractory to topical treatment.

Study design It was a prospective multi-centre open-label study

Methods Patients with moderate-to-severe atopic dermatitis refractory to topical treatment were recruited for azathioprine (AZT) for a period of 12 weeks. After initial 12 weeks, patients were reassessed to either continue azathioprine for another 12 weeks or stop based on the initial 12-week treatment response and tolerability of drug. Blood for TPMT level was checked prior to the treatment. Target dose of azathioprine was up to 2.5mg/kg/day. Patients with low TPMT level were given a lower target dose of azathioprine up to 1.5mg/kg/day. Primary outcome was mean change in disease activity by the Six-area

six-sign atopic eczema (SASSAD) scores at week 12. Secondary outcome measurements included mean reduction in SASSAD at week 24 and post-treatment week 12 together with proportion of patients achieving SASSAD 50 (reduction in SASSAD by 50%); global assessment, Dermatological Life Quality index (DLQI) at week 12, 24 and post-treatment week 12.

Result Thirty-six patients were recruited to receive azathioprine. The mean age was 26.9 years, range 18-63. Male-to-female ratio was 1.4:1. One out of 36 patients was detected with low level of TPMT (66 mU/L). The rest of patients were of normal TPMT level. The mean TPMT activity was 107.3 mU/L. No patient was detected with absent or deficient TPMT level. The mean AZT dosage was 2.06 mg/kg/day. The single patient with low TPMT level was given 1.5mg/kg/day azathioprine.

By intention-to-treat analysis, at week 12, patients received azathioprine showed a significant reduction in disease activity with mean absolute reduction at week 12 was 30.2 points (95% CI 27.0-33.6) and the mean relative reduction was 52.1% (95% CI 47.6-52.6%) (p=<.001). Further improvement in disease activity and increased proportions of patients achieving at least SASSAD50 were observed at 24 weeks of azathioprine and at 12-week post-treatment period. Significant improvement in symptoms and quality of life were observed together with reduction in disease activity.

Overall drug tolerability was good. Two patients discontinued azathioprine due to neutropenia, both were of normal TPMT level. No significant bone marrow toxicity was observed in the patient with low TPMT level. Other adverse events included nausea, hypersensitivity reaction, and liver derangement.

Conclusion Azathioprine can be considered as effective and well–tolerated systemic treatment for patients with moderate-to-severe atopic dermatitis refractory to topical treatment. Pre-treatment TPMT assessment can be considered although risk of the bone marrow toxicity still cannot be neglected despite the normal level of thiopurine methyltransferase and close blood monitoring is still warranted.

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ASSESSMENT OF ADRENAL FUNCTION IN CIRRHOTIC PATIENTS USING STANDARD SHORT SYNACTHEN TEST: A LOCAL PROSPECTIVE OBSERVATIONAL STUDY

Dr Chau Suet Ming, Intensive Care Unit, North District Hospital (November 2012 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Introduction A high incidence of adrenal insufficiency is noted among both stable and critically ill patients with liver cirrhosis. It is well known that adrenal insufficiency is associated with increased mortality and treatment with steroid replacement will alter prognosis, hence identification of adrenal insufficiency among cirrhotic patients may lead to therapeutic implications. Standard short synacthen test (SST) with measurement of serum total cortisol is widely employed as the method of adrenal function assessment for more than three decades. However, in patients suffering from a reduction in protein synthesis, such as cirrhosis, overdiagnosis of adrenal insufficiency can occur because of spuriously low serum total cortisol level. On the other hand, measurement of the free fraction of cortisol in the blood is gaining increasing recognition as the better method of adrenal function assessment compares to serum total cortisol. Salivary cortisol, a reliable marker that correlates well with serum free cortisol, is increasingly used as an alternative for measuring free cortisol in recent years.

Objectives To assess the prevalence and to identify independent predictors of adrenal insufficiency in cirrhotic patients by using the standard short synacthen test (SST). Also to compare and explore the correlation between the basal and stimulated values of serum total and salivary cortisol as obtained during SST.

Methods This is a prospective observational study of stable cirrhotic patients having regular follow-up at the Specialist Out-patient Clinic of North District Hospital, performed between March and April 2012. Diagnosis of cirrhosis was based on histology or clinical, laboratory and ultrasonographic data. Matched serum total cortisol and salivary cortisol concentrations were assessed at baseline, 30 and 60 - 8 - minutes following an intravenous injection of 250 microgram tetracosactide in the morning. The baseline demographic characteristics and clinical parameters of subjects were recorded. Prevalence of adrenal insufficiency based on conventional criteria was evaluated. Comparison was made among cirrhotic patients and healthy controls, and between groups with and without adrenal insufficiency. Logistic regression was employed to determine if the clinical parameters were independently associated with the diagnosis of adrenal insufficiency.

Results A total of fifty-eight cirrhotic patients and eleven healthy controls were recruited into the study. Cirrhotic patients had significantly lower serum total and salivary cortisol at both 30-minute and 60-minute post-ACTH injection but not at baseline compared to healthy controls. Ten patients (17.2%) were diagnosed to have adrenal insufficiency by using the serum total cortisol criteria, and they also had significantly lower post-stimulation salivary cortisol concentrations compared to the adrenal sufficient group. One patient having Child-Pugh Class C cirrhosis, the most severe within the cirrhosis cohort, had an inadequate adrenal response using the salivary cortisol criteria, representing a prevalence of 1.7%.

Conclusion Adrenal insufficiency was prevalent in stable cirrhotic patients. Pre-existing or past histories of ascites and INR were independent predictors of adrenal insufficiency. A significant discrepancy of prevalence existed between diagnostic criteria using serum total cortisol and salivary cortisol. Salivary cortisol could be used as an adjunct in the diagnosis of adrenal insufficiency in advanced cirrhotic patients. Further research is needed to explore the cause of adrenal insufficiency in cirrhotic patients and to develop a more accurate tool in the assessment of adrenal insufficiency.

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CLINICAL RISK FACTORS OF FRACTURE AFTER BISPHOSPHONATE TREATMENT - A RETROSPECTIVE OBSERVATIONAL STUDY OF SUBJECTS RECEIVING ORAL BISPHOSPHONATE IN A LOCAL OSTEOPOROSIS CENTRE

Dr Lee Hoi Yi Heidi, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(November 2012 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Introduction Osteoporosis is a growing medical burden locally and in the developed world, where populations are aging and life expectancies are improving1. Osteoporotic fractures account for significant numbers of morbidity, hospitalization, medical costs and mortality in the elderly 2 3. One cross-sectional study of 769 community-based female subjects in Hong Kong found that the mean bone mass of women over the age of 60 years was 30% lower than that of young healthy women and that more than 50% of women over the age of 70 years had osteoporosis in Hong Kong. 4 Most patients with osteoporotic fracture did not receive the diagnosis of osteoporosis and were not given adequate treatment for osteoporosis.5 Postmenopausal osteoporosis and age-related osteoporosis are the most common primary forms of bone loss seen in clinical practice.6 But in many cases, secondary causes should be first excluded7. Anti-resorptive agents, namely bisphosphonates, are the most widely used

therapeutic option for the treatment of post-menopausal osteoporosis, and had been demonstrated to be able to reduce risk of osteoporotic fractures8. They are considered the first-line therapy for postmenopausal osteoporosis. Other options include bone-forming agents, selective estrogen receptor modulator (SERM), and dual-action agents.

Background Bisphosphonates are available in oral and intravenous preparations. Commonly used oral bisphosphonates include alendronate, risedronate, and ibandronate. They differ mainly in pharmacokinetics with a wide range of half-lives. Oral alendronate and risedronate are the first drugs licenced and have been used more commonly in the treatment of postmenopausal osteoporosis. Alendronate was approved by the Food and Drug Administration (FDA) for treating osteoporosis in 19959 and risedronate was approved in 200010. Their licensed indications are prevention and treatment of post-menopausal osteoporosis in women, treatment for osteoporosis in men and glucocorticoid-induced osteoporosis. In clinical studies, alendronate was found to preserve or increase bone mineral density (BMD). In the Fracture Intervention Trial I (FIT I) study when alendronate was given to women with low bone mass but without vertebral fracture, Alendronate was demonstrated to improve spine BMD by 6.8% at 4 years compared to placebo. It also resulted in 5.0% increase of total hip BMD at 4 years compared to placebo and a 4.6% increase in femoral neck BMD when compared to placebo. 11 It was found to decrease biochemical markers of bone turnover.12 In the aspect of fracture risk reduction, it was found to reduce spine fractures, hip fractures and non-vertebral fractures13. Risedronate has also been demonstrated to preserve or increase bone mineral density in clinical studies. It showed a 4.3% increase in spine BMD at 3 years in Vertebral Efficacy with Risedronate Therapy – North America (VERT-NA) and 5.9% in Vertebral Efficacy with Risedronate-Multinational (VERT-MN) when compared to placebo. It also showed a 2.8% increase in femoral neck BMD at 3 years in VERT-NA and 3.1% in VERT-MN compared to placebo. Similar to Alendronate, its use was also associated with a decrease in biochemical markers of bone turnover. As regards fracture risk reduction, the use of Risedronate was found to reduce spine fractures, hip fractures and non-vertebral fractures14 15 16. In these previous randomised controlled trials where the effect of oral bisphosphonate on fracture risk reduction was investigated, the effect of fracture risk reduction was studied for 3-4 years in the original studies. There were only 2 studies which provided data on fracture reduction and BMD changes for up to 7-10 years in the extension studies 17 18 . Therefore, there is still need for more studies to investigate the long-term effect of bisphosphonate in terms of fracture risk reduction and long-term tolerability. In our study, some of the subjects had taken bisphosphonates for more than 5 years continuously and some up to 10 years or even more. Therefore, we hope that our study can shed some light into the understanding of the long-term fracture risk reduction of bisphosphonate. While the effectiveness of bisphosphonates in treating osteoporosis has been well-established, they are also known for causing a number of side effects, mainly in the gastrointestinal tract, such as dyspepsia, reflux, gastritis, oesophagitis, as reported in previous clinical trials.19 However, not much retrospective observational study was done to investigate the real-life situations. In recent years, increasing attentions have also been paid to previously unrecognized associations, such as atrial fibrillation, osteonecrosis of the jaw, atypical fractures and oesophageal carcinoma.20 Therefore, we also pay special attention to the occurrences of these rare complications which was reported before. Local data regarding these less well-known adverse effects is lacking, as most previous reports came from studies involving the Caucasian populations. It is well known that besides bone mineral density, there are several independent clinical risk factors for fracture, including age, a prior fragility fracture, a parental history of hip fracture, smoking, use of systemic corticosteroids, excess alcohol intake and rheumatoid arthritis.21 Not much study was done to investigate whether the clinical risk factors still pay a role after bisphosphonate treatment. Not much data was available to see whether the clinical risk factors still predicted a higher occurrence of post-treatment fracture. In order to contribute to the understanding of all these in the local

Chinese population, the current study was conducted.

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A STUDY ON CLINICAL OUTCOMES OF NONFUNCTIONING PITUITARY MACROADENOMA PATIENTS OVER A 15-YEAR PERIOD IN A REGIONAL HOSPITAL

Dr Wong Tin Wai, Integrated Medical Service, Ruttonjee Hospital (November 2012 Endocrinology, Diabetes and Metabolism Exit Assessment Exercise)

Introduction Majority of pituitary macroadenomas are clinically nonfunctioning, accounting for about 80%. While surgery is the initial treatment of choice, tumor growth after operation is present in 17 - 43%. In addition, local evidence on treatment and follow up strategy for management of these nonfunctioning pituitary macroadenomas (NFMA) is lacking. This is a retrospective observational study of clinical course of patients with NFMA in a regional hospital in Hong Kong over 15 years.

Objectives The primary aim was to elucidate on the long-term clinical outcome after initial surgery ± radiotherapy. Second objective was to determine on the clinical or tumor characteristics that could help to predict tumor relapse. Third objective was to analyze on the tumor recurrence free tumor survival (RFS), among the three groups of NFMA patients: complete surgical cure (Group C), postoperative residual tumors with adjuvant radiotherapy (Group R) and postoperative residual tumors adopting 'wait-and-see' approach (Group O).

Patients and Methods 102 patients with newly diagnosed NFMA from January 1995 to December 2010 presenting to Queen Mary Hospital were recruited. The demographics, clinical characteristics, hormonal profile, tumor characteristics, mode of treatment, treatment outcome and clinical progress were recorded, compared, and analyzed.

Results Mean age of 102 studied subjects was 53 ± 14 years old and of equal sex distribution. The median follow-up time was 7.33 years. The most common clinical presentations were visual field defect (60.8%), headache (34.3%) and sexual dysfunction (21.6% in male, 52.8% in premenopausal female). 61.8% of patients had hypopituitarism at presentation, with LH/FSH deficiency (66.7%) being the most common, followed by TSH (36.1%) and ACTH (22.8%).
95 patients underwent surgery as initial treatment. Complete surgical cure was achieved in 35 patients (36.8%) (Group C). Resolution of visual field defect was observed in 70% and new hormone deficiencies developed in 21% after operation. Multiple logistic analysis identified the following factors as predictors of tumor relapse: presence of postoperative residual tumors (OR 3.73, 95% CI 1.02-13.56; p=0.046), cavernous sinus invasion (OR 3.21, 95% CI 1.13-9.12; p=0.029), and young age ≤ 40 years (OR 3.10, 95% CI 1.02-9.84; p=0.045). Among the 60 patients with postoperative residual tumors, 27 patients received adjuvant radiotherapy (Group R), while 32 patients adopted the 'wait-and-see' approach (Group O). The 5-year tumor RFS for Group C, R and O was 88.6%, 77.8% and 56.3% respectively. The median relapse time for Group C, R and O was 1.71 years, 2.80 years and 1.41 years respectively. More patients who received adjuvant radiotherapy developed new hormone deficiencies (22.5% deficiencies in 3 main hormonal axes), than those who had surgery alone (11.5% deficiencies in 3 main hormonal axes).

Conclusions Surgery aiming at complete surgical cure should be the first-line treatment and goal. For patients with surgical cure, MRI should be monitored at least yearly for the first three years to monitor for relapse. For patients with postoperative residual tumors, MRI should be monitored at least yearly for the first five years. For patients with postoperative

residual tumors, adopting a 'wait-and-see' approach and offering radiotherapy only in presence of demonstrable tumor growth could help to avoid the increased risk of hypopituitarism.

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RETROSPECTIVE EVALUATION OF FACTORS ASSOCIATED WITH SEVERITY OF ACUTE BILIARY PANCREATITIS TREATED BY EARLY ERCP IN A LOCAL HOSPITAL

Dr Chiu On Pong, Department of Medicine, Kwong Wah Hospital (December 2012 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Endoscopic retrograde cholangiopancreatography (ERCP) is used for detection and removal of common bile duct stone in acute biliary pancreatitis. Majority of patients have uneventful recovery, but some developed severe disease with organ failure.

Objectives

1. To identify factors associated with severe disease in patients with acute biliary pancreatitis treated with early ERCP
2. To review the current role of ERCP in the management of acute biliary pancreatitis

Methods This was a retrospective study conducted in a regional public hospital in Hong Kong. Clinical information and medical records of patients suffering from acute biliary pancreatitis were reviewed.

Results A total of 153 episodes of acute biliary pancreatitis underwent early ERCP within 72 hours of admission. Patients in 15 episodes developed severe disease with organ failure. Patients who developed organ failure had significantly longer hospital stay, higher risk of developing local complications, intensive care unit admission and mortality. On multivariate analysis, haematocrit (OR=1.196, 95%CI 1.058-1.353, p=0.004), presence of stone on ERCP (OR=4.054, 95%CI 1.134-14.490, p=0.031), and Modified Glasgow Score (OR=4.160, 95%CI 1.188-14.562, p=0.026) were independent factors associated with development of organ failure in acute biliary pancreatitis.

Conclusion This study found that the patients with acute biliary pancreatitis who developed severe disease with organ failure had worse clinical outcome and higher risk of mortality. The presence of stone on ERCP, high haematocrit value and modified Glasgow score were factors associated with organ failure. The identifications of these factors should prompt the physician for more aggressive treatment at an earlier stage. Endoscopic ultrasonography (EUS) and magnetic resonance cholangiopancreatography (MRCP) are newer technologies in detection of common bile duct stone in acute biliary pancreatitis. They can safely replace diagnostic ERCP by selecting patients with choledocholithiasis for therapeutic ERCP, therefore avoiding unnecessary invasive procedure.

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COMPARISON OF ACUTE HEPATITIS E INFECTION OUTCOME IN PATIENTS WITH AND WITHOUT CHRONIC HEPATITIS B INFECTION: A 10 YEAR RETROSPECTIVE STUDY IN 3 REGIONAL HOSPITALS IN HONG KONG.

Dr Chow Chi Wing, Department of Medicine, Tseung Kwan O Hospital (December 2012 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Acute Hepatitis E virus (HEV) infection is recently become the commonest

cause of acute viral hepatitis in Hong Kong with majority of HEV belonging to genotype 4 (1)(2). Studies from China have shown that acute hepatitis E patients with underlying chronic hepatitis B virus (HBV) infection may have a worse outcome than those without (3)(4)(5). In India where genotype 1 is more prevalent (6), superinfection with hepatitis E on chronic liver disease (CLD) including chronic hepatitis B infection can cause liver decompensation (7)(8). We try to evaluate this in Hong Kong (HK). The aim of this study was to determine the clinical outcome of acute hepatitis E infection in patients with and without chronic hepatitis B infection in HK.

Method The primary outcomes measured were (1) liver failure, (2) liver related mortality and (3) all-cause mortality in acute HEV patients with and without chronic hepatitis B. Differences in baseline clinical characteristics, investigations, and clinical outcomes were also compared between the two groups. Univariate and multivariate analysis were performed to determine prognostic risk factors for adverse clinical outcome. Analysis were performed using the Statistical Package for the Social Science (SPSS version 12.0). All statistical tests are two-sided, and statistical significance was taken as $p<0.05$.

Results 161 patients with acute HEV were analyzed, of which 130 patients (81%) were non-HBV carriers, and 31 patients (19%) were chronic HBV carriers. The liver failure rate (10% versus 3%, $p=0.13$), liver-related mortality rate (6% versus 2%, $p=0.17$) and all-cause mortality rate (6% versus 3%, $p=0.33$) were all higher in the chronic HBV carriers group, but all were not statistically significant. The baseline clinical parameters were similar between the 2 groups, except for a significantly higher proportion of HBV carriers having cirrhosis (13% versus 2%, $p=0.03$). Chronic HBV carriers were found to have statistically significantly lower admission alanine transaminase (ALT) level ($p=0.03$), lower day28 serum albumin ($p=0.04$), and higher day28 ALT level ($p<0.01$). Although day28 serum bilirubin was higher in the chronic HBV carriers, this did not reach statistical significance ($p=0.4$). On multivariate analysis, length of stay (odds ratio 1.08, 95% CI, 1.01-1.15, $p=0.02$) was significantly associated with liver failure, whereas admission platelet count was inversely associated with liver failure (odds ratio 0.96, 95% CI, 0.92-0.99, $p=0.03$). Serum albumin level on admission was inversely associated with all-cause mortality (odds ratio 0.63, 95% CI, 0.41-0.97, $p=0.04$).

Conclusion Chronic HBV carriers with acute HEV infection were found to have higher liver failure rate, liver-related mortality and all-cause mortality, but the results did not reach statistical significance. Chronic HBV carriers were found to have statistically significantly lower admission ALT level, lower day28 serum albumin level and higher day28 serum ALT level. A prospective study with sufficient sample size is needed to confirm whether the clinical outcome of patients with chronic HBV infection is worse compared with patients without HBV infection.

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PRIMARY ANTIBIOTICS RESISTANCE OF HELICOBACTER PYLORI AND ERADICATION RATE WITH CLARITHROMYCIN BASED TRIPLE-DRUG THERAPY IN HONG KONG

Dr Li Han Fai Ernest, Department of Medicine & Geriatrics, Princess Margaret Hospital
(December 2012 Gastroenterology & Hepatology Exit Assessment Exercise)

Background Recent studies suggest that the eradication rate for *Helicobacter pylori* infection with clarithromycin-based triple therapy has fallen worldwide, owing to increased prevalence of clarithromycin resistance. The primary purpose of this study is to find out the eradication rate of *Helicobacter pylori* using clarithromycin-based triple therapy. The

secondary objectives are to find out the primary resistance rate of *Helicobacter pylori* to antibiotics commonly used in first and second line eradication regimens; the risk factors for treatment failure; and the risk factors for antibiotics resistance.

Method One hundred and forty-seven treatment-naïve *Helicobacter pylori* infected patients were identified by ^{13}C-urea breath test. Biopsy samples from antrum and corpus were taken during upper gastrointestinal endoscopy for histological analysis, *Helicobacter pylori* culture and antibiotics susceptibility testing. Enrolled patients were given a regimen containing lansoprazole 30mg b.d., clarithromycin 500mg b.d., and amoxicillin 1g b.d. for 7 days. Eradication success was evaluated by ^{13}C-urea breath test at least 4 weeks after completion of treatment.
Results: *Helicobacter pylori* eradication was achieved in 82.9% and 85.2% of patients by intention-to-treat and per-protocol analysis respectively. Clarithromycin-resistance was detected in 13.1% of subjects and correlated to a low eradication rate of 6.3% ($p<0.001$). Levofloxacin-resistance was detected in 15.6% of subjects and type 2 diabetes mellitus is a risk factor for levofloxacin-resistance (OR 4.3, $p=0.019$). Metronidazole-resistance rate was 59.0%. There was no amoxicillin- or tetracycline- resistance.

Conclusion The standard 7-day clarithromycin and amoxicillin plus proton-pump inhibitor therapy is still a valid empirical first-line eradication therapy for *Helicobacter pylori* infection in Hong Kong. However, its effectiveness is decreasing owing to the increasing trend of primary resistance to clarithromycin in the population. Alternative effective regimen is yet to be determined as bismuth is no longer available in Hong Kong, and the resistant rates to levofloxacin and metronidazole are considerable.

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RISK FACTORS OF PRESSURE ULCER OCCURRENCE IN OLDER PATIENTS AFTER ADMISSION TO AN ACUTE HOSPITAL

Dr Man Shiu Piu, Department of Medicine and Geriatrics, Pok Oi Hospital (December 2012 Geriatric Medicine Exit Assessment Exercise)

Objectives 1. To examine whether hypotensive episode (systolic blood pressure less than or equal to 90mmHg) is associated with pressure ulcer occurrence 2. To compare the sensitivity and specificity of hypotension and Norton score with respect to the prediction of pressure ulcer occurrence in an acute hospital setting 3. To investigate whether pressure ulcer occurrence during hospital stay predicts adverse health outcomes in the following 6 months

Design A retrospective cohort study

Setting A regional acute hospital

Subjects A total of 259 patients aged 65 or older who were admitted to a convalescence ward and had had a hospital stay for more than 5 days.

Measurements Baseline clinical characteristics and the possible risk factors of pressure ulcer occurrence including the Norton score on admission and any episode of hypotension were recorded. The primary outcome measured was the incidence of pressure ulcer occurrence in the index admission. Secondary outcomes including mortality in the index admission and 6 months after discharge, and the incidence of re-hospitalisations in the following 6 months were also measured.

Results Any hypotensive episode was associated with incident pressure ulcer occurrence

(Odds Ratio=6.71, 95% CI=2.07-21.7, *p*=0.001). Norton score was not predictive of pressure ulcer occurrence in hospital setting. The mortality in the index admission and 6 months after discharge, and the incidence of re-hospitalisations after 6 months were not significantly higher in patients with incident pressure ulcer.

Conclusions Hypotension was an important risk factor for incident pressure ulcer occurrence during hospital stay. Norton score may not be as useful as low blood pressure in predicting pressure ulcer occurrence during acute illness.

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THE PERFORMANCE OF D-DIMER ASSAY FOR THE DIAGNOSIS OF VENOUS THROMBOEMBOLISM IN IN-PATIENT SETTING AMONG HONG KONG CHINESE POPULATION

Dr Ha Chung Yin, Department of Medicine and Geriatrics, Tuen Mun Hospital (November 2012 Haematology and Haematological Oncology Exit Assessment Exercise)

The use of the d-dimer assay for the exclusion of venous thromboembolic disease (VTE) has been well validated in the out-patient setting by various large clinical studies in the Western population. Its usefulness in the in-patient setting in the local Hong Kong Chinese population, however, has not been as well proven despite its frequent utilization. This retrospective study aims at analyzing the performance of the d-dimer test for the diagnosis of VTE in the in-patient setting in a local regional hospital. It was found that at the traditional cut-off value of 500ng/ml, the sensitivity and negative predictive value of the test was well preserved at 100%, but the specificity was much lower at 18.3% compared with the reported value of 46-47% in the out-patient setting. Increasing the cut-off value to 812ng/ml would increase the specificity to 28.4% while maintaining the 100% sensitivity and negative predictive value. The most suitable cut-off values for 3 different patient subgroups including cancer patient, post-operative patients and elderly patients were found to be 933ng/ml, 1882ng/ml, and 793ng/ml respectively.

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LONG-TERM OUTCOME OF BIOPSY-PROVEN MINIMAL-CHANGE NEPHROTIC SYNDROME IN CHILDREN

Dr Kwong Wai Ki Vickie, Department of Medicine & Therapeutics, Prince of Wales Hospital (December 2012 Nephrology Exit Assessment Exercise)

Background Previous studies showed that up to 40% of childhood-onset minimal-change nephropathy (MCN) persist after puberty. Many of these adult patients still require repeated courses of corticosteroid and often other immunosuppressive treatment. However, data are scarce concerning the long-term renal prognosis of this group of patients after they become adults. In addition, few data are available on the prevalence of treatment-related adverse effects.

Objective The aim of this study is to evaluate the long-term outcome of children with biopsy-proven MCN after they become adults.

Methods We identified 55 paediatric patients with biopsy-proven MCN treated in our hospital from 1984 to 2004. Their clinical records were reviewed to evaluate the disease pattern, treatment regimen, and the presence of treatment-related complications.

Results Of the 55 patients, 35 were followed after they become adult; 13 (37%) had relapses during adulthood. Treatment-related complications was observed in 20 patients (57%).

Common adverse effects include overweight (23%), impaired fasting glucose (14%), infertility (14%), persistent low grade proteinuria (11%), fracture (9%), and hypertension (9%). All patients had normal renal function when last assessed.

Conclusions we found that a substantial proportion of patients with childhood-onset minimal change nephropathy continued to have relapse after they become adults. Although most, if not all, patients have normal renal function, the prolonged use of steroid and second line immunosuppressive agents results in a considerable risk of extra-renal complications, such as infections, overweight, diabetes, hypertension, bone fracture, growth retardation, infertility, and possibly malignancy. Strategies should be developed to ensure the judicious use of these potentially toxic treatments. Life-long follow-up seems advisable for this group of patients, not only for detecting relapses, but also to allow timely diagnosis of treatment related complications.

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A REVIEW STUDY OF THE EFFECTS OF NOCTURNAL HOME HEMODIALYSIS (NHHD) ON MINERAL METABOLISM, BONE MINERAL DENSITY AND CARDIOVASCULAR MORBIDITY IN HONG KONG

Dr Law Wai Ping, Department of Medicine, Queen Elizabeth Hospital (December 2012 Nephrology Exit Assessment Exercise)

Introduction Cardiovascular disease is a major cause of morbidity and mortality for patients on dialysis. Recent studies showed that vascular calcification is one of the non-traditional risk factors for cardiovascular disease (CVS) in uremic patients. Nocturnal home hemodialysis (NHHD) is a hemodialysis modality which can provide better control of phosphate and calcium-phosphate product compared to traditional renal replacement therapy, hence reducing vascular calcification. Computed tomography with the measurement of calcium score can reflectthe calcification burden. Nocturnal hemodialysis with different dialysate calcium concentration may altermineral metabolism and affect bone density. We reviewed patients from two nocturnal hemodialysis centers in Hong Kong. We analyzed the impact of nocturnal hemodialysis on mineral metabolism, vascular calcification and bone mineral density, and tried to determine the optimal dialysate calcium content for these patients.

Methods 44 patients from two Hong Kong hospitals receiving NHHD were included into our retrospective analysis. Serum calcium, phosphate and parathyroid hormone (PTH) levels were recorded before and after12 months of NHHD. Dual energy X-ray absorptiometry (DEXA) scan was used to assess bone mineral density. Calcium score was measured by non-contrast computed tomography (NCCT). These data were analyzed.

Results Serum phosphate and calcium-phosphate product were significantly decreased after initiation of NHHD. This occurred early after starting of NHHD. These were maintained static after one year. A trend towards increased serum calcium levels was observed with dialysate calcium bath 1.75 mmol/L but not for dialysate calcium bath 1.5mmol/L. Bone density was better maintained with dialysate calcium concentration of 1.75mmol/L compared with dialysate calcium concentration of 1.5 mmol/L. The difference was mainly observed in lumbar region by DEXA scan.

Conclusion Control of phosphate and calcium-phosphate product were significantly better for patients on NHHD than patients on conventional hemodialysis. However, their impact on bone density and calcium score were not clearly shown in our study. Further studies are required to determine the optimal dialysate calcium concentration in this population.

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RETROSPECTIVE DESCRIPTIVE CASE CONTROL REVIEW FOR UNDERSTANDING OF DISEASE CHARACTERISTICS OF PATIENTS WHO DIED WITH SARCOMA, EXPLORATION FOR THEIR HEALTH CARE NEEDS AND COMPARISON WITH CARCINOMA PATIENTS

Dr Ma Chi Ming, Department of Medicine, Haven of Hope Hospital (December 2012 Palliative Medicine Exit Assessment Exercise)

Background Sarcomas are a rare type of cancer. Their suffering is no less than other cancer patients. Literature regarding their disease profile and health care utilization especially palliative care service are scarce.

Objectives to study disease characteristics of patients who die from sarcoma, their health care needs and health service utilization including palliative care service, and compare them with carcinoma patients in term of their disease profile and related characteristics.

Methods This is a retrospective study of deceased sarcoma patients from 1st January, 2005 to 31st Jan, 2012 in a regional acute and an extended care hospital. Deceased carcinoma patients were matched by nearest age of death, sex, hospital of death, and nearest month and year of death. All data were collected from case notes in these two hospitals and electronic data base. Comparisons between groups were done by Chi's square or Fisher's exact and Mann-Whitney tests.

Results A total of 42 sarcoma patients were identified and 42 carcinoma patients were matched. Their mean age was 63.7 and 63.2 respectively. Sarcomas have more magnetic resonance imaging and open biopsy as diagnostic investigations. They have more limb swelling (P=0.015), and less anorexia (P=0.022) than carcinoma controls. They also have more lung (P=0.016), long bone (P=0.026), skin and subcutaneous (P=0.026) metastases but less liver (P=0.004) and brain (P=0.057) metastases. Sarcomas have higher white cell (P=0.039) and platelet (0.004) count but lower hemoglobin (P=0.039) and ALT (Alanine transaminase) (P=0.013) level. More sarcoma patients walked with aids (P=0.014) and more carcinoma controls walked unaided (P=0.002) at the time of documented incurability. Surgery (P=0.009) and radiotherapy (P=0.081) were more commonly performed in sarcomas. Medical social worker as the psychospiritual support worker (P=0.006) is more common in sarcomas. Also, there is significantly less antibiotics (P=0.028) use and shorter duration from PC referral to death in sarcomas than carcinoma counterparts (P=0.023). For sarcoma patients, palliative care (PC) referral and PC ward as the last admission ward were associated with more psychospiritual service utilization (P=0.032), longer inpatient stay (P=0.038), more outpatient visits (P=0.091), more use of analgesics (P=0.038) especially strong opioids (P=0.003), sedatives (P=0.011) especially benzodiazepines (P=0.001) and family bereavement issue documentation (P=0.024) than those non-PC referred cases. There were high percentages with almost > 85% of both groups of patients knowing their diagnosis and prognosis. More than 95 % of patients for both groups accepted DNR.

Conclusion Sarcomas is a distinct group of malignancy including their disease characteristics and health care service utilization. Earlier palliative care referral for sarcomas may be necessary. Palliative care service can play a role in end of life care for sarcomas.

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THE PREFERRED PLACE OF CARE AND DEATH IN ADVANCED CANCER PATIENTS UNDER PALLIATIVE CARE SERVICES

Dr Woo Kam Wing, Department of Medicine & Geriatrics, Caritas Medical Centre (December 2012 Palliative Medicine Exit Assessment Exercise)

Background Facilitating advanced cancer patients to receive care and die in their preferred place is one of the main goals of palliative care. However, local data on patients' preferences are limited.

Methods A cross-sectional single center study was performed to identify the preference and factors associated with preferred place of care and death among advanced cancer patients receiving palliative care. Patients' preferred place of care and death, demographics, medical characteristics and symptom prevalence and severity by Edmonton Symptoms Assessment System (ESAS) were collected. A 17-item questionnaire was used to explore patients' considerations regarding their preferred place of care and death.

Results **A** total of 102 patients completed the study. The preferred place of care concurred with the preferred place of death in 76.4% of patients. The most preferred place of care and death was palliative care unit (PCU) which accounted for 42.2% and 53.9% respectively; followed by hospital (27.5% and 28.4% respectively); whereas home accounted for only 22.5% and 12.7% respectively. Five social and medical characteristics were significantly associated with both preferred place of care and death, including age group ($p=0.001$, $p=0.002$), living with children or not ($p =0.014$, $p=0.038$), place of abode ($p=0.001$, $p=0.001$), ever admitted to PCU ($p=0.01$, $p=0.044$) and presence of tiredness ($p=0.017$, $p=<0.001$). In addition, Palliative Performance Scale ($p=0.018$) and presence of pain ($p=0.016$) were significantly associated with preferred place of care. From the 17-item questionnaire, patients with PCU as the preferred place of care had the highest agreement with items including comfortable environment, providing privacy, being accompanied, caregiver having time, caregiver with adequate knowledge and skills, access to professional medical advice and care readily and being kept comfortable physically. (all $p<0.05$) Home as preferred place of care was most agreed as a familiar environment with familiar faces, having autonomy in daily activities and peace in mind (all $p<0.05$), but items with lower agreement include caregiver having adequate knowledge and skills, access to medical device and care readily. A similar trend was observed for the preferred place of death. Items for hospital only had higher agreement in items related to medical care.

Conclusion PCU was the most preferred place of care and death in our study. Preference for home death is low. Associated characteristics and considerations for preferred place of care and death shed light on their strength and gaps. Further studies are warranted to explore the actual place of care and death in defining the unmet needs.

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TO STUDY THE SELF-PERCEIVED BURDEN AMONG ADVANCED CANCER PATIENTS AND ITS CLINICAL CORRELATES IN A LOCAL PALLIATIVE CARE UNIT

Dr Yau Wai Shan, Department of Medicine, Queen Elizabeth Hospital (December 2012 Palliative Medicine Exit Assessment Exercise)

Background Self-perceived burden (SPB) can cause distress in advanced cancer patients. There is increasing evidence on the prevalence, clinical correlations, implication and significance of SPB. Previous studies have shown the correlation between SPB and certain physical symptoms as well as a stronger association with psychological problems and existential concerns. There is no local study to examine this phenomenon in advanced cancer patients.

Objectives
1. To measure the prevalence and level of self-perceived burden in advanced cancer patients under the care of a local palliative care unit

2. To investigate the correlation of patient's self-perceived burden with different factors including patient's demographics, clinical characteristics, functional status, physical symptoms, perceived social support, psychological symptoms, coping strategies, patient's will to live and desire to hasten death

Methods This was a cross-sectional study conducted from Feb 2012 to June 2012 in the Palliative Care Unit of Caritas Medical Centre in Hong Kong. A total of 84 advanced cancer patients, who enrolled to either in-patient or out-patient palliative care service, were examined for their level of SPB by Self-Perceived Burden Scale (SPBS). Demographic data and clinical characteristics were assessed and variable factors were investigated for correlation with SPB. Subgroup analysis was performed for patients with low and high SPBS scores.

Results Among the 84 patients studied, the mean SPBS score(Standard deviation) was 29.1 ($\pm$8.7), with 24 patients (28.6%) having reported moderate SPB (score 26 to 33) and 29 patients (34.5%) having reported severe SPB (score 34 to 50). By Spearman's correlation, there was statistical significant correlations between SPB and drowsiness (rs= 0.275, p= 0.011), affectionate support subscale of Medical Outcomes Study- Social Support Survey (rs=0.345, p= 0.001), avoidance coping strategy (rs= 0.280, p= 0.010), anxiety subscale of Hospital and Anxiety Depression Scale (rs= 0.223, p= 0.041) and desire to hasten death (rs= 0.265, p= 0.015). However, SPB did not correlate with functional dependency or depression. When comparing the subgroup of patients with low and high SPB, there was statistical significant correlation with SPB and financial status (p= 0.013), affectionate support subscale (t= -2.729, df= 56.234, p= 0.008,) and desire to hasten death (U= 609, z= -2.158, p= 0.031).

Conclusion Self-perceived burden is common in advanced cancer patients, and more than two-thirds of our patients had moderate to severe sense of burden. SPB was found to correlate with financial status, drowsiness, perceived good affectionate support, avoidance coping strategy, anxiety and desire to hasten death. Functional dependency and depression, postulated to be relevant to SPB, were not identified to have significant correlation in our study.

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METABOLIC SYNDROME IN CORONARY ARTERY DISEASE PATIENTS UNDERGOING PHASE II OUTPATIENT CARDIAC REHABILITATION – A SINGLE CENTRE EXPERIENCE

Dr Cheung Ka Yin, Department of Medicine & Geriatrics, United Christian Hospital
(December 2012 Rehabilitation Exit Assessment Exercise)

Background The prevalence of metabolic syndrome in Hong Kong was similar to that of the western population. Cardiovascular morbidity and mortality was markedly increased in those patients with metabolic syndrome. The local prevalence of metabolic syndrome among the coronary artery disease patients undergoing phase II outpatient cardiac rehabilitation was lacking. There were also limited studies to assess the effectiveness of cardiac rehabilitation program among coronary artery disease patients with metabolic syndrome.

Objectives To study 1) the prevalence of metabolic syndrome in coronary artery disease patients entering the program in one Hong Kong regional hospital; 2) the metabolic profiles of metabolic syndrome group and non-metabolic syndrome group entering the program; 3)

changes in metabolic parameters and prevalence in metabolic syndrome group after the program; 4) the clinical parameters predicting the outcomes in the program; 5) the comparison of clinical outcomes between the metabolic syndrome group and the non-metabolic syndrome group.

Methods A retrospective observational study of the coronary artery disease patients entering the outpatient phase II cardiac rehabilitation program at a local hospital from January, 2007 to December, 2008.

Results There were 228 eligible patients completing the cardiac rehabilitation program from January, 2007 to December, 2008. There were 137 coronary artery disease patients (60.1%) fulfilled criteria for the metabolic syndrome (MetS) at the entry. The mean age of the MetS group patients was 66 ± 10 while the mean age of the patients without MetS was 63 ± 12. The mean total sessions attended by both groups were 21.4 ± 5.4 and 21.3 ± 5.4 in MetS group and non-MetS group respectively. At the baseline, Patients in MetS group had significantly lower levels of HDL-C, higher levels of triglycerides, higher body mass index/body weight, higher waist circumference, higher TG/HDL-C ratio and higher resting systolic blood pressure than those in non-MetS group. The exercise capacity was significantly lower in MetS group (8.8 METS ± 2.5) when compared to non-MetS group (9.7 METS ± 2.4) (p=0.01).

At the completion of the rehabilitation program, there was 16.1% reduction in the number of MetS patients in the MetS group cohort. Patients with MetS achieved significant improvement in total cholesterol level, HDL-C level, LDL-C level, Triglycerides level, HbA1c level, waist circumference, body weight, ratio of TG/HDL-C and resting diastolic blood pressure. Quality of life scores involving 4 different domains improved significantly after the program. The exercise capacity in these patients showed significant mean increase of 1.8 METS ± 0.3 at the end (p<0.001). There was significant number of MetS patients who quitted smoking and performed regular exercise (at least three times per week) after the program. In non-MetS group patients, they only achieved significant improvement in LDL-C level, HbA1c level, physical health domain score and environmental domain score. The exercise capacity again showed significant mean increase of 2.1 METS ± 0.4 (p<0.001) in these patients. There were significant number of non-MetS patients who quitted smoking and performed regular exercise (at least three times per week) after the program. There was a trend in improvement of HDL-C level, triglycerides level, fasting blood glucose level, body mass index, waist circumference and ratio of TG/HDL-C, though not reaching statistical significant level. Four baseline variables namely, female sex, low HDL-C level, high HbA1c and waist circumference were significant independent predictors for “non-responders” (who continued to possess the diagnostic criteria of MetS) at the end of the cardiac rehabilitation program.

Conclusion Metabolic syndrome was highly prevalent among the coronary artery disease patients undergoing outpatient cardiac rehabilitation program. The comprehensive cardiac rehabilitation training program reduced the prevalence of metabolic syndrome and showed beneficial effects on metabolic parameters and exercise capacity in coronary heart disease patients with metabolic syndrome. By early identification and referral, risk of cardiovascular events in metabolic syndrome patients could be reduced.

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RETURN TO WORK AFTER STROKE THE NT WEST CLUSTER EXPERIENCE

Dr Lee Savio, Department of Medicine & Geriatrics, Tuen Mun Hospital (December 2012 Rehabilitation Exit Assessment Exercise)

Background As an important domain of rehabilitation in young adults, employment contributes significantly both to the financial and psychological recovery on working age patients and their families after cerebrovascular accidents. There are limited local studies about the situation of returning to work (RTW) of stroke patients in Hong Kong.

Objectives To investigate the pattern of returning to paid work after in-patient stroke rehabilitation in working-age patients, and to identify predictive factors of returning to work in the New Territories West Region of Hong Kong SAR.

Methods A prospective observational study was conducted on working age patients suffering from first ever stroke admitted to Tuen Mun Hospital Rehabilitation Centre between 1/7/2009 & 31/12/2009. Data (including sociodemographic data and stroke outcome) was collected and analyses were performed. The patterns of return to work were examined. Analyses were done to examine the associations between different factors and the RTW situation.

Results Among 256 patients being screened during the period, fifty-four patients (mean age 50.1) fulfilled the inclusion criteria. 11% (6) were women and 89% (48) were men. 19 (35%) patients returned to work by 12 months after discharge from Tuen Mun Hospital Rehabilitation Centre. There were changes in employers, assignments and working hours. Ambulatory performance (measured as Modified Functional Ambulatory Category, MFAC), cognitive function (measured as Mini Mental State Examination, MMSE) and past medical history had a statistically significant association with RTW in 6 months following rehabilitation discharge. MFAC score and Social Security Status (recipient status of Comprehensive Social Security Assistance, (CSSA) upon discharge from in-patient rehabilitation) had statistically significant association with RTW in 12 months.

Conclusion A significant proportion of patients could return to work by 1 year after in-patient rehabilitation. Predictive factors during rehabilitation phase (ambulatory performance, social security status, cognitive function and past medical history) for RTW were identified.

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PROPERTIES OF THE CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) ASSESSMENT TEST (CAT) AMONG CHINESE PATIENTS WITH COPD AT A REGIONAL HOSPITAL IN HONG KONG

Dr Lee Yin Yin Candice, Department of Medicine & Geriatrics, Tuen Mun Hospital
(December 2012 Respiratory Medicine Exit Assessment Exercise)

Background Chronic obstructive pulmonary disease (COPD) is not a disease that affects only the respiratory system, but rather it is a systemic disease associated with significant impairment of health status. The COPD Assessment Test (CAT) is an 8-item health status questionnaire recently developed in 2009 in Europe, and has a scoring range 0-40 (high score representing poor health status). This study is the first to evaluate the CAT (Chinese Hong Kong version) performance in Chinese patients in Hong Kong.

Methods This is a cross-sectional study evaluating the performance of CAT by 208 COPD patients attending the COPD clinic at Tuen Mun Hospital from November 2011 to February 2012. CAT scores were correlated with demographics and various clinical parameters such as forced expiratory volume in one second (FEV1), the Modified Medical Research Council (MMRC) dyspnea scale, comorbidities, and COPD exacerbation, etc. The predictive ability of CAT for hospital admission for COPD exacerbation was also studied.

Results A higher CAT score correlated significantly with a lower FEV1, higher MMRC grade, more admissions for exacerbation and the presence of depression. CAT scores were also significantly better in patients who were stable (17.37±6.71) compared to those suffering from an exacerbation (20.94±5.38).
Hospital admission for COPD exacerbation correlated significantly with a lower FEV1, higher MMRC grade, more previous admissions for exacerbation and the presence of cardiovascular diseases. The parameter having the highest predictive ability for COPD exacerbation is the number of admissions in the preceding year, followed by the MMRC grade, CAT score, and lastly, the FEV1.

Conclusion This study revealed that the performance of CAT (Chinese Hong Kong version) in Chinese patients is comparable with that of the Caucasian populations. CAT is likely a reliable health status impairment measurement tool that is applicable to patients in our locality. However, it is not a strong predictive tool for future COPD exacerbations.

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A COMPARATIVE STUDY ON ENDOBRONCHIAL ULTRASOUND(EBUS)-GUIDED AND CONVENTIONAL NON-IMAGE GUIDED BRONCHOSCOPIC EXAMINATION OF PERIPHERAL PULMONARY LESIONS

Dr Liu Chung Ngar Dorothy, Department of Medicine & Geriatrics, Kwong Wah Hospital
(December 2012 Respiratory Medicine Exit Assessment Exercise)

Study objectives Peripheral pulmonary lesions – defined as lesions that are surrounded by pulmonary parenchyma and are not visible endoscopically, are often encountered in clinical practices. Improved diagnostic sensitivity for these peripheral lesions has been reported with the use of radial probe endobronchial ultrasound (EBUS), although diagnostic performance varies considerably in the literature.
The primary aim of this study is to compare the diagnostic ability of endobronchial ultrasound (EBUS) guided bronchoscopies versus conventional bronchoscopies, in the evaluation of peripheral pulmonary lesions in this locality. The secondary aim of the study is to focus on the group of patients who underwent EBUS guided bronchoscopies, in search of factors associated with EBUS diagnostic yield.

Study design Retrospective review.

Patients Patients with peripheral pulmonary lesions who underwent conventional bronchoscopies between 1/2009 – 6/2010 were recruited into the non-EBUS group; and compared with the EBUS group which included patients who underwent EBUS guided bronchoscopies from 7/2010 – 12/2011.

Results 108 patients were included into the non-EBUS group, and 99 were in the EBUS group. EBUS guided bronchoscopies achieved a higher diagnostic rate compared with conventional bronchoscopies, although the difference just fell short of being statistically significant (Diagnostic rates of 39.4% c.f. 27.8% in the EBUS and non-EBUS groups respectively, p= 0.077). During subgroup analysis according to disease nature, however, EBUS was found to have a significantly higher diagnostic rate for malignant lesions than non-EBUS bronchoscopies (Diagnostic rate of 49% c.f. 29.3% in the EBUS and non-EBUS groups respectively, p=0.035).
On evaluation of the EBUS group alone, univariate analysis identified the lesion size, EBUS probe location and disease nature as predictors of EBUS diagnostic yield; and the probe location and disease nature remained statistically significant in multivariate logistic regression (p=0.026 and p= 0.010 respectively).

Conclusion Endobronchial ultrasound guided bronchoscopy is a valuable tool for the diagnosis of peripheral lung lesions. A superior diagnostic rate was seen when compared with conventional non-EBUS guided bronchoscopies, although the difference just fell short of being statistically significant. EBUS probe location and disease nature were found to be statistically significant predictors of the diagnostic yield during EBUS guided bronchoscopies. A larger scale evaluation, in the form of a multi-center prospective study, should be performed in the future to facilitate further generalizability of the results.

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SURVIVAL, CAUSES OF DEATH, RISK FACTORS ASSOCIATED WITH MORTALITY AND MORBIDITY IN PATIENTS WITH SYSTEMIC SCLEROSIS

Dr Jao Ho Ying, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (December 2012 Rheumatology Exit Assessment Exercise)

Objectives A retrospective cohort study to determine the survival rate, causes of death, risk factors associated with mortality and morbidity in patients with systemic sclerosis (SSc) followed over 20 years in a regional hospital.

Methods Patients fulfilling the 1980 American College of Rheumatology (ACR) classification criteria for systemic sclerosis were identified through the computer database, Clinical Management System, in a regional hospital. Baseline demographic, clinical and serological features were recorded. Potential factors were analyzed for their effects on outcome. Disease activity was assessed using European Scleroderma Study Group (EScSG) disease activity index. Disability and Health status of the surviving patients were assessed using Health Assessment Questionnaire disability index (HAQ - DI) and The Medical Outcomes Study Short Form-36 (SF 36) respectively.

Results Eighty-four SSc patients were identified between the study period of 1993–2010. Sixteen (19%) had died by the time of enrollment. The 5 and 10 year survival were 92.3% and 81.4% respectively. SSc related death accounted for 12.5% of death and was mainly due to gastrointestinal involvement. Non-SSc related death accounted for 87.5% of death. Infection accounted for 50% of overall death and was the most common cause of death followed by malignancy 18.75%. Cardiovascular events accounted for 12.5% of death and 6.25% due to unknown cause. Reduced diffusing capacity of lung for carbon monoxide (DLCO) < 80% predicted and proteinuria were independent predictors of death. Mean EScSG disease activity index was 0.74+/-0.845. The mean HAQ DI and total SF 36 score were 0.45+/-0.622 and 61.44+/-21.86 respectively.

Conclusions The survival rate of scleroderma patients is better than earlier reports. Majority of deaths were non-SSc rather than disease related. Infection was the most common cause of death followed by malignancy. Majority of the “alive” patients in the cohort were in inactive disease state and with mild disability. To improve the long term survival of scleroderma should include proper management of the rheumatic disease and a greater effort should be paid in preventive measures, early detection and treatment of infection or malignancy.

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IMPACT OF SYSTEMIC SCLEROSIS (SSC) AND MIXED CONNECTIVE TISSUE DISEASE (MCTD) ON HEALTH RELATED QUALITY OF LIFE (HRQOL) WITH PARTICULAR REFERENCE TO THE HAND FUNCTION AND DISABILITY

Dr. PANG Hin Ting, Department of Medicine and Geriatrics, Kwong Wah Hospital

(December 2012 Rheumatology Exit Assessment Exercise)

Background There are limited data regarding to the prevalence and severity of hand disability in Chinese patients with scleroderma and mixed connective tissue disease. The hand disability may have impact on the health related quality of life (HrQoL) in this group of patients. The hand function on daily activities may be compromised by variable diseases manifestations including the raynaud phenomenon (RP), arthralgia, skin tightening and contractures.

Objective To investigate the impact of disease on the quality of life with particular reference to the hand function and disability in patients with SSc & MCTD and with comparison to non-rheumatological patients.

Methods This was a cross-sectional study conducted in a regional rheumatology center from June 2012 to September 2012. Patients with SSc or MCTD with sclerodactyly would be recruited. Baseline demographic data, different organ manifestations including pulmonary, cardiac, gastrointestinal (GI), renal and hand involvement including digital ulcers, Raynaud, tender joint count (TJC) and auto-amputation were recorded. Hand Functions and disability were measured by Colchin hand function scale (CHFS), hand grip strength and kapandji index. HrQoL were assessed by short form 36 questionnaire (SF-36). Correlation of different parameters and significant predictors of poor hand function and HrQOL were estimated. Same number of age- and gender- matched control would be recruited for comparison of Colchin hand function and HrQoL with the studied population.

Results A total of 50 patients with SSc/MCTD were studied. Compared with age- and gender- matched control, SF-36 scores of patients with SSc/MCTD in physical component (PCS) and mental component (MCS) were found to be significantly lower in SSc /MCTD patients (87.5 vs 47.3 ; $p<0.001$ & 88.40 vs 55.24; $p< 0.001$ respectively) Subgroup analysis revealed that diffuse cutaneous scleroderma (DcSSc) had the worst hand function by CHFS [DcSSc (24.92), LcSSc (11.55), MCTD(9.06), Control(0.76); $p< 0.05$]. While the differences between disease subtypes in other hand function index such as Kapandji and grip strength were not statistically significant. High frequency of GI symptoms was reported (68.6%) in this study. The mean dyspnea score in SSc/MCTD by visual analogue scale (VAS) was 25.92 out of 100. Multi-linear regression model showed that grip strength (B=0.892; 95% CI= 0.251, 1.534; p=0.007) and VAS breathing (B=-0.249; 95% CI=-0.446,-0.052; p=0.014) were independent predictors of PCS of SF-36. For the MCS of SF-36, grip strength (B=0.82; 95% CI= 0.057, 1.583; p=0.036) and Digital ulcer (B=-14.00; 95% CI=-27.484, -0.523; p =0.042) but not VAS breathing were found to be independent predictors. Lastly, grip strength was the only independent predictor for the total SF-36 score. (B=0.948; 95% CI 0.261, 1.1635; p=0.008) 5

Conclusions The scleroderma/ mixed connective tissue disease patients have poor QoL. Hand function and disability are one of the significant predictors of the poor QoL. More attention is needed for the objective measurement of hand function, occupational training and potential methods for intervention in this frequently overlooked area to improve the quality of life.

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