Abstracts of Dissertations
December 2001 Exit Assessment Exercise

TYPE II DIABETES MELLITUS AND DIABETIC NEPHROPATHY

Dr Chan Koon Ho, Department of Medicine, Queen Mary Hospital (December 2001 AIM Exit Assessment Exercise)

Background Type 2 diabetes mellitus (DM) is a common disease diabetic nephropathy (DN) is an important causes of morbidity and mortality. The etiology of DN in type 2 diabetes is uncertain. Microalbuminuria (MA) predicts DN. Aims: to ascertain risk factors that predict DN in type 2 DM, including potential effect of a candidate gene, endothelial nitric oxide synthase (eNOS). Methods: a total of 265 patients with type 2 DM were assessed at baseline with clinical and metabolic parameters recorded. All patients were regularly followed up. The parameters were recorded 4 years later for outcome assessment. An urinary microalbumin excretion rate (MAER) =/< 20ug/min was defined as normoalbuminuria (NA), >20 to 200ug/min as microalbuminuria (MA) and >200ug/min as albuminuria (A). Patients with progression of UAE (from NA to MA/A and from MA to A, progressors) were compared with those without progression (non-progressors). Polymerase chain reaction was applied to study the variable number of tandem repeat (VNTR) polymorphism at intron 7 of the eNOS gene. Results: 26.7% of patients with MA at baseline progressed to A, while 18.3% regressed to NA . Older age at diagnosis of DM (ADDM) and lower baseline high-density-lipoprotein cholesterol (HDL-C) level were, while VNTR polymorphism at intron 7 of eNOS gene was not, associated with progression to MA or DN. Conclusion: older ADDM and lower HDL-C level may predict DN in type 2 DM. Genetic factors affecting susceptibility to DN cannot be excluded yet.

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HYPEREOSINOPHILIA AND IDIOPATHIC HYPEREOSINOPHILIC SYNDROME

Dr Choi Kin Wing, Department of Medicine, Princess Margaret Hospital
(December 2001 AIM Exit Assessment Exercise)

Objective (1) To determine the patient characteristics, clinical features and underlying etiologies for cases with hypereosinophilia (defined as eosinophil count greater than 1.5 x 10^9/L) as a major presenting feature. (2) Review of cases with the diagnosis of hypereosinophilic syndrome.

Method A retrospective review of cases whose age were 18 or above on presentation and admitted to a regional hospital in Hong Kong during the period of 01/01/1995 to 31/12/2000 with the following keywords included in their primary or secondary diagnoses from case records: eosinophil(s), eosinophilia, eosinophilic, hypereosinophilia, hypereosinophilic.

Result Twenty-three cases were available for review. Male: female ratio 1.88. Age: 19 to 74 with a median of 46. One case was non-Chinese in ethnic origin. The causes of hypereosinophilia identified were: drug induced (26.1%), atopy (17.4%), hypereosinophilic syndrome (HES) (8.7%), parasitic infestation (8.7%), vasculitis (8.7%), lymphoma (8.7%), skin diseases (8.7%), hypoadrenalism (4.3%), carcinoma of lung (4.3%), and cholesterol embolism (4.3%). Eosinophil count was highest for those with HES, parasitic infestation and vasculitis. Clinical course was

highly variable and largely determined by underlying causes of hypereosinophilia. The cases of HES will be reviewed in detail.

Conclusion Hypereosinophilia can be due to a wide range of possible causes and the clinical presentation was highly variable. Drug induced eosinophilia and atopy were the commonest causes. Degree of eosinophilia may help in formulating the differential diagnosis. Possibility of HES should be considered early in those patients who presented with exceptionally high eosinophil count.

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AMIODARONE INDUCED THYROID DYSFUNCTION: EXPERIENCE IN A COMMUNITY-BASED HOSPITAL IN HONG KONG AND ITS MANAGEMENT

Dr Fung Tang Tat, Konrad, Department of Medicine and Geriatrics, Kwong Wah Hospital
(December 2001 AIM Exit Assessment Exercise)

Objective To determine the prevalence of amiodarone- induced thyrotoxicosis and hypothyroidism in Hong Kong and their respective risk factors

Patients and methods: A retrospective study was performed in patients who had been seen in the outpatient clinic in a community based hospital in Hong Kong over a six month period. No history of thyroid disorder was noted before treatment of amiodarone.

Main outcome measures: To record the major medical diseases, serum creatinine level, anti-thyroid antibodies, thyroid function test before and after starting amiodarone

Results The records of 287 patients were reviewed. The prevalence rates of frank and subclinical amiodarone- induced thyrotoxicosis (AIT) were 3.4% and 0.8%, and those of frank and subclinical amiodarone- induced hypothyroidism (AIH) were 6.8% and 20.2%. No risk factors were identified in the group of patients with AIT. Elevated baseline thyroid stimulating hormone level before starting amiodarone was a risk factor of developing AIH. The odds ratio was 1.64 (95% confidence interval 1.24 to 2.16).

Conclusion In euthyroid subjects living in an area of borderline iodine adequacy, AIH was more common than AIT. Elevated baseline thyroid stimulating hormone was a risk factor of developing AIH. Further study, especially a prospective one, into the clinical aspects of amiodarone- induced thyrotoxicosis in Hong Kong is warranted so that we can find out the optimal therapeutic strategy for this complicated disease in this locality.

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A NEW ARMAMENTARIUM IN THE TREATMENT OF CORONARY HEART DISEASE: GLYCOPROTEIN IIB/IIIA INHIBITORS

Dr Ho Chung Man, Department of Medicine, Queen Mary Hospital (December 2001 AIM Exit Assessment Exercise)

Coronary artery disease has been associated with high morbidity and mortality in many parts of

the world including Hong Kong. Current standard treatments include medical therapy, percutaneous coronary intervention, and coronary artery bypass grafting. Newer anti-platelet agent, glycoprotein IIb/IIIa inhibitor, with more potent platelet inhibitory activity has been developed to improve the outcomes of ischaemic heart disease. We have performed a retrospective observational study on the use of glycoprotein IIb/IIIa inhibitors in coronary artery disease in the Queen Mary Hospital. Out of 320 cases of ischaemic heart disease admitted to the coronary care unit, there were 19 subjects who received open-labelled glycoprotein IIb/IIIa inhibitors, in which 17 records were available. The subjects recruited were predominantly males (14) and aged 63 ± 11 years. All except one case had percutaneous coronary intervention (PCI). The specific glycoprotein IIb/IIIa inhibitors used including eptifibatide (3), abciximab (3), and tirofiban (11). There were no urgent revascularization and mortality within 30 days. One case (6%) of acute myocardial infarction post-PCI occurred. No major wound haematoma or intracranial bleeding was found. The side effects included 1 case of gastrointestinal bleeding and 2 cases of mild thrombocytopenia. Therefore, glycoprotein IIb/IIIa inhibitors have been shown in this study to be effective and safe in patients receiving percutaneous coronary intervention, comparable to results from previous trials reported.

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ANTIPHOSPHOLIPID SYNDROME - CRITICAL REVIEW AND LOCAL PERSPECTIVE

Dr Leung Chi Man, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(December 2001 AIM Exit Assessment Exercise)

Antiphospholipid syndrome (APS) is a multi-system disorder characterized by the occurrence of vascular thrombosis or pregnancy morbidity associated with persistent antiphospholipid antibodies (aPL), either lupus anticoagulant (LA) or anticardiolipin (aCL) antibodies. Our understanding of APS has improved with the recent discovery of $\beta_2$glycoprotein I (β_2GPI) as the likely target antigen to which aPL antibodies are directed. A growing body of evidence also suggests a direct pathogenic role of aPL antibodies and the underlying mechanisms are likely multifaceted. Controversy still exists with regard to the optimal management of patients with APS in particular the intensity of warfarin therapy for thrombosis. To explore the characteristics of Chinese patients with APS, a retrospective study was performed in 59 consecutive patients who were found to have positive aPL antibodies in a regional hospital. A diagnosis of APS was established in 15 patients. All were female, including 10 patients with thrombosis, four with pregnancy morbidity and one with both. Nine patients had primary APS and six had secondary APS. The correlation between aCL antibodies and LA was fairly low (29%). LA has greater correlation with APS (67%) compared with aCL antibodies (45%). Anti-β_2GPI antibody had relatively low sensitivity for APS (43%). The commonest arterial and venous thrombotic events were cerebral vascular events and deep vein thrombosis respectively. Intermediate-intensity warfarin with an international normalized ratio (INR) maintained at 2.5 instead of high-intensity warfarin with INR ≥ 3 seems to be an adequate prophylactic regimen for Chinese patients with APS related thrombosis.

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PYOGENIC LIVER ABSCESS

Dr Leung Chung Ping, Department of Medicine and Geriatrics, Caritas Medical Centre
(December 2001 AIM Exit Assessment Exercise)

Pyogenic liver abscess (PLA) is a not very common but can be fatal if not properly treated. It has been described since the time of Hippocrates and the incidence has been reported to occur in approximately 1 in 7,000 hospital admission in varies studies. The mortality rate was around 75% in the past and is around 15% even in recent studies. In order to reduce the mortality of this disease, prompt recognition and appropriate treatment of this disease is needed.

This paper of pyogenic liver abscesses contains 2 parts. The first part is a comprehensive literature review. The clinical presentation, laboratory features and investigation modalities were reviewed in the hope that earlier recognition of this fatal disease can be made. Treatment and prognostic factors of this disease were studied.

The second part consists of a retrospective case record review of all the pyogenic liver abscesses managed in our Medical and Geriatric Department Caritas Medical Centre, in the period from 1996 to 2000. Of the 33 cases of PLA, less than 5% presented with classical clinical features of fever, right upper abdominal pain and hepatomegaly. Klebsiella pneumoniae was the commonest etiology agent (45%), although it was not necessarily associated with diabetes mellitus. Pus aspirated from the hepatic lesion gave the highest yield of positive culture. Ultrasonography was highly sensitive (91%) in the diagnosis and was helpful in subsequent image-guided drainage. Interventional endoscopic retrograde cholangiopancreatography (ERCP) was not necessary in 75% of cases. There were no significant prognostic factors associated with mortality or significant morbidity. (hypoalbuminemia and shock on presentation were associated with ICU admission). There was no significant difference between percutaneous needle aspiration and catheter drainage on the outcomes of ICU admission, shock, and length of hospital stay. Although there was zero mortality in these 33 patients, premature stopping of intravenous antibiotic at day 4 of 1 patient and missed diagnosis (during first admission) of another patient resulted in relapse of fever and unplanned readmission respectively. Therefore high index of suspicion is important and at least 10 to 14 days intravenous antibiotic followed by oral antibiotic are generally needed for effective management of PLA.

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RISK FACTORS FOR ACQUISITION OF URINARY TRACT INFECTION CAUSED BY EXTENDED-SPECTRUM BETA-LACTAMASES PRODUCING ENTEROBACTERIACEAE:A CASE-CONTROL STUDY

Dr Leung Yat Yee, Natalie, Department of Medicine and Geriatrics, United Christian Hospital (December 2001 AIM Exit Assessment Exercise)

Objective Infections caused by extended-spectrum beta-lactamase (ESBL) producing enterobacteriaceae had been a major problem in the intensive care unit (ICU). However, urinary tract infection caused by ESBL producing enterobacteriaceae (ESBL UTI) is a growing problem but limited data is available. The aim of this study is to explore the risk factors associated with the acquisition of ESBL UTI and its outcome.

Methodology A case-control study was performed from January to June 2001. Patients with clinical evidence of urinary tract infection (UTI) and the urine specimen showing a predominant growth of ESBL-producing enterobacteriaceae were studied. The controls were randomly selected from patients with UTI caused by non-ESBL producing enterobacteriaceae.

Results Seventy-eight patients with ESBL UTI were compared with 78 controls. In male, the independent predictor for ESBL UTI was prior UTI. The independent risk factors for female were serum albumin, bladder disorder and previous antibiotic exposure. The independent predictors for unscheduled readmission were serum albumin and antibiotic exposure.

Conclusion Patients with history of UTI, antibiotic exposure, malnutrition or bladder disorders are at risk of developing ESBL UTI. Identification of ESBL is difficult because it may appear falsely susceptible to extended-spectrum cephalosporins in in-vitro testing. Patients with ESBL UTI are prone to therapeutic failure, high reinfection and readmission rate. Treatment is difficult as other resistant genes often coexist and tazocin or carbapenem are needed for severe infection. As a result, we should minimize these risk factors to prevent UTI from occurring.

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BACTERIAL BLOODSTREAM INFECTION - A CRITICAL REVIEW AND A LOCAL PERSPECTIVE

Dr Liu Sung Yu, Herman, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(December 2001 AIM Exit Assessment Exercise)

Bloodstream infection is common in clinical practice and usually causes a high rate of morbidity and mortality. The costs associated with these infections are enormous, especially in critically ill patients. Despite a long history of efforts to produce efficacious therapeutic interventions for sepsis, bloodstream infection occurs in at least one and a half million patients throughout the world yearly, with only 50-70% survival rate. In recent years, the increasing incidence of antibiotic resistance and the increasing use of catheter in clinical practice further aggravates the situation. Understanding of the complex interactions among coagulation, inflammation, and fibrinolysis in sepsis brings new clinical challenges. Information concerning bloodstream infections in local population is scanty. In order to explore the characteristics of local Chinese patients with clinically significant bloodstream infection, a survey in the Department of Medicine in a regional hospital was conducted over a period of six months. One hundred and eighty five bacteremic episodes were recruited. Seventy two percent were of community-acquired bloodstream infections and 28% were of hospital acquired infections (HAI). The crude in-hospital mortality rate was 17.1%. *Escherichia coli, Entrobacter species, Streptococcus species, Staphylococcus aureus and coagulase-negative staphylococcus* were among the five commonest pathogens. In terms of antimicrobial resistance, the percentage of methicillin-resistance staphylococcus aureus (MRSA) was 23.8% and there were only seven isolates with demonstated extended spectrum beta-lactamases (ESBL) activities. *Escherichia coli* was noted to have a high resistant rate to quinolone. Catheter related bloodstream infections occurred frequently in patients

with chronic renal failure on dialysis and haematological patients with hickman catheter. Predictors of mortality were also studied. These results might be useful for better management of patients with bacteremia.

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HEPATIC DYSFUNCTION IN HYPERTHYROIDISM

Dr Ma Hon Ming, Department of Medicine, Alice Ho Miu Ling Nethersole Hospital (December 2001 AIM Exit Assessment Exercise)

Abnormal serum liver function tests (LFT) are common in hyperthyroidism (15% to 76% overseas) but their true incidence and clinical significance are disputable. Concomitant liver disease may be difficult to exclude before euthyroid state is attained. In Hong Kong, local data in this area is lacking. Moreover, no attempt was made in correlating the severity of hyperthyroidism with LFT abnormalities.

In this dissertation, literature on hepatic dysfunction in hyperthyroidism was comprehensively reviewed. Our prospective study confirmed the high incidence (75%) of one or more baseline LFT abnormalities among newly confirmed hyperthyroid patients. Both the number and degree of LFT abnormalities correlated well with the severity of hyperthyroidism. Alkaline phosphatase (ALP) isoenzyme studies revealed a much lower true incidence (40% when raised bone-ALP cases excluded) of liver involvement at very high free thyroxine levels.

Baseline LFT in newly diagnosed hyperthyroidism should be a routine as mildly elevated ALP, mostly attributed to increased bone turnover, is very common and correlates with free thyroxine level in the preceding few months. It also reduces later uncertainty that subsequent impaired LFT may be due to antithyroid medications or concomitant hepatobiliary diseases. On the contrary, isolated raised ALP in undiagnosed hyperthyroid patients presenting with non-specific symptoms may result in unnecessary hepatobiliary investigations. In uncertain situation, ALP isoenzyme studies are helpful. LFT abnormalities in hyperthyroidism usually normalise with gradual attainment of euthyroid state Unlike in antituberculous therapy, HBsAg carrier status and baseline LFT abnormalities are not prognostic factors for antithyroid drug induced hepatic dysfunction (14%) in hyperthyroidism.

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COBALAMIN & FOLATE DEFICIENCY – A CRITICAL REVIEW AND LOCAL PERSPECTIVE

Dr So Kit Ying, Loletta, Department of Medicine, Pamela Youde Nethersole Eastern Hospital (December 2001 AIM Exit Assessment Exercise)

This dissertation on “cobalamin and folate deficiency” consists of two parts, a critical review of the subject and a retrospective study in a local population.

Eighty-seven patients with cobalamin and/or folate deficiency from a regional hospital in Hong Kong were retrospectively reviewed and classified into four vitamin-deficient groups namely Group A (Definite B12 deficiency, N=45), Group B (Definite folate deficiency, N=26), Group C (Combined B12 and folate deficiencies or B12 deficiency, N=9), and Group D (Transient folate deficiency, N=7).

B12 deficiency was predominantly seen in elderly of 65 or above (91%). 30% had extremely low B12 level of <44 pmol/L. 58% was confirmed to have megaloblastic anaemia. 20% was apparently associated with neuropsychiatric disturbances. Pernicious anaemia was the commonest cause for all B12 deficiencies (55%), followed by gastrectomy or other gastric diseases (17%). Complete haematological recovery following B12 replacement was often achieved.

Folate deficiency occurred in younger patients (35% <65 years old) with 1.9:1 male predominance. 49% of red cell folate levels were only mildly below normal range. Alcoholism (31%), chronic liver diseases (23%), chronic diarrhoea (15%), rheumatoid arthritis on anti-folate drugs (12%), and leukaemia (12%) were the causes identified. Macrocytosis with or without anaemia was often unresponsive to folate replacement signifying other underlying causes for these haematological disorders.

Transient folate deficiency was found in patients with severe comorbidities and they had high short term mortality.

Better management strategies including heightened clinical awareness, more sensitive diagnostic tests, earlier intervention, and prophylactic treatment for high-risk patients might improve the outcomes of these nutrient deficiencies.

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ABDOMINAL TUBERCULOSIS— CASE SERIES AND LITERATURE REVIEW

Dr Wong Che Keung, Department of Medicine, Ruttonjee Hospital (December 2001 AIM Exit Assessment Exercise)

There is an increasing incidence of tuberculosis infection in Hong Kong due to various reasons. Abdominal tuberculosis, though uncommon, did occur in 18 patients presenting to a regional hospital over a six and a half year period from 1995 to 2001. A retrospective case review was performed to study the characteristics of these patients. 17 patients were studied showing a male predominance (2:1). Two peaks in incidence were observed, one at age 20 to 40 (6) and another at age 70 to 80 (4). This contrast with Caucasian studies which mainly involve young patients. Four patients (24%) were new immigrants. Predisposing factors were identified only in two patients, one had liver cirrhosis and diabetes while the other one was on corticosteroid. Fever (47%) and abdominal pain (35%) were the two commonest presentations. Apart from patients presented with acute abdomen, delay in presentation and diagnosis was common. Majority of patients (13, 76%) had CXR abnormalities with eight (47%) of them having active pulmonary tuberculosis. Peritoneum (35%) and ileum (29%) were the two commonest sites of involvement. Invasive procedures were required to diagnose this condition in most cases (14, 82%). 5

underwent laparoscopy and 5 underwent laparotomy. Confirmation of abdominal tuberculosis mainly relied on tissue diagnosis [13, direct smear (4), culture (1) and histology (8)]. Severe complications including intestinal obstruction (2) and perforation (1) occurred in three patients (18%). Overall mortality rate was 18%. Mortality was extremely high for elderly age group (60%). All mortality occurred in patients older than 70.

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MYASTHENIA GRAVIS - AN UP-TO-DATE UNDERSTANDING WITH SPECIAL REFERENCE TO THE LOCAL POPULATION

Dr Wong Sze Ho, Sunny, Department of Medicine and Geriatrics, Princess Margaret Hospital
(December 2001 AIM Exit Assessment Exercise)

Myasthenia gravis (MG) is not rare, and is at present the most thoroughly understood organ specific autoimmune disease. In this article, a survey of the in-patients managed by the Department of Medicine & Geriatrics, Princess Margaret Hospital (PMH) from 1998 to 2000 is first presented, followed by the discussion of the clinical course of 4 of the patients. The epidemiology and clinical features are next reviewed. It is found that Chinese patients have a higher incidence of ocular MG when compared with Caucasians.

The pathogenesis of MG includes the attack of the acetylcholine receptors (AChR) on the postsynaptic membrane by autoantibodies resulting in decreased availability of AChR and damage of the postsynaptic membrane. Some patients appear to have no antibodies against AChR. These patients have some other antibodies against other skeletal muscle proteins. Both B and T lymphocytes are important in the pathogenesis of MG.

The understanding of the origin of the autoimmunity mainly comes from the study of abnormal thymic microenvironment. Other possible mechanism is molecular mimicry due to infection or thymoma. Genetic factor also seems to play a role.

Diagnosis can now be made confidently by anticholinesterase test, electrodiagnostic study and checking of acetylcholine receptor antibodies (AChR Ab). There are some important differential diagnoses to consider. Thymic abnormalities, hyperthyroidism and other autoimmune diseases are commonly associated.

Present day treatment includes anticholinesterases, thymectomy and various immunosuppressive therapies. Future treatment is to develop specific immune therapy for the underlying disorder.

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NEUTROPENIC FEVER - EXPERIENCE IN A REGIONAL HOSPITAL AND LITERATURE REVIEW

Dr Yim Cheuk Wan, Department of Medicine and Geriatrics, United Christian Hospital
(December 2001 AIM Exit Assessment Exercise)

Objective Neutropenic infection is a life-threatening condition causing mortality and morbidity. We performed a literature review on the management of neutropenic fever together with a retrospective review of febrile neutropenic patients being managed in the United Christian

Hospital in order to have a better understanding of the condition.

Method Patient records of United Christian Hospital were reviewed. From January 1, 2000 to July 31, 2001, eligible cases of neutropenic fever in adult patients were identified. We examined the patient records for the underlying disease, clinical features on presentation, culture and sensitivity results, antibiotic regime and outcome. Prognostic factors of poor outcome were analyzed. We also compared our present experience with published studies.

Results A total of 86 febrile neutropenic episodes were identified in 35 patients. Underlying haematological malignancies accounted for 78% of cases. Gram-negative organisms were still the dominant organisms, accounting for 53% of all isolates, and *Pseudomonas aeruginosa* was the commonest organism. Ticarcillin-clavulanate plus gentamicin was the commonest empirical regime, with an initial success rate of 58%. Poor Outcome was associated with shock on presentation, identifiable source of infection, bacteraemia, *Pseudomonas* and fungal infection. Prolonged neutropenia and leukaemia, however, was not associated with poor outcome in our series.

Conclusion In contrast to previous reports, gram-negative organisms were dominant in our febrile neutropenic patients and prolonged neutropenia. Ticarcillin-clavulanate plus gentamicin was a cost-effective regime. Risk stratification was important for better management of patients with neutropenic infection.

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Dr Wong Wai Lun (December 2001 Cardiology Exit Assessment Exercise)

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EVALUATING THE ROLE OF CARDIAC TROPONIN I IN CRITICALLY ILL PATIENTS

Dr Chiu Alexander, Intensive Care Unit, United Christian Hospital (December 2001 Critical Care Medicine Exit Assessment Exercise)

Critically ill patients are constantly exposed to a variety of physiological and pathological stresses that can cause damage to their myocardium [1,2] Overt myocardial infarction is uncommon however, and had been reported to occur in around 3% in one series [3]. Subclinical myocardial damage on the other hand, is capable of causing cardiac dysfunction, hinder hemodynamic stability and affect outcomes of these patients. Unfortunately, routine clinical assessment and hemodynamic monitoring are difficult to recognize such damage. Conventional diagnostic tools, such as electrocardiogram and MB isoenzyme of creatinine kinase (CKMB) [4-7] are modalities of low sensitivity and specificity with much limitation in clinical use. Cardiac troponin I (cTnI) is one of the most sensitive and specific marker for myocardial injury currently available [8,9]. It has rapidly become the new “gold standard” marker for use in acute myocardial infarction (AMI). Recently, several studies have raised the question of an unexpectedly high percentage of elevated cTnI levels in critically ill patients without underlying coronary syndrome. The potential diagnostic and prognostic uses of cTnI in these patients has been a topic of great interest, notably in those suffering from sepsis, hypovolemic shock, and acute neurologic events

[10-22]. In the first part of this article, an overview of the development of cardiac troponin and its association with adverse manifestations and outcomes is being reviewed. Different postulations of the mechanism of troponin release were also presented. In the second part of this article, a prospective observational study evaluating the role of cTnI in diagnosing myocardial dysfunction is described.

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A RETROSPECTIVE ANALYSIS OF ICU OUTCOME OF AGEING POPULATION

Dr Chow Fu Loi, Intensive Care Unit, Caritas Medical Centre (December 2001 Critical Care Medicine Exit Assessment Exercise)

Objectives To assess whether older ICU patients have less favourable outcome in terms of survival and functional status, as well as difference in resource utilization and limitation of therapy.

Design Retrospective.

Setting ICU of a district hospital.

Patients 515 consecutive patients over twelve months.

Measurements APACHE II score and modified APACHE II score without including age and chronic health evaluation (APS) were used for assessment of severity of acute illness. Modified Katz scale of activities of daily living was used to evaluate functional status. Mortality in ICU, hospital, and at 6 months was documented. Information of functional and residential status was noted at baseline and 6 months. The use of major interventions in ICU, length of stay in ICU and hospital, and frequency of limitation of therapy were recorded.

Results The mean age of the entire sample was 65 years. Although both short-term and long-term mortality were increased in older patients, age was not an independent predictor of ICU death. Older patients were more likely to be functionally dependent and nursing home residents at baseline and at 6 months. Their hospital stay after discharge from ICU was longer. All hospital survivors had similar survival rate at 6 months regardless of age. Limitation of life support was more frequent with increasing age.

Conclusions Older patients have less favourable outcomes and longer hospitalisation. Prudential patient selection for intensive care and judicious adoption of limitation of therapy are required in the presence of an ageing population. Effective communication and comfort are crucial to the achievement of good end-of-life care.

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NOSOCOMIAL INFECTION IN INTENSIVE CARE UNIT

Dr Lau Lee Sung, Intensive Care Unit, United Christian Hospital (December 2001 Critical Care

Medicine Exit Assessment Exercise)

The patients in Intensive Care Unit are particularly at risk of infection. Nosocomial infection is associated with increased morbidity and mortality as well as increased hospital stay and economic costs. A survey study was performed on September 12, 2001 to determine the prevalence of infection in adult Intensive Care Units in Hong Kong. It examined the rates and potential risk-factors of ICU-acquired infection, the pattern of antibiotic prescription, and the nature of predominant microbes and their resistance patterns. This information together with literature review provides the basis for this overview of nosocomial infection which looks at selected aspects of pathogenesis, selected nosocomial pathogens, and antibiotic prescriptions.

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CLINICAL EVALUATION OF NONINVASIVE CARDIAC OUTPUT MONITORING BY CO2 REBREATHING METHOD

Dr Lee Wai Chuen, Intensive Care Unit, Queen Elizabeth Hospital (December 2001 Critical Care Medicine Exit Assessment Exercise)

Introduction Thermodilution technique has been used for many years but recently being under critical review. Carbon dioxide rebreathing technique has been used as a non-invasive technique for cardiac output measurement. However, its accuracy and usefulness in intensive care unit is not being verified. We have tried the NICO system, one of the non-invasive cardiac output measurement, in our intensive care unit. Thermodilution technique was used for comparison.

Design retrospective, comparison study.

Method Simultaneous cardiac output measurement by NICO system and thermodilution were compared by Pearson correlation coefficient and Bland-Altman method to determine the bias, precision and agreement between the two methods. The difference in the measurement of the two methods was further tested with paired-t test. Stepwise regression was used to determine the contributing factors of the difference in cardiac output measurement.

Result 8 patients with 59 paired measurements were obtained for comparison. The Pearson correlation coefficient was 0.64, which was statistically significant ($p < 0.001$). Bland-Altman analysis resulted in a bias of -0.38 L/min and the precision was 1.3. The difference in cardiac output was statistically significant ($P = 0.29$). The percentage difference in cardiac output in relation to the average of cardiac output showed a mean percentage difference of $– 6.9 \pm 24.4$ % (range – 61.02 to 45.5 %). Factors contributing to the difference included (1) the $PaCO_2$ before rebreathing, (2) the PEEP level and (3) the tidal volume.

Conclusion In our study, the agreement between thermodilution and CO2 rebreathing technique by NICO system was moderate. There was a statistically significant difference in the cardiac output measurement obtained from the thermodilution and NICO system. Further studies are needed to verify its usefulness in intensive care setting.

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PERCUTANEOUS TRACHEOSTOMY AND ITS COMPLICATIONS

Dr Leung Yuen Wah, Winnie, Department of Anaesthesia and Intensive Care, Yan Chai Hospital
(December 2001 Critical Care Medicine Exit Assessment Exercise)

Tracheostomy is one of the oldest surgical procedures in medical history, and reference to it can be found 4000 years ago in the Egyptians. It is a commonly performed surgical procedure in the critically ill who requires prolonged mechanical ventilation. Relative to translaryngeal intubation, tracheostomy affords greater patient comfort, more effective pulmonary toilet, and increased airway security.

The standard method of performing tracheostomy was described in 1909 by Jackson. The percutaneous method was first reported by Shelden in 1955, and modified by Toye and Weinstein in 1965. The real success did not occur until 1985, when Ciaglia introduced a modification of Toye's technique that involved serial dilation of the trachea over a Seldinger wire to create a stoma, with no complications in the initial 26 patients.

The complication rates and economics of tracheostomy tube insertion via the percutaneous route compare favourably and may even be superior to those with standard operative tracheostomy, resulting in its escalating popularity in intensive care units in the last decade.

The term percutaneous tracheostomy does not define a single technique. There are at least four different versions: Ciaglia's progressive dilatation with multiple dilator technique (PDT), the Grigg's guide wire dilating forceps technique (GWDF), the recently introduced Ciaglia's single dilator trade name "Blue Rhino" (CBR), and the mostly abandoned Rapitrac technique. This article will provide an overview of the former three percutaneous techniques, and to review the currently available evidence to support the safety and cost effectiveness of the procedure.

Lastly, data collected from the twenty-three patients who underwent percutaneous tracheostomy in Yan Chai Hospital's Intensive Care Unit will be presented.

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AN OVERVIEW OF CONTINUOUS RENAL REPLACEMENT THERAPY IN THE ICU PATIENTS

Dr So Sheung On, Intensive Care Unit, United Christian Hospital
(December 2001 Critical Care Medicine Exit Assessment Exercise)

Since the advent of Continuous Renal Replacement Therapy (CRRT), it had become a favorable method of renal replacement for critically ill patients with acute renal failure. The advantages of CRRT include improved hemodynamic stability, optimal fluid balance, gradual urea removal, adequate supply of nutrition and elimination of septic mediators. A retrospective survey was done to study the practice and experience of CRRT in the ICU of United Christian Hospital. This is followed by a literature review of the theoretical and practical aspects of the therapy. The anticoagulation strategies, concept of blood purification and outcome measures of ARF are discussed.

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DAILY APACHE II SCORE AND ITS DYNAMIC CHANGE IN PREDICTION OF HOSPITAL MORTALITY OF ICU PATIENTS

Dr Tsang Hin Hung, Intensive Care Unit, Kwong Wah Hospital (December 2001 Critical Care Medicine Exit Assessment Exercise)

Objective To evaluate the use of daily APACHE II score and its dynamic change in prediction of hospital mortality in adult intensive care unit (ICU) patients.

Design Prospective cohort analysis

Methods The study included a consecutive sample of 709 ICU admissions. Daily APACHE II scores and the dynamic changes of the scores (daily risk score) during the first 7 days of ICU stay were collected. Multivariable logistic regression analysis was used to select variables independently predict hospital mortality. Daily APACHE II score and daily risk score with 90% and 95% specificity in prediction of hospital mortality were selected.

Results The current or most recently measured APACHE II score was the single most important variable in prediction of hospital mortality. Sensitivity, positive predictive value, negative predictive value and accuracy of prediction with daily APACHE II score selected at 90% specificity in prediction of hospital death were around 45%, 80%, 80% and 78% respectively. Daily risk score assessment did not improve the prediction accuracy.

Conclusion These mortality prediction models can be utilized to improve communication among clinical staff and between clinicians and family members. Clinical judgment, especially on withdrawal of intensive treatment, will still require integration of a wide range of medical facts.

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RECOMBINANT HUMAN TSH IN THE MANAGEMENT OF THYROID CANCER : A REPORT OF 52 PATIENTS AND A REVIEW OF THE LITERATURE

Dr Chung Chun Hoi, Department of Medicine, Princess Margaret Hospital (December 2001 Endocrinology, Diabetes, Metabolism Exit Assessment Exercise)

Recombinant human TSH (rhTSH) administration has been shown to be a safe and effective means of stimulating thyroidal radioiodine uptake and serum thyroglobulin (Tg) levels in patients undergoing evaluation for thyroid cancer persistence and recurrence while still receiving thyroid hormone suppressive therapy. The objective of this study was to the determine the value of rhTSH testing in the detection of cancer recurrence as compared to measurement of basal serum Tg while the patient is receiving thyroid hormone suppressive therapy. The utility of the current National Comprehensive Cancer Network (NCCN) guidelines on risk stratification in predicting recurrence was also studied, in relation to the results obtained from the rhTSH testing.

Fifty-two consecutive patients with differentiated thyroid cancer who had the rhTSH testing performed for diagnostic purpose were analyzed.

Among 14 of the 52 patients who were identified to have persistent or recurrent diseases by rhTSH testing, only 6 of the 14 patients (43%) were identified by basal Tg measurement alone. All 14 patients were at high risk of recurrence. All patients with a basal Tg level of 1 ng/ml or higher had recurrences. No significant systemic or local adverse effects were reported with the rhTSH testing in all our patients.

In conclusion, rhTSH is a safe and effective modality in the management of thyroid cancer patients. It increases the diagnostic sensitivity of serum Tg measurement and obviates the need of withdrawing thyroid hormone therapy and the attendant morbidity associated with hypothyroidism. Diagnostic I-131 WBS not warranted in the past can now be initiated at a lower threshold, especially in patients at high risk of recurrence.

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A REAPPRAISAL OF THE CLINICAL FEATURES, SCREENING, AND DIAGNOSIS IN CUSHING'S SYNDROME AND THE EVALUATION OF SURGICAL CURE POST-OPERATIVELY FOR CUSHING'S DISEASE IN HONG KONG CHINESE PATIENTS

Dr Osaki Risa, Department of Medicine and Therapeutics, Prince of Wales Hospital (December 2001 Endocrinology, Diabetes, Metabolism Exit Assessment Exercise)

This is a retrospective study in which 179 Chinese patients from a tertiary care research hospital in Hong Kong, with suspected Cushing's syndrome were reviewed. Of the 179 patients, 155 patients were normal and 24 patients turned out to have confirmed Cushing's syndrome. Our review showed that clinical features of particular discriminatory value for Cushing's syndrome were thinning of skin, facial plethora, dorsal fat pad, acne, the development of striae, skin bruising and proximal muscle weakness. We also proceeded to review the screening tests for Cushing's syndrome, which showed that the overnight dexamethasone suppression test was superior to the 24-hour urine free cortisol measurement, with better specificity results (97.7% versus 90.0%) and similar sensitivity results. (100%) Additionally, the overnight dexamethasone suppression test was easily carried out causing little inconvenience to the patients. On review of the overnight dexamethasone suppression test, the cut-off value to yield maximal sensitivity and specificity was lower, 50nmol/L, in our selection of patients, compared to that suggested by Cronin et. al. Furthermore, the low-dose dexamethasone suppression yielded a similarly lower cut-off point of 50nmol/L to achieve maximal sensitivity and specificity in the diagnosis of Cushing's syndrome. We also noted that the 9am cortisol in the immediate post-operative period between day 5 to day 14 post-operatively for pituitary surgery for Cushing's disease, was a good predictor of surgical cure. An undetectable cortisol value was noted to be a good indicator of surgical cure, whereas any detectable cortisol level in this period calls for further evaluation of likely residual disease activity. This is an important tool, as early re-exploration after initial pituitary surgery is easier than re-exploration at a later stage when fibrosis and healing has

already occurred.

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THE PARTICIPATION OF THE ACTIN CYTOSKELETON IN INSULIN-MEDIATED GLUCOSE TRANSPORT IN RAT SKELETAL MUSCLE CELLS

Dr Tong Chun Yip, Peter, Department of Medicine & Therapeutics, Prince of Wales Hospital
(December 2001 Endocrinology, Diabetes, Metabolism Exit Assessment Exercise)

In this study, the temporal reorganization of actin microfilaments by insulin and its participation in the localization of signaling molecules and glucose transporters in L6 myotubes expressing myc-tagged glucose transporter 4 (GLUT4myc) was examined. Scanning electron microscopy revealed a dynamic distortion of the dorsal cell surface (membrane ruffles) upon insulin treatment. In unstimulated cells, phalloidin-labeled actin filaments ran parallel to the longitudinal axis of the cell. Immunostaining of the p85 regulatory subunit of phosphatidylinositol 3-kinase was diffusely punctate, and GLUT4myc was perinuclear. After 3 minutes of insulin treatment, actin reorganized to form structures; these structures protruded from the dorsal surface of the myotubes by 10 minutes and condensed in the myoplasm into less prominent foci at 30 minutes. The p85 polypeptide colocalized with these structures at all time points. Actin remodeling and p85 relocalization to actin structures were prevented by cytochalasin D or latrunculin B. GLUT4myc recruitment into the actin-rich projections was also observed but only after 10 minutes of insulin treatment. Irrespective of insulin stimulation, the majority of p85 and a portion (45%) of GLUT4 were recovered in the Triton X-100-insoluble material also enriched with actin. In contrast, vp165, a transmembrane aminopeptidase that morphologically colocalized with GLUT4 vesicles, was fully soluble in Triton X-100 extracts of both insulin-treated and control myotubes. It is proposed that insulin-dependent formation of actin structures facilitates the association of PI3-K (p85) with GLUT4 vesicles, and, potentially, the arrival of GLUT4 at the cell surface.

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MEDICAL MANAGEMENT OF CROHN'S DISEASE IN THE NEW MILLENIUM

Dr Hui Yee Tak, Department of Medicine, Queen Elizabeth Hospital (December 2001 Gastroenterology & Hepatology Exit Assessment Exercise)

Crohn's disease (CD) is uncommon in Hong Kong but its chronic and progressive course is associated with significant morbidity. Despite being incurable, appropriate treatment could substantially decrease its adverse effect on health and quality of life. The treatment of inflammatory bowel disease is a continually evolving area and a major focus of the current literature in gastroenterology. With the advent in the understanding of the patho-physiology, new therapeutic options are available (including refinements in drug formulation, ability to target distinct sites of drug delivery and novel immunomodulating agents). In addition, a revolutionary concept of 'reversing the therapeutic pyramid' has been advocated recently (1).

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THE TREATMENT OF PRIMARY BILIARY CIRRHOSIS

Dr Tang Kwok Wai, Anthony, Department of Medicine, Queen Elizabeth Hospital (December 2001 Gastroenterology & Hepatology Exit Assessment Exercise)

Primary biliary cirrhosis is a chronic liver disease that leads to the destruction of interlobular bile ducts resulting in cholestasis, fibrosis, cirrhosis of liver and finally liver failure. Over the past 20 years various drugs treatment had been tried. Immunosuppressive agents such as corticosteroids, azathioprine, cyclosporin A, chlorambucil, methotrexate, thalidomide and antifibrotic drugs such as colchicine and penicillamine did not give satisfactory results. Corticosteroids and cyclosporin seems to be effective but were associated with significant adverse effects. Other drugs are not very effective. The anticholestatic agent, ursodeoxycholic acid is the most promising drug treatment as it improves liver biochemistry, histology and it may improve patients' survival. The mechanisms of action of ursodeoxycholic acid are in fact multiple. Trials on combination therapy are on the way. However there is still no cure by drugs and liver transplantation is the treatment for end stage disease. As an introduction to my review, I retrospectively analyzed the biochemical response of fifteen patients of PBC after one year treatment of ursodeoxycholic acid and in seven of them the biochemical response after two years of treatment. The liver biochemistry improves with significant falls in alkaline phosphatase, and gamma glutamyl transferase and are similar to published randomized trials. Despite the use of ursodeoxycholic acid, the disease progresses and four patients died of end stage liver failure.

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Dr Chan Tin Chee (December 2001 Geriatric Medicine Exit Assessment Exercise)

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Dr Lee Shun Wah, Jenny (December 2001 Geriatric Medicine Exit Assessment Exercise)

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Dr Lin Ka Leung (December 2001 Geriatric Medicine Exit Assessment Exercise)

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Dr Ong Chi Yin, Lawrence (December 2001 Geriatric Medicine Exit Assessment Exercise)

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Dr Pang Fei Chau (December 2001 Geriatric Medicine Exit Assessment Exercise)

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Dr Tsang Wai Yin, Kevin (December 2001 Geriatric Medicine Exit Assessment Exercise)

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Dr Wong Shing Fai, Stephen (December 2001 Geriatric Medicine Exit Assessment Exercise)

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Dr Yim Ting Kwan (December 2001 Geriatric Medicine Exit Assessment Exercise)

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STUDY ON THE PREDICTORS OF DISCHARGE STATUS FROM STROKE IN A REHABILITATION STROKE UNIT IN HONG KONG

Dr Miu Ka Ying Doris, Department of Medicine and Geriatrics, Kwong Wah Hospital
(December 2001 Rehabilitation Exit Assessment Exercise)

Background and aim Accurate outcome prediction following stroke is important for better delivery of post stroke care. It is difficult to determine specific factors that provide reliable and accurate predictors of stroke outcome and there is no local study is available. The aim of this study is to identify the predictors for stroke discharge disposition in a rehabilitation stroke unit in Hong Kong.

Material and method Subjects with stroke were drawn from a medical rehabilitation unit in Tung Wah Eastern Hospital from July 1999 to September 2000. Patients who were residing in old age home before admission and whose rehabilitation process were interrupted for any reasons and patients with neurological deficits after surgery or trauma were excluded. Independent factors such as basic demographic data, functional independence measure (FIM) score, mini-mental status examination (MMSE), Barthel index (BAI), presence of incontinence and dysphagia and presence of a primary care taker were recorded. Outcome was analysed in term of discharge disposition to home or private nursing home.

Results The average age of the 366 subjects were 71.38 (SD 10.18) among which there were 47.3% male and 52.7% female. There were significant differences in age ($p<0.001$), length of hospital stay ($p<0.001$), FIM ($p<0.001$), MMSE ($p<0.001$) and BAI ($p<0.001$) on discharge disposition. Those with incontinence, dysphagia and no carer tend to discharge to private nursing home. Logistic regression shown that older age (OR 1.11), presence of incontinence (OR 2.9) absence of carer (OR 37.87), low MMSE (OR 1.09) and low admission FIM score (OR 1.03) independently predict private nursing home discharge.

Conclusion Results show that older age, poor cognition, presence of incontinence and no major carer increased the risk of nursing home discharge. Incontinence and poor social support were the major contributors of discharge disposition. Better education and arrangement of outpatient supporting services may help to increase home discharge. Better insight into stroke outcome and rehabilitation triage may improve the use of health care resources.

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PREDICTING THREE-MONTH OUTCOME AFTER HEMORRHAGIC STROKE – A PROSPECTIVE STUDY OF BASELINE CLINICAL VARIABLES

Dr Sim Tiong Chee, Department of Medicine & Geriatrics, United Christian Hospital (December 2001 Rehabilitation Exit Assessment Exercise)

Background Intracerebral hemorrhage is a common type of stroke in Hong Kong. Initial mortality is high but the prognosis for survivors is comparable to that for cortical infarcts. Early prediction of outcome after intracerebral hemorrhage can improve appropriate selection of patients for stroke rehabilitation.

Aims To identify variables that predict poor outcome in supratentorial hemorrhage.

Design Prospective cohort study with consecutive identification of patients. Baseline clinical and neuroradiological variables, that were clinically important or were validated in previous studies, were recorded during the acute admission for stroke. Outcome assessment by telephone interview was conducted three months after stroke.

Setting Acute medical and rehabilitation wards of public hospitals.

Subjects 55 patients with supratentorial hemorrhage treated medically.

Outcome measures Mortality and poor outcome, defined as either Barthel Index ≤ 10/100 or death, three months after stroke.

Data Analysis Univariate analysis was performed to identify risk factors for death and poor outcome. Backward stepwise multiple logistic regression analysis was used to identify independent variables associated with death and poor coutcome.

Results Baseline National Institutes of Health Stroke Scale score > 15 (adjusted odds ratio 8.6, 95%CI 1.7 – 42.7) and Barthel Index < 25/100 (adjusted odds ratio 13.5, 95% 2.6 – 69.7) were independent predictors for poor outcome. Glasgow Coma Scale score ≤ 8/15 on admission predicted three-month mortality (adjusted odds ratio 61.3, 95%CI 4.9 – 759).

Conclusion Baseline clinical variables can predict outcome after supratentorial hemorrhage. Presence of these variables in the acute phase of stroke identifies a subset of patients likely to have poor prognosis

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PART 1: PREDICTORS OF FUNCTIONAL OUTCOME, LENGTH OF STAY, REHABILITATION EFFICIENCY AND EFFECTIVENESS IN FIRST-EVER STROKE CHINESE IN REHABILITATION HOSPITAL: A RETROSPECTIVE STUDY

PART 2: PREDICTORS OF FUNCTIONAL OUTCOME IN STROKE PATIENTS: A CRITICAL APPRAISAL

Dr So Kar Kui, Department of Medicine & Geriatric, Princess Margaret Hospital

(December 2001 Rehabilitation Exit Assessment Exercise)

Objective To identify predicting factors of functional outcome, length of stay, rehabilitation efficiency and achievement of rehabilitation potential in first-ever stroke patients in a rehabilitation hospital in Hong Kong.

Design Retrospective analysis of data in patients suffered from first onset of stroke.

Method We retrospectively studied 282 first-stroke patients consecutively admitted to Kowloon Hospital for inpatient rehabilitation from 1 April 2000 to 31 March 2001. Demographic data, risk factors, post-stroke complications and social factors were recorded as independent variables. The functional independence measures (FIM) at discharge, length of rehabilitative stay, rehabilitation efficiency and effectiveness were recorded as dependent variables. Correlation analyses were done to assess associations between independent variables with dependent variables. Multiple linear regressions with statistical adjustment were used to predict function at discharge, length of rehabilitation stay, rehabilitation efficiency and achievement of rehabilitation potential.

Results The mean age of the study population was 69.65 (SD 10.78). 54.6% were males and 45.4% were females. The FIM total scores on admission and at discharge were 73.94 and 95.66 respectively with a mean gain of 21.71 after in-patient rehabilitation. The mean length of rehabilitation stay was 36.55 days. The rehabilitation efficiency (FIM gain per day) was 0.7805 and the achievement of rehabilitation potential (FIM gain / 126-Admission FIM Total scores) was 0.4954. Function at discharge was predicted by admission FIM total score [AmFS] and age. Length of rehabilitation stay [LORS] was predicted by onset admission interval [OAI], admission FIM locomotion and transfer items but only explain 37.7% of the variance. The rehabilitation efficiency was predicted by the length of rehabilitation stay [LORS], gain of FIM self care, locomotion and social cognition items and lift landing. The achievement of rehabilitation potential was predicted by the admission FIM self care and social cognition item, and gain of FIM self care item.

Conclusions Our study led to a better understanding of the functional outcome, length of rehabilitation stay, rehabilitation efficiency and effectiveness of stroke rehabilitation in Chinese patients. It confirmed with the previous findings that the functional outcome, as measured by the FIM, improved with rehabilitation. The functional outcome at discharge is best predicted by admission function status, age and onset admission interval. The onset admission interval, admission FIM transfer and locomotion items predict the length of the rehabilitation stay. The rehabilitation efficiency is predicted by LORS, gain of FIM locomotion & self-care and social cognition items. The achievement of rehabilitation potential is predicted by admission FIM self care and social cognition items. The predictors of the LORS and efficiency explained 37.7% and 49.7% of the variance respectively. Low predictability are probably due to social factors. Further prospective studies, which included more neurological impairments and socio-economic details, are needed to identify and improve the predictors of the variance.

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CHRONIC LYMPHOCYTIC LEUKAEMIA - A CRITICAL REVIEW AND A LOCAL PERSPECTIVE

Dr Kho Chi Shan, Bonnie, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(December 2001 Haematology & Haematological Oncology Exit Assessment Exercise)

B-cell chronic lymphocytic leukaemia (CLL) remains the centre of interest of many scientists and clinicians in the 21st century. It is the most frequent leukaemia in the western world. The reason for its rarity in the orientals remains elusive. The saline features of CLL is the in vivo accumulation of monoclonal resting B-cells in peripheral lymphoid organs, bone marrow and peripheral blood. Yet it is a heterogenous disease with variable clinical course. It is now believed that CLL is not caused by exposure to known environmental agents. Rather, genetic or familial traits may be predisposing factors.

Advances in flow cytometry, cytogenetics, molecular studies and new classes of drugs in the past 10 to 20 years have revolutionised the understanding of the biology of B-CLL cells, as well as the diagnostic, prognostic and therapuetic approaches to CLL.

This dissertation attempts to make an in-depth review of such advances in a chronological manner – from historical background to new insights into the biological features of CLL and current therapeutic options. The importance of immunophenotyping and cytogenetics, apart from morphology, in the diagnosis of CLL will be emphasized. Among the many proposed prognostic factors such as the conventional staging system, attention will be paid to the cytogenetics and the recently proposed mutational IgVh gene in patient risk stratification. Newer therapeutic options will include purine analogues, monoclonal antibodies (Campath, anti-CD 20 antibody) and stem cell transplant.

The second part of the dissertation is a cross-sectional study of CLL in a local Chinese population. Demographic characteristics, clinical features, diagnostic criteria, mode of treatment and overall survival of CLL Chinese patients diagnosed in the period of 1994 to 2001 were collected from four regional hospitals in Hong Kong. The purpose of the study is to shed light on the characteristics of CLL in Chinese population.

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C-REACTIVE PROTEIN AND ITS ASSOCIATIONS IN PERITONEAL DIALYSIS PATIENTS

Dr Chu Kwok Hong, Department of Medicine & Geriatrics, Princess of Margaret Hospital
(December 2001 Nephrology Exit Assessment Exercise)

Introduction C-reactive protein (CRP) levels are frequently elevated in endstage renal disease and have been shown to be a predictor of mortality. However, most studies have included hemodialysis patients only.

Subjects and methods In this cross-sectional study, 81 patients on peritoneal dialysis (PD) were reviewed. CRP values were measured along with demographic data, co-morbidities, clearances, residual renal function (RRF), and hematological and nutritional indices.

Results The mean age of the population was 57.5 +/- 16.3 years. The mean duration on PD was 20.4 +/- 19.9 months. 30.9% had diabetes mellitus. The prevalence of ischemic heart disease and heart failure were 33.3% and 16% respectively. 74%, 47% and 30% were on erythropoietin, HMG CoA reductase inhibitors and aspirin respectively. The mean CRP level was 15.5 mg/L (range 1—136 mg/L). 73% had elevated CRP levels (>5 mg/L). 48.8% had values greater than 8 mg/L. High levels (>20mg/L) were recorded in 17.6% of patients. There was no correlation between CRP levels and age, sex, diabetes, cardiac diseases, delivered clearances or RRF. There were inverse correlations with serum albumin ($r = -0.28$, $p < 0.02$), normalized protein equivalent of nitrogen appearance ($r = -0.23$, $p = 0.05$), serum iron ($r = -0.46$, $p < 0.001$) and transferrin saturation ($r = -0.39$, $p < 0.001$) but not with ferritin, transferrin or hemoglobin. There was an association with adverse lipid profiles. CRP levels were not associated with the use of aspirin or HMG CoA reductase inhibitors.

Discussion CRP levels are frequently elevated in the PD population. Significant relationships were found between CRP, nutritional and hematological indices and lipid abnormalities. Contrary to previous studies from Asia, no correlation was found for CRP with major co-morbidities. The explanation could be differences in population characteristics since our patients were older, predominantly Caucasian, had higher co-morbidity indices and many were on medications with potential to modify CRP levels. Prospective studies are needed to follow the trend of CRP and the predictive power for cardiovascular mortality in the PD population.

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POLYCYSTIC KIDNEY DISEASE: AN EXPERIENCE IN A REGIONAL HOSPITAL

Dr Lo Hok King, Stanley, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(December 2001 Nephrology Exit Assessment Exercise)

Autosomal dominant polycystic kidney disease (ADPKD) is the most common inherited renal disease and is a known cause of patient with end stage renal disease. ADPKD patients followed up in a regional hospital (PYNEH) were reviewed and ADPKD was estimated to have a prevalence of 99 per 1,000,000 populations with a mean age of 51.8 years in the Eastern Hong Kong Island. It accounts for 1.4% of the corresponding dialysis populations.

In our cohort, patients younger than 50 years (p=0.016; Odd ratio=3.62; 95% C.I.= 1.24-10.6), having a positive family history of ADPKD (p=0.001; odd ratio= 8.25; 95% C.I.=2.27-30.0), with proteinuria less than 0.5g/day (p=0.028; odd ratio=9; 95% C.I.=1.002-80.8) or having a kidney size less than 15 cm (p=0.055) were more likely to have normal renal functions Patients with normal renal function also had low risk of left ventricular hypertrophy (p=0.03; odd ratio=0.12; 95% C.I.=0.014-1.06). Slower renal function decline was more likely to be found in patients younger than 50 years (p=0.03, odd ratio=3.51; 95%C.I.=1.09-11.3), in those with a family history of ADPKD (p=0.031; odd ratio=3.71; 95%C.I.=1.09-12.6) and in those with normal renal function (p=0.021, odd ratio=4.4; 95% C.I.=1.22-15.8). Controls of blood pressure in 64.4% patients at outpatient clinic were not satisfactory according to the recommendation of Sixth Joint National Committee. Blood pressure control should be improved.

Review of recent literature on ADPKD shows that younger age at diagnosis, male gender, Black race, PKD-1 and ACE DD genotype, history of gross haematuria, urinary tract infection in male,

proteinuria, bigger kidney size and poor blood pressure control are poor prognostic factors for renal progression. Blood pressure control is important while angiotensin converting enzyme inhibitor is shown to be advantageous over other anti-hypertensives. Renal diet is of limited benefit for renal progression. Family screening is important to identify at-risk patients for hypertension and monitoring of renal function. Those with family members with aneurysm rupture required screening with magnetic resonance angiogram. ADPKD patients on dialysis had better survival than patients with other primary causes, possibly due to higher haemoglobin level and lower cardiovascular events. Post-transplant patients had better survival than other HLA-matched patients with other primary renal diseases. Complicated diverticulitis had high mortality in transplanted patients and clinicians should be on high index of suspicion on those transplanted patients presented with acute abdomen.

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PART A: TGA IN HONG KONG
PART B: A REVIEW OF AETIOLOGY OF TGA

Dr Auyeung Man, Department of Medicine, Pamela Youde Nethersole Eastern Hospital
(December 2001 Neurology Exit Assessment Exercise)

Objective To investigate the clinical characteristics and aetiology of Chinese transient global amnesia (TGA) patients.

Methods A prospective case control study was conducted between November 1998 and May 2001. Each TGA patient was compared to one transient ischaemic attacks (TIA) control and one normal control for presence of vascular risk factors. The clinical characteristics and the outcome of TGA and their control groups were compared.

Results 22 TGA patients were diagnosed from November 1998 to may 2001. The annual incidence was 1.7/100000. Anteceding events were found in 63% of our TGA patients. Hypertension (HT) and diabetes mellitus (DM) were significantly higher in out TIA patients than TGA and normal control groups. Migraine was found to be significantly more common in TGA than control group. The mean duration of follow up was 14 months in TGA group while in TIA group was 19.8 months, neither thromboembolic nor epileptic event was reported in our TGA patients. There was no recurrence of TGA noted.

Conclusions TGA is not as rare as it was thought in Chinese patients. The clinical characteristics natural course and likely pathophysiology were similar to the Caucasians. No excessive lascular risk factors were found in our TGA patients compared with the normal control, and subsequent thromboembolic events were much lower than TIA control. No seizure was noted in TGA patients in subsequent follow up. Therefore, thromboembolism and epilepsy are unlikely to be the cause of this benign disorder. Migraine was significantly higher in TGA patients than control groups, suggesting an aetiological relationship. Migraine aura and TGA may share some of the pathophysiologic mechanisms (cortical spreading depression-CSD). Among the postulated pathophysiologies, CSD best explains TGA in terms of clinical characteristics, natural course and its benign prognosis. The balance of evidence is shifting towards CSD as the underlying pathophysiology of TGA.

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WILSON'S DISEASE – A LOCAL EXPERIENCE

Dr Cheung Yuk Fai, Department of Medicine, Queen Elizabeth Hospital (December 2001 Neurology Exit Assessment Exercise)

Background Wilson's disease is a genetic disorder of copper metabolism. The disease process mainly affects the brain and the liver. Effective decoppering therapy is now available, yet failure of prompt diagnosis and institution of treatment can always lead to disastrous, fatal outcome. Wilson's disease is well characterized in the western population, but the situation in our local population remains largely unknown.

Objectives and Methods The situation of Wilson's disease in Queen Elizabeth Hospital, Hong Kong (QEH) was retrospectively studied. Patients who attended follow-up treatments within the period between February 1993 and July 2001 were included. The literature in relation to the pathophysiology, epidemiology, clinical features, diagnosis and treatment of Wilson's disease was reviewed. Similarities and differences between local and western population were explored.

Results Within the period studied, there were 25 patients(ten men and 15 women) affected. The mean follow-up period was 10.3 years (range 2 months to 31.4 years). The prevalence rate was estimated to be 40 per million. Positive family history was present in 72% of patients. 44% of patients belonged to the neurologic subgroup. Among them the median age of onset was 19 years (range 9 to 31 years) and the median time needed to reach diagnosis was 2 years (range 1 month to 8 years). The two commonest initial neurologic sumptoms were slurring of speech (82%) and tremor (72%). The two commonest initial neurologic signs were tremor (73%) and dysarthria (55%). Kayser-Fleischer rings were detected in all neurologic patients and the association was statistically significant ($P<0.001$). Psychiatric features were reported in only two patients. Other manifestations included menstrual disturbances, seizures, renal stone, aminoaciduria and joint problems. All patients had one or more abnormal laboratory test results for copper metabolism. D-penicillamine was the drug most frequently utilized (96%) and side effects were few. Majority of neurologic patients (82%) showed improvement after treatment.

Conclusions More local studies are necessary to further evaluate the situation of Wilson's disease in Hong Kong. High index of suspicion is essential for rapid diagnosis and subsequent treatment. Kayser-Fleischer rings should be sought by an experienced ophthalmologist using slit lamp. Hepatic copper determination should be developed in our locality. There are controversies on the best drug regimen for treatment of Wilson's disease. Clinical trials comparing outcomes of various regimens are urgently required.

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INSULAR CORTEX AND ITS INFARCTION – THE UNDERLYING ANATOMY, FUNCTIONS AND INFARCT TOPOGRAPHY

Dr Fong Wing Chi, Department of Medicine, Queen Elizabeth Hospital (December 2001 Neurology Exit Assessment Exercise)

The insular cortex was a part of the brain that was seldom mentioned by the neurologists. It might be due to the absence of documented neurological deficit attributable solely to lesion in insula. Recently articles on its anatomy and arterial blood supply were published. However, its function was still not well documented based on the study on ischemic lesions in the insular cortex. The

reason was that insular infarction was almost always accompanied by other areas of infarction because of their common blood supply. As a result, it was difficult to attribute any neurological deficit to insular infarct in the presence of concomitant cerebral infarction.

Accumulated evidences showed that insula was an area of cortex responsible for the cardiac autonomic control. Such finding was important for the understanding of the stroke-associated cardiac changes and sudden death. Then this cardiac related mortality and morbidity might be reduced. Moreover, the insular cortex had extensive connections to other areas and must play a role in many cortical functions, including language and sensation.

Beside the functional implications, the involvement of insula during cerebral infarction could be a useful and earlier sign predicting further extensive infarction and hence the outcomes. The loss of insular ribbon sign (LIR) was recently identified as one of the early CT sign of ischemia and might help the prediction of outcomes and the decision for intervention.

In my review, I shall talk about the anatomy and blood supply of the insular cortex. Then we look into the insular function with an emphasis on cardiac autonomic control. After that two studies will be presented. The first one was conducted on the correlation between insular involvement and infarction topography in diffusion weighted MRI and the second one reported the use of LIR in the CT scan brain. Lastly an overall conclusion will be made.

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Dr Kong Fuk Yip (December 2001 Respiratory Medicine Exit Assessment Exercise)

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A CONTROLLED TRIAL OF ORONASAL FACE MASK VERSUS NASAL MASK VENTILATION IN THE TREATMENT OF ACUTE RESPIRATORY FAILURE

Dr Kwok Kai Him, Henry, Department of Respiratory Medicine, Ruttonjee Hospitals (December 2001 Respiratory Medicine Exit Assessment Exercise)

Noninvasive positive pressure ventilation (NPPV) had been effective in managing patients with acute respiratory failure (ARF). However, data on the efficacy of different mask interfaces in such patients was lacking. A randomized controlled trial was conducted to compare the use of nasal and oronasal mask in patients with acute respiratory failure. Monitored parameters including clinical and blood gas parameters, number of NPPV failures requiring intubation, reasons for intubation, mask tolerance, and patients' outcome.

Results Seventy patients were randomized into using the two mask types being studied. Majority (78.6%) of the patients were suffering from ARF due to congestive heart failure or chronic obstructive airway disease. Both mask types had been effective in treating the patients with similar intubation rates. However, significantly more intolerance was observed in the nasal mask group (12 in nasal mask group, 4 in oronasal mask group, p=0.023). Among the intolerant patients, two in the nasal mask group and none in the oronasal mask group were intubated, and they were subsequently managed successfully and survived till hospital discharge. The remaining patients were managed medically without intubation, and one intolerant patient subsequently died. Altogether 4 patients in the nasal mask group (11.4%) and 2 patients in the oronasal mask group

(5.7%) died.

Conclusions This study showed that the nasal mask was not as well tolerated as the oronasal mask in the acute respiratory failure patients. The choice of interface appeared to be important in contributing to the success of NPPV in the management of ARF.

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RELATIONSHIP OF PULMONARY FUNCTION AND RADIOGRAPHIC ABNORMALITIES IN PATIENTS SUFFERING FROM SILICOSIS

Dr Law Wing Sze, Department of Health (December 2001 Respiratory Medicine Exit Assessment Exercise)

Objective To assess the relationship between radiographic abnormalities and lung function parameters in patients suffering from silicosis.

Design Retrospective cross-sectional study
Setting Pneumoconiosis clinic

Method The records of silicotic workers at the time of first assessment for Pneumoconiosis compensation from 1.1.1995 to 31.3.2000 were reviewed. The radiographic features were coded according to the International Classification of Radiographs of Pneumoconioses, 1980.

Results The lung function parameters and radiographic abnormalities of 487 newly diagnosed silicotic workers during the described period were systematically reviewed. The relationship of chest x-ray abnormality and the degree of impairment of pulmonary function was analyzed. A more abnormal chest x-ray in form of higher profusion and larger size of small opacities, presence of progressive massive fibrosis, radiographic TB and radiographic hyperinflation were all found to be associated with poorer pulmonary function. Irregularly shaped opacities also predicted worse lung function.

Conclusions There is relationship of radiographic abnormalities with pulmonary function parameters in silicotic workers. A more abnormal CXR was associated with worse lung function. These findings might serve as useful adjuncts for patient evaluation in the compensation assessment in special circumstances.

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A LOCAL PERSPECTIVE OF HAEMOPTYSIS

Dr Poon Edwin, Department of Medicine, Pamela Youde Netheraole Eastern Hospital (December 2001 Respiratory Medicine Exit Assessment Exercise)

Haemoptysis is not an uncommon problem encountered in clinical practice and may be life threatening in some instances. The relative frequencies of underlying causes, which varies with time, the population studied, disease prevalence and the techniques used for diagnosis, is important in the relationship to its treatment and prognosis.

The causes of haemoptysis have been reported in several series in the literature. Pulmonary tuberculosis is most important worldwide; infection, bronchiectasis and carcinoma are common. Bronchitis is increasingly diagnosed after the exclusion of other causes. Broadly, categories of causes of haemoptysis include pulmonary, cardiac, haematologic, infectious, neoplastic, traumatic, systemic disease, iatrogenic, idiopathic, pseudohaemoptysis, vascular, drugs / toxin and miscellaneous.

A recent local retrospective study looked at data from patients admitted with haemoptysis over 2 years. 246 admission episodes for haemoptysis accounted for 0.6% of all medical admissions. The male : female ratio was 6 : 4. 39% of patients were aged 70 years or above. 6.9% of epidsodes were massive being associated with pulmonary tuberculosis and bronchiectaisis, and independently associated with younger age, smoking status, recurrent episodes and finger clubbing. Patients with bronchogenic carcinoma were significantly older, had more dyspnoea and had longer duration of cough and haemoptysis. The most common aetiologies of haemoptysis were chest infection (pneumonia / bronchitis) – 22.0%, bronchiectasis – 20.7%, pulmonary tuberculosis – 19.5%, bronchogenic carcinoma – 12.6% and unknown cause – 11.0%.

The pathophysiology and management of massive haemoptysis is discussed and, pertinent to a diagnosis most feared by patients presenting with haemoptysis, newer modalities of imaging and screening for bronchogenic carcinoma are reviewed.

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CRYPTOGENIC FIBROSING ALVEOLITIS IN A LOCAL CHEST HOSPITAL

Dr Wong King Ying, Effie, Respiratory Medicine TB & Chest Unit, Wong Tai Sin Hospital
(December 2001 Respiratory Medicine Exit Assessment Exercise)

Cryptogenic fibrosing alveolitis (CFA) is generally defined as a progressive, fibrosing inflammatory disease of the lung parenchyma of unknown cause. Data regarding the diagnosis, treatment and outcomes of such patients in local Chinese was scarce.

A retrospective study was performed to review all patients discharged from the Tuberculosis and Chest unit of a regional hospital between January 1998 and February 2001 with a diagnosis of CFA. Sixty-eight patients carrying the diagnosis of CFA in their discharge summaries were reviewed. Twenty-one patients were excluded leaving 47 patients available for analysis. Patients' demographic data, clinical features, investigation results including arterial blood gases, lung function indices and CT scans, treatments received and survival data were analyzed. The HRCT scans were reviewed by a radiologist who performed the scoring for the extent of ground glass opacity and fibrosis.

The mean age of patients was 73.3 (range: 50-96) which was older than other reported series with a male to female ratio of 1.76 : 1. The clinical features of our patients were similar to those described in overseas studies. Sixty-eight percent of them suffered from other medical diseases. CT thorax, vitalogram and bronchoscopy were performed in 85.1%, 76.6% and 27.7% of the patients respectively. Twenty-seven patients (57.4%) died at a mean follow-up of 955 days. Patients receiving corticosteroid treatment and patients aged >80 tended to have shorter survival but the differences did not reach statistical significance. The CT fibrosis scores showed significant correlation with DLco, Kco and FEV1/FVC ratio. The CT fibrosis scores were significantly worse in the group of patients who died than those who survived. The significance

of these findings will be discussed followed by a review on the management of CFA patients.

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A RETROSPECTIVE REVIEW OF MYCOBACTERIUM AVIUM-INTRACELLULARE COMPLEX (MAC) PULMONARY INFECTION IN A TERTIARY CHEST HOSPITAL

Dr Yim Chie-wai, Department of Respiratory Medical, Kowloon Hospital (December 2001 Respiratory Medicine Exit Assessment Exercise)

Mycobacterium avium-intracellulare complex (MAC) has been increasingly recognized as a cause of pulmonary infection associated with chronic lung disease. A retrospective study was undertaken to review the clinical characteristics, treatment protocol and outcome of MAC pulmonary infection in Respiratory Medical Department, Kowloon Hospital.

Medical records were reviewed for the period from 1 January 1999 to 30 April 2001. A total of 47 patients with repeated positive isolates from sputum/bronchial aspirate were included. Twenty-seven patients had persistent colonization of MAC without evidence of progressive disease. Twenty patients who had evidence of progressive pulmonary disease were included in the analysis. They were given a course of anti-MAC treatment.

In patients with MAC pulmonary disease, the most common clinical symptom was recurrent haemoptysis (90%). The most common underlying lung diseases were old tuberculosis (45%) and bronchiectasis (35%).

Among the twenty patients who had received anti-MAC treatment, the most common drug regimen was a combination of rifampicin, clarithromycin and ethambutol. Two patients had their treatment recently started. Two patients had withdrawn from treatment because of drug intolerance. Among the other 16 patients on treatment, ten patients (62.5%) had the sputum culture converted negative. The mean time from treatment to culture negativity was 7.3±5.5 months (range 3-17 months).

Among the ten patients with successful sputum conversion, microbiological relapse was only found in one patient. Clinical and radiological improvement was found in 4 patients (4/10, 40%).

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NEUROPSYCHIATRIC MANIFESTATIONS OF SYSTEMIC LUPUS ERYTHEMATOSUS

Dr Leung Moon Ho, Alexander, Department of Medicine, Queen Elizabeth Hospital (December 2001 Rheumatology Exit Assessment Exercise)

Aims 1) To determine the prevalence of neuropsychiatric (NP) manifestations, its association with clinical features and mortality pattern in a prospective cohort of systemic lupus erythematosus (SLE) patients. 2) To report a series of lupus patients with cerebrovascular disease (CVD)

Methods Within Birmingham Lupus Cohort, patients with neuropsychiatric activity scored under British Isles Lupus Assessment Group (BILAG) Index Category A or B, and NP damage scored under Systemic Lupus International Collaborative Clinics/ American College of Rheumatology (SLICC/ACR) Damage Index were identified.

Results There were 333 patients in the inception cohort followed up from 1st January 1991 to 31st December 2000, for median of 3.8 years. Eighty-two (24.6%) patients had NP manifestations and 31 (9.3%) had NP damage. Depression (46%), stroke or stroke like syndrome (17%), seizures (16%), peripheral or cranial neuropathy (16%) and severe unremitting headache (15%) were most common. On average, each NPSLE patient had 2.2 NP manifestations. A subset of 14 CVD patients was assessed in more details. These patients were associated with: Libman-Sack endocarditis (3), anti-phospholipid antibody syndrome (5), hypertension (7), diabetes mellitus (2) and smoking (5). Significant association with IgG anti-cardiolipin antibody above 20 GPL was noted only in CVD patients within the NPSLE group (P = 0.03), but not in NPSLE *vs* non-NPSLE (P = 0.39). NPSLE in general was associated with ever use of cyclophosphamide (P = 0.01) and hypertension (P = 0.01). Mortality was not associated with NP disease activity (P = 0.79) or organ damage (P = 0.17).

Conclusion A wide spectrum of NP manifestations was reported. While NPSLE patients may be different from non-NPSLE patients, within the group of NPSLE heterogeneity could be demonstrated, and certainly even within a specific NP manifestation. ACR NPSLE Nomenclature and association reporting format is useful in pooling data over these heterogeneous conditions.

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