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ABSTRACTS OF POSTERS

Abstracts for Poster Presentation:

P1.
Acute Myocardial Infarction after the use of VIAGRA® (sildenafil)
Donnean H.H., CW Chang, CW Chuang, KY Lee, SM Wong, CW Lam, SF Yiu, SL Li, KS Tsang, KT Chan, CS Chung, KC Ho. Division of Cardiology, Department of Medicine, Queen Elizabeth Hospital, Hong Kong.

Background: VIAGRA® has been released to the public in Hong Kong for the treatment of acute male erectile dysfunction in early 1999. It was claimed to be safe but should be administered cautiously in patients with cardiovascular disease.

Method: Case review

Results: However, a 50-year-old, previously totally asymptomatic and healthy gentleman was admitted to our hospital in late 1998 because of post-infarct angina. History and further investigations revealed that he had an acute anterior myocardial infarction on the day before the start of sexual intercourse. His risk factors for BHD included smoking, age, and the main sex which correlate well to the target patient group of VIAGRA®. His LVEDV was 3.7 mmHg and fasting blood glucose was 5.0 mmHg. There was no history of hypertension or family history of ischaemic heart disease. LVEDV was elevated and Q waves were noted in V1 to V4. Echocardiogram showed severe hypokinetic anterior wall which was of full thickness and the ejection fraction was 56%. Coronary study revealed an ulcerated plaque with thrombus at the mid-LAD. Heparin infusion was offered for 5 days. Then, PTCA was successful and uncomplicated. He was then managed as usual post-infarct patients and the subsequent course was uneventful.

Conclusions: This is the first documented case of myocardial infarction after the use of VIAGRA® in an apparently healthy male in Hong Kong and acute myocardial infarction can be the first presentation of ischaemic heart disease. Hence, (1) the public and our doctor colleagues should be warned of the above facts. (2) A thorough cardiovascular examination and preferably investigations including a stress test should be done before the prescription of VIAGRA®. (3) Once an acute cardiovascular event occurred, the patient should be admitted to a hospital with intensive cardiac monitoring and preferably coronary intervention facilities because blood pressure is known to be fluctuated and nitrate is contraindicated after the use of VIAGRA®. (4) Further studies of effect of VIAGRA® on the clotting profile is suggested.

P2.
Reasons for Not Having Thrombolytic Therapy in Acute Myocardial Infarction Patients — An Overview of Our Six Years’ Experience
Chun-shui Yuen, Wai-kwong Chan, Department of Medicine and Geriatrics, United Christian Hospital, Kowloon, Hong Kong.

Acute myocardial infarction (AMI) is a serious cardiac disease with significant morbidity and mortality, especially if it is not recognized and treated promptly. Although thrombolytic therapy (TTh) is an effective and life-saving treatment for AMI, a proportion of patients still cannot receive this drug due to various reasons. The purpose of this review was to look into the reasons for AMI patients not having TThs. From January 1992 to December 1997, a total of 873 AMI patients were studied and their data were prospectively collected and entered into standardized registry forms. During those 6 years, 478 patients (55%) could receive thrombolytic therapy (ie streptokinase or recombinant tissue plasminogen activator) while the remaining 393 patients (45%) could not. The reasons for not having TThs were analyzed and stated as follows: delayed presentation to hospital 28% (110/393), indefinite onset of symptoms 20% (79/393), other diagnoses suspected 29% (115/393), risk of hemorrhage 10% (40/393), post-aggressive cardio pulmonary resuscitation 8% (31/393) and missed or delayed diagnosis of AMI 5% (20/393). From the results, it was obvious that nearly half of the patients could not receive TThs either because they presented late to hospital (ie. > 12 hours from symptom onset) or the onset time of symptoms was not certain. This might reflect that they did not realize the significance and severity of their symptoms. In 29% of patients, other diagnoses were suspected on presentation, which might be contradictions for TThs eg. acute aortic dissection. In conclusion, based on our 6 years’ experience, patient education and formal health promotion programs are essential in order to enhance the knowledge and awareness of the public about AMI, especially those with known ischemic heart disease. Ultimately, it is hoped that more AMI patients can benefit from thrombolytic therapy.

P3.
Emergency Treatment of Early Occurrence of Serious Complications for Patients Suffering from Acute Myocardial Infarction
Liao Xiaoxing on behalf of Department of Emergency Medicine 1st Hospital of Sun Yat-sen University of Medical Sciences, Guangzhou.

Five patients suffering from acute myocardial infarction (AMI) with early occurrence of serious complications were admitted to this hospital on Nov.3 and 1-5,1998. Having been diagnosed and treated in time, the diseases were soon brought under control and all of the patients were rehabilitated and discharged finally.

Clinical Data: Case 1: male, 79 of age, inferior and right ventricular AMI, complicated with third degree AVB, CHF, frequent ventricular premature beats and ventricular fibrillation. He was reanimated by continuous electric defibrillation (250-360J) for 8 times and ceased cardiac compression afterwards. Cardiogenic shock was observed and medication was used to get him reanimated. Case 2: male, 79 of age, inferior, posterior and right ventricular AMI complicated with junctional escape rhythm, ventricular block, acute hemorarge of upper digestive tract and ventricular shock. A temporary ventricular pacemaker was implanted Case 3: male, 88 of age, inferior and posterior AMI. Ventricular fibrillation suddenly occurred 2 hours later. After the onset of the disease, the pacemaker (amplifier) broke the right coronary artery. AMI complicated with total occlusion of RCA, AMI and PTCA was used, resulting in TIMI 1 of the blood flow at the far end. Case 4: male, 68 of age, extensive anterior AMI. Phosphatidylcholine using 35 mg x 6pa was conducted but ended in vaso. PTCA made the blood vessel recalculated. Case 5: female, 52 of age, inferior AMI. Phosphatidylcholine using 35 mg x 6pa was conducted and the chest pain was obviously relieved within 30 min but 1 hour and 30 min later, persistent chest pain occurred again. CA showed sternia greater than 90% at two places of the right coronary artery. Balloon dilatation was conducted and coronary stent was implanted.

Conclusion: Once ventricular fibrillation is confirmed, electric defibrillation should be conducted immediately with gradual increment of the electric energy up to 360J, which can be done over and over again as required. The main cause of right coronary AMI induced cardiogenic shock is thrombus at coronary block, resulting in hypokinesia. In such a case, emergency should be put on raising the heart rate by intravenous injection of dopamine or dopamine in order to improve coronary circulation and implantation of cardiac pacemaker. Pharmacotherapy is an effective therapy for early stage treatment of AMI but for the patients who have contraindicate the other medications should be more aggressive diagnostic and therapeutic techniques are conducive to the reduction of early mortality rate of AMI. CA can be used to identify the interaction-related coronary arteries. PTCA and coronary stent implantation can restore the blood flow immediately so as to ensure effective myocardial perfusion.

P4.
A Study on Low Molecular Weight Heparin in Unstable Angina
ST Chan, WS Leung, CC Choy, CW Wu, PT Loo, NS Mak, MF Kwok, ST Lau, YC Choy, Cardiology Team, Department of Medicine, Prince Margaret Hospital.

Purpose: To compare the efficacy and tolerability of a low dose regimen of Nadropramine Calcium (Fragmin) with traditional treatment in unstable angina in Chinese patients.

Methods: This is a prospective, randomised, open arrested trial. Patients with unstable angina in CCU receive either traditional treatment alone or subcutaneous Fragmin on top of traditional treatment. A total of 60 patients are expected to be recruited. Dosage of Fragmin is 0.5 mg/day for those >60kg and 0.4mg/day for those 50-60kg. Duration of treatment is 5 to 7 days. Clinical characteristics of the patients are assessed. Clinical response include recurrent angina, acute myocardial infarction (MI), urgent coronary angiography with or without intervention, death and major adverse events due to Fragmin.

Results: As of yet, an interim report of the study, 11 patients has been completed. 7 are male and 4 are female. The mean (SD) age is 64 (8). 5 patients received Fragmin and 6 patients did not. Every patient has at least one risk factor for ischemic heart disease. 3 patients had prior angina and antiagregate drugs, 2 patients had prior MI and 2 had prior coronary intervention. One patient who did not receive Fragmin reached clinical endpoint of urgent coronary angiography followed by subsequent PTCA. No patients had major adverse events like major bleeding, thrombocytopenia due to Fragmin.

Conclusion: Low dose Fragmin is safe and well tolerated in Chinese patients with unstable angina. The efficacy of low dose Fragmin over traditional treatment only in unstable angina would be evaluated on completion of the study.
ABSTRACTS OF POSTERS:

Abstracts for Poster Presentation:

P5.

Prophylactic versus bailout use of abciximab in coronary interventional procedures
Michael KY Lee, CW Cheng, CW Chan, CW Lam, SF Yiu, SL Li, KK Tsang, D HO, KT Chan, CS Chang, KC Ho. Division of Cardiology, Department of Medicine, Queen Elizabeth Hospital, Hong Kong.

Introduction: The use of abciximab to prevent ischemic complications given prior to coronary interventional procedures has been highly effective. There is little data on its bailout use for suboptimal result in the initial procedures. The efficacy and safety of the two approaches were compared.

Results: Abciximab was used either prior to or during coronary interventional procedures in 62 local Chinese patients from July 97 to February 99. In 15 of the patients, it was given prophylactically before the procedures and in 5 patients, it was given during the procedures for suboptimal angiographic results. A comparison of the two approaches was tabulated as follows:

|          | M  | F  | Mean Age | Size of Lesion | Procedural Success Rate | Stenting |
|----------|----|----|----------|----------------|-------------------------|----------|
| Prophylactic | 10 | 3  | 66 (46-77) | LAD 9          | 93%                     | 50%      |
|          |    |    |          | LEX 2         |                         |          |
|          |    |    |          | RCA 5          |                         |          |
|          |    |    |          | SVG 2          |                         |          |
| Bailout  | 4  | 1  | 81.8 (48-77) | LAD 4          | 50%                     | 50%      |
|          |    |    |          | LEX 1          |                         |          |
|          |    |    |          | RCA 1          |                         |          |

In the prophylactic group, use upper gastrointestinal bleeding and two mild wound ooze was observed while in the bailout group, one non Q wave MI because of embolism of balloon, one upper gastrointestinal bleeding and two mild wound ooze were observed. 2 CARG procedures were done in the prophylactic group and one death was observed because of inaccessible CHF while none was seen in the bailout group. Mean follow up was 14 weeks (2 days to 26 weeks) in the prophylactic group and 15.2 weeks (16.7 to 76 weeks) in the bailout group. No further mortality, MI or target vessel revascularization were observed.

Conclusions: Prophylactic and bailout use of abciximab is equally efficacious and safe in coronary interventional procedures.

P6.

Coronary stenting in the era of Glycoprotein IIb/IIIa inhibition
Michael KY Lee, CW Cheng, CW Chan, CW Lam, SF Yiu, SL Li, KK Tsang, D HO, KT Chan, CS Chang, KC Ho. Division of Cardiology, Department of Medicine, Queen Elizabeth Hospital, Hong Kong.

Introduction: Abciximab has been successfully used in coronary intervention to minimize ischemic complications. Its use together with coronary stenting is even more efficacious as shown by the EPISTENT trial. We report our initial experience of the use of abciximab in the setting of coronary stenting.

Results: 9 of the 20 patients receiving abciximab treatment prior to or during coronary interventional procedures were having coronary stents implanted as well. They included 5 males and 4 females with mean age 55.7 years (48-77). 5 stents were placed in LAD, 1 in first diagonal, 2 in LCx, 2 in RCA and 2 in SVG. A variety of stents were used which included 5 Multilink stents, 2 Biodiv's, 3 GFX, 1 Physio Diamond AS, 1 Crossflex LC, and 1 Magewell stent. The procedural success rate was 100%. One patient developed an upper gastrointestinal bleeding after the procedure from a pre-existing gastric ulcer. One patient died 2 days after the procedure because of intractable CHF and right heart angioplasty showed the stent was patent. Two cases of mild wound ooze were noted but the first had no haematoma or pseudo-aneurysm formation. After a mean follow up of 15 weeks (2 days to 30 weeks), no recurrent angina, MI, target vessel revascularization or further mortality was noted. There is no clinical evidence of restenosis in the remaining 8 patients.

Conclusions: Stenting with Glycoprotein IIb/IIIa inhibition is safe and the incidence of restenosis and ischemic complications is much reduced.

P7.

Radial Artery Approach – Patients’ Perspective
Steven SL Lai, HS Tang, CM Ng, CW Cheng, CW Chan, CS Chang, KC Ho. Division of Cardiology, Department of Medicine, Queen Elizabeth Hospital, Kowloon, Hong Kong.

Purpose: Radial approach has been emerging as a popular choice for many interventional cardiologists for their percutaneous coronary coronary procedures. We attempted to elicit the opinions of the patients in this approach.

Methods: From December 1997 to February 1999, among other patients who had received radial approach during their coronary procedures, 15 patients have history of receiving both radial and femoral approaches in the past. They were surveyed for their opinions concerning these two approaches in relation to comfort, wound pain, hematoma, ambulatory ability and their final preferences.

Results: Concerning the comfort during the procedure, 10 out of 15 patients (66.6%) felt no difference whereas 2 out of 15 (20%) felt felt more discomfort during femoral approach and 2 out of 15 (13.3%) felt more discomfort during radial approach. Concerning the comfort during the hematoma procedure, 14 out of 15 (93.3%) felt more comfortable with the femoral approach whereas 1 patient felt no difference. In regard to the bleeding or ooze after hematoma, 12 out of 15 (80%) experienced no difference while 3 revealed more hematoma problems with the femoral approach. In regard to the local wound discomfort after the procedure and hematoma, 11 out of 15 (73.3%) felt no difference whereas 4 felt more local discomfort with the femoral approach. Concerning the ambulatory ability after the procedures, all 15 patients (100%) felt much better mobility with the radial approach. If further procedure is necessary, 13 out of 15 (86.6%) would choose the radial approach whereas 2 patient showed no preference and the remaining one would prefer the femoral approach. Concerning day case discharge after the procedures in the future, all patients were confident with the femoral approach whereas 12 out of 15 (80%) felt comfortable with radial approach and the remaining 3 would prefer overnight observation in hospital even with the radial approach.

Conclusions: Radial approach in coronary procedures is preferred by most patients as opposed to femoral approach, mainly because of their greater degree of mobility after the procedure.

P8.

Coronary Stenting Experience in a Hospital Without Cardiac Catheterization Laboratory
TC Law, KM Tsao, CYC Yap, WM Wong, WK Kwan. Department of Medicine, Yat Cheong Hospital.

Background: Yat Cheong Hospital (YCH) is not equipped with a cardiac catheterization laboratory. In order to provide necessary services to our patients with coronary artery disease, linkage has been established with the Cardiac Medical Unit of Queen Elizabeth Hospital (QEH) since 1995. We carried out diagnostic cardiac catheterization and interventional procedures in QEH, but we did not perform percutaneous interventions. Over the last 4 years, coronary stenting, despite being a crucial step in providing the best possible outcome, has been performed at a very low level.

Methods: The procedural and clinical data of all PCI patients with coronary stenting performed at QEH from January 1998 to December 1999 were analyzed.

Results: Coronary intervention was carried out in 82 patients. 54 patients (65.8%) had coronary stenting performed. 15 patients (18.3%) underwent balloon angioplasty alone. 1 patient (1.2%) received rescue after coronary angioplasty followed by percutaneous angioplasty. Balloon inflation utilizing high pressure and inflation in 4 patients and 1 patient respectively with poor left ventricular function had stenting done under intra-aortic balloon counterpulsation support. No procedural death occurred. Among the 54 patients with stent implanted, 47 were male and 17 were female patients (M:F = 2.72:1). The age of the study population ranged from 32 to 89. Mean age of the male patients, female patients and the whole group were 65.5, 69.7 and 67.9 respectively. 87 stents were implanted (25 AVE, 45 GFX, 18 NR, 17 Tiga, 7 Tiya, 5 ACS Multilinks, 4 Visi-F, 3 Coaxial, 2 Mem-Crown, 1 CR II and 1 Endeavor). Indications of stenting included subtotal PTCRA results (48), proximal obstruction of lesions in non-target lesions in patient having left main stenosis (4) and following recanalization of chronic total occlusion (2). 50 patients (73.5%) had only one stent implanted while 15 (23.4%) and 41 (63.4%) patients had 2 and 3 stents respectively.

No. of stent | 1 | 2 | 3 | 4 | 5 | 6 |
---|---|---|---|---|---|---|
No. of patients | 46 | 11 | 14 | 3 | 1 | 0 |

For those patients who did not differ between male and female patients (16.3 mm and 16.3 mm respectively, correlation coefficient 0.974, statistically significant). Also, the mean age for patients aged over 65 (30.8 years) was comparable to the rest of the patients (33.5 years), correlation coefficient 0.729, statistically significant.

Conclusions: Our high stent rate (73.5%) and procedural success rate (100%) showed that with current angiography equipment, coronary stenting is feasible and can be performed smoothly in majority of cases. Conveying to the common belief that elderly patients and female patients have smaller vessel size, our experience suggests equal chance for successful stenting in these patients.
P9. Left Main Coronary Artery (LMCA) Reconstruction for Congenital Ostial Stenosis of LMCA with A Laerze, Short Patent Ductus Arteriosus.

Purpose: Clinical congenital ostial stenosis is currently treated by a conventional bypass operation. However, this approach leads to the definitive occlusion of the coronary ostium, results in only strictly revascularization in an often extensive myocardial area and sometimes serious bronchitis. For young patients, the graft survival is an especially serious problem. The usual case used here provides an opportunity to consider these questions.

Patients and Methods: A 20-year-old man was admitted to the hospital in April 1998 for recurrent exertional chest pain. Coronary angiography disclosed a severe left coronary artery stenosis. The coronary was protected with angiography and angiography administration. The remaining right and left coronary arteries were otherwise normal. Cardiac catheterization demonstrated a large left main patent ductus arteriosus (PDA), patent coronary arteries (hypertension, systolic pressure 90 mmHg) and low pulmonary vascular resistance (<5 Wood Units). The systemic-to-pulmonary shunt and moderate systemic hypertension were used with a medium stenometry. The PDA of 2.6 cm of diameter was found and it was difficult to locate; therefore, CAHMI was used. During cooling, the ductus was occluded by finger pressure on the pulmonary artery (PA). The ductus was closed via an incision made in the PA. Using low flow, the ductus was first plugged up with a Foley catheter, and then windows was closed on the PA side with Dacron patch. The ascending aorta was dissected free from the main pulmonary artery (MPA). The LMCA was dissected out on to a length of about two times the origin to be in position. The aortic arch was resected and the cardiopulmonary bypass was initiated during the next procedure. The aorta was isolated transversely and anteriorly and the intima of the LMCA was identified and prepared. The operation was performed under cardiopulmonary bypass and the aortic arch was resected. The ascending aorta was dissected free from the main pulmonary artery (MPA).

Results: The patient was discharged from the hospital as the follow-up changes were considered to be acceptable. The patient is currently asymptomatic.

Conclusion: Our preliminary results suggest that angioplasty of the LMCA can be carried out with low risk. In summary, the technique appears to be a promising alternative to coronary artery bypass grafting in isolated LMCA disease. For young patients, the technique is an especially reasonable surgical choice.

P10. P11. Clinical Characteristics of 12 Dobutamine Stress Echocardiography Negative Patients.

KL Tam, WC Yip, TC Law, WK Koon
Department of Medicine, Yan Chau Tong Hospital

Objective: This study aimed to analyze the clinical characteristics of dobutamine stress echocardiography (DSE) negative patients.

Methods: The clinical data of 12 patients who had DSE negative results were analyzed. All of these patients had undergone DSE from February 1998 to January 2000 in the Yan Chau Tong Hospital.

Results: Among the 12 patients, 9 were females and 3 were males. The mean age was 58.5 ± 11.2 years. The criteria for DSE negative results were: (1) diagnosis of heart disease; (2) positive or non-diagnostic exercise test; (3) normal left heart function; and (4) absence of chest discomfort during exercise. The study showed that 6 patients had a positive exercise test, 2 patients had chest discomfort during exercise, and 4 patients were unable to perform the test due to orthopnea. Of the 12 patients, 10 patients had a normal left heart function. The mean left ventricular ejection fraction was 57 ± 4%. The study further showed that 6 patients had a positive exercise test, 2 patients had chest discomfort during exercise, and 4 patients were unable to perform the test due to orthopnea. Of the 12 patients, 10 patients had a normal left heart function. The mean left ventricular ejection fraction was 57 ± 4%.

Conclusion: Dobutamine stress echocardiography negative patients were relatively young. Dobutamine stress echocardiography is a valuable tool for evaluation of patients with asymptomatic pain. Dobutamine stress echocardiography negative patients had a normal left heart function and were free from chest discomfort during exercise. The follow-up of these patients demonstrated no cardiac events reducing the good prognostic significance in DSE negative tests.

P12. Applicability, Tolerability and Complications of Dobutamine Stress Echocardiography.

KL Hin, TC Leung, TS Tse, CK Chiu, YS Chan, KK Chan, HK Lam, SK Li, Department of Medicine, Pamela Youde Nethersoll Eastern Hospital

Introduction: Dobutamine stress echocardiography (DSE) is an emergent diagnostic tool for coronary artery disease (CAD). We report our experience with the clinical use of this diagnostic modality.

Results: 45 patients underwent DSE from Aug 96 to Jan 99. The indications for DSE were for primary diagnosis of CAD in 34 patients (75%). In the other 11 patients, 6 patients (15%) had DSE for assessment of myocardial viability, 4 (9%) for assessment of functional significance of coronary stenosis on coronary angiography, and 1 (2%) for localisation of ischemia in patients with prior partial revascularization. Among these 34 patients having DSE indicated for primary diagnosis of CAD, 18 patients (50%) had non-stenosing ECG abnormalities limiting the diagnostic accuracy of exercise stress ECG. 12 patients (38%) had inconclusive findings after exercise stress ECG. 3 patients (9%) were physically incapable of performing exercise stress. In one patient (3%), echocardiography was indicated for other structural abnormalities.

We use a protocol of escalating dose of dobutamine infusion starting from 5ug/kg/min, increasing to 10, 20, 30, 40 g/kg/min at 3-minute interval, added on iv bolus of atropine up to 1 mg if target heart rate was not achieved. All except one patient (98%) achieved 85% of maximal predicted heart rate using this protocol. The test was generally well tolerated, without significant symptomatic or event outcome in 41 patients (91%). 3 patients (7%) experienced self-limiting side effects: one patient had a decrease in systolic blood pressure; one patient developed intracardiac arrhythmia and a further injection of iv fluid and the latter spontaneously reverted to normal sinus rhythm; another patient also developed hypotension promptly responded to iv fluid. Major adverse event occurred in one patient (2%) who developed non-evident myocardial infarction and underwent coronary angiography. She was promptly resuscitated and subsequently recovered uneventfully.

Conclusion: Dobutamine stress echocardiography is a useful diagnostic tool for CAD. It is applicable for primary diagnosis of CAD, for assessing myocardial viability, for assessing functional significance of coronary stenosis, and for localisation of ischaemic tract. It is generally well tolerated, but there is a potential risk of major adverse event.
P13.

Echocardiographic Assessment for Valvular Abnormalities in Patients Taking Desflurane: 6-month Follow-up Study

K.L. Ng, KW Lo, TS Yee, TC Leung, CK Chiu, YS Chan, KC Chan, KH Lam, SK Li
Department of Medicine, Pamela Youde Nethersole Eastern Hospital.

Background: Recent reports suggest that the use of anesthetics can increase mitral annulus and diastolic filling. This study correlated clinical and echocardiographic evaluation of 25 patients who had moderate or severe mitral valve abnormalities at the same imaging center with and without desflurane exposure. A total of 35 patients were included in the comparison with a follow-up time of 6 months.

Methods: After an initial clinical and echocardiographic evaluation of 25 patients who had moderate or severe mitral valve abnormalities at the same imaging center with and without desflurane exposure, a follow-up was performed for 6 months to assess the change in mitral valve function.

Results: The follow-up echocardiographic assessment showed similar results to the initial evaluation. However, a slight improvement in valve function was observed in patients who had desflurane exposure. The improvement was more pronounced in patients who had severe mitral valve abnormalities.

Conclusions: Our study suggests that desflurane exposure may have a beneficial effect on the progression of mitral valve abnormalities. Further studies are needed to confirm these findings and to determine the optimal duration of desflurane exposure.

P14.

Admitted for Infective Endocarditis to a University Hospital 1992-1998

CH Lee, A Tao, WM Chan, CP Lau
Department of Medicine, Queen Mary Hospital, University of Hong Kong.

Purpose: To examine the clinical characteristics of patients with severe endocarditis (EI) admitted to a University hospital. (2) To assess the impact of acute renal failure on mortality in patients with EI. (3) To assess factors predicting development of acute renal failure in patients with EI.

Methods: Records of patients with severe endocarditis (EI) admitted to the hospital were retrospectively reviewed and analysed. The following exclusion criteria were set: (1) records regarded wrongly coded; (2) records with significant amount of missing data; (3) patients with pre-existing renal impairment (creatinine >200umol/L). Results: Totally 121 patients (92 male; 29 female) were analyzed. The mean age was 40 years (age range: 18-76) were admitted in the past six years. Intravenous drug addicts constituted 55% of the patient population. Total mortality was 13%. Blood culture showed Staphylococcus aureus, Streptococcus species, others and culture negative in 45%, 22% and 24% respectively. The valves involved were tabulated as follows:

- Aortic Mitral Tricuspid Pulmonary valve Prosthetic mitral Indeterminate
  - 18% 27% 27% 6% 6% 31%

Multivariable analysis showed the following factors were associated with increased mortality in patients with EI: Acute renal failure (p<0.01), neutrophilia (white cell count>10) and thrombocytopenia (platelet<150) (p<0.03). The following factors were found predicting development of acute renal failure in EI patients: Thrombocytopenia (platelet<150) (p<0.01), systemic hypotension (cystolic blood pressure <100) (p<0.03) and hypoalbuminemia (albumin<30) (p<0.04).

Conclusions: There was a high proportion of intravenous drug addict in our patient population. Staphylococcus aureus was the most common causative organism and intravascular valve was the most commonly involved valve. Development of acute renal failure in patients with EI was associated with high mortality. Aggressive management of this particular subgroup may help to improve the overall mortality. Thrombocytopenia, systemic hypotension and hypoalbuminemia were independently associated with development of acute renal failure by multivariable analysis.

*Candida Albicans, Cryptococcus Neofor man, Moraxella, Kingella

P15.

Infective Endocarditis in a District Hospital

YP Kwok, TV Wong, KW Chui, ST Lau. Department of Medicine and Geriatrics, Prince Margaret Hospital, Hong Kong.

Purpose: The aims of this study are to review the clinical spectrum of infective endocarditis (IE) managed in Prince Margaret Hospital from 1995 to 1998 and to assess the utility of the Duke Criteria for diagnosis.

Method: Hospital records of patients who were diagnosed to have IE were reviewed. Clinical information was analyzed and patients were classified into definite or possible IE according to the Duke criteria.

Results: Thirty-two patients (aged 51-75, median age 41), 27 male, 5 female) were diagnosed to suffer from IE in this period. Twenty-nine (91%) patients had predisposing conditions. Fifteen were intravenous drug users (1 had also had prior IE), 4 had ulcerative colitis, mitral valve disease (1 had mitral valve replacement), 1 had mitral valve prolapse, 1 had venous valvular defect, 1 had prosthetic mitral valves, 1 suffered from lupus erythematosus, long-term corticosteroid therapy. Clinical features were as follows: fever 38°C (28 patients), heart failure (18 patients), right heart failure manifested by pulmonary edema or hepatic swelling (17 patients), all were IV drug users with intracardiac valve infection, emboli formation (8 patients, all had mitral valve or aortic valve infection or venous valvular defect), immunological phenomena (2 patients with glomerulonephritis, 2 patients with rheumatoid arthritis, 1 patient with lupus meningitis), and neurological symptoms (7 patients, headache (1 patient). Twenty-two patients had positive blood cultures, 22 of them had 3 positive blood cultures. Eighteen patients had staphylococcal aortic infection (14 IV drug users). Eight patients had streptococcal viridans valve endocarditis. Thirty-eight patients had hospitalization or rehospitalization for IE in other hospitals. The major peak of echocardiography examination was 55 days. The median peak of creatine phosphokinase was 129 mg/L. According to the Duke criteria, 26 patients had definite IE and 6 had possible IE. The common anatomic site was the mitral valve (15 patients), or perivalvular spread (2 patients). Twenty-three patients recovered after antibiotic therapy. Six patients died (5 IV drug users, 1 had prosthetic valve).

Conclusion: Most of the patients suffering from IE have predisposing conditions, which include heart valve disease or IV drug abuse. Fever is common presentation. Most of the patients have multiple positive blood cultures and echocardiographic evidence suggestive of IE. Staphylococcal aortic and Streptococcal viridans are the two common organisms. Most of the patients recover after antibiotic therapy. The Duke criteria helps in the diagnosis of IE.

P16.

Right Bundle Branch Block (RBBB) in the right ventricular pacing

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[Abstract] Objective Right ventricular pacing shows left bundle branch block (LBBB) and left electrical axis shifting in ECG. Right bundle branch block (RBBB) in the right ventricular pacing appears singularity. Methods To analyse the ECG, X-ray examination and diagnosis and treatment in the 161 patients in our hospital. Results 161 patients (97 men, 64 women, mean age 59.3). 3 cases of 161 patients in our hospital shows complete right bundle branch block (CRBBB) in the right ventricular pacing. No myocardial pericardium and malposition of endocardial pacemaker electrode in the coronary sinus or middle cardiac vein. Conclusion The phenomenon that Right bundle branch block (RBBB) in the right ventricular pacing is in reference to variation of myocardium structure and change of conduction resistance in the electronic physiology.

[Key words] Ventricular pacing Bundle branch block Electrocardiography Electrophysiology]
P17.
Radiofrequency Ablation of cardiac arrhythmia - Local experience in a single centre.
H.K. Chung, C.K. Chan, W.H. Fung, K. Tang, G. Yip, R. Chan, K.S. Woo, J.E. Saunders.
Department of Medicine and Therapeutics, Prince of Wales Hospital, The Chinese University of Hong Kong.

Purpose: Traditionally arrhythmias have been treated by medication. Following the introduction of radiofrequency ablation, it quickly established itself as one of the major methods for treating various arrhythmias. The present study was undertaken to review the acute success and long term symptom control (without antiarrhythmic drug) of RF ablation as well as complications in a single centre in Hong Kong.

Method: The case records of all patients undergoing RF ablation were reviewed and a telephone survey for any symptom or recurrences of the previous arrhythmia were done.

Result: 173 RF procedures were done on 162 patients from Nov 94 to Feb 99. The mean age of the patients was 41.4 years (range 16-86) and the male to female ratio 95:78. The index arrhythmia treated is atrioventricular nodal tachycardia (54), accessory pathways (94), atrial flutter (11), atrial fibrillation (7), various VTs (7). 16 patients had multiple arrhythmias and 11 patients multiple accessory pathways. Acute success was achieved in 129 session (92%). The 14 cases of failure were 3VT (42.8%), 10 accessory pathway (10.6%), 1 AF/AFI. There was no mortality and only 5 minor complications (1 pneumothorax, 1 retroperitoneal haemorrhage and 1 deep vein thrombosis). 3 patients lost for follow up. Symptom and/ or arrhythmia recurred in 10 patients (6%) on follow up at a medium of 17 months (range 0.3-50). No patient required drug therapy.

Conclusion: RF ablation offers a safe modality of treatment to various arrhythmias with good long term success without drug treatment.

P18.
Initial Experience in Using Radiofrequency Catheter Ablation for Treatment of Paroxysmal Supraventricular Tachycardia.
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Background: Radiofrequency catheter ablation (RFCA) is a widely accepted treatment modality for paroxysmal supraventricular tachycardia (PSVT). We reported our initial experience in 35 patients.

Methods: The hospital records and the pacemaker records of patients with PSVT who had undergone RFCA at Princess Margaret Hospital from May 1997 to December 1998 were reviewed and analyzed.

Results: A total of 36 patients (34 males and 2 females) with a mean age of 48 ± 14 years had symptomatic PSVT had undergone RFCA. The PSVT occurred 4.3 ± 2.4 times per year for 7.8 ± 6.1 years. The number of hospital admissions due to PSVT was 1.6 ± 1.0. The mean number of arrhythmias medications they had tried was 1.4 ± 0.8. Spontaneous was the most frequently used drug, followed by metoprolol. RFCA was performed in the same session following a diagnostic electrophysiology study. 17 patients (47.2%) were found to have slow-pathway type atrioventricular nodal tachycardia (AVNRT) while 19 patients (52.8%) have Wolf-Parkinson-White (WPW) syndrome with inducible orthodromic AV reentrant tachycardia (AVNRT). WPW syndrome was manifested in 9 and concealed in 10 patients. 2 patients had 2 AV accessory pathways (AAV). Of the 21 AAAs we ablated, 17 (80.9%) were located on the left free wall (LFW), 2 (9.1%) at right free wall (RFW), 1 (4.8%) in posterior aspect, and 1 (4.8%) in the mid-septal space. 16 patients (94.1%) with AVNRT revealed successful selective RFCA of AV node using slow pathway approach. The median number of RF ablation points applied was 3. No complete heart block was inadvertently induced. Ten patients with WPW syndrome. AAVPs were ablated beneath or above the atrial electrograms using retrograde transseptal approach while RFW and equal AAAs were ablated above the encircled annulus in right atrium using right femoral approach. 17 patients (94.1%) had successful RFCA of their AAAs. The median number of RF ablation points they received was 10. The mean procedure and fluoroscopy time for all successful cases were 2.7 ± 0.8 hours and 47 ± 19.6 minutes respectively.

Conclusion: Our initial experience was in keeping with the worldwide experience that RFCA is safe and effective in effective treatment of PSVT and could be considered in a first line treatment in selected patients.

P19.
Brugada Syndrome in a Local Chinese Man.
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Background: Brugada syndrome is a specific entity of electrocardiographic pattern found in patients with a sudden death in the absence of coronary artery disease. We report a case of Brugada syndrome in a man of local Chinese background.

Case Report: A 43-year-old man was admitted for painless chest pain. The patient was admitted for sudden cardiac arrest in Hong Kong.

Method: The patient presented with a sudden episode of chest pain. The ECG showed a typical Brugada pattern. The patient underwent a coronary angiogram, which was normal. The patient was discharged on medical treatment without any further event.

Conclusion: Brugada syndrome is a rare condition that can be associated with sudden cardiac death. Early recognition and appropriate management are crucial to prevent sudden death. Cardiac catheterization and implantation of a pacemaker were considered as initial treatment. After a follow-up of 12 months, the patient remained asymptomatic.

P20.
A Case of Primary Rhabdomyosarcoma of the Right Ventricle.
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Background: Primary cardiac rhabdomyosarcoma (PCRS) is a rare disease entity. This is a report of the first PCR ever documented in our hospital.

Case Report: A 67-year-old gentleman with a past medical history of progressive renal failure on haemodialysis was referred to our hospital for evaluation of a right upper quadrant mass. An ECG revealed a sinus tachycardia. A chest X-ray showed a mass in the right ventricle. A CT scan revealed a mass in the right ventricle. The patient underwent a successful resection of the mass.

Conclusion: Early recognition and appropriate management are crucial to prevent sudden death. Cardiac catheterization and implantation of a pacemaker were considered as initial treatment. After a follow-up of 12 months, the patient remained asymptomatic.
ABSTRACTS OF POSTERS

Abstracts for Poster Presentation:

**P21.** Strategies to Improve the Quality and Outcome of Hospital-wide Cardiopulmonary Resuscitation

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Cardiopulmonary resuscitation (CPR) is an important part of acute medical care. Timely and properly delivered CPR can greatly enhance the probability of saving the lives of patients suffering from cardiac arrest. However, there exist a lot of pitfalls in various aspects of CPR. We launched a hospital-wide programme to improve the quality and outcome of CPR through organized multi-disciplinary approach. Here we report our experience over these four years.

A Co-ordinating Committee on Hospital Resuscitation was set up in March 1995. It consisted of emergency medicine specialist, cardiologist, anaesthesiologist, intensivist and nurse. The committee set up hospital wide standardized CPR protocol and operational policy including Do Not Resuscitate' policy. It was also involved in standardization of CPR equipment, design and their layout in the resuscitation trolleys. Practical hands-on CPR workshops were organized regularly to doctors and nurses. Regular clinical audits on CPR were also conducted.

So far over 70% doctors and around 20% of nurses of our hospital attended the CPR training workshop. The quality and outcome of CPR had significant improvement since comparing clinical audits before the programme and the one done recently. Recent audits showed that at CPR were commenced within 5 minutes (previously only 89.1%, p < 0.005), and doctor arrived within 10 minutes in all cases (previously only 94.5%, p < 0.05). Standardized CPR protocol were followed completely in 94.2% (previously only 9.2%, p < 0.0001). Signature of doctor at the CPR record was significantly more complete (97.2% vs. 66.2%, p < 0.0001). Most importantly, significantly more patients were alive and not comatose at the end of one week after CPR (4% vs. 0.4%, p < 0.0001).

Through properly organized multi-disciplinary approach, the quality of CPR can be significantly improved, and most importantly, the outcomes of these cardiac arrest patients are favourably altered.

**P22.** Inaccuracy of estimation of Metabolic Equivalents (MET) by treadmill exercise test

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**Background:** In traditional treadmill test, we estimate the functional capacity with the metabolic equivalent, which is measured. While in cardiopulmonary exercise testing (CPET), the oxygen consumption is directly measured and so is the functional capacity.

**Objective:** To assess the accuracy of Metabolic Equivalents (MET) estimated by treadmill exercise testing against direct measurement of MET with ventilatory gas analysis in reference.

**Methods:** Consecutive patients were referred for cardiopulmonary exercise testing in United Christian Hospital were studied. The patients performed incremental exercise on a treadmill. The following parameters were routinely collected during the CPET: baseline hemodynamics and direct measurement of maximum oxygen uptake (MVV, oxygen uptake (VO2), carbon dioxide output (VO2), average heart rate (HR), blood pressure (BP), age, body weight, body height, background disease, medication, MET, estimated MET. Results: 81 patients were analyzed. There were 58 males (72%) and 23 females (28%) with mean age of 60 (SD 12.8) years. The measured MET using CPET was 5.72 (2.7.2). The estimated MET by treadmill exercise test was 5.93 (SD 2.84). The mean difference was 0.67 (-9% CI, 0.14; 0.06; p<0.005, paired t-test). There was significant difference between the measured MET and estimated MET. The correlation can be represented in the equation: estimated MET = (0.94) x measured MET + (1.35) (r = 0.99, p < 0.001). For any value of measured MET, there is significant variability of estimated MET.

**Conclusion:** We validate the use of estimated MET by treadmill exercise testing as an outcome measure in cardiac rehabilitation and exercise prescription, as it is more accurate.

**P23.** Reduced Dosage of Recombinant Tissue Plasminogen Activator for Chinese Elderly Patients with Acute Massive Pulmonary Embolism

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Acute pulmonary embolism is a potentially fatal disease if not diagnosed and treated early. Thrombolytic therapy is effective and beneficial for patients with acute massive pulmonary embolism. However, there is higher rate of bleeding complications in patients receiving thrombolytic therapy versus anticoagulation. Moreover, Chinese and elderly patients are also more susceptible to bleeding complications of anticoagulation therapy. Therefore, we tried to test the efficacy and safety of reduced dose thrombolytic therapy in our Chinese elderly patients suffering from acute massive pulmonary embolism.

**Methods:** Patients who are older than 65 years of age with acute massive pulmonary embolism will be given the weight adjusted reduced dose of thrombolytic therapy. 100mg of recombinant tissue plasminogen activator is assumed to be the dosage for a 70kg patient. The adjusted dosage for our elderly patients will be 10.0mg/kg (patient’s body weight) x 70 x 80%.

**Results:** From the period of October 1997 to March 1998, we had four Chinese elderly patients who had acute massive pulmonary embolism requiring thrombolytic therapy. All four patients had clinical and spiral computed tomography evidence of effective thrombolysis after the weight adjusted reduced dosage of thrombolytic therapy. There were a major bleeding complication of spontaneous retroperitoneal hematoma requiring transfusion therapy in one of our patient and a minor bleeding complication of arterial puncture site hematoma in another patient.

**Conclusion:** It appeared that reduced dosage of thrombolytic therapy for acute massive pulmonary embolism in our Chinese elderly patients was effective with some bleeding complications. A larger trial looking at this aspect is warranted.

**P24.** Changes of anionic sites on hypertrophic myocardial cell membrane

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**Objective:** To investigate the lesion of hypertrophic myocardial cell membrane at the molecular level.

**Methods:** The model of rat abdominal aortic constriction was adopted, the distribution of anionic sites at the basal lamina of normal and hypertrophic myocardial cells in the rats was investigated with a catonic probe, polyethylene (PEI). The Pt-labelled particles referring to anionic sites were calculated stereologically.

**Results:** The anionic sites of basal lamina of the myocardial cells in control group were orderly arranged in linear arrays at spacing of 40 to 80 nm, and the number of PEI-labelled particles were reduced significantly in operated rats. Meanwhile, there was the dissociation of basal lamina from plasma membrane, the loss of basal lamina integrity and the rupture of the plasma membrane in operated group.

**Conclusion:** The study demonstrates that there are decrease of the anionic sites of basal lamina and membrane protective barrier dysfunction in hypertrophic myocardial cells.
P25.  
Effects of an AT<sub>1</sub> receptor antagonist, an ACE inhibitor and a calcium channel blockade on connexin 43 gap junction distribution in pressure overload-induced hypertrophic rat heart  
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Objective: To compare the selective angiotensin II type 1 (AT<sub>1</sub>) receptor antagonist, irbesartan, with an angiotensin-converting-enzyme (ACE) inhibitor, Perindopril, with a calcium channel blockade, Felodipine, on connexin 43 (Cx43) gap junction distribution in hypertrophic rat heart.  

Methods: Male Wistar rats were divided randomly into following groups: sham-operated group, operated group, operated group treated with Irbesartan (10mg/kg/d), Perindopril (2mg/kg/d) and Felodipine (5mg/kg/d), respectively. The model of rat abdominal aortic constriction was adopted, at 10<sup>th</sup> week after operation, distribution of Cx43 gap junction was observed by immuno-histochemistry and transmission electron microscope.  

Results: Morphometric analysis of left ventricular myocardium sectioned in sham-operated group revealed that most of gap junctional membrane occurred in large ribbon-like gap junction oriented transversely at cell end process. Expression of Cx43 located majorly at intercalated discs. In operated group, gap junction at intercalated discs was destroyed, gap of intercellular space widened, Cx43 distributed disorderly on the surface of cardiomyocytes. After treated with Irbesartan and Perindopril, myocytes had the normal Cx43 gap junction distribution consisting of transversely by oriented pattern consistent with the positions characteristic of the intercalated discs of normal ventricular myocardium. In contrast, Felodipine had no influence on Cx43 gap junction distribution in hypertrophic heart.  

Conclusion: An AT<sub>1</sub> receptor antagonist Irbesartan and an ACE inhibitor Perindopril improve similarly Cx43 gap junction distribution in hypertrophic rat heart, a calcium channel blockade Felodipine has no effect.  

P26.  
Relationship Between a Polymorphism of the Angiotensin I Converting Enzyme and Essential Hypertension in China  
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To find the relationship between angiotensin I converting enzyme gene (ACE gene) and essential hypertension (EH), we detect the insertion/deletion (I/D) polymorphism of the ACE gene of 93 healthy people and 85 patients with EH by using the polymerase chain reaction (PCR). The D allele gene frequency is 0.349 in control group and 0.403 in EH group. The difference between them is not significance. It suggests that the I/D polymorphism of ACE gene is not associated with EH of Chinese population.  

P27.  
Effects of Irbesartan on Apoptosis and Regression of Neointima in Rat Vascular Balloon Injury Model  
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Objective: To investigate the effects of irbesartan on apoptosis and regression of neointima in rat vascular balloon injury model.  

Methods: The iliac arteries balloon injury model was performed in two groups rats. Male Wistar rats were divided randomly into two groups: Control group and Irbesartan group. Irbesartan (50mg/kg/d) was administrated for 5-weeks starting at 1-week before balloon injury in Irbesartan group. The rats were killed at 14 days after injury. Using terminal deoxynucleotidyl transferase-mediated DUTP nick end labeling (TUNEL).  

Results: In Irbesartan group, the apoptosis (59.12 ± 2.96%) of vascular smooth muscle cells (VSMC) in balloon injury vascular neointima was increased significantly (p<0.05) compared with control (18.37 ± 1.82%), and the intima area was decreased significantly (p<0.05).  

Conclusion: Irbesartan, an AT<sub>1</sub> receptor antagonist inhibits the neointima formation by increasing apoptosis of VSMC except for inhibiting the proliferation of VSMC. Angiotension II (Ang-II) might inhibit the apoptosis of VSMC by binding AT<sub>1</sub> receptor.