

## YOUNG INVESTIGATOR'S AWARD

### YIA 1 OUTCOME OF TRANSCORONARY ABLATION OF SEPTAL HYPERTROPHY : A 5 YEAR EXPERIENCE

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### YIA 2 ASSESSMENT OF PATENT DUCTUS ARTERIOSUS AMONG ADULT PATIENTS WITH MULTI-SLICE COMPUTED TOMOGRAPHY ANGIOGRAPHY BEFORE TRANSCATHETER CLOSURE

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### YIA 3 PROGNOSTIC VALUE OF DOPPLER ECHOCARDIOGRAPHIC GLOBAL MYOCARDIAL PERFORMANCE INDEX IN PATIENTS WITH FIRST-TIME ACUTE MYOCARDIAL INFARCTION

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### YIA 4 SAFETY AND EFFICACY OF TRANSCATHETER CLOSURE OF ATRIAL SEPTAL DEFECTS UNDER TRANSTHORACIC ECHOCARDIOGRAPHIC GUIDANCE IN CARDIAC CATHETERIZATION LABORATORY

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### YIA 5 LATE GADOLINIUM ENHANCEMENT CARDIAC MAGNETIC RESONANCE IN DETECTION OF LEFT ATRIAL THROMBUS IN PATIENTS WITH MITRAL STENOSIS: A COMPARISON WITH CINE CARDIAC MAGNETIC RESONANCE AND 2D ECHOCARDIOGRAPHY

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### YIA 6 ASYMPTOMATIC CORONARY ARTERY DISEASE AND ASSOCIATION WITH PULSE WAVE VELOCITY IN RHEUMATOID ARTHRITIS PATIENTS: A PILOT STUDY

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## YIA 1

### OUTCOME OF TRANSCORONARY ABLATION OF SEPTAL HYPERTROPHY : A 5 YEAR EXPERIENCE

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**Background and Objectives:** Transcatheter ablation of septal hypertrophy (TASH) is efficacious in symptom relief for hypertrophic obstructive cardiomyopathy (HOCM). However, available data is mainly from relatively small number of non randomized patients in United States and Europe. There is a lack of representation of Asian patients with long term follow up. We present our 5- year experience in patients post- TASH in HOCM.

**Methods:** In the period of 5 years between 2005 to 2009, 14 symptomatic HOCM patients underwent TASH. Each patient was assessed for risk of sudden cardiac death and in high risk patients, intracardiac defibrillator(ICD) was implanted. Patients with suitable coronary anatomy had ablation of septal perforator(s) with alcohol or platinum coils and in some patients, guided by echo contrast. Evaluation was done periodically for NYHA class, LVOT gradient, septal thickness, LV dimension and systolic function, early and late complications, rate of success and redo, rate of ventricular tachyarrhythmia and sudden cardiac death.

**Results:** Mean age was 38.6±17.2 years; 72% man. 3 patients had ICD and 2 patients had atrial fibrillation. Maximum septal wall thickness was 3.8 cm. In the short term, there were improvements in NYHA class, LVOT gradient and septal thickness from (2.91±0.29 to 2.1±0.31, p<0.001), (91±47 to 39±29 mmHg, p<0.001) and 2.65±0.61 to 2.38±0.53cm (p=0.001) respectively. The results were maintained over long term follow up ( up to 5 years). Peak creatinine kinase was 1646 u/l. There were no significant changes to LV dimension and systolic function. The most common in-hospital complication was 3rd degree AV block in 3 patients, which occurred early and resolved within 2 days. They did not require permanent pacemaker. There was no in- hospital death. 12 patients had success at first attempt and 2 patients after 2nd attempt. 3 patients had redo TASH following recurrence of symptoms after 6 months. One patient died of sudden cardiac death 6 months post TASH.

**Conclusion:** TASH is an efficacious and safe procedure to relieve symptoms in HOCM. Symptom relief is achieved rapidly and maintained over long term follow-up. It did not reduce or increase risk of sudden cardiac death. A randomized controlled trial is needed to compare TASH and myectomy in order to determine which technique provides maximal benefit.

## YIA 2

### ASSESSMENT OF PATENT DUCTUS ARTERIOSUS AMONG ADULT PATIENTS WITH MULTI-SLICE COMPUTED TOMOGRAPHY ANGIOGRAPHY BEFORE TRANSCATHETER CLOSURE

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**Objectives:** Accurate assessment of size and morphology of patent ductus arteriosus (PDA) is crucial in selecting best device for transcatheter closure. This often can only be achieved by invasive angiography among adult patients because of poor transthoracic echocardiographic windows. We aimed to determine accuracy of multi-slice computed tomography (MSCT) angiography in assessing PDA among adults before transcatheter closure.

**Methods:** 24 patients (mean age  $25.4 \pm 1.3$  years) with PDA underwent both MSCT and invasive angiography assessment before transcatheter PDA closure. Measurements and determination of morphological type were compared between the two methods.

**Results:** The mean diameter of PDA was  $4.6 \pm 2.9$  mm (range 1.3 to 12.0 mm) and the morphology types were: Type A (20 patients), Type B (1 patient), Type C (3 patients). Transcatheter PDA closure was successful in 22 patients. Types of devices used were: Amplatzer Duct Occluder 8/6 (9 patients), 10/8 (10 patients) and 16/14 (1 patient), Gianturco coil (1 patient), Amplatzer Muscular VSD Occluder 12 mm (1 patient). The remaining 2 patients had Eisenmenger syndrome. The PDA diameters measured on MSCT correlated highly with measurements by invasive angiography (Pearson correlation coefficient = 0.915,  $p < 0.001$ ). Morphological classification were concordant in all cases. Type of closure devices used could be correctly predicted by MSCT before the procedure in all cases.

**Conclusions:** Assessment of PDA in adults by MSCT is accurate in guiding device selection for transcatheter closure.

## YIA 3

### PROGNOSTIC VALUE OF DOPPLER ECHOCARDIOGRAPHIC GLOBAL MYOCARDIAL PERFORMANCE INDEX IN PATIENTS WITH FIRST-TIME ACUTE MYOCARDIAL INFARCTION

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**Background:** Conventionally, individual assessments of both, systolic and diastolic functions have been utilized in the prognostic assessment of patients with Acute Myocardial Infarction. (AMI)

**Study Objective:** We sought to assess the utilization of Global Myocardial Performance Index (MPI) as a predictor of major in-hospital cardiac events in patients with first-time AMI who have undergone thrombolysis as a revascularization strategy and to compare it with Left Ventricle Ejection Fraction (EF) and E Wave Deceleration Time (EDT).

**Materials and Methods:** A complete echocardiographic examination was performed within 48 hours of arrival, on 95 consecutive patients who were admitted from March 2007 to July 2007 in Sultanah Aminah Hospital Johor Bahru with first-time AMI and thrombolysed. The primary end point of major in-hospital cardiac event from admission till discharge was defined to include any of the following: heart failure, malignant ventricular arrhythmias, post-infarct recurrent ischaemia or death.

**Results:** Out of 95 patients (Mean age  $54 \pm 10$  years, gender distribution male 88, female 7), 49 experienced a major in-hospital cardiac event. The mean value of MPI was higher in patients with events than in those without events. ( $0.58 \pm 0.13$  vs  $0.36 \pm 0.07$ ,  $p = 0.0001$ ). On the basis of the Receiver Operating Characteristics (ROC) curve, an MPI of  $\geq 0.48$  showed a sensitivity of 91.8% and specificity of 93.4% for identifying patients with events. The area under the ROC curve for MPI as a predictor of events, was 0.939 ( $p = 0.0001$ ). In comparison, area under ROC curve for EF was 0.713 ( $p = 0.0001$ ) and EDT was 0.684 ( $p = 0.0008$ ).

**Conclusion:** The above data suggest that MPI may be a useful predictor of major in-hospital cardiac events in patients who are admitted for first-time AMI and are thrombolysed. Further studies are needed to determine whether such thrombolysed patients with a significant MPI would benefit from an early invasive revascularization strategy.

## YIA 4

### SAFETY AND EFFICACY OF TRANSCATHETER CLOSURE OF ATRIAL SEPTAL DEFECTS UNDER TRANSTHORACIC ECHOCARDIOGRAPHIC GUIDANCE IN CARDIAC CATHETERIZATION LABORATORY

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**Introduction:** Left atrial(LA) thrombi are an important cause for embolism related morbidity and mortality particularly in mitral stenosis patients. Currently, the imaging modality of choice for the detection LA thrombus is a semi invasive transesophageal echocardiography. Cardiac magnetic resonance (CMR) provides high resolution images and with late gadolinium enhancement (LGE) it will be able to differentiate a surrounding tissue with a thrombus which is avascular structure. This study sought to determine the superiority of late gadolinium enhancement CMR in comparison with cine CMR and transthoracic 2D echocardiography (2DE) in detection of left atrial thrombus.

**Methodology and Results:** 54 patients with mitral stenosis underwent 2DE and cine CMR and in addition with LGE protocol. The prevalence rate of LA thrombi using 2DE, cine CMR and LGE were 9.2%, 20.4% and 33.3% ( $p < 0.0001$ ) with mean thrombi size of 15.4 5.1cm<sup>3</sup>, 11.9 5.5cm<sup>3</sup>, 8.7 6.7 cm<sup>3</sup> ( $p = 0.003$ ) respectively. Univariate analysis showed age, sex, LA size and mitral valve area correlate significantly ( $p < 0.05$ ) with the prevalence of LA thrombi. However, binary logistic regression showed the only predictor of LA thrombi in patient with mitral stenosis is atrial fibrillation with  $p = 0.002$ .

**Conclusions:** CMR with LGE protocol have higher prevalence of LA thrombus detection in particularly small thrombi as compared to 2DE and cine CMR. The main reason, in CMR using LGE protocol identifies the thrombus on the basis of tissue characterization rather than just the anatomical appearance.

## YIA 5

### LATE GADOLINIUM ENHANCEMENT CARDIAC MAGNETIC RESONANCE IN DETECTION OF LEFT ATRIAL THROMBUS IN PATIENTS WITH MITRAL STENOSIS: A COMPARISON WITH CINE CARDIAC MAGNETIC RESONANCE AND 2D ECHOCARDIOGRAHYARTHRTIS PATIENTS: A PILOT STUDY

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## YIA 6

# ASYMPTOMATIC CORONARY ARTERY DISEASE AND ASSOCIATION WITH PULSE WAVE VELOCITY IN RHEUMATOID ARTHRITIS PATIENTS: A PILOT STUDY

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**Background:** Rheumatoid Arthritis (RA) patients have increased risk of cardiovascular events. Possible mechanisms include accelerated coronary atherosclerosis, chronic inflammation and increased arterial stiffness.

**Objectives:** To determine the incidence of significant asymptomatic coronary artery disease (CAD) in RA patients and whether there was any association with the degree of arterial stiffness

**Materials and methods:** This was a cross sectional study of RA patients in remission in Sarawak General Hospital from November 2008 – February 2009. A 64-slice Multi-Detector Computed Tomography (MDCT) was used to screen for the presence of asymptomatic significant CAD (stenosis > 50%). Arterial stiffness in RA patients was assessed non-invasively with the SphygmoCor test using Aortic Pulse Wave Velocity (PWV). The MDCT dataset of asymptomatic non-RA patients collected over the same period was used as the control.

**Results:** 42 RA patients were enrolled. 36 (83.7%) were females, mean age 49.9 + 11.12 years. 15 patients (34.9 %) in early RA (< 2 years of diagnosis) and 100% usage of DMARDs. 37.2% had hypertension, 2.3% DM, 7% family history of CAD, 93.7% age >40 years, 14% dyslipidaemia and 7% smoking history. 42 non-RA patients with matched traditional CAD risk factors were used as the control group. In the RA group, 7 (16.3 %) had significant CAD, with 5 having single vessel disease and 2 dual vessel disease. 1 patient had an anomalous left main stem origin with no significant obstruction. In the non-RA group, only 3 (7%) had CAD. However, the difference between the RA and non-RA groups was not statistically significant. There was also no significant association between Aortic PWV (63% >8.35 ms) and the presence of CAD in RA patients.

**Conclusion:** RA in our local population does not significantly increase the incidence of CAD compared to non-RA patients. Arterial stiffness also does not appear to influence the development of CAD in RA patients.