

follow up clinic notes and via phone calls. Data interpreted by using logistic regression analysis.

**Results:** 176 patients were studied. Mean age 54.0 years, of which 86.9% were male. 11 patients (6.3%) died within 30 days after PPCI. No significant difference in outcome for gender and age groups. Prolonged door in door out (DIDO) at primary hospital showed higher mortality rate (<30 minutes: 4.8%  $p=0.549$ , 30-60min: 5.3%  $p=0.708$ , >60min: 11.1%  $p=0.165$ ). Longer door to device (DTD) duration is associated with higher mortality rate in both PCI-capable Hospital (<90minutes: 4.8% vs >90min: 12.5%,  $p=0.342$ ) and non-PCI-capable hospitals (<120min: 3.6% vs >120min: 9.1%  $p=0.359$ ). Systolic blood pressure (BP) is significant factor affecting patients' outcome (Odd Ratio (OR)=0.959 (0.935-0.983),  $p=0.001$ ). Systolic BP < 100mmHg (OR 4.339 (1.295-14.543),  $p=0.045$ ), and diastolic BP < 60mmHg (OR=4.339 (1.295-14.543),  $p=0.045$ ) are associated with high mortality. Patients presented with Killip I (OR 0.202 (0.062-6.59),  $p=0.008$ ) had favorable outcome while patients presented with Killip IV (OR 6.151 (2.056-18.40),  $p=0.04$ ) had poor outcome in this study.

**Conclusion:** PPCI for acute STEMI 30 days mortality rate is 6.3%. Outcome of patients with Killip IV remained poor despite immediate intervention. Blood pressure is an important factor predicting patients' outcome. Shorter transfer time associated with better outcome but not statistically significant. As STEMI network in this region is expanding, a more comprehensive outcomes study will be obtained with longer study period and bigger sample size.

★Acknowledgement: Staffs of Cardiology Department, Hospital Serdang, Emergency Physicians of Hospital Serdang, Hospital Kajang, Hospital Putrajaya and Hospital Banting.

doi:10.1016/j.ijcard.2017.09.093

### Short and Long Term Outcome in Patients with Calcified Lesions Requiring Rotational Atherectomy

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**Background:** Despite the evolution of interventional techniques and operator experience, percutaneous revascularization of complex coronary lesions especially calcified lesions remains challenging because of lower procedural success and higher restenosis rates. Limited data are available on the effect of rotational atherectomy (RA) plus stenting in the treatment of complex calcified lesions of coronary artery disease.

**Objective:** This study is aimed to investigate the characteristics, short and long term outcomes in patients undergoing RA.

**Materials Methods:** A database search was performed from the year 2008 to 2015 in the National Heart Institute KL. A total of 22,434 patients who underwent PCIs were enrolled in 2 groups, RA group (408) and non-RA group (22,026). The Chi Square test and Kaplan Meier analysis were used.

**Results:** Male patients (82.6%) and elderly population (63.6%) were predominant in the study. The RA group had more co-morbidities such as diabetes on insulin (36%) and chronic kidney disease (58%). The lesions in the RA group were more complex with higher Type C lesions (75.6%) and longer (more than 20mm) (20.5%) compared to those in the non-RA group. The procedural success rates were higher in the RA group (98.3%) than in the non-RA group, though the difference was not statistically significant ( $p=0.08$ ). In terms of in-hospital outcome, there was less peri-procedural MI (0.5%) and mortality (1.0%) in the non-RA group compared to the RA group, which was statistically significant ( $P<0.001$ ). The was significantly less incidence stent thrombosis in the RA group compared to the non-RA group ( $p<0.001$ ). Compared to RA group (90.7%), non RA group (97.1%) had higher rates of 1-year survival in Kaplan-Meier survival graph ( $p<0.001$ ).

**Conclusion:** Despite the complexity of lesions and increased co-morbidities of patients in the RA group, the short and long term outcomes are acceptable. This may be explained by better vessel preparation and stent expansion following rotational atherectomy.

doi:10.1016/j.ijcard.2017.09.094

### A Comparison of Outcomes Between Thrombolysis at a Spoke Hospital Versus Transfer for Primary Percutaneous Coronary Intervention at a Hub Hospital for Acute ST-Elevation Myocardial Infarction

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**Background:** Primary percutaneous coronary intervention (PCI) has been deemed to be superior to thrombolytic therapy in a large number of clinical trials. This is the basis of formation of ST-elevation myocardial infarction (STEMI) networks around the world. STEMI networks are however frequently subjected to economical evaluation.

**Objective:** We sought to compare the outcomes between patients with acute STEMI who were thrombolysed at the spoke hospital versus patients who were transferred to our hospital (hub) for primary PCI.

**Materials & Methods:** A STEMI network was initiated on the 1<sup>st</sup> of July 2015 between our hospital and a tertiary non-PCI-capable hospital. The network is however active only during office hours (8.00 am to 5.00 pm). Our study included all patients presenting to the spoke hospital with acute STEMI, who were either thrombolysed at the spoke hospital or transferred to our hospital for primary PCI, from 1<sup>st</sup> of July 2015 to 31<sup>st</sup> of December 2015.

**Results:** Our study enrolled 70 patients of which 67 (95.7%) were males and mean age was 55 years old. Forty-four patients were thrombolysed while 26 were transferred for primary PCI. Majority of patients were in Killip class I (64.3%). The median first medical contact (FMC) to needle time was 50 minutes. The median door-in-door-out (DIDO) time was 78 minutes and the median FMC to PCI time was 158 minutes. The 30-day mortality was 9% for patients who were thrombolysed and 3.8% for patients who underwent primary PCI. The median length of hospital stay was 5 days for patients who were thrombolysed and 4 days for patients who underwent primary PCI.

**Conclusions:** Our study revealed that patients with acute STEMI who underwent primary PCI at our hospital (hub) had lower 30-day mortality rates and shorter length of hospital stay compared to patients who were thrombolysed at the spoke hospital; although the DIDO, FMC to needle and FMC to PCI times were not ideal. We believe that the results of our study serve as a good reason for creation of more STEMI networks in the country although additional studies are needed to assess the overall cost-effectiveness of the STEMI network.

doi:10.1016/j.ijcard.2017.09.095

### Thirty-Day Clinical Outcome of Primary Percutaneous Intervention Versus Fibrinolysis Followed by Coronary Angiography in ST-Segment Elevation Myocardial Infarction

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**Background:** Primary percutaneous coronary intervention (PCI) is the preferred reperfusion strategy in patients with ST-segment elevation myocardial infarction (STEMI). However, timely PCI cannot be offered to many patients.

**Objective:** The purpose of this study was to compare the 30-day clinical outcome of primary PCI strategy and fibrinolysis followed by coronary angiography strategy in STEMI patients.

**Methods:** This was a prospective, observational, single center study. All patients admitted for STEMI from 1 January 2016 to 30 November 2016 were screened for the study. Patients were divided into 2 reperfusion strategies: primary PCI or fibrinolysis followed by coronary angiography. Primary outcome was composite of all-cause mortality at 30 days.

**Results:** A total of 178 patients were identified: 33 (18.5%) underwent primary PCI and 145 (81.5%) underwent fibrinolysis first. The median door-to-balloon time in the primary PCI group was 161.0 minutes (IQR 84.5). The median time from fibrinolysis-to-arrival at catheterization lab was 1738 minutes (IQR 901). The median total ischaemic time was 369 min (IQR 524) and 210 (IQR 247) for the primary PCI and fibrinolysis first group respectively ( $p=0.002$ ). Kaplan-Meier survival analysis for 30-day all-cause mortality was 24.2% vs 9.7% respectively in primary PCI and fibrinolysis group ( $p=0.018$ ). Multivariate Linear Regression showed that Killip Class and LVEF were independent predictors of 30-day all-cause mortality. Reperfusion strategy was not associated with 30-day all-cause mortality ( $p=0.216$ ).

**Conclusions:** The clinical outcome of primary PCI strategy in STEMI is not better than fibrinolysis followed by coronary angiography strategy when timely PCI cannot be performed.

doi:10.1016/j.ijcard.2017.09.096

### Trans-Coronary Ablation of Septal Hypertrophy (TASH) in Hypertrophic Obstructive Cardio-Myopathy (HOCM): Acute and Long-Term Safety and Efficacy Outcome from a Single Center Experience

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**Background:** Trans-coronary ablation of septal hypertrophy (TASH) has been shown to reduce outflow obstruction and symptom relief in the short and intermediate period. We aimed to assess the short and long term efficacy and safety in a single center experience.

**Objectives:** The aim is to assess the long-term efficacy and safety of TASH in a single center experience.

**Materials & Methods:** There were 61 patients analyzed with symptomatic hypertrophic obstructive cardiomyopathy (HOCM) that underwent TASH procedure between 2005- 2017. All patient had serial echocardiography prior to procedure and subsequent follow-up. Procedural success was defined as improvement in patient symptoms and reduction of the left ventricular outflow tract pressure gradient by at least 50% on echocardiography

**Results:** The mean age of patients in our study is  $49.4 \pm 11.4$  years. The majority of patients were male (72.7%).

The mean duration of follow-up was  $3.6 \pm 2.4$  years. The number of septal branches ablated were  $2.0 \pm 1.0$  and the mean alcohol used  $3.1 \pm 1.8$  ml. LVOT gradient reduction by more than 50% was achieved in 91% of patients immediately post TASH, with mean LVOT gradient reduction from  $83 \pm 37$  mmHg to  $42 \pm 34$  mmHg ( $p<0.001$ ). Majority of the patients (81.8%) showed clinical improvement in New York Heart Association class of  $1.3 \pm 1.0$ . There is significant improvement in severity of mitral regurgitation and reduction in inter-ventricular septum (IVS) thickness with p value 0.02, 0.04 respectively, without any significant reduction in left ventricular function. The mean post-

procedure creatinine kinase (CK) was  $1570.0 \pm 1011.2$  IU/L. level of  $>1000$  IU/L showed strong correlation with LVOT PG reduction.

**Conclusions:** TASH is a safe and effective procedure in achieving persistent and significant immediate and long term reduction in LVOT pressure gradient and patient symptoms, as well as improvement in echocardiographic variables such as mitral regurgitation.

doi:10.1016/j.ijcard.2017.09.097

### Carotid Intimal Medial Thickness in Predicting Young Acute Coronary Syndrome

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**Background:** In recent years, patients presenting with acute coronary syndrome (ACS) are significantly younger. Most of the patients in our local data from Sungai Buloh Hospital lack the traditional cardiovascular risk factors.

**Objective:** Identify demographics, risk factors, biochemical results, and carotid intimal medial thickness (CIMT) of young ACS.

**Materials & Methods:** This was a prospective, single center study carried out in Cardiovascular and Thoracic Center (CTC) of University Technology MARA (UiTM) in Sungai Buloh from 1<sup>st</sup> November 2016 until 14<sup>th</sup> February 2017. All patients were below 40 years old. Consent were taken, and subsequently patients underwent blood testing and carotid ultrasound.

**Results:** There was a total of 20 young ACS patients recruited along with 20 healthy control subjects. The mean age was  $35.3(\pm 3.6)$  and  $29.9(\pm 2.7)$  in the young ACS and control cohort. All subjects were male, except 7 women in the control cohort. In the young ACS, there were 70%(n=14) STEMI and 30%(n=6) NSTEMI. Young ACS waist circumference(cm) and BMI were  $101.3(\pm 4.4)$  and  $28.9(\pm 2.9)$  respectively. Meanwhile in the control cohort, the WC was  $82.6(\pm 11.5)$  and BMI was  $24.5(\pm 4.3)$ . Young ACS cardiovascular risk assessment revealed 85%(n=17) smokers, 45%(n=9) hypertension, 25%(n=5) DM and 25%(n=5) dyslipidemia. Conversely, in the control cohort there were 20% (n=4) smokers. Young ACS biochemical markers showed mean fasting glucose level of  $6.8$  mmol/l( $\pm 1.2$ ), and serum creatinine  $91.4$   $\mu$ mol/L ( $\pm 9.0$ ). Lipid profile revealed mean total cholesterol of  $5.57$  mmol/L( $\pm 1.2$ ), triglyceride  $2.05$  mmol/L( $\pm 0.7$ ), HDL  $1.01$  mmol/L( $\pm 0.3$ ), and LDL of  $3.66$  mmol/L( $\pm 1.0$ ). Young ACS echocardiography had LVEF of  $46.9(\pm 9.6)$ , TAPSE  $1.9$ cm( $\pm 0.2$ ) and RV S'  $10$ cm/s( $\pm 0.3$ ). Carotid intimal medial thickness (CIMT) of young ACS and healthy control were  $0.78$ mm ( $\pm 0.3$ ) and  $0.48$ mm ( $\pm 0.1$ ) respectively, with p-value  $< 0.005$ . Two young ACS had CIMT of  $1.22$ mm and  $1.25$ mm. All young STEMI (n=14) underwent primary percutaneous coronary intervention.

**Conclusion:** CIMT can be used as an additional score in cardiovascular risk stratification for young Malaysian adults.

doi:10.1016/j.ijcard.2017.09.098

### 2 Point Plasma Dabigatran, Rivaroxaban and Apixaban Levels in Patients with Non-Valvular Atrial Fibrillation: A Single Centre Study

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