Heart Centre Singapore between August 2017 and November 2017. All enrolled patients had CTCA performed on a Toshiba Aquilion One 320-slice CT scanner which was further analysed using Vitrea software. Demographic and clinical informations including relevant investigations were recorded and statistical analysis was performed.

Results: Majority (58.3%, n=326) of the patients in this study are male with the mean age ($\pm$SD) of 55.35 (12.1) years old. Of these 560 patients, 97 (17.3%) was found to have myocardial bridging by CTCA. Majority (n=95) of the bridges was found in LAD, three was found in right coronary artery, and one in ramus intermedius artery. Of the 97 patients with myocardial bridging by CTCA, 26 underwent angiogram and 6 was confirmed to have bridging by angiogram procedure. There was no statistically significant association between patients' demography with the presence of myocardial bridging by CTCA.

Conclusion: The prevalence of myocardial bridging found by CTCA in this study was 17.3% with no significant association between patients' demography and the presence of myocardial bridging.

35.
Myocardial Work: A Novel Technique of Assessing Myocardial Efficiency in Different Causes of Left Ventricular Hypertrophy

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Background: The complex changes that occur in the heart during LV remodeling in response to wall stress cause alterations in LV size and geometry. However, little is known on how these changes affects myocardial efficiency. Myocardial work, using echocardiography is a novel assessment method that augments Automated Functional Imaging (AFI) by taking into account dynamic left ventricle (LV) pressure. This adds an important dimension to the assessment and interpretation of LV function.

Aim: To evaluate patterns of global myocardial work between physiological and pathological causes of LV hypertrophy.

Method: This was a descriptive single center cross-sectional study. Conventional two-dimensional (2D) greyscale images of LV apical two-, four-, and three-chamber views for assessing LV volumes, ejection fraction (EF), and global longitudinal strain (GLS) by speckle-tracking were captured during echocardiography. Myocardial work was analyzed offline using commercial software. Narrow sector 2D imaging over valves in parasternal long-axis view was used to define timing of opening and closure of the mitral and aortic valves; this was required for calculation of an estimated LV pressure curve.

Result: There were 20 normal subjects, 24 professional athletes and 10 patients with NICM in this cohort. NICM subjects were older (mean age 55$\pm$7.9 years), have lower EF (40$\pm$12%), higher LV mass (317$\pm$899) and pseudonormal pattern of diastolic dysfunction (E/A ratio 1.3$\pm$0.9). The professional athletes were relatively younger, have higher LVEF (62$\pm$4%), lower LV mass, and supranormal pattern of diastolic dysfunction (203$\pm$579) (2.2$\pm$0.4). The mean GLS for the normal subjects, professional athletes and NICM were 19$\pm$2.4%, 20$\pm$2,5% and 14$\pm$0.7% respectively. The mean global MWI for the normal subjects, professional athletes and NICM were 1901$\pm$355 mmHg%, 1931$\pm$485 mmHg%, 723 $\pm$431 mmHg%. The NICM has more global wasted work and less global constructive work compared to the normal and athletes (351$\pm$179 mmHg% vs 180$\pm$53 mmHg% vs 119$\pm$97 mmHg% and 1187$\pm$322 mmHg% vs 1562$\pm$248 mmHg% vs 2170$\pm$483 mmHg%).

Conclusion: Increased LV mass may not translate into better myocardial work in a diseased myocardium.

36.
Malaysian Ropac Registy: Pregnancy with Structural Heart Disease in Malaysia

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Background: With advances in surgery and interventional techniques for patients with congenital heart disease or valvular heart disease, survival into adulthood has improved. Clinicians caring for them also face the added challenges of maternal physiology during pregnancy. Due to lack of local data, clinicians often face uncertainties in managing them. Hence the need for a local registry.

Material & methods: Data is analysed from a single centre registry in Malaysia from 1st September 2015 to 31st December 2017. Pregnant mothers who were diagnosed to have structural heart disease (congenital, ischemic heart disease, valvular or cardiomyopathy) during pregnancy were included in this prospective registry. Immediate and follow up (at first and six months) outcomes for both mother and baby were recorded.

Results: A total of 50 patients were recruited with 20 patients (40%) being primigravida with mean age of 30.9 (+/5.6) years old. Twenty-eight patients (56%) had congenital heart disease, 18 patients (36%) had valvular heart disease, 2 patients (4%) had ischemic heart disease and the rest (4%) had cardiomyopathy. Ventricular septal defect (13 patients) and atrial septal defect (9 patients) were the common forms of congenital heart disease. On the other hand, mitral regurgitation (11 patients) and mitral stenosis (3 patients) were the common valvular heart disease. Most of them (92%) were in NYHA class I and delivered vaginally (54.0 %). There was no maternal mortality. Most babies were delivered near term with a mean weight of 2.96 ($\pm$0.39) kg. A total of five fetal losses were noted with two delivered from mothers with congenital heart disease and two in patients with valvular heart disease. Another fetal loss occurred in a patient with coronary artery disease. There was a 2% mortality at six months due to infective endocarditis.

Conclusion: Congenital heart disease (septal defects) is the most common form of structural heart disease while mitral valve disease is the commonest valvular heart disease. There is no postpartum mortality within 42 days. However, there was a mortality at six months. Fetal loss was 10% among mothers with structural heart disease.

37.
Impact of Myocardial Viability Assessed by Delayed Enhancement Cardiovascular Magnetic Resonance on Clinical Outcomes in Real World Practice

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Background: Delayed enhancement cardiovascular magnetic resonance imaging (DeCMRI) has become the preferred method for viability assessment. It is well established that viable dysfunctional myocardium has the potential for functional recovery after revascularization.

Objective: Our objective is to evaluate whether viability assessment by DeCMRI affects clinical outcome in daily clinical practice.

Methodology: We retrospectively studied 132 consecutive patients (114 male, mean age 59 ± 10 years) with ischaemic cardiomyopathy (Mean LVEF: 29.1 ± 14%) who underwent CMRI viability testing from 1st Jan-31st Dec 2015 in our centre. Patients were divided into 3 groups: Group A: Viable myocardium- optimal medical therapy only (38.6%); B: Viable myocardium- revascularization done (29.5%); and C: Non-viable myocardium (29.5%).

Results: Mean age for groups A, B and C were 61.2, 58.3, 56.2 years respectively, p=0.048. The proportion of triple vessel disease in each of the groups were 56.1%, 54.5% and 38.5% (p=0.44); whereas left main involvement was 31.7%, 21.2% and 19.2% respectively (p=0.43). Majority of group C patients did not undergo revascularisation (90%). Group B had statistically significant EF improvement (5.5%, SD 11.9) compared to Group A (-0.6%, SD 6.7) and Group C (-1.2%, SD 9.8), p value 0.014. Mortality at 1 year was significantly higher in Group A compared to Group B and C (31.4%, 7.7% and 12.8% respectively, p=0.009). MACE rates were also increased in Group A compared to the other two groups (41.2%, 20.5% and 27.0%, p=0.09). Odds Ratio for MACE was 3.01 (95% Cl 1.22 - 7.45) for Group A vs B and 2.8 (95% Cl 1.1 - 6.9) for Group A vs C.

Conclusion: Patients with viable myocardium who did not undergo revascularization (group A) had the worst prognosis, even when compared to those with non-viable myocardium; with significantly higher 1-year mortality. Although not statistically significant, there was also a trend towards higher MACE in these patients. These findings emphasize that patients with poor LV function but viable myocardium need to undergo revascularisation and that optimal medical therapy alone is not sufficient.

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38.

Ischemic Time VS Door-To-Balloon Time as A Predictor for Mortality in ST-Elevation Myocardial Infarction

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Background: Timely reperfusion is critical in ST-segment-elevation myocardial infarction (STEMI). Current guidelines for STEMI recommend early revascularization with first medical contact to coronary intervention is <120 min and door-to-balloon (D2B) time between 60-90 mins depending on presentation to a PCI or non-PCI capable hospital. However, this narrow focus does not consider the substantial duration of myocardial ischemia that exists prior to first medical contact. Several experimental studies have confirmed that infarct size and mortality are correlated with the total ischemic time (IT), that is the time from chest pain to coronary intervention.

Aim: Primary objective of this study was to compare the total IT to the D2B time as a predictor for short- and long-term mortality.

Methods & results: Between October 2014 and December 2016, 492 patients with STEMI were treated in our STEMI center. Total IT was defined as time from symptom onset to coronary intervention, while D2B time was defined as hospital arrival to coronary intervention. Patients were divided into three groups according to IT (<120 mins with 36 patients, 120-239 mins with 162 patients, 240 min with 235 patients) and into four groups according to D2B time (<30 mins with 36 patients, 30-59 mins with 322 patients, 60-89 mins with 94 patients, 90 mins with 40 patients). Baseline demographics including age, cardiac risk factors, and LAD infarct location were similar between the IT groups. There was a trend of increasing inpatient mortality with longer D2B with 1 (3%) mortality for the D2B < 30 mins group to 3 (8%) in the DBT > 90 mins, although the p value was not significant (p=0.12). This trend was seen in the total IT group with no mortality in the total IT <120 mins and 12 (5%) in the total IT >240mins with p value 0.31. Again, this trend of lower survival with longer D2B and IT were seen in the 1-year survival from the Kaplan-meier graph but the p value was not significant for both (P>0.05).

Conclusion: The focus of STEMI care should be directed at the early initiation of therapy and minimizing both the D2B time and the total ischemic time.

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39.

Procedural Safety and Short-Term Outcome of Patients Treated with Ultimaster Biodegradable Polymer Sirolimus Eluting Stent in Heterogenous Asians

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Background: The Ultimaster (Terumo Corporation, Tokyo, Japan) is a thin-strut, cobalt chromium, biodegradable-polymer sirolimus-eluting coronary stent. The high elasticity of the biodegradable-polymer (PDLLA-PCL) and the abluminal gradient coating technology are additional novel features of this coronary device. The Ultimaster DES has undergone extensive clinical evaluation in the CENTURY I and II trials.

Objective: Identify safety and outcome of patients undergoing percutaneous coronary intervention (PCI) with Ultimaster stent in Malaysians. Primary endpoint was death at 30-days.

Materials & methods: This was a retrospective, observational single center study conducted in Cardiovascular and Thoracic Centre of Universiti Teknologi MARA. All patients undergoing percutaneous coronary intervention (PCI) with Ultimaster stent from 1st January 2016 until 31st December 2017 were recruited. All relevant information was then gathered and statistically analyzed. Patients were followed up at one-month in clinic.

Results: There were 130 patients who underwent PCI with Ultimaster DES. The mean age was 55.22 (±10.46). 82.3% (n=107) of the patients were male. Ethnicity breakdown revealed 82 Malays, 30 Chinese, and 15 Indians. Cardiovascular risk assessment showed 53.1% diabetes mellitus, 63.1% smokers, 71.5% hypertension and 63.1% dyslipidemia. Indications for PCI were 64.8% ACS and 35.2% stable angina. Blood investigation revealed mean fasting blood sugar of 7.22mmol/L, HbA1c of 7.14%, total cholesterol of 5.11mmol/L, triglyceride of 1.66mmol/L, HDL of 1.07mmol/L, LDL of 2.90mmol/l and serum creatinine of 103.37mg/dl. Mean left ventricular ejection