Conclusion: Both hsTnI assays provide similar result in early stratification of ACS and non ACS, further able to differentiate NSTEMI from USA. Serial measurement of either hsTnI at 0 and 3 hours allow rapid diagnosis of ACS in the ED setting.

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Quality of Life Among Revascularised Patients: CABG Versus PCI

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Background: The two major procedures used to treat coronary artery disease include percutaneous coronary intervention (PCI) and coronary artery bypass grafting (CABG). Studies examining the outcome of both treatment modalities with regard to quality of life are lacking.

Objective: We aim to assess and compare the quality of life among patients with coronary disease who have had revascularisation, specifically among Malaysians who have had PCI or CABG.

Materials Methods: A retrospective study was carried out involving 50 post CABG and 50 post PCI patients. Patients were selected from the outpatients clinics in Universiti Teknologi MARA Sungai Buloh Medical Campus and the National Heart Institute, Kuala Lumpur. A validated ischemic heart disease (IHD) specific health-related quality of life (HeartQoL) questionnaire which revolves around two domains, a physical and an emotional domain was chosen as our main research instrument. All variables were analysed using Statistical Packaging for the Social Sciences (SPSS) version 22.0 where $p < 0.05$ was considered significant. The HeartQol designers have categorized the scores as 0-poor quality of life, 1-below average quality of life, 2-above average quality of life, and 3-good quality of life.

Results: The average age of respondents were 58.4 years for those who underwent PCI and 61.2 years for those who underwent CABG. The procedures were performed on average 4.9 ± 1.5 months before meeting our researchers. The baseline demographics between the two groups were comparable. The mean global score for post PCI and CABG patients are 2.42 ± 0.49 and 2.48 ± 0.44 ($p = 0.38$) respectively. Analysis of specific cardiac risk factors and the HeartQol score did not reveal any significant differences or associations. Of interest is the good scores achieved in patients who had multi-vessel disease regardless of the modality of treatment.

Conclusions: In this studied population of patients who underwent revascularization for coronary artery disease, the HeartQol scores achieved indicated an above average level of quality of life at an early period post procedure. There were no statistically significant differences between scores achieved between the patients who had PCI versus CABG.

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Fasting Lipid Profiles in Patients Admitted with ACS – Admission and 30-Day Trends

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Background: Hypercholesterolaemia is a risk factor of premature coronary artery disease, including acute coronary syndrome (ACS). Strategies that improve in lipid profile parameters, especially low-density lipoprotein cholesterol (LDL-C) is associated with improved clinical outcomes after ACS.

Objective: To define the fasting lipid profiles (FLP) in patients admitted with ACS, and at clinical follow up at least 30-days post-discharge.

Materials Methods: This prospective, multi-centre observational study was conducted at a tertiary cardiology referral centre and five district hospitals in Sarawak. Consecutive patients with ACS with FLP performed during hospital admission from May to December 2016 were recruited.

Results: A total of 527 patients who were admitted with ACS from 6 hospitals had FLP performed. From this group, 269 patients had FLP performed at least 30 days post discharge, which formed this study cohort. The mean age was 58.2 (12.03) years and 78.4% were male, with 37.9% diagnosed with STEMI and 34.9% NSTEMI. The mean levels of Total Cholesterol, LDL-C and TG on admission were 4.7 ± 1.26mmol/L, 2.9 ± 1.13mmol/L and 1.7 ± 0.94mmol/L respectively, and at clinical follow up were 3.8 ± 1.00mmol/L ($p<0.001$), 2.0 ± 0.84mmol/L ($p<0.001$) and 1.6 ± 0.90mmol/L ($p=0.028$), respectively. The mean HDL-C remained at 1.0mmol/L ($p=0.745$). Approximately 52.4% were statin-naive. Statin-naïve patients demonstrated greatest LDL-C reduction of 41.2% (mean 3.4mmol/L to 2.0mmol/L) compared to patients prescribed prior high and moderate-intensity statins ($p<0.01$). High and moderate-intensity statins were prescribed to 91.1% and 7.8% of patients upon discharge respectively. At clinical follow up, only 44.7% of patients achieved subsequent LDL-C of <1.8mmol/L; 39.7% of patients had suboptimal response to statin therapy of <30% LDL-C reduction. Thirty-one patients were readmitted within 1 month, with ACS being the main cause. These patients showed an LDL reduction from 2.9mmol/L to 2.1mmol/L ($p=0.003$). The multivariate analysis showed prior statin use was predictive of having subsequent LDL-C >1.8mmol/L (OR $=1.73$; 95% CI 1.03-2.91; $p=0.04$)

Conclusions: This pioneering multicentre study studying FLP in clinical practice in patients with ACS demonstrated that the majority of patients during admission were statin-naïve, and subsequently prescribed moderate-high intensity statin. Despite a significant reduction in LDL-C levels at clinical follow up, a substantial number did not achieve the guideline recommended targets.

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Accuracy and Reproducibility of Real-Time Three-Dimensional Echocardiography Versus Two-Dimensional Echocardiography in Measuring Left Ventricular Volumes and Ejection Fraction in Daily Clinical Practice

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Background: Left ventricular (LV) volumes and ejection fraction (EF) from real-time three-dimensional echocardiography (RT3DE) has

been shown to be superior to measurements obtained from two-dimensional echocardiography (2DE). However, most of these studies were conducted in research setting with high volume 3DE use, selected cohort of patients and experienced sonographers.

Objectives: This study aimed to determine the accuracy and reproducibility of RT3DE and 2DE in measuring LV volumes and EF in daily clinical practice.

Methods: 30 patients (age 52 ± 12 years, 24 men, 29 in sinus rhythm, 23 with good acoustic window) undergoing clinically indicated cardiac magnetic resonance (CMR) imaging were prospectively recruited to have transthoracic 2DE and RT3DE performed within 4 hours after CMR. To assess inter-observer variability, 2 sonographers performed the same set of measurements independently on the same day. A subgroup of patients ($n = 10$) was studied for intra-observer variability. CMR was the reference standard.

Results: The LV end-diastolic volume (EDV), end-systolic volume (ESV), and EF measured from CMR were 194.3 ± 72.5 ml, 125.7 ± 69.0 ml and $37.8 \pm 19.2\%$ respectively. The biases $\pm$ SD for RT3DE were -72.7 ± 45.7 ml, - 47.6 ± 38.5 ml and $2.3 \pm 9.8\%$ for EDV, ESV and EF respectively. The biases $\pm$ SD for 2DE were - 70.5 ± 46.6 ml, - 50.8 ± 42.4 ml and $5.7 \pm 9.5\%$ for EDV, ESV and EF respectively. The difference in bias between RT3DE and 2DE volumes was statistically not significant ($p = 0.54$ and $p = 0.47$ for EDV and ESV respectively). However, the difference in bias between RT3DE and 2D EF was marginally significant ($p = 0.05$). EF measured by CMR was similar by RT3DE ($P = 0.21$) but not by 2DE ($P = 0.003$). The inter- and intra-observer variation in volumes and EF were similar for RT3DE and 2DE.

Conclusions: In daily clinical practice, RT3DE and 2DE underestimates LV volumes. Compared to 2DE, RT3DE is more accurate for EF measurement. The reproducibility of RT3DE measurements is similar to that of 2DE.

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Importance of Calcium Score Zero in Predicting Presence of Obstructive Coronary Artery Disease and 2-Year Cardiovascular Outcome in Diabetic Patients: A Pilot Single-Centre Retrospective Study

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Introduction: Diabetes is a major cardiovascular risk factors associated with significant morbidity and mortality. Little is known on diagnostic performance of calcium score (CAS) zero in refining cardiovascular (CV) risk prediction amongst Malaysians that were well-known with multiple co-morbids.

Objective: We aim to test the diagnostic performance of CAS in a sample of diabetic Malaysian population presented with stable chest pain to an outpatient setting.

Method: This was a pilot, single-centre, retrospective study of patients referred for coronary CT angiography (CTCA) for investigation of stable chest pain in 2014. Their baseline clinical data such as demographics, CV risk profiles, CAS and CTCA results were obtained from electronic medical records. A combined clinical outcome of CV event, the need to undergo invasive coronary angiogram and revascularization over a period of 2 years were also traced.

Result: 130 patients with complete data were analyzed. The mean age was 54 ± 11.6 years. 49 patients were diabetics and 81 patients were non-diabetic. When CAS zero, only 1 out of 17 diabetic patients had obstructive CAD on CTCA which led to intervention. When CAS was more than zero, 16 out 32 diabetic patients had obstructive CAD on CTCA, of which 15 led to intervention. 1 patient declined intervention, treated medically and did not develop event. When coronary calcium is present there's 94.1% (95% CI 71.3 to 99.8%) and 93.8% (95% CI 69.7% to 99.8%) probability to developed obstructive CAD on CTCA and CV event within 2 years. When CAS zero, there's 94.4% (95% CI 71.1 to 99.1%) and 94.1% (95% CI 69.9% to 99.1%) probability to have non-obstructive CAD and be event-free for 2 years.

Conclusion: Absence of coronary calcification confers benefit in diabetic patients suggesting clinical utility of zero calcium score as risk stratification tool in a population already at high risk of CVD.

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Comparison of Adaptive Changes in the Right Ventricle Between Professional Footballers and Weekend Warriors

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Background: Regular exercise is associated with cardiac remodeling. We examine if there were any differences in cardiac remodeling of the right ventricle (RV) between professional football players and "weekend warriors" (vigorous intensity exercise of METS 6 and above for at least 75 minutes a week).

Objective: To compare adaptive changes in the right ventricle between professional footballers and weekend warriors.

Materials Methods: 23 professional football players, 20 "weekend warrior" with no past medical problems were evaluated. The subject's age ranges from 20 to 40-years old. The subjects were evaluated by two-dimensional echocardiography and tricuspid annular plane systolic excursion (TAPSE), right ventricular ejection fraction (RVEF), right ventricle basal dimension, right ventricle mid dimension and tissue doppler systolic wave of tricuspid valve (TDs).

Results: There were no differences between the mean TAPSE of the football players (2.38 cm ± 0.37) and the weekend warriors (2.25 cm ± 0.22), the mean RVEF of footballers (53.7 ± 9.14) and the weekend warriors (53.11 ± 8.62) and the mean TDs of footballers (11.3 cm/s ± 5.7) and weekend warriors (12.44 cm/s ± 1.23). However significant differences were seen the RV dimensions between the mean basal RV of the footballers (4.33 cm ± 0.39) and weekend warriors (3.47 cm ± 0.44) and the mid RV of the footballers (3.87 cm ± 0.62) and weekend warriors (3.17 cm ± 0.59).

Conclusion: Exercise causes adaptive changes in right ventricles and these adaptive changes are dependent on the intensity and duration of exercise, where there are no significant differences in the RV function of the two distinct groups, but the RV dimensions are larger in the professional footballer groups.

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Indication, Safety and Clinical Impact of Cardiovascular Magnetic Resonance: A Pilot Run of the First National CMR Registry for Malaysia

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