



## Oral Presentations – Young Investigator Award Abstracts

### Prognostic Value of N-terminal B-type Natriuretic Peptide in Patients with Acute Myocardial Infarction: A Multicenter Study

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**Background:** Several models have been developed to help the clinician in risk stratification for Acute Coronary Syndrome (ACS), such as the TIMI and GRACE risk scores. However, there is conflicting evidence for the prognostic value of NT-ProBNP in acute myocardial infarction (AMI).

**Objective:** (1) To explore the association of NT-proBNP with 30-day clinical outcome in AMI patients. (2) To compare the prognostic value of NT-proBNP with TIMI and GRACE risk scores in AMI patients.

**Methods:** We conducted a multicenter, prospective observational study recruiting patients presented with AMI between 29-October-2015 and 14-January-2017, involving 1 cardiology referral centre and 4 non-cardiology hospitals. NT-proBNP level (Alere Triage®, US) was measured within 24 hours from the diagnosis of AMI. Patients were followed-up for 1 month.

**Results:** A total of 186 patients were recruited, 143 from tertiary cardiology centre and 43 from non-cardiology hospitals. Mean age was  $54.7 \pm 10.0$  years, 87.6% male and 64% were STEMI. The NT-proBNP level ranged from 60 to 16700pg/ml, with a median of 714pg/ml. Using the 75<sup>th</sup> centile as the cutoff, Kaplan-Meier survival analysis for the 30-day cardiac related mortality was significantly higher for patient with NT-proBNP level of  $\geq 1600$ pg/ml (6.4% vs. 0.7%,  $p=0.02$ ). Cox-regression analysis showed that NT-proBNP level of  $\geq 1600$ pg/ml was an independent predictor of 30-day cardiac related mortality, regardless of TIMI risk score, GRACE score, LV ejection fraction and study hospitals (HR 9.274,  $p=0.054$ , 95%CI 0.965, 89.161). Readmission for heart failure at 30-day was also higher for patient with NT-proBNP level of  $\geq 1600$ pg/ml (HR 9.308,  $p=0.053$ , 95%CI 0.969, 89.492). NT-proBNP level was not associated with all-cause mortality, risk of readmission for ACS, arrhythmia and stroke ( $p>0.05$ ). By adding 50 score to GRACE risk score for NT-proBNP level of  $\geq 1600$ pg/ml, combination of GraceNT-proBNP scores of more than 200 appeared to be a better independent predictor

for 30-day cardiac related mortality (HR:28.28,  $p=0.004$ , 95%CI 2.94, 272.1). ROC analysis showed that this new score had 75% sensitivity and 91.2% specificity in predicting 30-day cardiac related mortality (AUC 0.791,  $p=0.046$ ).

**Conclusions:** NT-proBNP is a useful point-of-care risk stratification biomarker in AMI. It can be combined to the current risk score model for better risk stratification in AMI patients.

doi:[10.1016/j.ijcard.2017.09.112](https://doi.org/10.1016/j.ijcard.2017.09.112)

### “CAS-FIRST” Investigational Approach for Stable Chest Pain: A 2-year Outcome Single-Centre Study

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**Introduction:** Cardiovascular (CV) risk factors are highly prevalent in south east Asia and current risk scoring systems have been proven to have some drawbacks. Calcium score (CAS) has emerged as a potential marker to improve risk prediction however data is lacking on its utility in a population with high CV burden.

**Objective:** We aim to test the diagnostic performance of CAS in comparison to Framingham risk score (FRS) in a sample of Malaysian population presented with stable chest pain to an outpatient setting.

**Method:** This was a 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 such as acute coronary syndromes and revascularization that occurred over a period of 2 years were also traced.

**Result:** Out of 240 patients referred for CTCA, 130 patients with complete data and remained under follow-up were analyzed. The mean age was  $54 \pm 11.6$  years. 66% (86 patients) were males and 32% (49 patients) were diabetics. The disease prevalence in this cohort was 26%. Over a period of 2 years, CV event occurred in 34 patients, of which mostly occurred in patients with CAS  $>400$  and high FRS risk (16 patients). Out of 53 high FRS-risk patients, CAS downgraded 33 patients to “lower” risk with the largest shift occurred when CAS was zero. Detectable calcium upgraded 3 out of 39 low FRS-risk patients to “higher” risk. Out of 35 patients with intermediate FRS-risk, CAS downgraded 23 patients to “lower” risk and upgraded 11 patients to “higher” risk. When CAS was added to FRS in a statistical model, the area under ROC curve improved from 0.67 to 0.92 in detection of obstructive CAD by CTCA and 0.65 to 0.85 in detection of CV outcome.