Characterisation of patients with acute myocardial infarction complicated by left ventricular thrombus

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Background/Introduction: Left ventricular (LV) thrombus is a widely recognized complication of acute myocardial infarction (AMI). Limited data are available from South East Asian patients with this post-infarction complication nor on whether patients with non-ST segment elevation myocardial infarction (NSTEMI) or STEMI with associated LV thrombosis exhibit differing clinical characteristics and/or outcomes. Left Ventricular Ejection Fraction (LVEF) = 40% is a recognized predictor of LV thrombus formation, but there is limited data on LV thrombus patients with EF > 40% or in NSTEMI patients.

Purpose: This study aims to investigate and compare the clinical characteristics, treatment and outcomes of post-AMI patients with LV thrombus formation, with a particular emphasis on those with EF = 40% and in NSTEMI patients.

Methods: Among 5829 consecutive echocardiogram results containing the keyword "thrombus" from August 2006 to September 2017, we identified 289 post-AMI patients with acute LV thrombus formation. Demographics, treatment and outcome measures were analysed.

Results: Cardiovascular risk factors such as dyslipidaemia (54.0%) and hypertension (50.5%) were commonly present in post-AMI patients with LV thrombus. Mean LVEF was 33.0 ± 10.4%. The majority (68.0%) of patients received triple therapy and 59.5% achieved thrombus resolution. NSTEMI patients had greater number of co-morbidities including heart failure (p < 0.01), documented history of ischaemic heart disease preceding the AMI leading to thrombus formation (p < 0.01) and lower LVEF (28.3 ± 9.3% vs. 34.8 ± 10.3%, p < 0.01) compared with STEMI cases. On multivariate analysis, having a lower EF was a significant independent predictor of stroke (HR 0.96, 95% CI 0.93-1.00, p = 0.03) and all-cause mortality (HR 0.95, 95% CI 0.92-0.99, p < 0.01). The categories of STEMI and NSTEMI did not predict thrombus resolution, stroke events or all-cause mortality after adjustment.

Conclusion(s): Post-AMI LV thrombus patients with NSTEMI and STEMI differed in terms of their co-morbidities in their demographics and co-morbidities but it was a lower EF that was associated with an increased risk of stroke and all-cause mortality. Further studies on this topic are required.