Differences in clinical characteristics and outcomes between patients with left ventricular thrombus following non-anterior and anterior ST-elevation myocardial infarction

F. Goh¹, Y.N. Teo², Y.H. Teo³, A.S.T. Lewi¹, M.Y.Y. Chan⁴, L.L.L. Yeo⁴, W.K.F. Kong³, K.K. Poh³, J.S.Y. Ho¹, T.C. Yeo³, B.Y.Q. Tan⁴, C.H. Sia³

¹National University Hospital, Singapore, Singapore
²National University of Singapore, Department of Medicine, Yong Loo Lin School of Medicine, Singapore, Singapore
³National University Heart Centre, Department of Cardiology, Singapore, Singapore
⁴National University Hospital, Division of Neurology, Department of Medicine, Singapore, Singapore

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Background: Left ventricular thrombus (LVT) is a serious complication following ST-elevation myocardial infarction (STEMI), and occurs more frequently in anterior compared to non-anterior myocardial infarction (MI).¹ There is limited data on the clinical characteristics and outcomes in patients with LVT following non-anterior MI.

Purpose: We aimed to describe the clinical characteristics and outcomes of patients with LVT following non-anterior MI, and compare them against patients with LVT associated with anterior MI.

Methods: We retrospectively studied 217 consecutive patients with post-STEMI LVT from our tertiary centre’s echocardiography database between March 2011 and January 2021. Trans-thoracic echocardiography was performed at day 2 or 3 post-MI. We compared baseline co-morbidities and echocardiographic parameters between patients with LVT following non-anterior versus anterior MI. The Kaplan Meier method with log-rank test was used to compare rates of thrombus resolution, stroke and all-cause mortality between the 2 groups. Multivariable Cox regression models were constructed to correct for potential confounders.

Results: Mean age of the study population was 56.0 (IQR 48.0, 63.0) years old and 16/217 (7.4%) were female. LVT following non-anterior MI made up 24/217 patients (11.1%), and included lateral (n=3), inferior (n=15), infero-posterior (n=4) and infero-lateral (n=2) MI. Patients with LVT associated with non-anterior MI were older and more frequently had a history of ischaemic heart disease (Figure 1). These patients also had a lower median left ventricular ejection fraction (LVEF) of 29% compared to their counterparts with anterior MI (mean LVEF 38%). Rate of anticoagulation was lower in patients with LVT associated with non-anterior MI (75.0% versus 92.2%). There were no differences in rates of thrombus resolution between the 2 groups (Figure 2). Patients with LVT following non-anterior MI had a higher incidence of stroke, however this observation was not present after correction for baseline embolic risk (CHA2DS2-VASc score) and rate of anticoagulation. Mortality rates were similar in patients with LVT following non-anterior MI versus anterior MI, after correction for baseline co-morbidities as well as in-hospital mortality – as this was more likely due to acute MI complications rather than longer term consequences of LVT.

Conclusions: Patients with LVT following non-anterior MI are older with a greater prevalence of prior ischaemic heart disease. These patients had a greater rate of stroke and mortality, although baseline co-morbidities and less frequent use of anticoagulation may have contributed to these findings. This needs to be clarified in future prospective studies.
Figure 2: Outcomes