Prevalence and predictors of thromboembolic events in patients with LV dysfunction and LV thrombus

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Background/Aims: Left ventricular (LV) thrombus (LVT) develops in some of the patients with LV dysfunction, which increases the risk of mortality. Thromboembolic events (TE) associated with LVT is of clinical concern; however, the rate of the ominous events and its determinants are still unclear. In this retrospective study using real-world data, TE associated with LVT was monitored and predictors of the events were determined

Methods: Patients with diagnosed LVT on transthoracic echocardiography in two tertiary centers between 2010 and 2021 were identified (n=256). The primary outcome was TE defined as stroke and arterial thromboembolism; patients were divided into two groups [TE (+) vs. TE (-)] to compare the clinical characteristics. Factors associated with occurrence of TE were analyzed.

Results: LVT was treated with anticoagulation (vitamin K antagonists: 80 %, Direct oral anticoagulant: 12 %) and/or anti-platelet agents (53 %). TE developed in 23 patients (event rate: 9 %) during the average monitoring period of 4 ± 3 years. Interestingly, most of the TE occurred during the early clinical course (3 months) and it becomes scars after 2 years of follow-up (only in 3 patients, event rate: 1 %); based on this, LVT chronicity was determined. Prior TE history and LVT chronicity showed significant difference between two groups (83 % with TE (+) vs. 19 % with TE (-), 14 % with TE (+) vs. 70 % with TE (-), respectively, p<0.001). Prior TE history was founded to be a positive predictor of TE (hazard ratio, HR: 5.92, Confidence Interval, CI: 1.45-24.18, p=0.01), while LVT chronicity revealed as a negative predictor (HR: 0.04, CI: 0.01-0.15, p<0.001). LVT chronicity demonstrated a high diagnostic accuracy for predicting TE, with an area under curve of 0.86 (95 % CI: 0.80-0.93), cutoff value of 794 days (sensitivity: 69 %, specificity: 91 %).

Conclusions: TE associated with LVT occurs in the early period of recognition and prior TE history is independent predictor for future TE. Once the LVT becomes chronic (≥ 2 years), TE is rare.

Chronicity of LV thrombus

AUC: 0.86
Cut-off value: 794 days