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Toward reducing thrombus recurrence rate in management of patients with confirmed left ventricular thrombi

We thank Du *et al*. for their interest in our work[1] and the authors have raised some points that we would be happy to address. Firstly, we agree with Du and colleagues as indicated their typical case regarding left ventricular thrombi (LVT) recurrences after prior resolution and discontinuation of anticoagulants, LVT recurrence may not be common when administering guideline-directed medical therapy, and if occurs, it would remain exposed to a high risk of clinical embolic events.

Current guidelines recommend anticoagulant use for at least 3 months as the appropriate treatment strategy for thrombus prevention in individuals with high-risk for LVT.[2] However, in clinical practice, the clinical status is not satisfactory after anticoagulants discontinuation. Recently, in an elegant study that surveyed over 90 000 echocardiograms, Lattuca *et al*.[3] observed that the total LVT resolution was achieved only in 62.3% of confirmed LVT patients who were placed on anticoagulation therapy for a reported median period of 103 days (IQR: 32–392 days). Also among those who received anticoagulation (e.g. vitamin K antagonists, parenteral heparins, and direct oral anticoagulants), LVT recurrence or an increase of thrombus area was observed in a nonnegligible portion (14.5%) of patients, suggesting a need for improvement of the current anticoagulant management algorithm in LVT patients.

That said, the optimal anticoagulant regimen in LVT patients is unclear, at least a simple management solution that drastically reduce thrombus recurrence rate currently does not exist. As such, decisions for establishing the rationale for longer or lifetime anticoagulant use should be made on a case-by-case basis. To tackle the current conundrum, we suggest, firstly, the frequency of follow-up imaging may be increased. Regardless the choice of therapy, repeated imaging should be performed at regular intervals. If LVT or spontaneous echo contrast (SEC) was persistently observed or recurred by frequent evidence of image monitoring, rationale for longer therapeutic period or even lifetime anticoagulation may be reached.[4,5] Secondly, the risk factors for thrombus formation should be revaluated. For example, in patients with anterior ST-segment elevation myocardial infarction (STEMI), akinesia and endothelial dysfunction following myocardial tissue necrosis play an important role in LVT formation through blood stasis and endothelial injury pathogenesis. If akinesia and endothelial dysfunction are not restored, recurrence LVT or SEC can be expected in areas of persistent significant wall-motion abnormalities despite guideline-directed anticoagulant use.[6] Thirdly, the possible benefit of longer or lifetime anticoagulation must be balanced against the considerable bleeding risk associated in consequence of such therapy.

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