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Prevention Is Better Than Cure

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A clever person solves a problem. A wise person avoids it.

Albert Einstein

Over the past decades, there has been a marked improvement in morbidity and mortality following acute myocardial infarction due to the widespread application of early reperfusion therapies, optimal antiplatelet/anticoagulant therapy, and secondary prevention strategies. But thrombus development in the left ventricle is still one of the serious complications that develop after acute myocardial infarction.[1]

Prevent Thrombus Formation

In medicine, the most important thing is *the primary prevention.* Therefore, the ideal way is to try to reduce left ventricular thrombus (LVT) formation. We all know that infarct diameter is one of the most important parameters associated with LVT development. Larger infarcts are associated with more pronounced myocardial injury, increased inflammatory response, and a more pronounced hypercoagulable state, and all these parameters as a part of the Virchow triad increases the risk for mural thrombosis.[2] Therefore, one of our primary goals should be to reduce the diameter of the infarct size (Figure 1). Dual antiplatelet treatment is one of the most important treatment modalities to reduce infarct size and decrease LVT formation.

Prevent Embolization

If patients with LVT development are not treated, serious complications such as stroke and systemic embolism may develop in approximately 20% of patients. Comparing ST-segment elevation myocardial infarction (MI) patients with LVT to those without LVT, the rate of embolic events in patients with LVT was 4-fold higher, and the rate of long-term mortality was 2-fold higher.[3] Therefore, an effective treatment is required. It is known that the risk of LVT formation is the highest during the first 3 months especially within the first 2 weeks after acute MI.[4,5] For this reason, current guidelines recommend that patients with LVT should be treated with vitamin K antagonist for at least 3-6 months with duration individualized to bleeding risk.[6,7]

In this article written by Ahmed et al,[8] the importance of effective antiplatelet therapy in addition to effective anticoagulant therapy in patients with LVT is emphasized. It should not be concluded from the results of this study that clopidogrel can replace anticoagulant therapy. We know that antiplatelet treatment has no or only limited influence on the thrombin generation, which plays a key role in the development of LVT. So the study emphasizes the importance of using dual antiplatelet therapy over anticoagulant treatment. In this study, since a significant portion of patients use aspirin after MI, no difference is observed in terms of aspirin. Interestingly, in this study, a significant proportion of patients did not receive second antiplatelet therapy such as clopidogrel or ticagrelor. The fear of bleeding is probably the most important reason why dual antiplatelet therapy is not used in addition to anticoagulant therapy in these high-risk patients.

Prevent Bleeding

Cardiologists always have to make a decision between the risk of thrombus development and bleeding. Triple antithrombotic therapy (2 antiplatelet drugs plus an anticoagulant) poses a high risk of fatal and nonfatal bleeding.[9] In this regard, there are many predictors and risk scoring systems that we will use to determine the bleeding risk. As a limitation, these risk-scoring systems have not been developed or tested for clinical conditions with a high risk of embolism, such as LVT. Despite this limitation, as

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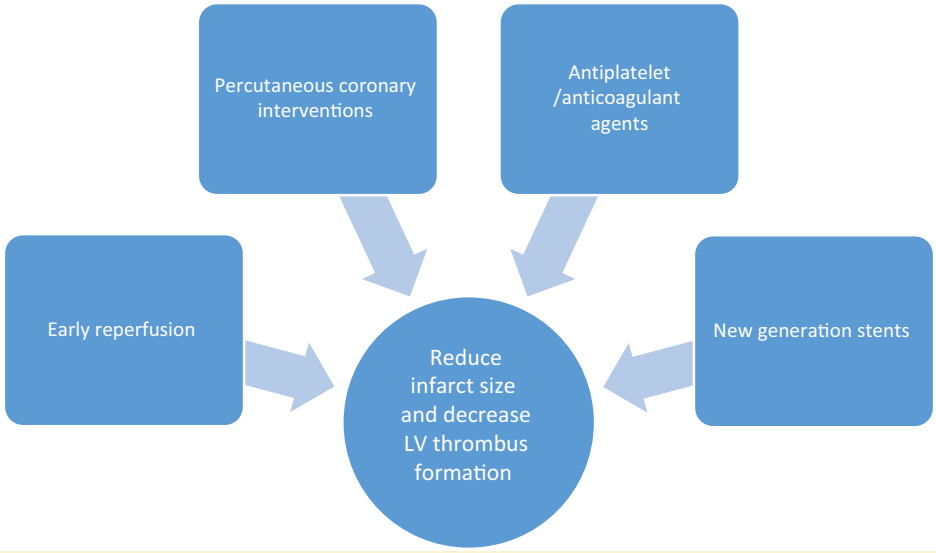

Figure 1. Parameters that reduce infarct size and decrease thrombus formation. LV, left ventricular.

clinicians, we have to consider the risk of stroke, stent thrombosis, and major bleeding together when deciding both type of antithrombotic treatment and duration of treatment.

One of the other striking findings in the study is that there was no difference in TTR between groups with and without thrombus resolution. TTR values are expected to be better in patients with thrombus resolution. Although the limited number of patients is an important reason, the reliability of TTR values in a retrospective study is controversial.

Close Follow-Up

The predictors of LVT resolution are not well defined in the literature. In this study, concomitant use of clopidogrel with anticoagulants is found to be associated with thrombus resolution and thrombus size is found to be related to thrombus persistency.

Another remarkable finding at the end of the study is that thrombus resolution was observed only in one-third of the cases in the sixth month. This finding means that the thrombus cannot be treated effectively in a significant portion of the patients, and it still continues in the follow-ups. Although the risk of embolism decreases as LVTs are organized over time, close follow-up of this patient group is very important because the Vircow triad, which is the cause of thrombogenicity predisposition, still persists in many patients. The recurrence rate after 6 months of anticoagulation has been reported as high as 18.5%.[10] If LVT recurs after the resolution, longer-term anticoagulation could be considered. Figure 2 summarizes the role of prevention related to LVT

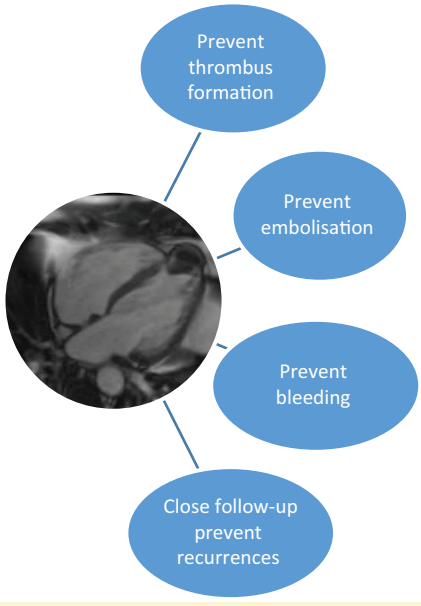

Figure 2. Prevention is very important in every step of a patient with left ventricular thrombus.

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