Predictors of Left Ventricular Thrombus Formation with Continuous In-Hospital Anticoagulation for Acute Anterior Myocardial Infarction

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Background: Traditional predictors of left ventricular thrombus (LVT) formation in patients with acute myocardial infarction (AMI) are anterior location, apical aneurysm, reduced left ventricular ejection fraction (LVEF), and advanced age. We evaluated whether prolonged anticoagulation following primary percutaneous coronary intervention (PCI) for anterior AMI could alter the occurrence and affect the predictors of LVT.

Methods: The records of all patients with an anterior AMI admitted to our department (2006-2009) were reviewed for the presence and predictors of LVT formation. At that time, our practice for patients undergoing PCI for anterior ST-segment elevation AMI was continuous heparin anticoagulation for 48 hours, followed by adjusted doses of low molecular weight heparin for 3 days. They all underwent an echocardiogram at admission and before discharge.

Results: LVT formation was present on the first echocardiogram in 7/296 patients (2%) and also on the second one in 6 of them. Another 8/289 (2%) patients displayed LVT only on their second echocardiogram, yielding a total of 14 patients (14/296, 4.7%) with LVT on their second echocardiogram. Patients with LVT had significantly lower LVEFs than those without LVT, both at admission (39±2 vs 42±7%, respectively; $p<0.003$) and prior to discharge (41±5 vs 45±8%, respectively; $p<0.001$), and a longer time to reperfusion (215±296 vs 167±487 minutes, respectively; $p=0.168$). There were no other meaningful epidemiological or clinical differences between patients w/wo LVT. Patients with LVT on both echocardiographic examinations were older (58±12 vs 54±8 years) and had lower LVEF values (38.3±2.7 vs 40±2.7%) than patients who had LVT only on the second examination, but those values did not reach a level of significance.

Conclusion: Low LVEF and prolonged time to reperfusion are the most important predictors of LVT formation in patients with anterior STEMI treated with continuous in-hospital anticoagulation following PCI.