

Abstract Submitted
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Patient-specific assessment of left ventricular thrombogenesis risk after acute myocardial infarction: a pilot clinical study L ROSSINI, A KHAN, J C DEL ALAMO, UC San Diego, P MARTINEZ-LEGAZPI, C PREZ DEL VILLAR, Y BENITO, R YOTTI, A BARRIO, A DELGADO-MONTERO, A GONZALEZ-MANSILLA, F FERNANDEZ-AVILS, J BERMEJO, Hospital Gregorio Marañon, Madrid — Left ventricular thrombosis (LVT) is a major complication of acute myocardial infarction (AMI). In these patients, the benefits of chronic anticoagulation therapy need to be balanced with its pro-hemorrhagic effects. Blood stasis in the cardiac chambers, a risk factor for LVT, is not addressed in current clinical practice. We recently developed a method to quantitatively assess the blood residence time (RT) inside the left ventricle (LV) based on 2D color-Doppler velocimetry (echo-CDV). Using time-resolved blood velocity fields acquired non-invasively, we integrate a modified advection equation to map intraventricular stasis regions. Here, we present how this tool can be used to estimate the risk of LVT in patients with AMI. 73 patients with a first anterior-AMI were studied by echo-CDV and RT analysis within 72h from admission and at a 5-month follow-up. Patients who eventually develop LVT showed early abnormalities of intraventricular RT: the apical region with $RT \geq 2s$ was significantly larger, had a higher RT and a longer wall contact length. Thus, quantitative analysis of intraventricular flow based on echocardiography may provide subclinical markers of LV thrombosis risk to guide clinical decision making.

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