

Meeting abstract

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I23 Functional recovery after acute myocardial infarction: a comparison between angiography, electrocardiography and cardiovascular magnetic resonance measures of microvascular injury

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Introduction

Thrombolysis In Myocardial Infarction (TIMI) flow grade, Myocardial Blush Grade (MBG) and resolution of ST-segment elevation indirectly reflect microvascular injury. Cardiovascular magnetic resonance (CMR) allows direct visualization and quantification of microvascular obstruction (MVO) with transmural resolution.

Purpose

This study was designed to examine the relation between angiographic, electrocardiographic and CMR characteristics of microvascular injury, and its predictive value on functional recovery after acute myocardial infarction (AMI).

Methods

TIMI flow grade, MBG and ST-segment resolution were assessed in 60 patients with AMI, treated with primary stenting. CMR was performed within 9 days and at 4 months, to determine global and regional LV function, first pass perfusion defects, size and extent of late gadolinium-enhanced (LGE) infarct and MVO (Figure 1).

Results

First pass perfusion defects and LGE MVO were both related to incomplete ST resolution ($p = 0.002$ and $p = 0.01$ respectively), but not to TIMI flow and MBG. Of all angiographic, electrocardiographic, and CMR variables, LGE infarct size was the strongest predictor for baseline LV function and volumes. However, presence of LGE MVO was the strongest parameter to predict change at follow-up. Regional analysis showed that only 6% (23/372) of dysfunctional segments with MVO completely recovered during follow-up, compared to 35% (631/1.786) without MVO (odds ratio 0.18, $p < 0.0001$). MVO was associated with wall thinning and less improvement of wall thickening, independent of infarct transmuralilty.

Conclusion

LGE MVO is a better prognostic marker than other currently used determinants of microvascular injury, and predicts global and regional functional recovery in patients after reperfused AMI, beyond infarct transmuralilty.

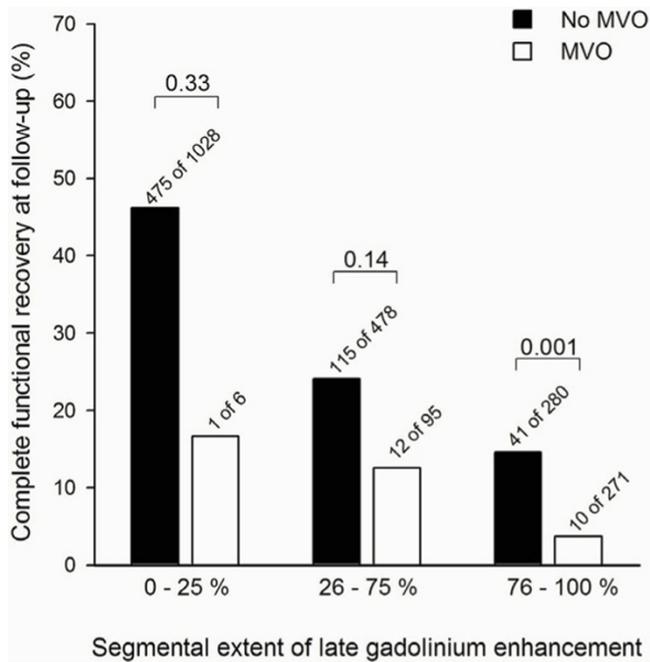


Figure 1
 LGE MVO is a better prognostic marker than other currently used determinants of microvascular injury. LGE MVO predicts global and regional functional recovery in patients after reperfused AMI, beyond infarct transmuralty.

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