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doi:10.1016/j.jacc.2007.01.055

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Adjunctive Thrombectomy in Acute Myocardial Infarction: For Some but Not for All

We read with interest the report by Silva-Orrego et al. (1) regarding the effects of thrombus aspiration on myocardial reperfusion in the setting of primary angioplasty. The study reported a significant enhancement in myocardial reperfusion by a strategy of manual thrombus aspiration before stenting on top of abciximab administration. However, in our opinion some concerns exist about the results of this study. First, the investigators randomized patients with acute myocardial infarction (MI) to a conventional stent-assisted primary angioplasty versus a strategy applying manual aspiration device before stent, regardless of angiographic appearance of thrombus. Early studies evaluating the feasibility of thrombectomy in the setting of thrombus-containing lesion and acute MI clearly reported on the efficacy of thrombectomy devices in reducing thrombus burden at target lesion, consequently limiting distal embolization and no-reflow phenomenon (2,3).

Unfortunately, Silva-Orrego et al. (1) did not provide data concerning thrombus burden at baseline angiography, nor on thrombus removal after device use. Thus, the reported reduction in distal embolization rate may not be univocally ascribed to the device effect, as other factors may affect this result, such as differences in thrombus burden of culprit lesions.

Second, the researchers found a rate of postprocedural myocardial blush grade (MBG) 2/3 in both arms, which is surprisingly higher than expected, based on Thrombolysis In Myocardial Infarction (TIMI) flow achieved after the intervention, and on time-to-treatment reported in this cohort. In the largest study validating the angiographic reperfusion, MBG was strongly affected by epicardial flow, being that patients showing TIMI flow grade <3 very rarely reached an adequate blush (4). Indeed, it has been shown that the effectiveness of myocardial reperfusion after primary angioplasty, as assessed by ST-segment resolution and MBG is clearly time-dependent (5).

In conclusion, to avoid conflicting results, we believe that future studies evaluating thrombectomy as adjunctive strategy in the setting of primary angioplasty should enroll only patients with angiographically documented thrombus at the lesion site, and that reperfusion findings should be carefully evaluated according to time-to-treatment.

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doi:10.1016/j.jacc.2007.01.056

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Reply

We appreciated the comments by Dr. Napodano and colleagues and would like to address their concern. The DEAR-MI (Dethrombosis to Enhance Acute Reperfusion in Myocardial Infarction) study (1) included consecutive randomization of acute myocardial infarction (AMI) patients fulfilling the inclusion criteria regardless of angiographic evidence of thrombus based on the assumption that thrombus is always present in AMI. Compared with angioscopy, the presence of intracoronary thrombus is significantly underestimated by angiography (2). In our randomized population, 73% of controls and 81% of patients undergoing aspiration showed an occluded vessel with Thrombolysis In Myocardial Infarction (TIMI) flow grade 0/1 at the initial angiogram,