EFFECTS OF RHEOYTIC THROMBECTOMY AND MANUAL THROMBUS ASPIRATION ON INFARCT SIZE AND MICROVASCULAR OBSTRUCTION DURING PRIMARY ANGIOPLASTY: SMART-MRI SUBSTUDY

Poster Contributions
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Background: Myocardial infarct size (IS) and microvascular obstruction (MVO) are a strong independent predictors of mortality in patients with ST-elevation myocardial infarction (STEMI). Whether rheolytic thrombectomy (RT) in comparison to manual thrombus aspiration (MTA) may reduce IS and MVO is unknown. We sought to analyze in STEMI patients the IS and the MVO by cardiac magnetic resonance imaging (MRI).

Methods and Results: Eighty STEMI patients (≤6 hours from symptom onset) reperfused by primary angioplasty with routine abciximab therapy were randomly allocated (1:1) to a RT or MTA. MRI was performed within 10 ± 6 days in 37 patients (19 RT, 18 MTA). IS and MVO were measured 15 min after gadolinium injection with late enhancement sequences and were analyzed quantitatively (as percentage of the left ventricular mass -gr/LV mass-) at a core laboratory blinded to randomization. Baseline clinical characteristics were similar between the RT and MTA groups, as well as baseline TIMI thrombus grade (4.47 ± 0.84 vs 4.67 ± 0.76, p=0.453) and rate of initial TIMI flow grade 0-1 (79% vs 83%, P=0.758). Successful delivery of both RT and MTA was 100%. After thrombectomy in RT compared with MTA group the thrombus grade decreased to 1.11 ± 1.04 vs 2.17 ± 1.29 (P=0.04), and after infarct artery stenting TIMI 3 flow was 100% vs 89% (P=0.204), and ST-elevation resolution greater than 70% at 60 minutes was 89% vs 72% (P=0.198), respectively. With similar median area at risk [20.9% (11.1-31.5) vs 22.7% (14.6-37.1), P=0.362], RT compared with MTA group did not reduced significantly myocardial IS [12.2% (6.4-22.1) vs 19.0% (7-28.5), P=0.224] as well as the extent of MVO [0.0% (0.0-0.17) vs 0.6% (0.0-1.4), P=0.117], but a trend towards a lower incidence of MVO was observed (16% vs 44%, P=0.056).

Conclusions: in setting of primary angioplasty with routine abciximab therapy for STEMI, RT in comparison with MTA did not reduced significantly the final IS as well as the extent of MVO, despite that RT was more effective in thrombus removal. A limited extension of MVO observed with modern PCI and both RT or MTA in patients presenting early after infarct onset is difficult to be improved.