

Mid-term impact of manual thrombus aspiration on left ventricular remodeling: the echocardiographic substudy of the randomized Physiologic Assessment of Thrombus Aspiration in patients with ST-segment Elevation Myocardial Infarction (PATA STEMI) trial

**Background.** It has been reported that index of microcirculatory resistance (IMR) is lower in STEMI patients who underwent thrombus aspiration before stent implantation compared to those treated with conventional primary PCI. The aim of this study was to evaluate impact of improved myocardial perfusion by manual thrombus aspiration assessed by IMR on left ventricular remodeling in STEMI patients at mid-term follow-up.

**Method.** The total of 115 patients entered the echocardiography substudy of the PATA STEMI (randomized Physiologic Assessment of Thrombus Aspiration in patients with ST-segment Elevation Myocardial Infarction) trial which evaluated efficacy of manual thrombus aspiration using Eliminate3 catheter (Terumo Europe, Leuven, Belgium). Echocardiography was done within the first 24 hours after the index procedure and after 4 months. End-diastolic and end-systolic left ventricular (LV) volumes, ejection fraction (EF), cardiac sphericity index (CSI) and regional wall motion score index (WMSI) were calculated.

**Results.** In baseline characteristics, in patients with thrombus aspiration compared to those with conventional primary PCI, total ischemic time tended to be longer  $246,7 \pm 181,8$  vs.  $200,9 \pm 110,1$  min,  $P=0,09$  and AUC CK was smaller  $40090 \pm 26158$  U/L vs.  $52676 \pm 32013$  U/L,  $P=0,026$ . Also, corrected IMR was lower in thrombus aspiration group  $27,5 \pm 16,8$  vs.  $39,9 \pm 32,7$  U/L,  $p=0,0079$ , while CFR ( $1,68 \pm 0,81$  vs.  $1,61 \pm 0,67$ ,  $P=0,6$ ) and mean capillary wedge pressure ( $20,4 \pm 6,6$  vs.  $21,4 \pm 7,8$  mmHg,  $P=0,5$ ) were similar. End-diastolic and end-systolic LV volumes per body surface area, EF, CSI volume and WMSI were similar between the thrombus aspiration and no aspiration group at baseline and at follow-up. At follow-up, percent change in WMSI tended to be greater in thrombus aspiration group (decrease in WMSI 8,2% vs. increase in WMSI 0,8%,  $P=0,094$ ).

**Conclusions.** Improved myocardial perfusion assessed by IMR has no impact on left ventricular remodeling in STEMI patients at mid-term follow-up.