Selective use of thrombus aspiration in ST segment elevation myocardial infarction guided by the thr

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ABSTRACT

BACKGROUND

Thrombus aspiration (TA) has the potential for reducing distal embolization and improving microvascular perfusion. However, according to the results from the latest trials, routine TA failed to establish better clinical outcomes and was associated with significantly increased risk of stroke. Hence routine use of thrombus aspiration has been downgraded to class III according to the latest STEMI guidelines. Our aim was to study the impact of selective use of thrombus aspiration guided by the thrombus burden on both procedural and clinical outcomes at 30 days,6 and 18 months of follow up.

METHODS

132 Consecutive STEMI patients undergoing PCI were assigned to different treatment strategies guided by the thrombus grade (TG) . 65 Patients with large thrombus burden (LTB) TIMI thrombus grade (≥4) were assigned to manual thrombus aspiration +PCI ± glycoprotein (Gp) IIb/IIIa inhibitors and 67 small thrombus burden patients (TG ≤3) to PCI alone ± Gp IIb/III inhibitors . Baseline demographic, Clinical and laboratory characteristics as well procedural data of the patients were recorded.

RESULTS

Regarding baseline characteristics, LTB group showed significantly longer both chest pain to first medical contact (P=0.02) and total ischemic time (P=0.04) , more anterior MI (59% vs 39%, P=0.024) and higher white cell count (P=0.01) as compared to STB group. Long chest pain to ER was the strongest independent predictor for LTB presentation. In terms of procedural characteristics, LTB presented significantly with higher initial TIMI 0 flow (89% vs 39%, P <0.001) and LAD as the culprit vessel (59% vs 39%, P=0.024). Direct stenting was performed more frequently in TA group (63% vs 22%, P< 0.001) with less need for predilatation (29% vs 78%, P<0.001). TA group demonstrated comparable success rate to PCI alone group regarding improving epicardial and myocardial reperfusion demonstrated by final TIMI III (80% vs 85%, P=0.58) flow , myocardial blush grade (MBG) ≥2 (81.5% vs 85%, P=0.59) and ST resolution ≥70% (71% vs 75%, P=0.62).

Post PCI ejection fraction was insignificantly lower in TA group (50% vs 53.5%, P=0.09). Composite major adverse cardiac events (MACE) including cardiac mortality, target vessel revascularisation (TVR), recurrent MI and stroke or TIA showed insignificant difference between TA and PCI alone groups at 30 days (4.6% vs 1%, P= 0.36), 6 months (4.6% vs 3%, P=0.68) and 18 months (9.2% vs 7.5%, P=0.76) .Non-significant lower cardiac mortality (0% vs 3%,P=0.5), lower reinfarction (3% vs 6%,P=0.7), and similar TVR (3% both, P=1.00) and insignificant increase in stroke or TIA (4.6% vs 1.5%, P=0.36) were observed in TA group.

elective manual thrombus aspiration as an adjunct to PPCI in LTB achieved comparable success rate in restoration of myocardial perfusion with low incidence of complications and long term clinical outcomes to that of PPCI alone in STB despite differences in thrombus load and patient risk stratification. Also, the beneficial impact of thrombus aspiration on composite MACE in the long term follow up was counterbalanced by the increased risk of stroke. We recommend larger multicentre trials powered enough to detect benefits of selective TA on procedural and clinical outcomes.