

Abstract

Thrombus aspiration in primary percutaneous coronary intervention

The experience of Critical Care Department over five years

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Background: Thrombus aspiration for STEMI may improve myocardial perfusion. However, these favorable results called into a question by data indicating not only lack of efficacy, but a risk of potentially deleterious complications.

Aim: Aim was to assess the effect of thrombus aspiration during primary percutaneous coronary intervention (PPCI) on procedural angiographic results {TIMI flow, myocardial blush grade (MBG), Thrombus score} and major adverse cardiac and cerebrovascular events (MACCE).

Methodology: All consecutive STEMI patients candidate for PPCI and admitted to Critical Care Department, Cairo University hospitals, from beginning of January 2010 until the end of December 2015, managed either by thrombectomy before primary PCI or conventional PCI upon operator discretion, were enrolled in the study. 607 subjects “ 440 subjects (72.5%) retrospectively and 167 subjects (27.5%) prospectively” within 12 hours of symptoms divided into Group with thrombectomy before PPCI (N 107) 18%, Group with Conventional PCI (N 500) 82%. ST segment resolution, peak CK-MB, TIMI score, and MBG were assessed, SYNTAX score pre and post procedure were calculated, stent number, diameter, and length were reported and follow up MACCE in hospital for “ all the study group 607 subjects “ and 1 year for” prospective group 167 subjects “ were done.

Results: Mean values for peak CKMB were less in thrombectomy group (228 ± 174 I/U vs 269 ± 186 I/U p 0.04), ST segment resolution $>70\%$ occurred more in thrombectomy group {63 patients(58.9%) vs 233 patients (46.6%) p 0.001} in thrombectomy vs conventional group respectively. Mean values for TIMI score pre procedure were (0 ± 0.2 vs 0.4 ± 0.8 p 0.001), while TIMI post procedure were (2.9 ± 0.1 vs 2.8 ± 0.2 p 0.06), MBG mean values were (2.4 ± 0.6 vs 2.0 ± 1 p 0.001), thrombus score was higher in thrombectomy group (4.6 ± 0.4 vs 0.8 ± 1.7 p 0.001) in thrombectomy vs conventional group respectively. Mean values for SYNTAX score pre procedure were (16 ± 6 vs 17 ± 7 p 0.2) while mean values for Syntax score post procedure were (14 ± 6 vs 15 ± 7 p 0.3) in thrombectomy vs conventional group respectively. Direct stenting was more in thrombectomy group { 34 patients (31%) vs 102 patients (20%) p 0.05} , mean stent diameter (2.7 ± 1.3 mm vs 3.5 ± 1.3 mm p 0.3), mean stent length was shorter in thrombectomy group (19.9 mm ± 10 versus 22.7 mm ± 8 in p 0.01). mean stent number was less in thrombectomy group (1.0 ± 0.5 vs 1.2 ± 0.6 p 0.001), mean stented segment was (22.5 ± 13.5 vs 28.5 ± 15.2 mm p 0.001) in thrombectomy vs conventional group respectively. Complications occurred in {12 patients (11.2%) vs 74 patients (14.8%) p 0.3} in thrombectomy vs conventional group respectively. Follow-up MACCE in hospital were reported in 79 subjects(13%) of all study group { 9 patients(8.4%) vs 70 patients(14%) p 0.07}. While , Follow up MACCE after 1 year showed that 26 subjects (17.8%) of prospective group met one of MACCE {4(13.3%) vs 22 subjects (18.9%) p 0.4} in thrombectomy vs conventional prospective group respectively.

Conclusion: Thrombus aspiration before primary PCI improves myocardial perfusion, suggested by better ST segment resolution, TIMI flow, less peak CKMB and MBG ,associated with higher rate of direct stenting, shorter stent length, stented segments and less number of stents, However, this was not translated into improvement in MACCE.

Key words: Thrombus aspiration, Primary PCI, Myocardial infarction.

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