

About the Prediction of Angiographic No Reflow during Primary PCI for STEMI and the Futility of the Preventive Actions

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Background:

Currently there is no effective treatment for reflow (NR) developing during primary PCI (PPCI) for STEMI. Identification of predictors for NR might allow preventive measures.

Aim:

Our aim is to investigate the relationship between clinical, angiographic and therapeutic factors and the development of NR during PPCI.

Methods:

Case control study of 1141 pts with STEMI treated with PPCI comparing 53 pts (4.3%) pts with NR and 1088 pts without NR. NR was defined as transient or persistent reduction in the TIMI flow grade after resolution of the flow restricting stenosis. Baseline demographic, clinical and angiographic characteristics as well therapeutic interventions were compared. Univariate and multivariate analysis was performed.

Results:

NR patients were older (63 ± 15 vs. 59 ± 14 , $p=0.05$) and had larger reference vessel diameter (3.2 ± 0.5 vs. 3.3 ± 0.3 , $p=0.03$), more frequently concentric lesions (74% vs. 60%, $p=0.02$), definite thrombus (86% vs. 59%, $p<0.01$) and bifurcation lesions (55% vs. 39%, $p=0.02$). No differences were observed in risk factors, reperfusion times, use of aspiration devices, mesh covered stent or IIB/IIIa inhibitors. Direct stenting was used less frequently in the NR group (34% vs 51%, $p=0.03$). A model of logistic regression found age (OR 1.04 (1.01-1.07); definite thrombus [OR 6.9 (2-23)] and bifurcated lesions [OR 2(1-4)] independently associated with NR. The development of NR was not influenced by the culprit vessel, type or number of stents, deployment pressure, aspiration devices or direct stenting.

Conclusions:

Age and angiographic findings such as definite thrombus and bifurcations are predictors of NR during PPCI for STEMI. Commonly used interventions to prevent NR were not effective in this study.