Incidence of No-reflow Pheonomenon in Patients with Acute Myocardial Infarction Due to De Novo Plaque Rupture and Stent Thrombosis

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Background: Coronary no-reflow is common in the setting of acute ST-elevation myocardial infarction and is widely recognized as a significant negative prognostic factor. The etiology is attributed to a combination of distal embolization and ischemia/reperfusion injury.

Objective: We sought to determine whether there is a difference between the incidence of no-reflow in acute myocardial infarction (AMI) in the usual setting of an eroded/thrombosed vulnerable plaque as opposed to occclusion of an existing stent by a thrombus.

Methods and results: We performed a retrospective analysis of all patients with AMI who underwent primary PCI during the past two years in our institution (Group A) and of all patients with AMI due to sub acute and late stent thrombosis in the past 8 years (Group B). We excluded patients with cardiogenic shock and renal failure. In Group B, we excluded patients with acute stent thrombosis. No-reflow was defined as TIMI flow score 0 or 1 after successful initial reperfusion (achievement of TIMI flow score 3 in the culprit artery).

Of the 157 patients in Group A, 7 (4.45%) had no-reflow versus only 1 patient (<1%) out of 104 patients in group B ($p < 0.05$).

Conclusion: Our study shows that there is a significantly lower incidence of no-reflow phenomenon in patients with AMI due to angiographically proven stent thrombosis than in patients with "de-novo" AMI. This finding can be explained by the different composition of the microembolic particles dislodged during PCI in the two groups and thus, no-reflow could be attributed to the presence of fragmented atheromatous plaques and not to thrombi.