

Importance of Coronary Collateral Circulation in Patients with STEMI and Total Occlusion of Culprit Artery

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Introduction:

The importance of coronary collateral circulation in patients with STEMI remains controversial.

Objectives:

The aim of the study was to assess the impact of coronary collateral circulation (CCC) scored according to Rentrop classification on optimal final TIMI flow in patients with STEMI and total occlusion of culprit artery treated with primary PCI.

Patients and Methods:

CCC was evaluated angiographically using Rentrop classification in 210 patients with STEMI 12 hours and initial TIMI flow 0 in culprit artery. Clinical and angiographic characteristics were compared.

Results:

The calculated CCC was 2-3 in 32.4% of cases compared to 0-1 in 67.6% of them. After adjustment of baseline clinical and angiographic findings, patients with CCC score 2-3 had final TIMI flow 3 in 79.4% of the cases whereas those with CCC 0-1 had final TIMI flow 3 in 63.3%. (OR 1.9, 95% CI 1.01-3.75; p=0.045).

Conclusions:

The degree of good coronary collateral circulation development in setting of STEMI with total occlusion of culprit artery is an independent predictor of optimal final TIMI flow. A possible mechanism is that coronary collateral flow impedes antegrade propagation of thrombosis in totally occluded culprit artery.