

Outcomes of Staged Percutaneous Coronary Intervention on Complete Total Occlusion Revascularization versus no Revascularization in Patients with Acute Myocardial Infarction: A Meta-analysis

BACKGROUND:

Chronic total occlusion (CTO) in non-infarct related artery (nIRA) is associated with poor outcomes in patients with Acute Myocardial Infarction (AMI). The aim of the meta-analysis is to compare the outcomes of successfully staged percutaneous intervention (PCI) of nIRA CTO versus non revascularized CTO (failed PCI/no PCI/occluded) patients admitted to hospital with AMI (ST segment and non-ST segment MI)

METHODS:

PubMed, Embase and Cochrane databases were searched for studies comparing outcomes between staged PCI for CTO of nIRA and failed PCI/no PCI/occluded CTO patients admitted for AMI. The outcomes measured are all-cause mortality, cardiac mortality, Myocardial infarction (MI), revascularization, stroke, major adverse cardiac events (MACE) and heart failure readmission. Odds ratios (OR) and 95 % Confidence Intervals (CI) were calculated. The analysis was performed using DerSimonian and Laird random effect model.

RESULTS:

A total of 9 studies met the inclusion criteria with a total of 2091 patients (Successful PCI to CTO group: 1248 and Failed or no PCI/occluded CTO group: 843). After a mean follow up of 33.6 months the patients who had successful PCI to CTO had significantly lower MACE (OR 0.49, 95% CI 0.36-0.67), all-cause mortality (OR 0.46, 95% CI 0.26-0.80), Cardiac mortality (OR 0.34, 95% CI 0.23-0.49), MI, Stroke and heart failure readmission as compared to no PCI/occluded CTO group (Table.1). The rates of revascularization were similar in both the groups.

CONCLUSION:

Our meta-analysis shows that successful staged PCI of nIRA CTO in patients admitted with AMI is associated with better outcomes compared to no revascularization.

Table.1: Comparison of outcomes: staged PCI of nIRA CTO vs failed PCI/occluded CTO patients

Outcomes	Number of studies with outcomes	OR	95% CI	P Value	I2 (%)
Major adverse Cardiac events	6/9	0.49	0.36-0.55	<0.00001	0
All-Cause mortality	8/9	0.46	0.26-0.80	0.006	72
Cardiac mortality	9/9	0.34	0.23-0.49	<0.00001	23
Myocardial infarction	9/9	0.62	0.39-0.98	0.04	0
Revascularization	9/9	0.91	0.54-1.52	0.72	72
Stroke	5/9	0.44	0.21-0.94	0.04	0
Heart failure readmission	4/9	0.57	0.36-0.89	0.01	0