

Title: Outcomes of selective use of thrombus aspiration in patients with ST-elevation myocardial infarction in a tertiary care hospital

Category: Acute Coronary Syndromes

Abstract

Background: Routine thrombus-aspiration in patients with ST-elevation myocardial infarction (STEMI) has been shown to be of little benefit. However, selective use in patients with high thrombus burden is still considered appropriate. This study evaluate outcomes of selective use of thrombus-aspiration based on operator's discretion.

Methods: This is a retrospective, single centre study reviewing the outcomes of thrombus-aspiration in 2025 STEMI patients during 2015-2018. Demographics, clinical and procedural variables as well as outcome data were collected from case notes and compared between those receiving thrombus-aspiration vs no aspiration during PCI.

Results: Out of 2025 STEMI patients, only 299 (15%) patients received thrombus-aspiration on operator's discretion. Thrombus-aspiration group had frequent use of tirofiban (54% vs. 23%, $p<0.001$), suggesting high thrombus burden.

Patients in the thrombus-aspiration group were younger (54.0 ± 11.9 vs. 56.7 ± 11.4 , $p<0.001$) but there was no gender difference (males 84.4% vs 87.0%, $p=0.3$). Thrombus-aspiration group had smaller proportion of patients with diabetes (25.8% vs. 45.9%, $p<0.001$) and hypertension (22.4% vs 45.0%, $p<0.001$) but significantly higher proportion of smokers (29.3% vs. 13%, $p<0.001$) and higher BMI (31.2 vs. 28.7, $p=0.001$). There was no significant difference in groups regarding location of STEMI, infarct-related artery and door-to-balloon time.

There was no difference in the incidence of early MI complications including pulmonary oedema, cardiogenic shock and cardiac arrest. However, post PCI ejection fraction was lower in thrombus-aspiration group (39.9% vs 42.5%, $p<0.001$). There was no difference in in-hospital mortality between the two groups (2.0% vs 2.8%, $p=0.4$).

Conclusion: Thrombus-aspiration is used in a small proportion of STEMI patients with high thrombus burden. These are usually younger patients who smoke and have high BMI. On un-adjusted analysis, there was no difference in immediate post-MI complications and mortality, though post PCI ejection fraction was lower in aspiration group.