

Failed Primary Percutaneous Coronary Intervention: A 10-Year Contemporary Experience of the Incidence, Predictors and Outcomes

Amos Levi¹, Muthiah Vaduganathan², Hanna Vaknin-Assa¹, Salma Abu-Ful¹, Eli Lev¹,
David Brosh¹, Tamir Bental¹, Alexander Battler¹, Ran Kornowski¹, Abid R. Assali¹

¹*Cardiology, Rabin Medical Center, Israel*

²*Department of Medicine, Massachusetts General Hospital, USA*

Background:

Limited contemporary data exist regarding the prevalence, predictors and outcomes of failure of primary percutaneous coronary intervention (PCI) in the treatment of ST-segment elevation myocardial infarctions (STEMI).

Methods:

In this registry-based retrospective cohort study, all consecutive unselected patients (n=1725) who were hospitalized for STEMI who underwent primary PCI from January 2001 to December 2010 were included. PCI failure was defined as final diameter stenosis > 30% or post-dilatation TIMI flow grade 2 or less. Survival status at follow-up was confirmed by the municipal civil registries. Multivariate logistic regression analysis was performed to determine significant predictors of PCI failure.

Results:

The overall PCI failure rate was 5.4% (94 out of 1725 procedures). After adjusting for pre-specified baseline characteristics, independent predictors of PCI failure included age greater than 65, procedure date between 2001 and 2005, night-time PCI, calcific lesion and lower pre-procedural TIMI flow grade. Failed PCI was associated with a 1-year mortality rate of 22% compared to 5% in the successful PCI group. Conservative medical management was preferred in the majority of patients with failed PCI (n=78, 83%). Patients who underwent emergency surgery, conservative management and redo PCI experienced 30-day mortality rates of 27%, 16% and 0%, respectively.

Conclusions:

PCI failure in the setting of STEMI, although improving in recent years, remains above 5% and is associated with high post-procedural mortality.