

# The hidden toll: Early mortality in STEMI thrombolysis at a Non-PCI-capable Emergency Department

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## ABSTRACT

**Introduction:** Pharmacological thrombolysis remains the primary reperfusion strategy in ST-elevation myocardial infarction (STEMI) in many Asian countries, including Malaysia. However, data on early mortality in the Emergency Department (ED) following STEMI thrombolysis in non-PCI-capable hospitals is unavailable. This study aimed to examine the incidence and identify the predictors of early mortality in the ED following STEMI thrombolysis. **Materials and Methods:** This retrospective single-centre study included STEMI patients who received pharmacological thrombolysis at a tertiary hospital from 2016 to 2020 through total population sampling. Early mortality in the ED was defined as death occurring in the ED post-thrombolysis. Logistic regression was used to identify independent predictors of early ED mortality. **Results:** Data from 941 patients were analysed, with a mean age was 53.0±12.2 years, and the majority were male (n=846, 89.9%). The overall in-hospital mortality rate was 10.3% (n=97), nearly half (n=47, 48.5%) occurred in the ED. Independent predictors of early mortality included: age ≥75 years (aOR 4.474, p=0.001), female sex (aOR 3.059, p=0.003), pre-existing hypertension (aOR 2.105, p=0.030), ischemic heart disease (aOR 0.316, p=0.043), Killip class ≥2 (aOR 2.252, p=0.033), systolic blood pressure <100 mmHg at presentation (aOR 3.365, p=0.003), and presentation during the COVID-19 pandemic (aOR 2.404, p=0.014). Post-thrombolysis, independent predictors of early mortality include failed thrombolysis (aOR 3.147, p=0.004) and ventricular fibrillation/tachycardia (aOR 10.312, p<0.001). **Conclusion:** Early ED mortality post-STEMI thrombolysis was substantial. Prompt transfer to cardiac care units and recognition of key risk factors may improve outcomes in high-risk STEMI patients.

Keywords: STEMI, Emergency Department, Thrombolysis, Early Mortality, Malaysia