Title: Incidence and Predictors of Early Mortality in the Emergency Department Following STEMI Thrombolysis an a Non-PCI-Capable Tertiary Hospital

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| **Introduction**  Ischemic heart disease remains the principal cause of mortality despite the advancement of coronary reperfusion in the past 40 years. In ST-elevation myocardial infarction (STEMI), pharmacological thrombolysis remains the primary reperfusion strategy in many Asian countries due to the lack of percutaneous coronary intervention (PCI)-capable facilities. However, data on early mortality in the Emergency Department (ED) following STEMI thrombolysis in non-PCI-capable hospitals is unknown.  **Objectives**  This study aimed to assess the incidence and identify the predictors of early mortality in the ED following STEMI thrombolysis.  **Method**  This single-center retrospective study involved STEMI patients given thrombolytic therapy from 2016 to 2020 in a tertiary hospital. Total population sampling was used in this study. Logistic regression analyses were used to assess independent predictors of early mortality in the ED.  **Results**  Data from 941 patients was analysed. Their mean age was 53.0±12.2 years and predominantly male (n=846, 89.9%). The in-hospital mortality was 10.3% (n=97), with almost half (n=47, 48.5%) occurred in ED. The final multi-model found seven predictors for early mortality in ED: age ≥75 (aOR 4.474, p=0.001), female gender (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 COVID-19 pandemic (aOR 2.404, p=0.014). Following thrombolytic therapy, two predictors found to affect early mortality were failed fibrinolysis (aOR 3.147, p=0.004) and ventricular fibrillation/tachycardia (aOR 10.312, p<0.001).  **Conclusion**  Early mortality in ED following STEMI thrombolysis was high. STEMI patients should be warded to cardiac care unit early as the provision of comprehensive cardiac care can be challenging due to ED’s busy nature. The above-identified predictors of early STEMI mortality in ED allow clinicians to identify and manage high-risk STEMI patients better.  **Keywords:**  STEMI thrombolysis; Emergency Department; thrombolytic agent  Word count: 290 |