Title: Bleeding Characteristics and Its Mortality Outcomes in STEMI Thrombolysis

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| **Introduction**  Bleeding events are critical safety endpoints in ST-elevation myocardial infarction (STEMI) thrombolysis. Data on bleeding characteristics and its mortality outcomes following STEMI thrombolysis in the Asian population is scarce.  **Objectives**  This study aimed to evaluate the bleeding characteristics following STEMI pharmacological thrombolysis and its mortality outcomes in an Asian population.  **Method**  This single-centre retrospective study included all STEMI patients who received thrombolytic therapy from 2016 to 2020 in a tertiary hospital. Total population sampling was used in this study. The primary outcome includes bleeding events post-thrombolysis, categorised using the Thrombolysis in Myocardial Infarction (TIMI) bleeding criteria. The associations between relevant variables were analysed using inferential statistical tests.  **Results**  941 patients were included in the analyses. 156 (16.6%) STEMI patients bled following thrombolysis. TIMI major, minor, and minimal occurred in 7 (0.7%), 17 (1.8%), and 132 (14.0%) patients, respectively. Age ≥65 years (p=0.031) and Malaysian Chinese (p=0.008) were associated with a higher bleeding incidence. Conversely, foreigners (p=0.032) and current smoker (p=0.007) were associated with a lower bleeding incidence. Both TIMI major (p<0.001) and TIMI minor (p<0.001) were associated with a higher incidence of in-hospital mortality among STEMI patients. Total bleeding events were not significantly different between STEMI patients with different thrombolytic agents (p=0.104). TIMI minor bleeding was significantly higher in the streptokinase recipients (p=0.009). The bleeding sites were comparable between streptokinase and tenecteplase recipients, except for a significantly higher incidence of gastrointestinal bleeding in the streptokinase recipients (p=0.027).  **Conclusion**  There is no increase in the risk of TIMI major and TIMI minor bleeding following STEMI thrombolysis in our Asian population, but they significantly contributed to mortality.  **Keywords:**  STEMI thrombolysis; bleeding; Emergency Department  Word count: 266 |