



The Prevalence and Risk Factors of Acute Myocardial Infarction (AMI) After Acute Ischemic Stroke (AIS) in the United States

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OBJECTIVES:

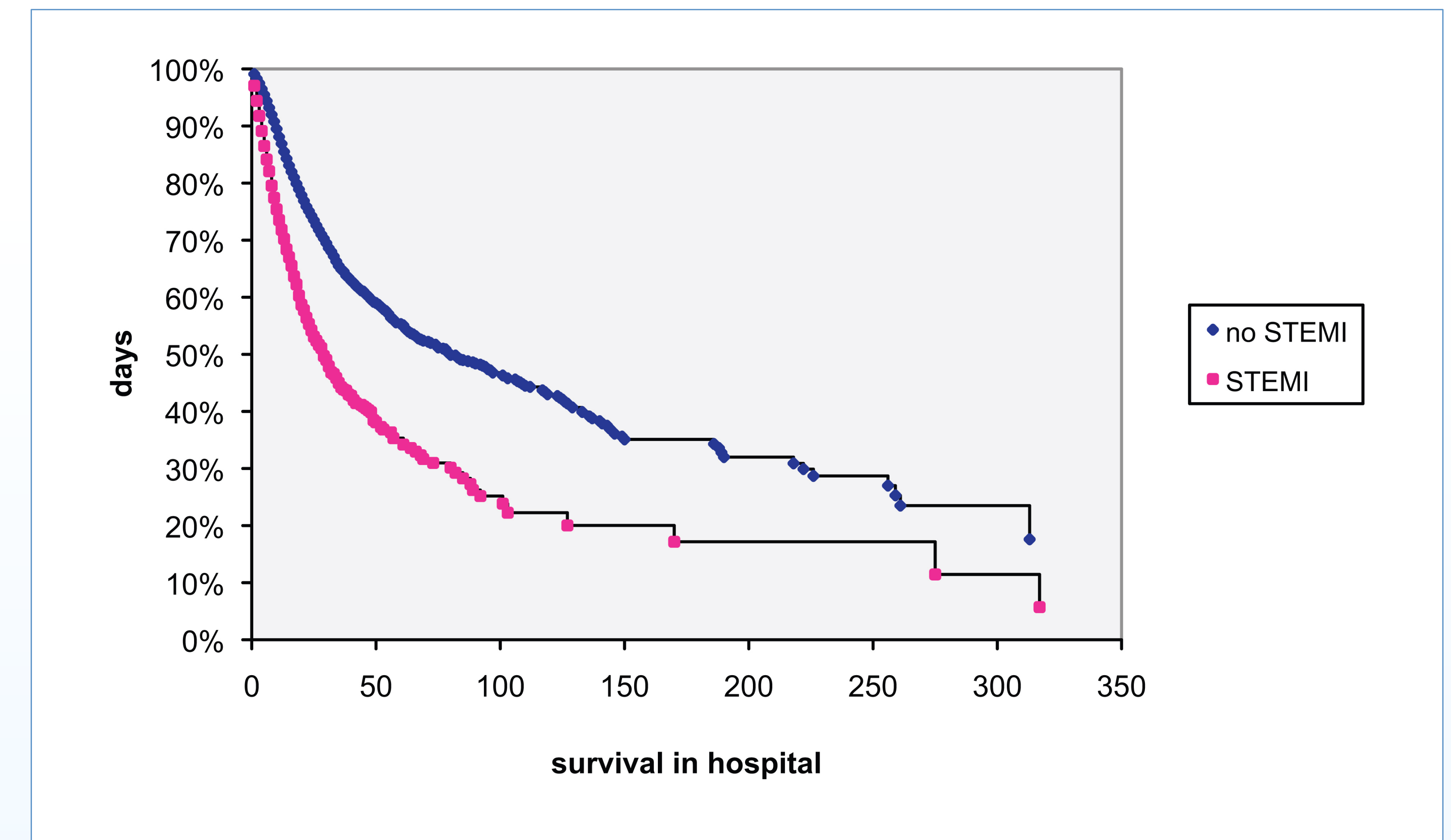
To determine the prevalence and risk factors for, and the association with in-hospital mortality of, AMI after AIS, and to study the effect of intravenous recombinant tissue plasminogen activator (r-tPA) in this setting. We hypothesized that AMI would be associated with lower survival rate at hospital discharge but that intravenous r-tPA would be associated with lower risk of AMI.

METHODS:

Cross-sectional study of data derived from the National Inpatient Sample (NIS) between 2002-2008. We searched for admissions of patients older than 18 years, with a primary diagnosis of AIS, and for those with AMI and those given r-tPA. Definitions were based on the ICD-9CM codes. Prevalence proportions were calculated over study period. Multivariate logistic models were fitted to assess for the impact of AMI on in-hospital mortality, and for r-tPA on AMI. For days to primary outcome (in-hospital mortality) analysis, Kaplan-Meier survival estimates and log-rank tests were used to compare the AMI and no-AMI groups within AIS.

RESULTS:

During study period, NIS recorded 613,174 AIS admissions, of which 10,901 were diagnosed with AMI for a prevalence of 1.7%. In multivariate analysis risk factors for AMI were older age (aOR 1.01, 95% CI,1.01-1.02, $P < 0.0001$), women (aOR 1.1, 95% CI, 1.01-1.12, $P < 0.0001$), r-tPA administration (aOR 1.3, 95% CI,1.2-1.5, $P < 0.0001$), and black race (aOR 0.9, 95% CI,0.89-0.97, $P < 0.0001$). The total cumulative mortality of the cohort was 1.8%. In-hospital mortality was significantly associated with AMI (aOR 3.7, 95% CI,3.5-3.9, $P < 0.0001$), older age (aOR 1.03, 95% CI,1.03-1.03, $P < 0.0001$), women (aOR 1.04, 95% CI,1.02-1.1, $P < 0.0001$), and r-tPA administration (aOR 2.0, 95% CI,1.8-2.2, $P < 0.0001$), and black race vs. white (aOR 0.8, 95% CI,0.8-0.91, $P < 0.0001$). On Kaplan-Meier analysis, the survival fractions for the AMI and no-AMI groups diverged significantly over time in AIS patients (log-rank $p < 0.0001$).



CONCLUSION:

Our study demonstrates that the prevalence of AMI after AIS is small but significantly associated with in-hospital mortality. The significant effect of r-tPA as a risk factor for AMI and in-hospital mortality may be related to unmeasured confounders or interactions within our data deserving further study.

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