

## Association of reperfusion therapy with low in-hospital mortality of patients admitted with Acute Coronary Syndrome in Switzerland between 1997 and 2004

Erne P, Seifert B, Radovanovic D, Duvoisin N, Urban P, Rickli H, Eberli F, Bertel O, for AMIS Investigators

**Background:** Treatment of ACS patients has become more active over the past years. Reperfusion therapy (thrombolysis and PCI) is of benefit to patients with ST-elevation, but for patients with unstable angina and non-STEMI it is less defined.

**Aim:** To assess in-hospital mortality of an unselected population of ACS patients who underwent reperfusion therapy.

**Methods:** All patients documented in the AMIS Plus registry between 1997 through 2004 were included. Odds ratios (OR) of in-hospital mortality were calculated using logistic regression. The TIMI score adapted for AMIS Plus data [area under the ROC curve (AUC) 0.82] included age, diabetes and hypertension, systolic blood pressure, heart rate, Killip class, weight, ST-elevation and LBBB on the initial ECG and delay time. We also performed a propensity score analysis to adjust for covariables that affected the likelihood of performing reperfusion.

**Results:** From 16 151 ACS patients, 46.7% who underwent reperfusion therapy had a relative risk of 0.38 (CI 95% 0.34-0.43;  $p < 0.001$ ) for in-hospital mortality compared to patients without reperfusion therapy. This was true even after adjusting for the TIMI score (0.62; 0.54-0.72;  $p < 0.001$ ). Propensity score for referral to invasive therapy reached an AUC of 79%. The OR adjusted for this propensity score was similar (OR 0.61; 0.51-0.73;  $p < 0.001$ ). After adjusting for the TIMI score, reperfusion therapy significantly decreased hospital mortality in male (OR 0.60, 0.49-0.72;  $p < 0.001$ ) and female patients (OR 0.68, 0.54-0.87;  $p = 0.002$ ). ACS patients  $\leq 65$  years who underwent reperfusion therapy had a relative risk for mortality of 0.57 (0.41-0.81;  $p = 0.002$ ), in the 65-74 year olds of 0.64 (0.47-0.83;  $p = 0.001$ ) and in the patients  $> 74$  years of 0.67 (0.54-0.83;  $p < 0.001$ ). In-hospital mortality of low-risk patients (TIMI score  $\leq 7$ ) was 2.2% and in the high-risk group (TIMI score  $> 7$ ) 19.1%. Reperfusion therapy decreased hospital mortality in the low-risk group (OR 0.51, 0.41-0.62;  $p < 0.001$ ) as well as in the high-risk group (OR 0.81, 0.65-0.99;  $p = 0.05$ ).

**Conclusion:** Our analysis showed that in unselected patients admitted for ACS in Swiss hospitals between 1997 and 2004, thrombolysis and primary PCI were associated with a favourable in-hospital survival. Lower in-hospital mortality associated with reperfusion therapy was found in both sexes, all age groups and low- as well as high-risk groups. Further analyses of the diagnostic subgroups need to be performed.