

Validation of the AMIS risk stratification model for acute coronary syndromes in an external cohort

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Background: We recently reported the development of the AMIS (Acute Myocardial Infarction in Switzerland) risk stratification model for patients with acute coronary syndrome (ACS). This model predicts hospital mortality risk across the complete spectrum of ACS based on 7 parameters available in the prehospital phase. Since the AMIS model was developed on a Swiss dataset in which the majority of patients were treated by primary PCI, we sought validation on an external cohort treated with a more conservative strategy.

Methods: The Krakow Region (Malopolska) ACS registry included patients treated with a non-invasive strategy in 29 hospitals in the greater Krakow (PL) area between 2002–2006. In-hospital mortality risk was calculated using the AMIS model (input parameters: age, Killip class, systolic blood pressure, heart rate, pre-hospital resuscitation, history of heart failure, and history of cerebrovascular disease; risk calculator available at www.amis-plus.ch). Discriminative performance was quantified as “area under the curve” (AUC, range 0–1) in a receiver operator characteristic, and was compared to the risk scores for ST-elevation myocardial infarction (STEMI) and Non-STE-ACS from the TIMI study group.

Results: Among the 2635 patients included in the registry (57% male, mean age 68.2 ± 11.5 years, 31% STEMI) hospital mortality was 7.6%. The AUC using the AMIS model was 0.842, compared to 0.724 for the TIMI risk score for STEMI or 0.698 for the TIMI risk score for Non-STE-ACS (Fig. A). Risk calibration was maintained with the AMIS model over the complete range of risks (Fig. B). The performance of the AMIS model in this cohort was comparable to that found in the AMIS validation cohort ($n = 2854$, AUC 0.868).

Conclusions: The AMIS risk prediction model for ACS displayed an excellent predictive performance in this non-invasively-treated external cohort, confirming the reliability of this bedside “point-of-care” model in everyday practice.

