Outcome of patients with acute coronary syndrome in hospitals of different sizes in Switzerland. A Report from the AMIS Plus Registry

Dragana Radovanovic, Philip Urban, René Simon, Markus Schmidli, Marco Maggiorini, Hans Rickli, Jean-Christophe Stauffer, Burkhardt Seifert, Felix Gutzwiller, Paul Erne for the AMIS Plus Investigators.

Objective: To assess the impact of patient admission in different hospital types in Switzerland on early in-hospital and 1-year outcomes in patients with acute coronary syndrome (ACS).

Methods: From 1997 to 2009, 31,010 ACS patients from 76 Swiss hospitals were enrolled in the AMIS Plus registry. Large tertiary teaching institutions with 24 hour/7 day cardiac catheterization facilities were classified as type A hospitals, all others as type B. One-year outcome was studied in a subgroup of patients admitted after 2005. Multivariate logistic regression models were used to calculate the odds ratios (OR with 95%CI) for independent predictors of mortality and major adverse cardiac events (MACE).

Results: There were 11 type A hospitals with admissions of 15,987 (52%) patients and 65 type B hospitals with 15,023 (48%) patients. Patients initially admitted into B hospitals were older, more frequently female, hypertensive and diabetic, had more severe comorbidities and more frequently NSTE-ACS/UA. They were less likely to receive aspirin, clopidogrel and GPIIb/IIIa antagonists. STE-ACS patients initially admitted into B hospitals received more thrombolysis than those admitted into A hospitals, but less percutaneous coronary intervention (PCI). From the patients admitted to B hospitals, 5271 (35%) were transferred for intervention. Crude in-hospital mortality and MACE were higher in patients from B hospitals. Crude 1-year mortality of 3747 ACS patients followed up was higher in patients initially admitted into B hospitals, but no differences were found for MACE. Hospital type, after adjustment for age, risk factors, type of ACS and co-morbidities, was not an independent predictor of in-hospital mortality (OR 0.94; 0.76-1.16), in-hospital MACE (0.98; 0.82-1.17), 1-year mortality or 1-year MACE (1.06; 0.85-1.33). Analysis of the time of admission indicated a crude outcome in favor of hospitalization during duty-hours but no significant effect could be documented for 1-year outcome.

Conclusion: ACS patients admitted to type B hospitals were older, had more severe co-morbidities, more NSTE-ACS and received less intensive treatment. However, after correcting for baseline inequalities, early and mid-term outcomes were similar regardless of hospital type. Ultimate patient outcome thus does not appear to be influenced by the type of hospital where the initial admission takes place. Appropriate early referral of selected patients probably partly explains this finding.