Identification and characterization of high-risk ACS patients and evaluation of therapies in these cohorts.

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Abstract

Background
Acute coronary care has improved during the last decades, but since 2008, mortality rates after myocardial infarction (MI) has ceased to decline. By individualizing coronary care for high-risk MI patients, who represent the majority of the total mortality burden, mortality rates may further improve.

Aims
Paper 1): To evaluate the prognostic effect of percutaneous coronary intervention (PCI) in cardiac arrest patients without post-resuscitation ST-elevation.
Paper 2): To study the impact of baseline anaemia in MI on 180-day mortality, myocardial reinfarction, and major bleeding.
Paper 3): To compare the efficacy and safety of bivalirudin versus heparin monotherapy in MI patients ≥75 years of age undergoing PCI.
Paper 4): To investigate the performance of the PRECISE-DAPT score for prediction of bleeding events after stent implantation in MI as well as in stable coronary artery disease.

Methods
For paper 1, data were obtained from the SWEDHEART registry, while paper 2 and 3 utilized data from the VALIDATE-SWEDEHEART trial, and paper 4 used both databases. Time-to-event endpoints were analysed using Kaplan-Meier estimates as well as adjusted Cox regression models. The PRECISE-DAPT score was evaluated using receiver operating characteristics curves.

Preliminary results
Resuscitated cardiac arrest patients without ST-elevation had no clear benefit of early PCI. Baseline anaemia identified MI patients with increased 180-day mortality, myocardial reinfarction as well as major bleeding, with a nearly 10 times increased mortality rate with haemoglobin values <100g/L. Bivalirudin was neutral compared to heparin monotherapy in elderly MI patients. No preliminary results are available for the PRECISE-DAPT score.

Significance
Identification of high-risk patients may assist in tailoring the optimal therapy for each individual patient and thereby improve outcomes. A randomized clinical trial recently validated the lack of benefit from early PCI in cardiac arrest without ST-elevation. Baseline haemoglobin may be used for risk stratification. Heparin may be used in not only the general MI population, but also for high-risk elderly patients, instead of the much more expensive drug Bivalirudin. The PRECISE-DAPT score may prove fit to predict bleeding events and thereby determine the optimal duration for dual antiplatelet therapy after PCI.

Published papers
