On secondary prevention after acute coronary syndrome  
-what, when, and who  

Daniel Huber

Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorsexamen framläggs till offentligt förvar i Hörsalen Snäckan, Östersunds Sjukhus, torsdagen den 24 maj, kl. 09:30. Avhandlingen kommer att förvaras på svenska.

Fakultetsopponent: Professor Annika Rosengren, Avdelningen för molekylär och klinisk medicin, Institutionen för medicin, SU Sahlgrenska, Göteborg, Sverige.
Title
On secondary prevention after acute coronary syndrome – what, when, and who.

Abstract
Aims To assess the feasibility and effectiveness of a nurse-led, telephone-based, secondary preventive intervention in an unselected population with acute coronary syndrome (ACS).

Methods All papers are based on the Nurse-based Age-independent Intervention to Limit Evolution of Disease (NAILED) trial. The trial was an open 1:1 randomised controlled parallel group trial that compared annual nurse-led telephone follow-up and medical titration (intervention) to follow-up as usual by a general practitioner (control). All patients admitted at Östersund Hospital for ACS 2010–2014 were eligible if suitable for preventive management through telephone. Baseline assessment was made 1 month after discharge and thereafter every 12 months until at least 3 years. Feasibility was assessed among patients admitted until 31st of January 2013, and predictors of non-participation were identified. The performance of the intervention to implement a guideline change was evaluated in diabetic patients with both ACS and stroke as inclusion events following a change in LDL-C target from <2.5 mmol/L to <1.8 mmol/L. LDL-C levels were compared between intervention and control patients before and after the guideline change. Reasons for not reaching the target were recorded. The outcomes of the intervention on blood pressure (BP) and low-density lipoprotein cholesterol (LDL-C) were studied in patients admitted until 31st of December 2013. We measured proportions reaching targets and levels of LDL-C and BP during the first 12 months of follow-up and compared the intervention and control group. Adherence to statin treatment was measured in the entire study cohort with at least 36 months of follow-up with classification of reasons, and analysis of predictors for both a first and a permanent discontinuation.

Results Of hospitalized and surviving patients, 72.9% were included, 16% excluded and 11% declined participation. Non-included patients were significantly older, with more co-morbidities, decreased functional capability, and a lower level of education compared to included. Before the guideline changed, 96% of patients in the intervention group reached LDL-C <2.5 mmol/L compared to 70% of control group patients. One year after target reduction the same proportions were 65% and 36%, respectively. After baseline medical titration 94.1% in the intervention group achieved target for LDL-C compared to 68.4% in the control group. At the 12-month assessment 77.7% in the intervention group attained the LDL-C target vs. 63.2% in the control group. Regarding BP after baseline titration, 91.9% achieved target for systolic BP and 96.2% for diastolic BP in the intervention group compared to 65.6% respectively 82.0% in the control group. At 12 months 68.9% in the intervention group reached target for systolic BP and 88.1% for diastolic BP, compared to 63.7% and 82.8% in the control group. At 12 months mean systolic BP was 15mmHg and mean diastolic BP 2.1 mmHg lower in the intervention group. In the intervention group 89.3% were adherent to statins compared to 81.7% in the control group over a mean 3.9 years. Main reason for a first discontinuation were in both groups avoidable. Main reason for permanent discontinuation were predominantly non-avoidable in the intervention group but avoidable in the control group.

Conclusion
A nurse-led telephone-based method for secondary prevention can comprehend a large proportion of an ordinary ACS cohort. Compared to usual care it is more adaptable to changes in treatment guidelines, leads to better achievement of major risk factor targets as well as improved adherence to medication.

Keywords
Cardiovascular disease, acute coronary syndrome, secondary prevention, nurse-led, statins, randomized controlled trial.