

Impact of chronic total occlusions, arterial access site, and pretreatment with antiplatelet drugs on mortality in patients with ischemic heart disease:

A report from the SWEDEHEART registry

Akademisk avhandling

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Avhandlingen baseras på följande delarbeten

- I. Råmunddal T, Hoebers LP, Henriques JP, Dworeck C, Angerås O, Odenstedt J, Ioanes D, Olivecrona G, Harnek J, Jensen U, Aasa M, Albertsson P, Wedel H, Omerovic E.
Prognostic Impact of Chronic Total Occlusions: A Report From SCAAR (Swedish Coronary Angiography and Angioplasty Registry)
JACC Cardiovasc Interv. 2016;9:1535-44
- II. Redfors B, Dworeck C, Haraldsson I, Angerås O, Odenstedt J, Ioanes D, Petursson P, Völz S, Albertsson P, Råmunddal T, Persson J, Koul S, Erlinge D, Omerovic E
Pretreatment with P2Y₁₂ Receptor Antagonists in ST-Elevation Myocardial Infarction: A Report from the Swedish Coronary Angiography and Angioplasty Registry
European Heart Journal (2019) Apr 14; 40 (15):1202-1210
- III. Dworeck C, Redfors B, Haraldsson I, Angerås O, Odenstedt J, Ioanes D, Petursson P, Völz S, Albertsson P, Råmunddal T, Persson J, Koul S, Erlinge D, Omerovic E
Pretreatment with P2Y₁₂ receptor antagonists in non-ST-Segment-Elevation Acute Coronary Syndromes: A report from the Swedish Coronary Angiography and Angioplasty Registry
Manuscript
- IV. Dworeck C, Redfors B, Völz S, Haraldsson I, Angerås O, Råmunddal T, Ioanes D, Myredal A, Odenstedt J, Hirlekar G, Koul S, Fröbert O, Linder R, Venetsanos D, Hofmann R, Ulvenstam A, Petursson P, Sarno G, James S, Erlinge D, Omerovic E
Radial Artery Accesses is Associated with Lower Mortality in Patients Undergoing Primary PCI: A Report from the SWEDEHEART registry
Submitted

Impact of chronic total occlusions, arterial access site, and pretreatment with antiplatelet drugs on mortality in patients with ischemic heart disease:

A report from the SWEDEHEART registry

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Abstract

Background: The treatment of ischemic heart disease has advanced substantially in the past half-century. However, despite these achievements, the survival rates in high-income countries such as Sweden have reached a plateau in the last decade. Strategies to further reduce mortality are needed.

Aims: To evaluate the impact of chronic total occlusions, the choice of arterial access site, and pretreatment with P2Y₁₂ inhibitors on mortality in patients with coronary artery disease.

Methods: This thesis is based on observational studies. We used data from the Swedish Web-system for Enhancement and Development of Evidence-Based Care in Heart Disease Evaluated According to Recommended Therapies (SWEDEHEART) registry and the Swedish National Cause of Death Register. All coronary procedures, angiographies and percutaneous coronary interventions (PCIs) performed in Sweden are registered in the SWEDEHEART registry. We used multiple imputation to impute missing data (Papers I–IV), propensity score (PS) matching to adjust for known confounders (Papers II, IV), multilevel models to account for a hierarchical database (Paper II, III, IV), and instrumental variable analysis to adjust for known and unknown confounders (Paper III).

Results: In Paper I, we found an adjusted hazard ratio (HR) of 1.29 for death in patients with a chronic total occlusion (CTO), as compared to patients with coronary artery disease without a CTO. In Paper 2, pretreatment was not associated with better 30-day survival or differences in bleeding in STEMI patients. In Paper 3, pretreatment in NSTEMI-ACS patients was not associated with better 30-day survival but with a higher risk of in-hospital bleeding. In Paper IV, we could show that radial access (RA) in patients undergoing primary PCI for STEMI was associated with a lower risk of death (adjusted odds ratio (OR) 0.70) within 30 days, as compared to femoral access (FA).

Conclusion: The CTOs of coronary arteries are associated with increased mortality. Pretreatment with P2Y₁₂ receptor antagonists is not associated with reduced mortality in patients with acute coronary syndrome, but is associated with increased in-hospital bleeding in NSTEMI-ACS patients. Our findings in Paper II and III add external validity to the findings of randomized trials on the lack of benefits and potential harms of pretreatment. The use of radial artery access for primary PCI in STEMI is associated with reduced mortality in comparison to using FA. The findings in Paper IV support the ESC guideline recommendation for the use of RA in STEMI.

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