

Prognostic Prediction and Treatment of Cardiac Diseases in the Elderly

Akademisk avhandling

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av

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Avhandlingen baseras på följande arbeten:

- I Barywani SB, Lindh M, Ekelund J, Petzold M, Albertsson P, Schaufelberger M, Lund LH, Fu M. Predictors of long-term outcome of percutaneous coronary intervention in octogenarians with acute coronary syndrome. *IJC Heart and Vessels*. 2014; 4: 138-144.
- II Barywani SB, Li S, Lindh M, Ekelund J, Petzold M, Albertsson P, Lund LH, Fu M. Acute coronary syndrome in octogenarians: association between percutaneous coronary intervention and long-term mortality. *Clinical Interventions in Aging*. 2015; 10:1547-1553.
- III Li S, Barywani SB, Fu M. Prognostic significance of mitral regurgitation in long-term all-cause mortality in patients aged ≥ 80 years with acute coronary syndrome. *Int J Cardiol*. 2014; 176: 340-345.
- IV Barywani SB, Ergatoudes C, Schaufelberger M, Petzold M, Fu M. Does the target dose of neurohormonal blockade matter for outcome in Systolic heart failure in octogenarians? *Int J Cardiol*. 2015; 187: 666-672.
- V Sigurjonsdottir R, Barywani SB, Albertsson P, Fu M. Acute coronary syndrome aged ≥ 70 years in the modern era of reperfusion therapy – major adverse cardiovascular events and quality of life after 2 years of follow-up. *Submitted*



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ABSTRACT

Aim The overall aim of this thesis was to study the prognostic prediction and its association with treatment strategies in the elderly patients presenting with acute coronary syndrome (ACS) and left ventricular systolic heart failure (HF).

Methods: A total 353 octogenarians with ACS, 182 patients treated with percutaneous coronary intervention (PCI) and 171 treated without PCI, were consecutively included and retrospectively studied for prognostic predictors of long-term all-cause mortality. Moreover, 140 patients ≥ 70 years were prospectively studied for prognostic predictors for major adverse cardiovascular events (MACE) in patients with ACS referred for coronary angiography. In case of heart failure, 182 octogenarians with left ventricular systolic HF were consecutively included and retrospectively studied for impact of different dose levels of guideline recommended neurohormonal blockades, beta-blockers (BBs) and angiotensin converting enzyme inhibitors (ACEIs)/ angiotensin receptor blockers (ARBs), on long-term mortality.

Results: In ACS-cohorts: Cox-regression analysis of octogenarian patients with ACS treated with PCI showed following factors as independent predictors of 5-year all-cause mortality: atrial fibrillation, mitral regurgitation (MR), tricuspid regurgitation (TR), estimated glomerular filtration rate (eGFR) ≤ 30 ml/min and dependency in activities of daily living. Furthermore, in the overall cohort of octogenarians with ACS, both PCI-treated and non-PCI-treated, PCI was associated with lower 5-year all-cause mortality. At least mild grade MR was associated with higher 5-year all-cause mortality and PCI was associated with improved prognosis even in patients with MR compared with patients with MR treated without PCI. Finally, in a prospective cohort of ACS patients ≥ 70 years referred for coronary angiography, during an average follow-up of 39 ± 11 months, 41% of the patients had one or more MACE and 24% developed post-ACS heart failure. The study cohort had as good quality of life as an age-matched reference population from Swedish normative SF-36 database in both physical health subscales (physical functioning, role physical, bodily pain and general health) and mental health subscales (Vitality, social functioning, role emotional and mental health). The all-cause mortality rate was 10%.

In heart failure cohort: In octogenarians with left ventricular systolic HF treated with highest tolerable doses of neurohormonal blockades, target dose of ACEIs/ARBs were associated with improved 5-year survival rate, despite that this was achievable in only about half of the patients. No significant differences in survival were found between the different doses of BBs; however the heart rate was comparable between the different dose groups.

Conclusion: In elderly patients with ACS, PCI was associated with improved long-term survival despite high age. Several prognostic predictors including MR were identified. Moreover, in the modern era of reperfusion therapy, despite improved quality of life and low mortality rate MACE occurred frequently in elderly patients after ACS indicating further need of tailored care. In octogenarian patients with systolic HF, target dose of ACEIs/ARBs was associated with reduced five-year all-cause mortality, but this dose survival relationship did not find in case of the beta-blockers.

Keywords: acute coronary syndrome, heart failure, percutaneous coronary intervention, elderly, octogenarians, beta-blockers, angiotensin converting enzyme inhibitors, angiotensin receptor blockers, quality of life, major adverse cardiovascular events.

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