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## The impact of comorbidity and age on treatments and outcomes and potential factors influencing treatment decision in patients with Acute Coronary Syndrome

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Acute Coronary Syndrome (ACS) is a major cause of death and hospital admissions of old people. Clinical trials have reported the benefits of Angiotensin-Converting Enzyme Inhibitors (ACEI) and Angiotensin Receptor Blockers (ARB), aspirin, beta-blockers, clopidogrel, and statins for reducing the incidence of morbidity and mortality after ACS, but little is known about the effects of comorbidities and their possible association with re-hospitalizations of ACS patients. The objective of our study was to assess whether there are any associations between the age of patients and re-hospitalization for ACS and between ten relatively common comorbidities-atrial fibrillation, dementia, diabetes mellitus, heart failure, hypertension, hyperlipidemia, liver disease, peripheral vascular disease, renal disease, and schizophrenia and re-hospitalization for ACS. A retrospective cohort study of all patients recorded as hospitalized in Taiwan for ACS between January 1, 2006, and December 31, 2010 was conducted using claims data from the Taiwan National Health Insurance Research Database (NHIRD) 2005-2011. The relationship between use of up to five medications and a re-hospitalization for ACS was analyzed using a multivariable Cox proportional hazards regression model. The study identified 212,110 patients with ACS; the mean age was  $66.0 \pm 12.9$ ; and 34.6% were female. A higher number of medications was found to be associated with lower risk of re-hospitalization for ACS, in particular in the 5-medications group (adjusted HR=0.72, 95% CI: 0.65-0.81, HR=0.72, 95% CI: 0.61-0.85, for men and women respectively). No significant association between a higher number of medications and a decreased risk of re-hospitalization for ACS was seen among the youngest age group (age<45 years old) or the oldest age group (age $\geq$ 75 years old). A non-significant additive effect was found among patients with renal disease, heart failure and dementia. Further research needs to be undertaken to clearly identify the associations between comorbidities, co-medications, gender, age, and treatments and outcomes of patients with cardiovascular diseases, to provide better evidence-based treatment in the coming era of personalized cardiovascular medicine.

### Biography

Zhen-Fang Lin is the Assistant Professor of School of Pharmacy, College of Medicine, National Taiwan University in Taiwan. She holds a PhD in Pharmacy from National Taiwan University and MPH in Public Health from University of Minnesota.

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