Title

The prognostic role of novel plasma biomarkers and coronary physiology in acute coronary syndrome patients

Background

Patient mortality following an acute coronary syndrome (ACS) has reached a plateau during the past decade. Identifying patients at the highest risk holds important implications for their management and follow-up, and might help to further improve outcome.

Research questions and methods

In the first three studies (I-III) we examined the prognostic implications of novel biomarkers following ACS. The fourth study (IV) explores the significance of physiology-guided percutaneous coronary interventions on patient outcome. In (I) and (II) we examined the prognostic role of carbohydrate antigen 125 (CA125) and Fibroblast Growth Factor 23 (FGF23) in 524 ACS patients. CA125 has recently emerged as a prognostic biomarker in heart failure patients and in study (I) we aimed to assess if CA125 also associates with long-term outcome after ACS. Further, we examined the relationship between FGF23, a biomarker of early kidney dysfunction, and long-term prognosis in the same patient population. In study (III), in a cohort of 1204 patients, we will attempt to identify sensitive biomarkers for predicting prognosis in diabetic patients with myocardial infarction.

Coronary revascularization leads to improved outcome in patients with ischemic heart disease. Physiology-guided percutaneous intervention has emerged as a novel strategy to select and treat coronary lesions. However, the prognostic efficiency of this strategy long-term is unknown. In study (IV) we will compare the long-term results following the use of two different such strategies, iFR versus FFR, for guidance of coronary revascularization in 12279 patients.

Preliminary results

(I) We found that CA125 independently associates with long-term adverse cardiac remodeling, heart failure and mortality in ACS patients. Elevated CA125 may identify patients with normal left ventricular function at the time of the acute event, but that are prone to subsequent deterioration. In (II) we found that FGF23 independently associates with long-term incidence of heart failure and poor outcome in ACS patients with normal kidney function. Furthermore, FGF23 was associated with poor left ventricular function at 1 year after the ACS.
Implications

The use of biomarkers and coronary physiology to guide the care of ACS patients may lead to tailored management and potentially an improved prognosis.

(I) and (II) are published as abstracts. (I) is submitted for publication and (II) has been prepared for submission.


T Yndigegn, E Isaksson, A Mokthari, U Ekelund, D Erlinge, A Schiopu, Fibroblast growth factor-23 (FGF23), an early biomarker of subclinical kidney dysfunction, is associated with poor prognosis in acute coronary syndrome patients, *European Heart Journal*, Volume 39, Issue suppl_1, August 2018,