Abstract: P6437

Growth differentiation factor-15 and stromal cell-derived factor-1 as long-term prognosis biomarkers in acute coronary syndrome

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Topic(s):
Acute Coronary Syndromes – Prevention

Citation:
Introduction: After an acute coronary syndrome (ACS) patients are at high risk of cardiovascular morbidity and mortality. In this scenario, Growth differentiation factor-15 (GDF-15) and Stromal cell derived factor-1 (SDF-1) has been reported as potential biomarkers in ACS. However, there is limited data about their combined use in long-term prognosis.

Purpose: To study the long-term prognostic value of GDF-15 and SDF-1 in ACS.

Methods: We included patients with ACS who underwent coronary angiography. During angiography an arterial blood sample was collected. Plasma SDF-1 and GDF-15 were measured and clinical data and long-term events were obtained. The cut-off point of SDF-1 and GDF-15 was identified individually by receiver operating characteristic curves. Patients were classified into 3 groups: 1) both biomarkers below cut-off points; 2) only one biomarker above cut-off points; 3) both biomarkers above cut-off points.

Results: A total of 238 patients were included. The median (IQR) age was 64 (55–74) year and 27.3% were female. Of all patients, 60.9% were admitted with non-ST-elevation myocardial infarction, 22.7% with ST-elevation myocardial infarction and 16.4% with unstable angina. The cut-off point of SDF-1 was 3283.5pg/mL and GDF-15 was 1849ng/L. A total of 127 patients were in group 1, 64 in group 2 and 47 in group 3. Group 3 patients were associated with older age, hypertension, dyslipidemia, diabetes mellitus and history of myocardial infarction (MI), stroke, chronic kidney disease and peripheral artery disease. Besides, they were more likely to have left ventricular dysfunction (ejection fraction <40%) and significant three vessels stenosis. During 6.5 years of follow-up 8 patients died (6.3%) in group 1, 7 patients died (10.9%) in group 2 and 25 patients died (53.2%) in group 3 (Figure 1). Multivariate Cox analysis showed that high levels of SDF-1 and GDF-15 (group 3) were an independent predictor of all-cause death (HR 5.8; 95% CI 2.4 - 14.1; p<0.001) and the composite of major adverse cardiovascular events (MACE) which were identified as all-cause death, nonfatal MI and heart failure (HR 3.9; 95% CI 2.1 - 7.3; p<0.001). During follow-up 1 patient had heart failure in group 1 (0.8%), 3 patients (4.7%) in group 2 and 9 patients (19.1%) in group 3. Despite the low number of events of heart failure, the multivariate competing risks regression showed association between group 3 and heart failure during follow-up (HR 28.0; 95% CI 3.5 - 225.2; p=0.002). Higher levels of SDF-1 and GDF-15 (group 3) were not associated with new MI in multivariate competing risks regression. Regarding group 2, all multivariate analyses were non-significant.

Conclusions: Higher values of combined GDF-15 and SDF-1 are an excellent predictor of all-cause death, MACE and heart failure in long-term follow-up of patients with ACS. The combined use of SDF-1 and GDF-15 may be useful in long-term ACS prognosis.
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