

Usefulness of combined high-sensitive C-reactive protein and N-terminal-probrain natriuretic peptide for predicting cardiovascular events in patients with suspected coronary artery disease.

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摘要

Abstract

OBJECTIVE: We examined whether the combined use of high-sensitive C-reactive protein (hsCRP) and N-terminal-probrain natriuretic peptide (NT-proBNP) could increase the predictive value for future cardiovascular events. **BACKGROUND:** hsCRP and NT-proBNP both have been shown to be strong predictors of cardiovascular events in patients with coronary artery disease. Few data are, however, available to assess whether combined use of these two distinct biomarkers improves the risk stratification in predicting cardiovascular events. **METHODS:** A total of 205 participants with suspected coronary artery disease referred for coronary angiography were enrolled in the study. Plasma levels of hsCRP and NT-proBNP were measured before coronary angiography. Cox regression analyses were conducted for the 205 participants, with cardiovascular events being defined as nonfatal myocardial infarction, percutaneous coronary intervention, coronary artery bypass grafting, and ischemic stroke. **RESULTS:** All patients were divided into four groups by using median values of hsCRP (1.1 mg/l) and NT-proBNP (472.6 fmol/ml): group 1, low hsCRP/low NT-proBNP (n=60); group 2, high hsCRP/low NT-proBNP (n=42); group 3, low hsCRP/high NT-proBNP (n=42); and group 4, high hsCRP/high NT-proBNP (n=61). During a median follow-up of 4 years, there were 84 cardiovascular events (41%): 11 events (18%) in group 1, 13 events (31%) in group 2, 20 events (48%) in group 3, and 40 events (66%) in group 4 (P<0.001). Patients with cardiovascular

event had significantly attenuated flow-mediated vasodilation (3.6+/-3.4 vs. 5.3+/-3.5%, P=0.001) and increased plasma levels of NT-proBNP (627+/-330 vs. 458+/-196 fmol/ml, P<0.001). Simple linear regression analysis on all studied participants demonstrated significant associations between levels of hsCRP and NT-proBNP (hsCRP vs. NT-proBNP: r=0.354, P<0.001). Cox regression hazards model showed that combined use of NT-proBNP and hsCRP significantly increased predictive value for future cardiovascular events [hazard ratio (HR) 4.922, 95% confidence interval (CI), 2.519-9.617; P<0.0001 for high hsCRP/high NT-proBNP vs. low hsCRP/low NT-proBNP]. CONCLUSION: These findings demonstrated that a simple combination of distinct biomarkers of hsCRP and NT-proBNP might provide additional information for predicting cardiovascular events.