Association of C-reactive protein and myocardial perfusion in patients with ST-elevation acute myocardial infarction

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This study sought to evaluate the relation between C-reactive protein (CRP) on admission of patients with acute myocardial infarction (AMI) and myocardial perfusion as defined by postintervention angiographic myocardial blush grade (MBG) and their impact on subsequent mortality. The patient population comprised 191 consecutive patients with AMI undergoing PTCA within 12h of symptom onset on a native vessel. Patients were divided based on the CRP level on admission (Rolf Greiner BioChemica, Germany, cutpoint for the assay CRP: 5mg/l) into a group with elevated CRP (≥5mg/l) and a group with normal CRP. Angiographic myocardial blush grade (MBG) after revascularization of the infarct-related artery was determined to evaluate myocardial reperfusion. Revascularization of the infarct-related artery was successful in 176 (92.6%) patients. The frequency of impaired perfusion (MBG 0-2) was higher in the elevated CRP group than in the normal CRP group (74.5% versus 59.7%, respectively, p=0.046). Elevated CRP on admission was an independent predictor of impaired myocardial perfusion (MBG 0-2, OR 1.92, 95% CI 1.02-4.01, p=0.042) in addition to age >70 years. Elevated CRP (OR 2.64, 95% CI 1.26-5.53, p=0.009) and MBG 0-2 (OR 4.58; 95% 1.73-12.20, p=0.002) were independent predictors of mortality during a 22.4+/−15.3 months follow-up in addition to heart rate on admission >100 beats/min (OR 3.07; 95% CI 1.30-7.25, p=0.009). In sequential Cox models, the predictive power of clinical data and MBG for mortality (model chi-squared 18.3) was strengthened by the inclusion of CRP levels (model chi-squared 24.3). In conclusion, there is a relation between elevated admission CRP and impaired reperfusion in the myocardium subtended to the infarct-related artery. The combination of clinical data, myocardial reperfusion levels after primary angioplasty for AMI and admission CRP increases the predictive value for subsequent survival.

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