Respiratory rate predicts outcome after acute myocardial infarction: a prospective cohort study.

Abstract:
Risk stratification after acute myocardial infarction (MI) remains imperfect and new indices are sought that might improve the post-MI risk assessment. In a contemporarily-treated cohort of acute MI patients, we tested whether the respiratory rate provides prognostic information and how this information compares to that of established risk assessment. A total of 941 consecutive patients (mean age 61 years, 19% female) presenting with acute MI were enrolled between May 2000 and March 2005. The last follow-up was performed May 2010. Main outcome measure was total mortality during a follow-up period of 5 years. Patients underwent 10-min resting recordings of the respiratory rate within 2 weeks after MI in addition to the measurement of the left ventricular ejection fraction (LVEF) and standard clinical assessment including the GRACE score. During the follow-up, 72 patients died. The respiratory rate was a significant predictor of death in univariable analysis (hazard ratio 1.19 per 1/min, 95% confidence interval: 1.12-1.27) as was the GRACE score [1.04 (1.03-1.05) per point], LVEF [0.96 (0.94-0.97) per 1%], and the diagnosis of diabetes mellitus [2.78 (1.73-4.47)], all P < 0.0001. On multivariate analysis, the GRACE score (P < 0.0001), respiratory rate (P < 0.0001), LVEF (P = 0.013), and diabetes (P = 0.016) were independent prognostic markers. The respiratory rate provides powerful
prognostic information which is independent and complementary to that of existing risk assessment. Simple and inexpensive assessment of the respiratory rate should be considered a complementary variable for the assessment of risk after acute MI.