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Manual of Hypertension

of the European Society of Hypertension

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Its predictive value was similar to that of R-R variability on spectral analysis. On which day after acute myocardial infarction heart rate has the greatest predictive power for mortality is not well known. According to the results of a study in a population of patients admitted to three hospitals in Italy, the predictive power of heart rate after admission increased progressively during the first week after admission to peak at the end of the week (35).

High heart rate has been found to be associated with cardiovascular mortality in patients with stable angina also (36). In an analysis of the Coronary Artery Surgery Study (CASS) performed in patients with chronic coronary artery disease divided into quintiles of resting heart rate, Diaz et al. found a close association of heart rate with mortality irrespective of age, gender, or previous cardiovascular disease (37). The relationship between heart rate and cardiovascular outcomes was investigated also in the placebo arm of the morBidity-mortality EvaAlUaTion of the If inhibitor ivabradine in patients with coronary disease and left ventricULar dysfunction (BEAUTIFUL) trial, a large cohort of patients with stable coronary artery disease and left ventricular dysfunction (38). Patients with heart rates of 70 bpm or greater had an increased risk for cardiovascular death, admission to hospital for heart failure, admission to hospital for myocardial infarction, and coronary revascularization between 60 and 70 bpm (18%), 71–90 bpm (20%), and >90 bpm (35%). High resting heart rate was an independent risk factor for mortality both in patients with and without beta-blocker treatment, indicating that beta-blocker use was not the explanation for the heart rate–mortality relationship. In the Danish Investigations and Arrhythmia ON Dofetilide (DIAMOND) study, the long-term prognostic importance of resting heart rate was investigated in patients hospitalized with left ventricular dysfunction in connection with either heart failure or myocardial infarction (44). During 10 years of follow-up, 72% of patients with myocardial infarction and 89% of those with heart failure died. In multivariable-adjusted models, baseline heart rate was associated with an increase in mortality in both patients with myocardial infarction and heart failure. In this study, the importance of resting heart rate on short-term prognosis was stronger in the myocardial infarction patients than in the heart failure patients ($P < 0.0001$ for interaction).

FOLLOW-UP HEART RATE IN CLINICAL STUDIES

In most epidemiologic studies, the association with cardiovascular outcomes or mortality was investigated only

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