

## Determining Factors that Influence Heart Rate Recovery (HRR) Result on Treadmill Stress Test

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### Abstract

**Introduction:** Stress exercise electrocardiogram is a valid diagnostic and prognostic tool for cardiovascular disease. It has been also demonstrated that heart rate profile during and after exercise reflects cardiac sympathetic and parasympathetic activation. Autonomic nervous system abnormalities are strongly related to increased cardiovascular morbidity and mortality. More specifically, heart rate recovery (HRR) after exercise is a valid index of parasympathetic function and a strong predictor of cardiovascular mortality

**Methods:** Retrospective study, using data of cardiac treadmill stress of Saiful Anwar Hospital from November 2016 – May 2017 included 109 patients with positive ischemic response result, 40-65 year old and elderly patients. Statistical analysis was performed using SPSS version 21. The chi-square and Fisher exact test were used to compare the category variables based on patient characteristics on heart rate recovery. The p value <0.05 was considered significant.

**Results:** Patients were divided according to univariable basic characteristics by age, sex, obesity, smoker, using of beta blocker, diabetes mellitus, heart failure, hypertension, dyslipidemia, and chronotropic incompetence. Heart failure (OR 4.9388, p = 0.000697) and using of beta blocker (OR 1.0157, p = 0.0019) were a significant independent predictor of abnormal HRR after exercise test, whereas age (OR 3.54, p = 6.646), sex (OR 0.7718, p = 0.3478), smoker (OR 0.7413, p = 0.5084), dyslipidemia (OR 0.5116, p = 0.1462), diabetes mellitus (OR 1.9173, p = 1.9615), hypertension (OR 1.3325, p = 0.4622), obesity (OR 1.4249, p = 0.3506), and chronotropic incompetence (OR 0.294, p = 11.108) were not a predictor of HRR

**Conclusion:** Heart failure and using of beta blocker were significant predictors of abnormal HRR after exercise test

**Keywords:** Heart rate recovery; Risk factor; Exercise test