

Chronotropic Incompetence: What Is a Modifiable Risk Factor?

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Abstract

Introduction: The heart rate will increase according to the load given which indicates the response of the sinoatrial node (SA) to the sympathetic drive. Chronotropic incompetence is the chronotropic index does not reach 80% or does not reach 62% for those using beta blockers at the peak of an adequate cardiac exercise test. Several studies support the use of chronotropic incompetence as risk stratification. Symptomatic subjects with chronotropic incompetence have a 2-year mortality risk of 1.84 to 2.19 times greater than without chronotropic incompetence. It is not yet known whether chronotropic incompetence is a modifiable risk factor and therefore an independent predictor of chronotropic incompetence determinants is necessary.

Methods: Retrospective studies using the data of cardiac treadmill stress test of Saiful Anwar Hospital since November 2016 - May 2017 included 598 patients. Statistical analysis was performed using SPSS version 21. The chi-square and Fisher exact tests were used to compare the category variables based on patient's characteristics on chronotropic incompetence. The p value <0.05 was considered significant.

Results: Patients were divided according to univariable basic characteristics by age, gender, ischemic response, diabetes mellitus, heart failure, and hypertension. Gender (OR 1.38, p = 0.03) and age (OR 1.7, p=0.009) were a significant independent predictor of chronotropic incompetence (OR 1.38, p = 0.03), whereas ischemic response (OR 0.53, p = 0.00), heart failure (OR 0.52, p = 0.002), diabetes mellitus (OR 0.34, p = 0.000) and hypertension (OR 0.9, p = 0.04) were not a predictor of chronotropic incompetence.

Conclusion: Chronotropic incompetence is a strong risk factor for mortality, where chronotropic incompetence is an unmodifiable risk factor.

Keywords: Chronotropic incompetence; Risk factor; Mortality