

Diagnostic Value of Addition First One Minute Abnormal Heart Rate Recovery After Exercise Treadmill Test in Moderate Risk Duke Treadmill Score to Detect Severe Coronary Artery Lesion in Patient Suspected Stable Coronary Artery Disease

Nurkusumasari N*, Arso IA, Setianto BY

Department of Cardiology and Vascular Medicine, Faculty of Medicine Universitas Gadjah Mada, Yogyakarta, Indonesia

*corresponding author: dr.nanda.nn@gmail.com

Abstract

Background: Duke Treadmill Score (DTS) and first one minute abnormal heart rate recovery (HRR) after exercise treadmill test have been found to stratificate prognostic and have diagnostic value in predicting severity of coronary arteries involvement in ischemic heart disease patients. However, accuracy of moderate risk DTS for detecting severe coronary lesion only 31% and there has been no research on additional first one minute abnormal heart rate recovery after exercise treadmill test in moderate risk DTS to detect severe coronary artery lesion in patient suspected stable coronary artery disease.

Methods: This study was a cross sectional study in Dr. Sardjito Hospital using data from January 1st, 2012. Patients with positive moderate risk DTS after treadmill test that were performed coronary angiography and meet inclusion and exclusion criterias were included in the study. Duke treadmill score and first one minute abnormal HRR assessment based on exercise treadmill test results and severity of coronary lesions based on the results of coronary angiography. Statistical analysis was performed to determine the diagnostic value of addition first one minute abnormal HRR after exercise treadmill test in moderate risk duke treadmill score to detect severe coronary artery lesion in patient suspected stable coronary artery disease

Results: There were 174 patients with mean age 57.37 ± 7.41 years consisting of 128 male subjects (74%) and 46 female subjects (28%) with the highest risk factor is hypertension consist of 118 subjects (68%). Subjects with severe coronary lesions and first one minute abnormal HRR are 62 subjects. In this study, the diagnostic value of addition first one minute abnormal HRR after exercise treadmill test in moderate risk duke treadmill score to detect severe coronary artery lesion in patient suspected stable coronary heart disease has sensitivity 67%, specificity 55%, positive predictive value 62.6%, negative predictive value 60%, and accuracy of 61.5%.

Conclusions: Addition first one minute abnormal HRR criteria after exercise treadmill test in moderate risk duke treadmill score to detect severe coronary artery lesion in patient suspected stable coronary heart disease has weak diagnostic value, but it able to increase the accuracy in detecting coronary lesions.

Keywords: Stable coronary heart disease; exercise treadmill test; moderate risk Duke Treadmill Score; abnormal first one minute heart rate recovery; severe coronary artery lesion.