# Additional diagnostic parameter for coronary artery disease during exercise test: Heart rate recovery

To the Editor,

We read with great interest the manuscript written by Akyüz et al. (1), entitled "Heart rate recovery may predict the presence of coronary artery disease," in the June issue of Anatolian Journal of Cardiology 2014;14:351-6. In that study, they investigated whether post-exercise first-minute abnormal heart rate recovery (HRR1) helps to predict the presence and severity of coronary artery disease (CAD) (1). They found that abnormal HRR, which was defined as ≤21 beats in the sitting position during the first minute of the recovery period, had moderate sensitivity and low specificity for predicting the presence of CAD. However, abnormal HRR was not predictive of the severity of CAD.

HRR after graded exercise is one of the commonly used parameters to reflect autonomic activity. Abnormal HRR might be attributable to a defect in sympathetic withdrawal, parasympathetic reactivation, or both. Because these changes correlate with an increased risk of death, it has been hypothesized that an abnormal HRR would similarly predict increased mortality. Chaitman et al. (2) showed that the mechanism of increased mortality associated with abnormal HRR might be related more to autonomic dysfunction than to the presence or extent of CAD. On the other hand, Kizilbash et al. (3) suggested that blunted HRR was associated with several risk factors of CAD. In addition, Gera et al. (4) found that abnormal HRR was also associated with a high prevalence of CAD, left ventricular dysfunction, and composite high-risk myocardial perfusion imaging findings. In concordance with the basic findings of the study by Akyüz et al. (1), they also suggested that abnormal HRR alone, noted on stress testing, might warrant further evaluation for suspected CAD. When this relationship of abnormal HRR with CAD is taken in an opposite way, there are studies supporting this relationship. It has been shown that various programs that have been performed to control underlying CAD or rehabilitation of a CAD patient improve HRR. Tsai et al. (5) found that patients who were enrolled in a cardiac rehabilitation program after undergoing coronary artery bypass graft surgery had significantly higher HRR values compared to the control group.

In conclusion, although HRR and CAD prediction are and will further be a topic of hot debate, such an index, which can very easily be obtained during exercise stress test, can be used as a diagnostic parameter, in addition to the more commonly used parameters, including ST-segment depression, typical chest pain, or hypotensive response.

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