Pak Heart J

EXERCISE TESTING BEYOND ST- CHANGES

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Contribution
GI conceived the idea of editorial, conducted literature review, and drafted manuscript.

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Coronary artery disease is the leading cause of death in developed, developing and underdeveloped countries. Screening for any chronic diseases including coronary artery is always a complex problem, although over the years different screening tools are being validated.[1]

Exercise testing plays a major role in risk stratification of asymptomatic adults in reference to ST changes during exercise, other parameters which are always neglected but can be used efficiently are heart rate recovery, chronotropic response, functional capacity, and ventricular ectopy. AHA/ACC have debilitated the utilization of exercise testing as a screening apparatus.[2] The rules suggest the estimation of activity testing in following subset of individuals:

Understanding with patients with different risk factors for CAD for whom hazard decrease treatment should be guided, diabetes' patients who are anticipating an activity program, and in men 45 years of age and ladies 55 years of age who are in danger for CAD due to other diseases, for example, peripheral atherosclerosis and chronic renal disease and who intend to begin overwhelming activity programs and are engaged with high-risk occupations.[3]

Measurement of functional capacity is the most important risk marker which can be evaluated with Exercise tolerance test. Framingham Heart Study (population-based) and Cleveland Clinic Preventive Medicine Program (clinically based) studies of asymptomatic individuals have shown that functional capacity measured at exercise testing predicts risk better then both Framingham and Cleveland risk scores.[4,5]

The other significant marker is Chronotropic ineptitude which can be surveyed during exercise tolerance test by estimating the peak HR showing what extent of age predicted maximal HR is accomplished, and what extent of HR reserve is utilized at peak exercise (Peak HR-resting HR)/(220 - age - resting HR) Value of ≤ 0.80 higher risk.[6]

HR recovery indicates the decline in HR after exercise and can be measured as difference between HR at peak exercise and 1 or 2 min later. Abnormal value ≤ 12 after one minute of recovery, reflected impaired vagal tone, which is in itself predictor of risk of death in several epidemiological studies.[7,8]

Last but not the least ventricular ectopy occurring during or in recovery period of exercise test also has a prognostic value in term of reflection on electrical instability and altered autonomic tone. As of recently published meta-analysis suggests, ventricular ectopy occurring during exercise in the general population increase the risk of total mortality and cardiovascular mortality. Nine studies involving 62,488 members contrasting clinical results of patients with and without work out actuated VPCs were incorporated. Ventricular ectopy during recuperation was related with an expanded danger of death (RR 1.55, 95% CI 1.22 to 1.96). VPCs during exercise didn't accomplish measurable criticalness (RR 1.14, 95% CI 0.96 to 1.34).[9]

Taking everything into account, non-electrocardiographic measures, including HR recovery, chronotropic response, functional capacity, and ventricular ectopy, have been appeared to anticipate adverse events in asymptomatic individuals, and despite the fact that exercise testing measures have been appeared to improve the forecast of coronary artery events far beyond the Framingham Risk Score. There is no evidence that adding up this information improves the results. Applied to individuals at high risk might give us appropriate results for risk stratification.

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