HYPERTENSION, LIPIDS AND PREVENTION

RELATIONSHIP BETWEEN CHANGES IN HEART RATE RECOVERY AFTER CARDIAC REHABILITATION ON CARDIOVASCULAR MORTALITY IN PATIENTS WITH MYOCARDIAL INFARCTION

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Monday, March 15, 2010, 3:30 p.m.-4:30 p.m.

Session Title: Physical Activity and Exercise Therapy
Abstract Category: Risk Reduction and Rehabilitation
Presentation Number: 1187-117

Authors: *Siu Han Jo Jo Hai*, *Pak-Hei Chan, Kelvin Chan, Simon Lam, Chung-Wah Siu, Hee-Hwa Ho, Sheung-Wai Li, Hon-Wah Chan, Stephen Lee, Hung-Fat Tse, Queen Mary Hospital, Pokfulam, Hong Kong*

Background - Heart rate recovery, defined as the fall in heart rate during the first minute after exercise, is a measure of the autonomic control of the cardiovascular system. It could be modified by exercise training, and was found to be an independent predictor of all-cause mortality in various populations. However, the relationship between improvement in heart rate recovery and clinical outcomes after myocardial infarction remains unclear. The purpose of this study was to evaluate the effect of exercise training on heart rate recovery in patients with prior myocardial infarction & the impact of change in heart rate recovery on their prognosis.

Methods - 386 consecutive patients with confirmed myocardial infarction who had completed Phase II of our Cardiac Rehabilitation Program with entry and exit symptom-limited exercise stress tests performed were prospectively followed up. Clinical and exercise stress test parameters as predictors of cardiac death were tested in a multivariate Cox regression model.

Results - During the 78 ± 40.5 month follow-ups, 40 patients died of cardiac events (10.4%). Exercise training was associated with improvement in exercise capacity (5.4 ± 3.2 METs to 7.2 ± 3.4 METs, p = 0.000), heart rate recovery (17.5 ± 10.0 bpm to 19.0 ± 12.3 bpm, p = 0.011) and left ventricular ejection fraction (46.5 ± 9.9 % to 52.1 ± 13.4 %, p = 0.000). In multivariate analysis, the presence of diabetes mellitus (HR 2.47, 1.06-5.76, p = 0.036), use of statins (HR 0.35, 0.16-0.79, p = 0.011), resting heart rate ≥65bpm (HR 5.00, 1.25-19.95, p = 0.023), and parameters measured upon completion of phase II including left ventricular ejection fraction ≤30% (HR 4.20, 1.20-14.77, p = 0.025), heart rate recovery <12bpm (HR 2.67, 1.15-6.21, p = 0.022), and exercise capacity ≤4METs (HR 4.28, 1.31-13.98, p = 0.016) were found to be independent predictors of cardiac death.

Conclusion - Heart rate recovery improved with exercise training, and the modified heart rate recovery predicted cardiac death in patients with prior myocardial infarction.