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Title: Ventilatory and haemodynamic noninvasive assessment during resistance exercise in coronary arterial disease patients

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Body: Background: Studies have shown that resistance exercise (RE) the anaerobic threshold (AT) is 30% of maximal repetition (MR) in elderly, which would be a safe intensity of RE in this population and cardiac patients. RE have been applied in moderate to high intensities in order to increase muscle strength in CAD patients. However, the magnitude of ventilatory, metabolic and cardiovascular responses were not compared in these intensities (AT - moderate-to-high). Objectives: Compare ventilatory, cardiovascular and metabolic responses during discontinuous exercise testing (DRET) at AT vs maximal sustained load (MSL) obtained. Methods: Fifteen patients with CAD performed DRET until MSL of peripheral muscles on a leg press 45. Respiratory gas exchange (VO₂, VCO₂) and haemodynamic variables (heart rate (HR), cardiac output (CO), systolic volume (SV), cardiac index (CI)) were measured by cardioimpedance. Systolic (SBP) and diastolic blood pressure (DBP), dyspnea scores and ectopic beats were compared. Results: AT was obtained at 30% RM. As expected, ventilatory responses were higher in 60% than 30%. HR was 44,9% higher in 60% as well as CO (11%), SV (56%), CI (53%) and double product was 47% when compared to 30%. SBP, DBP and Borg magnitude were higher in the 60% when compared with 30% (P<0.05). Additionally, was found high incidence of ectopic beats in the 60% while it was not found in the 30%. Conclusion: RE at AT promote more attenuated ventilatory and haemodynamic changes and no ectopic events when compared in intensities above AT, which can confer safety during RE in CAD patients. FINANCIAL SUPPORT: FAPESP (2011/20074-3 and 2009/01842-0).