Abstract 86475

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Abstract Content

Purpose: Impaired heart rate (HR) reduction during the post-exercise period has been associated with autonomic dysfunction and poor prognosis. We tested the hypothesis that HR reduction after cardiopulmonary exercise test up to exhaustion would be lower in anabolic androgenic steroids users (AASU) when compared with anabolic androgenic steroids nonusers (AASNU). In addition, we tested whether there was an inverse correlation between HR reduction and sympathetic nerve activity.

Methods: Eight AASU and 7 AASNU involved in strength training participated in the study (30±3 vs. 29±3 age, P=0.82). The use of anabolic androgenic steroids was determined by urine test (chromatography-mass spectrometry). Cardiopulmonary exercise test was performed on motor treadmill using ramp protocol. Heart rate was evaluated by a 12 leads EKG. Muscle sympathetic nerve activity (MSNA) was directly measured by microneurography technique.

Results: Peak oxygen consumption was lower in AASU when compared with AASNU (45±2.27 vs. 52±1.85 ml/kg/min, P=0.04). Peak HR was not different between groups (189±3 vs. 184±2 bpm, P=0.28). Similarly, there were no significant differences in peak respiratory exchange ratio between AASU and AASNU (1.26±0.05 vs. 1.26±0.03, P=0.96). The reduction in HR at the first and second minute of recovery was lower in AASU than AASNU (18±2 vs. 26±1 bpm, P=0.003; 34±4 vs. 43±1 bpm, P=0.04, respectively). MSNA was higher in AASU than AASNU (29±3 vs. 20±1 bursts/min, P=0.001). Further analysis showed an inverse correlation between MSNA and HR recovery (r= 0.64, P=0.02).

Conclusion: The impairment in vagal recovery during the post-exercise period and the increased MSNA are consistent with autonomic dysfunction in AASU. In addition, these findings are suggestive of increased cardiovascular risk in AASU.