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Effect of anabolic-androgenic steroids on the activity of rennin-angiotensin-aldosterone system, echocardiography parameters and on the body mass in body builders

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This study was performed in groups of body builders: Group I (18 subjects) in whose metabolites of anabolic-androgenic-steroids (AAS) were detected in urine, and Group II (22 subjects) where no AAS were found in urine. Echocardiography parameters, aldosterone, rennin activity in plasma and AAS metabolites in urine were measured. The results of both groups of body builders were compared with those obtained in 30 cyclists and 26 rowers (no AAS detected). It was found that plasma aldosterone level in body builders correlated well with the heart echocardiography parameters, body mass index (BMI) and with the activity of serum angiotensin converting enzyme (ACE). No such relationship existed in tested rowers and cyclists. These groups were characterised by statistically significant relation between aldosterone level in blood plasma and the rennin plasma activity (ARO) which, on the other hand, was not found in the groups of body builders. The correlation between aldosterone level and the rennin blood plasma activity in cyclists and rowers might be an effect of strong stimulation of RAAS (higher in cyclists than rowers) resulting from the intense physical effort. Lack of such relation in body builders might be caused by a stronger tissue activation of the RAAS modifying aldosterone activity and bringing in result an increase in body mass and left ventricle hypertrophy. Results of the study suggest, therefore, that supra-physiological doses of AAS could enhance tissue activity of the rennin-angiotensin-aldosterone system (RAAS) what, with coincidence, of other pathogenic factors (i.e.: inflammatory states, toxic substances, injuries, great stress) may play an important role in the process of pathogenesis of the cardiovascular disorders leading to a sudden heart attacks.

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