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URINARY BETA-N-ACETHYLGLUCOSAMINIDASE ACTIVITY DURING STRESS TOLERANCE TEST IN INDIVIDUALS WITH EXERCISE INDUCED PROTEINURIA

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Background: Exercise induced proteinuria is a type of asymptomaticproteinuria and represent a common condition in school-age children and teenagers, related with increased physical effort. The aim of this study was to assess the variability of urinary protein excretion and beta-N-acethylglucosaminidase activity (beta-NAG) during stress tolerance test in young individuals with exercise induced proteinuria.

Methods: Theevaluation of the changes in qualitative and quantitative composition of urinary proteins, with SDS-PAG electrophoresis, in young individuals 7-24 years old, enabled us detection of subjects with exercise induced proteinuria. Five urinary samples were used excreted during stress tolerance test: two samples of first morning urine, two samples of daily urine and one sample of urine excreted after physical effort. The activity of the enzyme beta-NAG, a sensitive marker of tubular damage, was determined in all five urinary samples in 30 individuals with and 20 without exercise induced proteinuria, aged matched. Beta-NAG activity and creatinine concentration in urine samples were determined using spectrophotometric methods. Enzyme activity was expressed in U/g creatinine.

Results: In subjects with and without orthostatic proteinuria, the highest mean values for beta-NAG activity were detected in second morning urinary samples (4.4 U/g creatinine) and the lowest mean values were detected in samples excreted after physical effort (3.3 U/g creatinine). Besides variations in beta-NAG activity in five samples urine excreted during stress tolerance test, the activity of beta-NAG in all individuals were within the reference intervals.

Conclusion: The results lead to conclusion that there is no significant tubular damage in individuals with exercise induced proteinuria.