P-131

A New Biochemical Marker in Diagnosis of Acute Rheumatic Fever: Ischemia Modified Albumin

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Introduction: Ischemia modified albumin (IMA), as measured using the albumin cobalt binding test, is currently the most promising biomarker for early detection of cardiac ischemia. The purpose of this study was to assess the role of IMA in diagnosis of acute rheumatic fever (ARF) and also to evaluate the IMA levels in children with chronic rheumatic and congenital valve diseases.
Methods: The study groups, aged 5-18 years, consisted of 40 children with ARF, 35 children with congenital valve disease, 33 children with chronic rheumatic heart disease (CRHD) and 20 healthy age-matched control subjects. The group of ARF was divided in three groups according to modified Jones Criterias. The IMA levels were compared among groups and also subgroups, and the association to acute phase reactants were investigated.
Results: The patients with carditis (n=18), isolated arthritis (n=12) and chorea (n=10) were the subgroups of ARF group. Mitral and aortic regurgitations were present in children with CRHD in the percentages of 93.9 and 39.4, respectively. Mitral valve prolapse and bicuspid aorta were present in children with congenital valve diseases in the percentages of 54.3 and 45.7, respectively. The mean IMA level of ARF group was significantly higher than chronic rheumatic, congenital and control groups, seperately ($p<0.001$). The mean levels of IMA in both carditis and isolated arthritis subgroups of children with ARF were significantly higher than control group ($p<0.001$, $p<0.01$, respectively), however, there was no statistically significant difference was found between the chorea subgroup and control subjects. Additionally, statistically significant correlations were detected between the mean IMA level of children with ARF and acute phase reactants ($p<0.001$ for WBC, $p<0.01$ for ESR and CRP). No statistically significant differences were found among the mean IMA levels of rheumatic, congenital and control subjects.
Conclusions: As the IMA levels of children with ARF were found to be increased, IMA could be used as a biomarker in diagnosis of ARF and also can be thought to be assumed as an acute phase reactant.

Key words: Acute rheumatic fever, children, chronic rheumatic heart disease, congenital valve disease, ischemia modified albumin.