Growth differentiation factor-15 levels of before and after treatment in children with acute rheumatic fever

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Introductions: We aimed to investigate the role of growth differentiation factor-15 in acute rheumatic carditis by evaluating correlations with acute-phase reactants and echocardiographic values.

Methods: The 32 patients were in the age group of 6–16 years (mean 11.00±2.6 years). We chose 32 healthy children, matched for sex and age, as the control group: 20 boys and 12 girls, aged from 7 to 16 years (mean 11.9±2.3 years). All patients were examined by paediatric cardiologists. After routine cardiovascular examination, chest roentgenogram and electrocardiogram were obtained for all patients. All of patients were treated with oral prednisolone. The reaction is the plasma GDF-15 level was measured of healthy controls and also at the time of diagnosis and 6–8 weeks of the treatment for children with acute rheumatic carditis. Cardiac diagnosis was confirmed by echocardiographic investigation. Blood samples were drawn for analysing plasma GDF-15 and acute-phase reactants, ESR, CRP levels at baseline on Days 1, and at 8. weeks.

Results: There was no statistically significant difference between baseline age, gender, body mass index. On day 0 (before the treatment) ASO titters, ESR and CRP levels were significantly higher in the patient group than the control group. The plasma GDF-15 level was higher in patient group before therapy than in controls but there were no significant differences (p:0.28). Following the antiinflammatory therapy, we found a progressive decrease in plasma GDF-15 levels. There was not a significant difference between the control group and the patient group at the end of therapy in point of plasma prohormone levels (p:0.874). There were no patients with a positive throat culture for group A β-haemolytic streptococcus but all patients had supportive evidence of a preceding streptococcal infection which was documented by high antistreptolysin-O titters. However, no patients had significantly cardiac failure and no cardiomegaly was noted on chest radiograms.

Conclusion: Plasma GDF-15 levels appears to be regulated uniquely in the setting of a cardiac inflammatory process and plasma levels increased to different extents in the acute stage of illness. Thus, in order to determine the diagnosis and activation of disease, GDF-15 may be used as a biomarker of cardiac involvement.