Early echocardiographic improvements and ROC analysis to detect cut-off levels of laboratory and echocardiographic values in patients with rheumatic carditis

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Objectives: To evaluate the improvement in rheumatic valvulitis just after the inflammation has subsided and to determine the cut-off values associated with rheumatic carditis.

Methods: The medical records of the patients diagnosed with rheumatic carditis, including history, physical examination, electrocardiogram, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), echocardiography, and medications were retrospectively evaluated. All the cases with carditis had prednisolone treatment for two weeks. If they responded to therapy, salicylate was started and prednisolone dose was gradually decreased and stopped within two weeks. Salicylate treatment continued at least 4-6 weeks. The cut-off values for the variables associated with valvulitis were determined by Roc analysis.

Results: The number of patients with any valvulitis was 38. The mean age at diagnosis was 11.9 ± 2.6 years and most of them were male (58.3%). Thirteen had subclinic carditis. Thirty-four had mitral regurgitation (MR), nineteen had aortic regurgitation (AR). Fifteen of those had insufficiency in both valves. No valvulitis was determined in ten cases (26.3%) three months after diagnosis. When evaluated separately; MR disappeared in twelve cases, AR in five, and combined MR and AR in seven cases. The determined cut-off values via Roc analysis for the variables associated with valvulitis such as CRP, ESR, left ventricular end diastolic dimension (LVEDd), LVEDd indexed to body surface area (BSA), left ventricular end systolic dimension (LVESd), and LVESd indexed to BSA were 1.62 mg/dl (sensitivity:0.87, specificity: 0.81), 48 mm/hr (sensitivity:0.82, specificity: 0.90), 40.5 mm (sensitivity:0.71, specificity: 0.32), 31.8 mm/m² (sensitivity:0.66, specificity: 0.29), 24.5 mm (sensitivity:0.53, specificity: 0.45), 19 mm/m² (sensitivity:0.74, specificity: 0.34), respectively. The most significant cut-off values found were the ones associated with ESR and CRP.

Conclusions: Rheumatic valvulitis may disappear in significant proportion of the cases within few months. Factors associated with the course of valvulitis vary widely according to the valve involved. The determined cut-off values related to valvulitis may help the clinicians in the management of rheumatic carditis.