Evaluation of Ventricular Arrhythmogenesis In Patients With Rheumatic Carditis

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Acute rheumatic fever (ARF), is an important public health problem and leading cause of acquired heart disease in children and young adults worldwide. Carditis is the most important complication of RF that is associated with permanent disability. The electrocardiographic (ECG) findings of ARF have been well described. First degree atrioventricular block is the most common characteristic conduction disturbances of RF. In addition to these ECG findings, increased QT and QTc dispersions that represent the heterogeneity of ventricular depolarization and repolarization were found in patients with RC. Beside the QT and QTc dispersions Tp-e interval which is the interval between the peak and the end of the T wave on an ECG, can be used as an index of transmural dispersion of ventricular repolarization. In this study, we aimed to assess Tp-e interval and Tp-e/QT ratio in children with RC and to investigate its relationships with inflammation and severity of valvular involvement.

A total of 139 patients, diagnosed with acute rheumatic carditis (RC) and 153 healthy controls were enrolled into study. The mean age of patients was 10.9±2.4 years. In patients group p, QT and QTc dispersions, Tp-e intervals, Tp-e/QT and Tp-e/QTc were found significantly higher than controls. Isolated mitral or aortic regurgitation was present in 79 of the patients. When patients with isolated mitral (MR) or aortic (AR) regurgitation were compared to patients with both valvular (MR+AR) involvement. There was no any differences found in p and QT dispersions and Tp-e intervals, Tp-e/QT and Tp-e/QTc measurements. However, QTc dispersion was significantly higher in patients with isolated valvular involvement. Erythrocyte sedimentation rate was significantly higher in patients with both valvular involvement. However there was not found any correlation between WBC, ESR and p, QT and QTc dispersions, Tp-e intervals, Tp-e/QT and Tp-e/QTc ratios.

RC is considered to be pancarditis. Although the valvular component is much more important on the prognosis than myocardial or pericardial involvement, myocarditis is the most important element of the RC. Therefore, patients with RC may susceptible to ventricular arrhythmias. However, ventricular arrhythmogenesis seems to be independent from severity and number of valvular involvement and acute phase reactants.