

Rhythm and Conduction Abnormalities in Children with Acute Rheumatic Fever: Are They Specific to the Disease?

Ceviz N., Olgun H., Celik V.

Atatürk University Faculty of Medicine, Division of Pediatric Cardiology, Erzurum, Turkey

Acute rheumatic fever (ARF) is a multisystem disease developing after upper respiratory tract infections with group A beta-hemolytic streptococcus (GABHS). It is common among children between 5-15 years.

During the course of the disease, some electrocardiographic (ECG) changes are seen, independent from carditis. First-degree atrioventricular (AV) block is the most common ECG abnormality, and it is used as a minor criterion in the diagnosis of ARF. Second- and third-degree AV block, ventricular tachycardia and junctional acceleration are also seen in ARF patients. In the present study, the specificity of these abnormalities for ARF was investigated.

The study consisted of patients with ARF (Group 1), children who had suffered from recent GABHS upper respiratory tract infection but had not developed ARF (Group 2) and patients who had diseases that may affect the joints and/or heart (Group 3).

The frequency of first-degree heart block in the surface ECGs of Group 1 patients was 21.9% (14/64), in Group 2 patients 0% (0/50) and in Group 3 patients 2.7% (1/37). First-degree AV block was significantly more frequent in Group 1 ($\chi^2=17.877$, $p=0.000$). Specificity of first-degree AV block for ARF was 96.7% and its positive predictive value was 88.8%.

In 10 patients in Group 1, accelerated junctional rhythm (AJR) was seen in surface ECG and/or Holter recordings; none of the patients from Groups 2 and 3 had AJR. Specificity and positive predictive value of AJR for ARF were both 100%.

No significant difference was detected between the groups in terms of presence of premature beats and corrected QT intervals.

Escape beat/rhythm and ectopic atrial rhythm were significantly more frequent in Group 2 and 3 patients.

In conclusion, first-degree AV block in surface ECG and AJR in surface ECG and/or Holter recordings are specific for ARF. Although their frequencies are low, it seems that they can be used in the differential diagnosis of ARF, especially in patients with isolated arthritis.