

**Electrocardiographic Findings at Initial Diagnosis in Children with Isolated Left Ventricular Noncompaction**

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**Abstract**

**Background:** The aim of this study was to comprehensively evaluate electrocardiographic (ECG) findings of IVNC patients at initial diagnosis and to explore the correlation between them and the clinical, echocardiographic and magnetic resonance imaging (MRI) findings.

**Methods:** 23 patients diagnosed with IVNC by echocardiography and cardiac MRI between January 2006 and June 2010 were enrolled in this study. The patients were examined with standard ECG and 24 hour Holter ECG. For comparison purpose, ECGs of 50 healthy children of similar ages and demographic characteristics were taken.

**Results:** In 87% of patients ECG abnormalities were found. The most frequently seen ECG findings were left ventricular hypertrophy, ST segment depression and negative T wave related to abnormal repolarization particularly in D II, D III and V4-6 leads, as well as prolonged PR and QTc intervals. No ECG features or patterns were found that were specific to the disease. In contrast to adult patients, while no intraventricular conduction defects (particularly in the left bundle branch) were found in any of our patients, 13% had considerable bradycardia and one required a pacemaker. The Holter ECG recordings showed supraventricular tachycardia attacks in two patients and a short ventricular tachycardia attack in one. Patients whose echocardiograms and MRI showed left ventricular systolic dysfunction and left ventricular dilatation had signs of left ventricular hypertrophy and repolarization abnormality on their ECGs, but there was no significant difference in PR, QRS, and QTc intervals.

**Conclusion:** Regardless of how frequently left ventricular hypertrophy and repolarization abnormalities are found on IVNC patients' initial ECGs, we think that they are not unique to the disease, but are related to the severity of the cardiomyopathy.