Introduction: The rate-corrected (Bazett's formula) QT interval (QTc) is the conventional measurement of ventricular repolarization. Prolongation of the QTc interval increases risk of ventricular arrhythmia and sudden cardiac death. Intraventricular conduction abnormalities complicate evaluation of the QTc interval. In these patients JT rate-corrected (JTc) interval may be more accurate and sensitive measurement of ventricular repolarization by eliminating of QRS complex duration. Very little is known about JT interval and its derivatives in children and adolescents.

Methods: We studied 131 healthy children (64 girls and 67 boys), at age from 2.3 to 18.5 years (mean 9.07±3.89 years). In the course of the study we analyzed standard, 12-lead electrocardiograms (ECG) at a paper speed of 50 mm/s. We manually measured: RR, JT, JTp (from J point to the peak of T wave) and TpTe (from the peak to the end of T wave) intervals in all 12 leads and mean results were calculated from three consecutive cardiac cycles.

Results: Due to technical reasons not in all leads were possible to obtain measurements (flattened or small amplitudes of T waves), the majority of such cases were observed in leads III (25.19%) and AVL (19.08%). JT interval in all leads but AVL were similar (p>0.05) and ranged from 180 to 365 ms. In lead II mean intervals were: JT=246.18±29.23 ms, JTc=295.1±23.37 ms, JTp= 178.17±28.84 ms, TpTe=63.4±9.16. Calculated JT dispersion was 34.20±18.89 ms and JTc 41.14±23.22 ms. The JT, JTp, TpTe intervals increased with age and was longer in teenagers than in younger children. In JT, JTp, JTc and dispersion there were no gender differences (p>0.05). TpTe was the longest in lead V3 and longer in boys. The JTc interval did not change with age.

Conclusions: In measurement of JT interval and its derivatives leads III and AVL should be avoided. In healthy children, JT in all leads but AVL were similar, but the TpTe interval was the longest in lead V3. In older children measured intervals were longer, rate-corrected interval did not change with patients age.