P1-4

Cardiac Nodal and Cardiac Autonomic Functions in Children with Vasovagal Syncope

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Introduction
Vasovagal syncope (VVS) mainly exists as a result of autonomic imbalance in the patients. In the present study, cardiac nodal (sinoatrial node and atrioventricular node) and cardiac autonomic functions have been investigated in the children with VVS. Thus the effect of the existing autonomic status on the characteristics of cardiac impulse conduction has been demonstrated in the children with VVS.
Methods
The study included 51 pediatric patients (the mean age 14.01±2.79 years, range 7 to 18 years; 30 females) who had been evaluated for syncope, and who existed with normal investigations of ECG, Holter, exercise testing, and echocardiography. All patients underwent head-up tilt testing (HUTT), and their parameters of heart rate variability (HRV) (SDNN, SDANN, SDANNi, r MSSD, p NN50, HF,LF,VLF) were evaluated by the analysis of 24-hour Holter testing. Corrected sinus node recovery time (CNRT), and Wenckebach point (WP) were measured in all patients by the transoesophageal atrial stimulation. The patients were grouped, and investigated according to the results of HUTT.
Results
All patients existed with normal cardiac nodal functions. In the patient group existing with positive HUTT results, the HRV parameters (HF, r MSSD, p NN50), which are the indicators of parasympathetic effect, were determined to be high. CNRT did not differ significantly between the patient groups existing with positive and negative HUTT results. However, WP was found to be higher in the patient group with positive HUTT results.
Conclusion
When the parameters of HRV are investigated in the children with VVS, effect of parasympathetic tonus has been demonstrated to increase. Impairment of the cardiac nodal functions may not be expected in the children with VVS. However, the WP may be prolonged in these patients, due to increased autonomic tonus in favour of parasympathetic activity.