

Heart Rate Variability Alterations in Children with Euthyroid Hashimoto Thyroiditis

Kilic A., Gulgun M., Tascilar M.E., Yokusoglu M.

Gulhane Medical Academy, Department of Pediatrics, Ankara, Turkey

Introduction: Hashimoto thyroiditis (chronic autoimmune thyroiditis) is the most common form of thyroiditis in childhood. Previous studies have found autonomic dysfunction of varying magnitude in patients with autoimmune diseases, which in turn is considered a cardiovascular risk factor. The aim of the present study was to evaluate the heart rate variability (HRV), a measure of cardiac autonomic modulation, in children with euthyroid Hashimoto thyroiditis (eHT).

Materials and Methods: The study included 32 patients with eHT (27 girls and 5 boys; mean age 11 ± 4.1 years, range 8-16; body mass index 0.47 ± 0.69 kg/m²), as judged by normal or minimally elevated serum TSH levels (normal range: 0.34-5.6 mIU/l) and normal levels of free thyroid hormones (FT4 and FT3) and 38 euthyroid healthy controls. Subjects with cardiac, metabolic, neurological disease or any other systemic disease that could affect autonomic activity were excluded from the study. Patients with eHT and control subjects underwent a full history, physical examination and 24-h ambulatory ECG monitoring. Time domain parameters of HRV were evaluated for cardiac autonomic functions.

Results: Children with eHT displayed statistically significantly lower values of time domain parameters of SDANN, RMSSD, NN50 counts and pNN50 for each 5-min interval ($p < 0.05$) as compared to healthy controls ($p < 0.05$). Only the SDNN in children with eHT did not significantly differ from those in the controls ($p > 0.05$).

Conclusion: These results demonstrate that eHT is associated with decreased sympathovagal modulation of the heart rate. Hashimoto thyroiditis may increase cardiovascular risks in children even when they are in the euthyroid state.