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Dysautonomia involvement in maternal cardiac arrhythmia

Introduction. The role of autonomic imbalance in maternal cardiac arrhythmia (CA) is still debatable.

The objective of the study was to assess the relationship between maternal autonomic tone and CA in pregnant women.

Materials and methods. The cross-sectional study was carried out among pregnant women admitted to Kharkiv Municipal Perinatal Center between 1 December 2015 and 31 July 2020. 117 patients at 28-36 weeks of gestation were enrolled. 20 of them had sinus rhythm and were included in Group I (control). In Group II, 55 pregnant women with CA and cardiovascular comorbidity were observed. 42 patients with idiopathic CA were monitored in Group III. The daily electrocardiogram and heart rate variability (HRV) were obtained. The density of ectopic beats (DEB) was defined as the percentage of ectopic to total beats.

Results. The investigation of the HRV revealed heterogeneity in the groups of study. The enhanced sympathetic activity was determined in women with CA and structural heart disease. Pregnant women with idiopathic CA demonstrated a parasympathetic pattern of autonomic nervous regulation. The revealed relations between DEB and sympathetic or parasympathetic regulation demonstrate an increased sympathetic tone in patients with structural heart disease. In women with idiopathic CA, parasympathetic regulation played a significant role in the scenario of cardiac ectopy.

Conclusions. The idiopathic CA could be the result of abnormally elevated parasympathetic regulation in the second half of pregnancy.

Keywords: maternal arrhythmia, structural heart disease, heart rate variability, autonomic malfunction.