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HEART RATE VARIABILITY IN ADOLESCENT MAJOR DEPRESSION

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Introduction: Impaired cardiac autonomic regulation is likely important contributor to a potential cardiac complications in major depression. The knowledge regarding the depression effect on cardiac regulation in adolescent age is limited. Aim was to study short-term heart rate variability (HRV) as an index of cardiac autonomic control in never-treated major depressive disorder (MDD) adolescent patients using linear and nonlinear methods related to depressive symptoms severity.

Methods: We have examined 20 MDD girls and 20 healthy age-matched girls at the age from 15 to 18 years. The ECG was recorded in three positions: supine - orthostasis - supine. The HRV was analyzed using linear (time and frequency analysis) and novel nonlinear (symbolic dynamics, time assymetry) methods. The severity of depressive symptoms was evaluated using the scales Montgomery-Asberg Depression Rating Scale (MADRS) and Children´s Depression Inventory (CDI).

Results: Several HRV linear and nonlinear parameters were significantly reduced in MDD group compared to controls in supine rest and during orthostasis. The HRV nonlinear analysis indices significantly correlated with depressive symptoms severity.

Conclusions: Linear and nonlinear analyses revealed reduced magnitude and complexity of the HRV indicating impaired neurocardiac regulation in adolescent major depression. In addition, new approach of HRV analysis using nonlinear methods provided important information about depressive symptoms severity and cardiac autonomic regulation relations.

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