

## 21. HEART RATE VARIABILITY IN PEOPLE WITH PERSONALITY DISORDERS IN THE PAIN TEST

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**Introduction.** The main features of each personality disorder (PD) are emotional disorders. The median prevalence in the population of Borderline personality disorder (BPD) was estimated at 1.6%, but may reach 5.9%. The increased incidence of cardiovascular disease associated with psychiatric pathologies has also led to increased attention to the autonomic nervous system. BPD with an increased rate of cardiovascular mortality, and characterized by emotional instability, is ideal for studying heart rate variability (HVR).

**Aim of study.** The purpose of the study is to determine the autonomic changes in people with BPD by studying the HRV both at rest and in the pain test.

**Methods and materials.** The study involved 95 people, 19 to 60 years old, using the Personality Inventory for DSM-5 (PID-5), all subjects were divided into 2 groups: control group (n = 64) and group of people with BPD (n = 32). The experimental protocol included the recording using the BIOPAC MP-36 Data Acquisition System of the electrocardiogram in the second standard lead in 3 functional periods: Resting (R) - 5 min, Pain test (pain stimulation) (PT) - 3 min and Post-pain test period (post PT) - 5 min. The primary data processing was performed with the help of the program Kubios HRV Standard (version 3.2.0, 2019). The spectral analysis Fourier of the RR interval was applied and following parameters have been analyzed – normalized low frequency component (LFnu) and normalized high frequency component (HFnu).

**Results.** In subjects with BPD, higher HFnu values are observed at rest, highlighting an amplified vagal modulation of the heart rhythm, and a lower sympathetic influence on the heart rhythm. During the pain test, a decrease in the vagal activity and an increase in the sympathetic activity on the heart rate were observed in both groups. In the post-pain test period, LFnu and HFnu values in subjects with BPD were reversed compared to resting period, which indicates an increase of sympathetic influences on the heart rate and a reduction of vagal modulatory effects. The LFnu and HFnu values in these subjects did not return to the initial values in the post-pain test period as they did in the control group, but, on the contrary, an increase in the dynamics of the sympathetic influence was registered, even compared to the pain test period.

**Conclusion.** The results present an increased vagal modulation in subjects with BPD at rest, which is reduced during pain stimulation and does not return rapidly to the initial value after removing the pain stimulus. This could be the proof of the inertia of autonomic influences in these subjects, which is in concordance with the results of the studies in the research papers regarding HRV.