

## **Psychosomatic aspects**

### **Cardiac vagal control and depressive symptoms in response to negative emotional stress**

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**Question:** Depressive symptomatology is associated with a higher risk of cardiovascular complications, and this relationship is mediated by dysregulations in physiological systems including autonomic nervous system. Thus, we aimed to study complex cardiac vagal control using heart rate variability (HRV) linear and nonlinear analysis at rest and to negative emotional stress in healthy undergraduate students with varying depressive symptoms.

**Methods:** Twenty young male students (average age: 22.7±0.1 yr.) were examined under standard conditions. Continuous recording of RR intervals using VarCorPF8 (Dimec, Czech Republic) was performed in the order: baseline, negative emotional stress, recovery period. The time for each phase was 6 minutes. Evaluated HRV parameters: RR interval, spectral power in high-frequency band (HF-HRV: 0.15-0.4 Hz) and symbolic dynamics index 2LV% indicating complex cardiovagal control. Depressive symptoms were assessed by means of the Beck Depression Inventory (BDI). Then, the subjects were divided into two groups - normal mood (BDI: 0.6±0.2) and individuals with higher depressive symptoms indicating mild mood disturbance (BDI: 14.3±1.4).

**Results:** In whole group, no significant differences in the HRV parameters were found during all periods. The logHF-HRV was significantly lower to negative emotional stress in the mild mood disturbance group compared to normal mood (p=0.047). No significant differences were found in the remaining parameters.

**Conclusion:** Our findings revealed that cardiovagal control was attenuated to negative emotional stress in mild mood disturbance group indicating discrete abnormalities in neurocardiac reflex response integrity associated with higher depressive symptoms. It could represent a potential pathomechanism leading to depression-linked cardiovascular complications.

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