P-1209 - THE BREATHING PATTERN OF ACUTE SCHIZOPHRENIA

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Background: Significant alterations of cardiac autonomic function were shown for patients with schizophrenia and their first-degree relatives, implying a genetic association. Cardio-respiratory function, although a core physiological regulatory component, has never been assessed.
Methods: To test the hypothesis of altered patterns of breathing in patients with acute schizophrenia, we assessed breathing rate, rhythm and depth, as well as heart rate variability (HRV) and cardio-respiratory coupling in patients (n=23), their first-degree relatives (n=20) and controls (n=30). Control subjects were matched for age, gender, smoking and physical fitness, and were investigated a second time by means of a stress task to identify stress-related changes of cardio-respiratory function.
Results: Patients breathe faster ($p < .001$) and shallower ($p < .001$) than controls most pronouncedly during exhalation. Patients' breathing is characterized by an increased amount of middle- ($p < .001$), high- ($p < .001$), and very high fluctuations ($p < .001$). These measures correlated with positive symptoms. Shallow breathing of patients is mirrored by a smaller tidal volume ($p < .001$) without variability changes. Cardio-respiratory coupling was reduced in patients only, while HRV was decreased in patients and healthy relatives.
Conclusion: Changes of respiratory regulation and decreased cardio-respiratory coupling mirror profound alterations of core physiological function. In contrast to HRV changes, respiratory alterations were observed in patients only and might reflect arousal in acutely ill patients. This assumption is supported by observed changes of breathing and cardiac regulation in healthy subjects during stress. Findings are of high relevance for other research areas such as functional imaging.

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