Dissociation of Salivary Cortisol and Alpha-Amylase Secretion after Awakening in Patients with Chronic Schizophrenia: a Preliminary Study

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Stress is believed to play a pivotal role in schizophrenia, and cardiophysiological and neuroendocrine studies suggest that the two components of the endogenous stress response system, the sympathetic nervous system (SNS) and the hypothalamus-pituitary-adrenal (HPA) axis, are dysregulated in patients with schizophrenia. However, cardiophysiological measures are influenced by several confounding factors such as smoking, subjects’ body weight and posture at the time of assessment. The secretion of α-amylase in saliva, instead, is currently believed to represent a more reliable index of SNS activity. Therefore, to better characterize the functional status of SNS and HPA axis in schizophrenia, we measured the concomitant salivary secretion of cortisol and α-amylase at 4 time points after awakening in a sample of 13 patients with chronic schizophrenia as compared to 13 age-matched healthy subjects.

After awakening, saliva cortisol increased in a comparable way in both patients and healthy controls whereas saliva α-amylase concentrations showed a clear-cut decrease in healthy subjects but not in patients with schizophrenia, who exhibited an enhanced overall secretion of the enzyme. No significant correlation emerged between biochemical measures and patients’ demographic or psychopathological characteristics.

These findings demonstrate a normal activity of the HPA axis with an enhanced SNS tone, which suggest a dissociation in the functional status of the two components of the endogenous stress response system in chronic schizophrenia. The pathophysiological significance of such a dysregulation needs further studies to be clarified.