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Olfactory Identification in Patients with Schizophrenia - Influence of B-endorphin and Cgrp Concentration.

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Introduction: The relationship between olfactory and emotional processing is an area of increasing interest in schizophrenia research.

Objectives: The brain regions like orbitofrontal cortex and amygdala are involved in the processing of olfactory information.

Aims: Evaluation of odor identification performance and valence interaction in patients with schizophrenia. Assessment of influence blood concentration of β-endorphin and calcitonin gene- related peptide(CGRP) on odors identification.

Methods: 50 patients with schizophrenia and 50 healthy controls were included in the study. Schizophrenia symptoms were evaluated using PANSS. University of Pennsylvania Smell Identification Test (UPSIT) was performed in both study groups. Moreover blood concentrations of β-endorphin and CGRP were measured in all participants.

Results: The concentration of CGRP was significantly higher in patients sample (p<0,001). The concentration of β-endorphin was higher but without statistical significance. Controls achieve significantly higher UPSIT score than patients (mean UPSIT 32,48 vs 26,82). Odor identification performance by valence interaction in patients sample revealed significantly more identification errors in response to both pleasant and neutral odors relative to unpleasant odors (p=0,000 vs p=0,055). Patients with higher β-endorphin concentration made more identification errors on pleasant (R_s= -0,292; p= 0.04) and neutral odors (R_s= -0,331; p= 0,019). No relationship between CGRP concentration and UPSIT performance was observed.

Conclusions: Schizophrenic patients present a unique pattern of smell identification characterized by aberrant hedonic ratings for pleasant but not unpleasant odors. Individuals with predominant negative symptoms and higher β-endorphin concentration would also be those with the greatest ability to identify negative odors.

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