

Article: 0280

Topic: EPO01 - e-Poster Oral 01: Schizophrenia 1

Reward Anticipation and Negative Symptoms in Schizophrenia: an Electrophysiological Investigation

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Introduction. Negative symptoms are the psychopathological domain most associated to poor outcome in patients with schizophrenia (SCZ). Insight into their pathophysiology might contribute to develop innovative treatments for the syndrome. Recently, it has been hypothesized that avolition is related to a difficulty in anticipating reward or integrating value and action.

Objectives. Our study aimed to investigate abnormalities of reward anticipation in SCZ and evaluate associations of negative symptoms dimensions with the same abnormalities using electrophysiological indices.

Methods. ERPs were recorded during the execution of 'Monetary Incentive Delay' task in 30 SCZ patients stabilized on second generation antipsychotics and 23 healthy controls (HC). Measures of anticipatory and consummatory pleasure, trait anhedonia and motivation were obtained in all subjects. A measure of avolition independent of anhedonia was obtained in patients.

Results. Patients did not differ from HC with respect to trait anhedonia and experience of pleasure but showed a deficit of motivation. Unlike HC, P3 amplitude in patients did not discriminate stimuli relevance in the early interval and was higher for the anticipation of loss in the late interval. In SCZ, early P3 amplitude for loss and reward anticipation was inversely related to social anhedonia but not to avolition.

Conclusion. Patients with preserved experience and anticipation of reward seem unable to integrate the relevance and rewarding value of future events in the context of their ongoing task. Our results indicate that anhedonia and avolition are partially independent constructs and that SCZ might integrate better loss than reward.