

S20-02 - ASSOCIATIVE LEARNING AND CONTEXT PROCESSING ABILITIES IN BIPOLAR DISORDERS

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Background: Schizophrenia (SCZ) and bipolar disorder (BP) share commonalities in genetic vulnerability and impaired cognition. Understanding of shared and unique patterns of impairment across these disorders is now a critical question in clinical neuroscience. We assessed behavioral performance during associative learning in a group of SCZ, BP and healthy controls (HC).

Methods: 18 patients with SCZ (36 ± 8.6 = years; 13 males, 5 females; all Caucasians and medicated), 12 patient with BD (39.42 ± 8.5 = years; 5 males, 7 females; all Caucasians and all medicated) and 45 HC (27.7 ± 6.9 = years; 18 males, 27 females; all Caucasians) were studied. Learning was assessed using an established object-location paired-associative learning paradigm (Buchel et al., 1999). Subjects learned associations between nine equi-familiar common objects and locations in a nine-location grid. The dependent variable of interest was learning performance over time.

Results: Learning curves (performance = $1 - e^{-k \cdot \text{time}}$) fitted to average performance data in the three groups ($r^2 = .81$) revealed lower learning rates in SCZ and BP ($k = .18$ and $k = .2$) than HC ($k = .64$). Performance data were analyzed in a repeated measures analysis of variance with time (repeated) and group (HC, SCZ, BP) as factors. Significant effects of group, $F(1,41) = 22.003$, $p < .001$ and time, $F(7,287) = 54.6$, $p < .001$ were observed.

Conclusions: Our study showed that associative learning is impaired in both SCZ and BP and suggested that such deficits may be related to reduced memory capacity and reduced plasticity in the hippocampus, potentially reflecting altered hippocampal glutamatergic neurotransmission in both disorders.