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Lecture

Reaction time and sensorimotor integration in schizophrenia

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Abstract

The deficit of information processing speed reflected in the increase of reaction time (RT) in sensorimotor speeded decision-making tasks is among the most replicated findings in Schizophrenia. In a series of studies focusing on intra-individual variability of RT in patients with schizophrenia, a specific increase of intra-individual variability (ISV) was observed for those patients that separated them from patients with other psychotic disorders. We present results showing that the increase in the ISV of RT in patients with schizophrenia is present in the decision to produce a visually guided saccadic eye movement, a task in which patients do not show an increase of the mean RT. We also present results showing that the variability in the rate of increase of a decision signal in a simple decision-making model for saccadic eye movements predicts increased ISV of RT in patients with schizophrenia dissociating them from the healthy controls and patients with Obsessive Compulsive Disorder (OCD). We will show that increased ISV of RT and not the ability to inhibit inappropriate responses is what distinguishes patients with schizophrenia and patients with OCD in the antisaccade task. Finally, we will provide results showing that the difference in ISV of RT in patients with schizophrenia is not confined to the eye movement system, but can be generalized in sensorimotor control regardless of the final motor system (hand or eye) making ISV of RT a specific cognitive marker for the deviance in speeded information processing in this disorder.

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