

Neural Correlates of Attention Bias to Threat during the Emotional Stroop Task in Schizophrenia

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Abstract : Background: Attention bias to threat play a role in the development, maintenance, and exacerbation of delusional beliefs in schizophrenia in which patients emphasize the threatening characteristics of stimuli and prioritise them for processing. Cognitive control deficits arise when task-irrelevant emotional information elicits attentional bias and obstruct optimal performance. This study is investigating neural correlates of interference effect of linguistic threat and whether these effects are independent of delusional severity. Methods: Using an event-related functional magnetic resonance imaging (fMRI), neural correlates of interference effect of linguistic threat during the emotional Stroop task were investigated and compared patients with schizophrenia with high (N=17) and low (N=16) paranoid symptoms and healthy controls (N=20). Participants were instructed to identify the font colour of each word presented on the screen as quickly and accurately as possible. Stimuli types vary between threat-relevant, positive and neutral words. Results: Group differences in whole brain effects indicate decreased amygdala activity in patients with high paranoid symptoms compared with low paranoid patients and healthy controls. Regions of interest analysis (ROI) validated our results within the amygdala and investigated changes within the striatum showing a pattern of reduced activation within the clinical group compared to healthy controls. Delusional severity was associated with significant decreased neural activity in the striatum within the clinical group. Conclusion: Our findings suggest that the emotional interference mediated by the amygdala and striatum may reduce responsiveness to threat-related stimuli in schizophrenia and that attenuation of fMRI Blood-oxygen-level dependent (BOLD) signal within these areas might be influenced by the severity of delusional symptoms.

Keywords : attention bias, fMRI, Schizophrenia, Stroop

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