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Neurobiology of interaction of emotion and cognition in schizophrenia

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Emotion theorists have long time posited the critical role for affect in the modulation of behavior and cognition. When considering the adaptive function of emotion and cognition and their interaction both can be posited to function as control systems to regulate behavior. Emotional and cognitive dysfunction is fundamental to schizophrenia, and yet the precise nature and scope of the associated deficits and their interactions are not well understood.

One primary aim of our project was to assess the integrity of the emotional-cognitive system from the perspective of social cognition in patients with schizophrenia. Specifically, evaluative, behavioral, cognitive and neural responses were measured during viewing of pictures with varied emotional content to examine core emotion-socio-cognitive functions during in schizophrenia.

In the present fMRI study 3 experiments on affective attachment, affective perspective taking and affective regulation were conducted in patients with schizophrenia. In accordance to our hypotheses ocytocin level and behavioral socio-emotional functions in schizophrenia were reduced. When analysing conjunctive brain activation of all 3 experimental paradigms a fronto-temporal-occipital network was found to be dysfunctional in patients including brain areas that are critical for episodic autobiographical memory, mirroring other's emotions, self-reflection, affective risky decision-making and painful information processing. The findings are presented in relation to oxytocin levels in patients with schizophrenia (ICD-10: F20; PANSS<78) and healthy subjects (each group: males, n= 20, IQ<85). Our findings can explain the difficulties in self-other distinction and the psychpathological self-relevance of social and affective stimuli in schizophrenia.

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