Poster Exhibition
(abstracts)

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Neural correlates of perspective taking in patients with a high risk of psychosis

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Disturbances in perspective taking are assumed to play a relevant role in the pathophysiology of schizophrenia. We compared unmedicated male patients with a high risk of psychosis (n=10) with healthy subjects (n=15) on perspective taking tasks.

A virtual scene with one of two virtual characters (avatars) surrounded by one to three different objects was presented. Subjects performed two different tasks from two different perspectives. During the perceptual task (PERC), subjects counted the number of objects visible from their own (1PP) or from the avatar's (3PP) perspective. During the preference attribution task (PREF), subjects counted only those objects, that corresponded to their own preference (free of choice,1PP), or to the avatar's preference (previously learned, 3PP).Thus, neural correlates of perspective taking on the levels of perception (spatial cognition) and preference attribution (self, other) were obtained.

Reaction times and error scores were increased in 3PP compared to 1PP and in PREF compared to PERC. No behavioral differences were found between groups. In the control group, increased neural activation was shown in bilateral medial cortical and superior temporal areas during 1PP, in predominantly right parietal und premotor areas during 3PP, in bilateral medial prefrontal and superior temporal areas during PERC and in left dorsolateral prefrontal and anterior medial prefrontal and right inferior parietal areas during PREF (spm2, height threshold: p = 0.05, FDR, extent threshold: 20 voxels).

Patients with a high risk of psychosis showed a lack of activation in different frontal regions, while the same pattern of activation was found for non-frontal regions. Thus, functional hypofrontality is assumed to play an important role in the prodromal stage of schizophrenia.