Abstracts of the 9th World Congress of Biological Psychiatry

PSYCHOTIC DISORDERS - Poster Presentations

P-06-018
Parametric variation in working memory demand in patients with schizophrenia: A behavioral and neuroimaging pilot study
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Objectives: Patients with schizophrenia exhibit serious and clinically relevant deficits in working memory (WM). However, investigations of WM in patients with schizophrenia using functional Magnetic Resonance Imaging (fMRI) have failed to reveal a consistent abnormality in brain activation in patients. One hypothesis is that patients exhibit a disordered relationship between the extent of activation of dorsolateral prefrontal cortex (DLPFC) and WM demand. However, existing WM tasks do not provide sufficiently fine-grained variation in WM demand to closely characterize the relationship between DLPFC activation and WM demand. Consequently, we have been developing a version of the self-ordering task that will allow for gradual increases in WM demand throughout a trial.

Methods: Ten patients with schizophrenia and nine matched control participants completed a behavioral version of the self-ordering task, and nine unmatched control participants completed the task while undergoing an fMRI scan. In each trial of the self-ordering task, participants are presented with 8 line drawings of 3D objects in a 3 x 3 array. On each step of the trial, participants must select any object that they have not previously selected. Thus, WM demand increases parametrically with each step of the trial.

Results: Both patients and controls performed the task significantly (p < 0.05) above chance accuracy from steps 3 through 8. Patients also performed significantly worse than controls (p < 0.05) from steps 3 through 8. The fMRI data indicate that healthy subjects increase activation of DLPFC as step number increases.

Conclusions: The self-ordering task is a valid means of assessing the effects of various levels of WM demand on DLPFC activation in functional imaging studies, and elicits substantial deficits in performance in patients with schizophrenia relative to control participants. This makes it a promising technique for elucidating the nature of WM deficits in patients with schizophrenia.

P-06-019
Disturbance of metacognition of agency in patients with schizophrenia
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Objectives: This study investigated metacognition of agency—people’s assessments of when they were and were not in control—with patients with schizophrenia. Our central question was: Would the schizophrenics give evidence of consciously monitoring objective distortions in their control?

Methods: Patients were 22 medicated inpatients with DSM-IV-TR schizophrenia (mean age=42.3; 13 male) who were stabilized under treatment. Twenty controls with no history of psychiatric or neurological disorder were age and SES matched to patients (mean age=35.1; 11 male). Participants performed a task in which randomly positioned X’s and O’s scrolled down the computer screen. They moved a mouse to have an onscreen cursor touch the X’s and avoid the O’s. On some trials participants were, objectively, in perfect control: the cursor moved where they moved the mouse. On other trials computer-generated pseudo-random noise introduced Turbulence into the cursor movement, or the cursor position was Lagged 250-500ms from the mouse movements. At the end of each 20s trial participants made judgments of performance (JOPs) about the preceding trial, and assessments of how in control they had been, that is, judgments of agency (JOAs).

P-06-017
Efficacy of aripiprazole vs quetiapine for the treatment of hostility in acute patients with schizophrenia
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Objectives: To compare the efficacy of aripiprazole and quetiapine in reducing hostility during the initial 7 days of treatment.

Methods: 32 acutely patients (14 female, 18 male, average age of 37.8 years) with chronic schizophrenia diagnosed according to DSM IV criteria were included based on their hostility factor score ≥ 20 derived from Positive and Negative Syndrome Scale (PANSS) and Clinical Global Impresssion-Severity (CGI-S) score ≥ 5. The sample was segregated in two groups according to antipsychotic treatment: quetiapine (17 patients) and aripiprazol (15 patients). The antipsychotic treatment was in flexible doses (quetiapine up to 750mg/day; aripiprazol up to 30mg/day) which can be increased or decreased based on clinician judgment during the initials 7 days of treatment. It was permitted lorazepam, as rescue treatments, as needed to a maximum daily dose of 4 mg/day. Efficacy measures were: mean change in Agitation Calmness Evolution Scale (ACES) score.

Results: 70.50% of quetiapine group compared to 60% of aripiprazole group completed 7 days treatment. The mean dose for aripiprazole group was 26,32 mg (SD 20.65); PANSS hostility factor, CGI-S and CGI-I measures showed the improvement of hostility by day 3, continuing up to end point for both group of treatment. There was a parallel reduction in hostility and agitation for both groups. The sedation was more frequent in quetiapine group (29.41% vs 13.33%) compared to aripiprazole group. By comparison to quetiapine group more patients in aripiprazole group received rescue lorazepam treatment (22.64% vs 37.22%).

Conclusions: Aripiprazole and quetiapine, despite their different receptor affinity profiles, decreased hostility and agitation rapidly and efficiently, and had positive symptoms in acutely patients with schizophrenia during the initials 7 days of treatment.

P-06-016
Patients with schizophrenia exhibit a disordered relationship between the extent of activation of dorsolateral prefrontal cortex (DLPFC) and working memory (WM) demand.
Tor D. Wager, Anissa Abi-Dargham, Nina Urban, Edward E Smith

Objectives: Patients with schizophrenia exhibit serious and clinically relevant deficits in working memory (WM). However, investigations of WM in patients with schizophrenia using functional Magnetic Resonance Imaging (fMRI) have failed to reveal a consistent abnormality in brain activation in patients. One hypothesis is that patients exhibit a disordered relationship between the extent of activation of dorsolateral prefrontal cortex (DLPFC) and WM demand. However, existing WM tasks do not provide sufficiently fine-grained variation in WM demand to closely characterize the relationship between DLPFC activation and WM demand. Consequently, we have been developing a version of the self-ordering task that will allow for gradual increases in WM demand throughout a trial.

Methods: Ten patients with schizophrenia and nine matched control participants completed a behavioral version of the self-ordering task, and nine unmatched control participants completed the task while undergoing an fMRI scan. In each trial of the self-ordering task, participants are presented with 8 line drawings of 3D objects in a 3 x 3 array. On each step of the trial, participants must select any object that they have not previously selected. Thus, WM demand increases parametrically with each step of the trial.

Results: Both patients and controls performed the task significantly (p < 0.05) above chance accuracy from steps 3 through 8. Patients also performed significantly worse than controls (p < 0.05) from steps 3 through 8. The fMRI data indicate that healthy subjects increase activation of DLPFC as step number increases.

Conclusions: The self-ordering task is a valid means of assessing the effects of various levels of WM demand on DLPFC activation in functional imaging studies, and elicits substantial deficits in performance in patients with schizophrenia relative to control participants. This makes it a promising technique for elucidating the nature of WM deficits in patients with schizophrenia.