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Does computerized cognitive remediation change brain activation patterns in schizophrenia: fMRI pilot data

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Background: Attention, working memory (WM), information processing and memory deficits are important features of schizophrenia. WM functions appear to be mediated by the dorsolateral prefrontal cortex (DLPFC). Functional imaging studies have shown a failure to activate the DLPFC during working memory tasks in patients with chronic schizophrenia. The primary aim of this study is to determine whether there are brain activation changes in the dorso-lateral prefrontal cortex (DLPFC) as a result of engaging in a randomized, controlled 12 week course of cognitive remediation therapy (CRT) in inpatients with chronic schizophrenia.

Methods: Patients with DSM IV schizophrenia are randomized to a 12 week trial of Cognitive Remediation (CR) using a Computerized CR program (COGPACK) or to a 12-week control condition. Patients receive at baseline and endpoint an fMRI scan with a cognitive task (N-back task), a neuropsychological test battery (MATRICS), functional and symptom assessments.

Results: Preliminary results of this ongoing study show that patients after 12 weeks of CR showed (1) significantly more improvement in WM functions than patients who participated in the control group and (2) improvement in accuracy on the verbal letter 2-back task during the fMRI scan. Signal difference between 2-back and 0-back was not present or only present minimally at baseline (Pre-CR); however, at endpoint (Post-CR) there was signal difference present, which corresponds to an increase in activation in the areas of the DLPFC. This increase in activation pattern may be reflective of the effects of the exposure to the CR intervention.

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Assessment of body fat % in patients treated with sertindole or olanzapine

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Background: Treatment with antipsychotic agents may result in changes in body composition. Highly accurate measurement techniques are expensive and may be associated with safety concerns, e.g. radiation exposure. Cheaper alternatives are available, but their accuracy in the patient population of interest has been investigated little.

Objective: To compare two methods for estimating body fat % (%BF) in patients treated with atypical antipsychotics.

Methods: Data on %BF measured at baseline and 1 month in six patients participating in a randomized trial of olanzapine and sertindole were collected. Eight-electrode bio-electrical impedance (BIA8) and dual energy x-ray absorptiometry (DEXA) equipments were used to measure %BF.

Results: At baseline, the mean %BF_{BIA8} was 26% compared to 35% for DEXA, indicating a large underestimation by BIA8. After

one month, the means were unchanged, although individual patients changed between +1.7 to -1.5%BF_{BIA}, and +1.5 to -1.3%BF_{DEXA}. The assessed median change at one month was similar for the two methods, with an increase of 0.3%BF_{BIA} compared to 0.2%BF_{DEXA}. The median between methods difference was 0%BF (range -3.0 to +1.3).

Conclusion: Large discrepancies in absolute levels of %BF were seen between the two measurement methods. The discrepancies were, however, constant over time. Therefore the change estimates were almost identical. Judging from this small sample, it appears as assessment of change in body composition may be estimated using the cheaper and faster BIA method, although the absolute values may be large underestimates. Caution in the interpretation must be exercised due to the small sample and small magnitude of change.

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Immune parameters and aminotransferase blood serum level in dynamics of atypical neuroleptics treatment of schizophrenic patients

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Objective: The features of atypical neuroleptics influence on immune parameters and aspartate and alanine aminotransferases blood serum level of schizophrenics during 6-week therapy.

Methods: We examined 52 schizophrenics: 20 patients were treated by quetiapine, 12 - by olanzapine, 10 - by risperidone, 10 - by amisulpride. Scales PANSS and CGI was used at clinical examination. We defined the parameters of cellular, humoral immunity, serum levels of aminotransferases. Control group – 36 healthy people.

Results: The data of favorable influence on positive, negative, general psychopathological symptoms of patients was observed.

Before therapy T-cell immunodeficiency with reduction of CD2⁺, CD4⁺, CD16⁺-cells was observed among schizophrenics (comparing to control). Authentically high aminotransferases levels in first point were observed in groups of patients treated by olanzapine and quetiapine.

During 6 weeks of quetiapine treatment indices of aHLA-DR⁺-cells quantity, CD16⁺-cells, IgA, IC level tend to those of control indices, the normalization of aminotransferases levels was observed.

During olanzapine treatment the normalization of CD2⁺, CD8⁺-cells was observed; we determined the increase of IgA and IgM in the process of normalization of IgG and IC level. Aminotransferases levels reduced up to control indices.

During risperidone treatment the normalization of lymphocytes, CD4⁺, CD16⁺-cells, was observed; during amisulpride treatment the reduction of CD2⁺, aHLA-DR⁺-lymphocytes the increase of IC level, the normalization of CD16⁺-cells quantity and the increase of aminotransferases levels was revealed.

Summary: Was observed priority data about render various effects on immune parameters of atypical neuroleptics; dynamics of aminotransferases level which depends on their initial level is revealed.

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Genious study: The use of ziprasidone for the treatment of patients with schizophrenia