



Imaging Findings in Patients with Clozapine-Associated Obsessive Compulsive Symptoms

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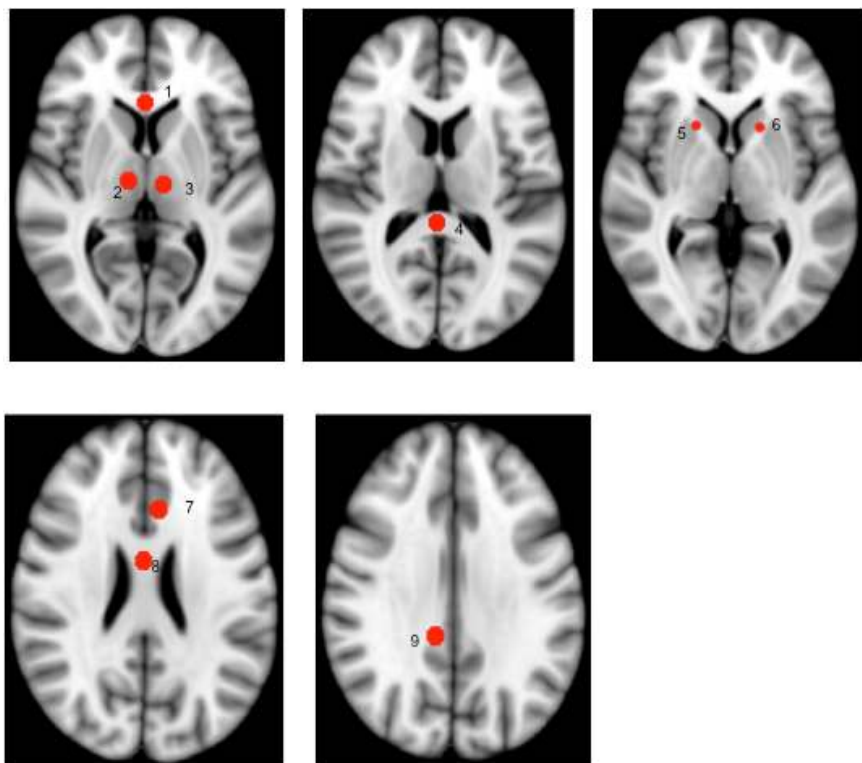
Introduction and Objectives

In this study we aim to evaluate the cognitive functions and cerebral structural changes in patient groups exhibiting and not exhibiting obsessive compulsive symptoms following clozapine treatment and to compare them to those of healthy control subjects.

Methods

9 schizophrenia patients who developed de-novo obsessive compulsive symptoms after clozapine treatment (Clz+OCS), 9 schizophrenia patients who didn't exhibit obsessive compulsive symptoms after clozapine treatment (Clz-OCS) and 9 healthy subjects matching the patient groups in age, sex and education level were included in the study. The patient groups were assessed using Positive and Negative Syndrome Scale (PANSS), Yale-Brown Obsession and Compulsion Scale (YBOCS), Clinical Global Impression (CGI), neurocognitive test battery; and Diffusion Tensor Imaging (DTI). The control group was assessed using neurocognitive test battery and DTI. DTI analysis was performed using region of interest method (ROI) and corpus callosum, left and right ALIC, cingulum and thalamus were examined, and fractional anisotropy (FA) values were measured.

MNI coordinates of the regions



MNI: Montreal Neurological Institute, 1: Corpus callosum genu, 2: Right thalamus, 3: Left thalamus, 4: Corpus callosum splenium, 5: Right ALIC, 6: Left ALIC, 7: Left cingulum, 8: Corpus callosum body, 9: Right cingulum, ALIC: Anterior Limb of Internal Capsule

Results

The total number of psychiatry service admissions, PANSS positive and PANSS general psychopathology sub-scores were found to be significantly higher in the Clz+OCS group compared to Clz-OCS group.

The three groups had no statistically significant difference with respect to the FA values of the examined brain regions.

In the Clz+OCS group, total YBOCS scores were positively correlated with corpus callosum FA values and negatively correlated with left cingulum FA values.

Analysis of the relationship between severity of obsession and compulsion scores and FA values of cerebral regions revealed a negative correlation between YBOCS-Obsession score and FA values of left cingulum, whereas YBOCS-Compulsion scores were found to be negatively correlated with FA values of corpus callosum splenium and positively correlated with FA values of left ALIC.

Comparison of the groups with respect to cognitive tests revealed that the Clz+OCS group significantly outperformed Clz-OCS in Controlled Oral Word Association Tests and Digit Span Forward tests, and a negative relationship was observed between Digit Span Forward test and FA values of right cingulum in Clz+OCS group.

Conclusions

The increased number of hospital admissions, higher PANSS positive and PANSS general psychopathology sub-scores in the Clz+OCS group may be considered an indicator of a worse clinical prognosis. Better cognitive functions such as attention in this group may be considered as the cause or the result of the accompanying obsessive compulsive symptoms. The relationship between the severity of obsessive compulsive symptoms and FA values of brain regions such as cingulum, corpus callosum and ALIC emphasizes the importance of microstructural changes in these regions. The results of this cross-sectional study will hopefully guide future studies with larger samples.