

GRAY MATTER REDUCTION ASSOCIATED WITH COGNITIVE DYSFUNCTION IN FIRST-EPIISODE, TREATMENT-NAIVE YOUNG ADULTS WITH MAJOR DEPRESSIVE DISORDER: A VOXEL-BASED MORPHOMETRY STUDY

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Introduction: The association between gray matter and cognitive dysfunction in young major depression remains unclear.

Objectives: To investigate the brain gray matter and the correlation with cognitive function in first-episode, treatment-naive patients with major depressive disorder (MDD).

Aims: To explore brain structural pathological mechanisms of cognitive impairment in MDD.

Methods: 46 MDD aged 18-45 year and 46 controls were assessed by Wisconsin Card Sorting Test (WCST) and Trail making test (TMT). Then, 30 patients and 30 controls were obtained by MRI scan.

Results: The total number of errors, number of preservative errors, random errors of WCST in MDD were significantly more than that in controls, and the completion time in the TMT-A and TMT-B was longer than that in controls.

MDD showed significant less gray matter volumes than controls in frontal lobe (right precentral gyrus, bilateral superior frontal gyrus and right middle frontal gyrus), parietal lobe (left postcentral gyrus, left paracentral lobule, and bilateral precuneus), temporal lobe (right superior temporal gyrus), and occipital lobe (left superior occipital gyrus).

There was a significant negative correlation between left postcentral gyrus and left superior occipital gyrus gray matter density and the TMT-B completion time ($r=-0.462$, $P=0.017$; $r=-0.448$, $P=0.022$).

Conclusions: The first-episode MDD patient exhibited cognitive impairment and showed significant lower gray matter density than controls in frontal lobe, parietal lobe, temporal lobe, occipital lobe. Decreased gray matter density in left postcentral gyrus and left superior occipital gyrus may be involved in the executive dysfunction.