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THE RELATIONSHIP BETWEEN GRAY MATTER CHANGES IN SCHIZOPHRENIA PATIENTS AND THE NUMBER OF PSYCHOTIC EPISODES

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Introduction: A significant amount of evidence from structural brain imaging studies provide new insights into the neuroanatomical basis of schizophrenia.

Objectives: To investigate whole brain gray matter (GM) differences between schizophrenia patients grouped according to the number of psychotic episodes and normal controls (NC).

Aim: To determine regions of GM differences in schizophrenia patients grouped according to the number of psychotic episodes.

Methods: A group of 53 schizophrenia patients (23 with up to 3 psychotic episodes, 15 with 4 to 6 and 15 with 7 or more psychotic episodes) and 35 age and gender matched NC were included. Voxel-based morphometry (VBM) is an adaptation of the statistical parametric mapping technique that allows investigators to quantitatively examine brain structural changes. VBM data of schizophrenia patients divided into 3 groups: up to 3, 4 to 6 and 7 or more episodes were compared with NC.

Results: Patients with up to 3 episodes had reduced gray matter volume (GMV) in the right claustrum, right Brodmann areas 6 and 13 and left Brodmann area 10, patients with 4 to 6 episodes in left Brodmann areas 25, 35 and 37 and in right Brodmann area 13, and those with 7 or more episodes showed decreased GMV in left substantia nigra and left Brodmann area 10 compared with NC.

Conclusion: GMV reduction in schizophrenia varies depending on the number of psychotic episodes. The affection of different brain areas indicates separated neurobiological mechanisms underlying the stage and the progression of illness.