

S32-03

DIFFERENT IMPACT OF T.GONDII SEROPOSITIVITY ON THE BRAIN MORPHOMETRY IN SCHIZOPHRENIA AND HEALTHY CONTROL GROUPS.

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Background: The role of coccidian protozoa *Toxoplasma gondii* represents one of the most enigmatic and unexplained questions in the field of pathophysiology of schizophrenia.. To address the role of latent *Toxoplasma gondii* (*T. gondii*) infection in pathophysiology of schizophrenia we studied the influence of latent toxoplasmosis on brain morphology in schizophrenia.

Methods: Magnetic resonance imaging was analyzed by an optimized voxel-based-morphometry (VBM) in 44 schizophrenic patients (12 *T. gondii* positive) and 56 controls (13 *T. gondii* positive). The full factorial model of analysis of variance with diagnosis and seropositivity for latent toxoplasmosis as factors was used to address the differences in gray and white matter.

Findings: VBM analyses showed the grey matter (GM) volume reduction in schizophrenia patients compared with controls bilaterally in the neocortical regions, hippocampus, middle and posterior cingulate and in the caudate. In the subgroup of patients and controls seropositive to *T. gondii* the reduction of GM was located in the same regions as in the whole sample and consisted of 11660 over-threshold voxels ( $p \leq 0.05$ , FWR corrected). The differences between *T. gondii* negative patients and controls consisted only of 289 voxels in temporal and mediotemporal regions.

Discussion: Our study is the first to document that latent toxoplasmosis reduces GM in schizophrenia but not in controls. The higher morphological vulnerability of patients but not controls to *T. gondii* infection represents an indirect support for the epidemiological evidence of the role of latent toxoplasmosis in schizophrenia.

Acknowledgments: This work was supported by grants 1M0517.