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DIFFUSION TENSOR IMAGING (DTI) FINDINGS IN SCHIZOPHRENIA: A REVIEW

J.L. Villegas Martínez, J.A. Blanco Garrote, F. Uribe Ladrón de Cegama, B. Arribas Simón, G. Cabús Piñol

Psychiatry Department, University Clinical Hospital of Valladolid, Valladolid, Spain

Introduction: Diffusion tensor imaging (DTI) is a magnetic resonance imaging technique that have increasingly being used for the non-invasive evaluation of brain white matter (WM) abnormalities. Several studies suggest that the normal integration of cerebral function may be compromised in schizophrenia. Abnormalities in WM tracts may be directly relevant for the neuropathology of schizophrenia.

Objetives: The purpose of this review was to discuss recent DTI findings in schizophrenia and a methodologic analysis.

Methods: The literature search was performed with the search engine PubMed of the U.S. National Library of Medicine. Search strategy used was based on the Cochrane review technique, limited to the period between 1998 (first report on DTI and schizophrenia) and May 2010. And limited to 'Title/Abstract'. The reference lists of these studies were used to identify additional studies.

Results: There is a striking amount of heterogeneity in findings, probably by methodologic problems. Brain regions such as the cingulate bundle, corpus callosum, and regions within frontal and temporal WM have a proportionally larger number of positive findings across the studies. In addition, WM tracts as The superior longitudinal fasciculus, fronto-occipital longitudinal fasciculi, uncinate fasciculi, frontal longitudinal fasciculus and the arcuate fasciculus have also positive findings in patients with schizophrenia. Other brain structures as the cerebellar peduncles, the fornix, the hippocampus and parahippocampal gyrus, the thalamic and optic radiations have been evaluated and shown positive findings. However, these findings are not present in all studies. DTI abnormalities in first-episode patients are less robust than in chronic patients.

Conclusions: Recent DTI findings further support the hypothesis of structural dysconnectivity in schizophrenia.