

Exploring White-Matter Hyperintensities in Patients with Psychiatric Disorders and Their Clinical Relevance

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Abstract : Objective: The aim is to study the association of MRI findings of T₂/FLAIR white matter hyperintensities among patients with psychiatric disorders. Background and Rationale: MRI findings in psychiatric disorders can vary widely depending on specific disorders and individual differences. However, some general patterns have been observed, such as, in Depression - reduced volume in areas such as the prefrontal cortex and hippocampus; in Schizophrenia - enlarged ventricles, abnormalities in frontal and temporal lobes, as well as hippocampus and thalamus; in Bipolar Disorder - reduced volume in the prefrontal cortex and hippocampus and abnormalities in the amygdala; in OCD - abnormalities in the orbitofrontal cortex, anterior cingulate cortex and striatum. However, many patients show findings of white-matter hyper-intensities, which are usually considered non-specific in psychiatry. These hyperintensities are low attenuation in the deep and white matter. The pathogenic mechanisms of white matter hyperintensities are not well-understood and have been attributed to cerebral small vessel disease. The aim of the study is to study the association of the above MRI findings in patients with psychiatric disorders after ruling out neurological disorders (if any are found). Methodology: Patients admitted to psychiatric hospitals or presenting to OPDs with underlying psychiatric disorders, having undergone MRI Brain as part of investigations, and having T₂/FLAIR white-matter hyperintensities on MRI were taken to study the association of the above MRI findings with different psychiatric disorders. Results: Out of the 22 patients having MRI findings of T₂/FLAIR white-matter hyper-intensities, the underlying psychiatric comorbidities were: Major Depressive Disorder in 7 pts; Obsessive Compulsive Disorder in 5 pts; Bipolar Disorder in 5 pts; Dementia (vascular type) in 5pts. Discussion and conclusion: In our study, the white matter hyper-intensities were found mostly in MDD (32%), OCD (22.7%), Bipolar Disorder (22.7%) and Dementia in 22.7% of patients. In conclusion, the presence of white-matter hyperintensities in psychiatric disorders underscores the complex interplay between vascular, neurobiological and psychosocial factors. Further research with a large sample size is needed to fully elucidate their clinical significance.

Keywords : white-matter hyperintensities, OCD, MDD, dementia, bipolar disorder.

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