

Oral presentation

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Can neuroimaging improve the diagnosis and treatment of schizophrenia?

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Theories of the pathophysiology of schizophrenia suggest that the pathogenesis of the disorder involves irregularities of neurodevelopment that result in distinctive neuroanatomical abnormalities. Among the brain structures involved in such abnormalities are the hippocampus and other components of the limbic system. Because such abnormalities are present before psychotic symptoms develop in patients with schizophrenia, their detection and characterization may be a useful tool for clinicians that are attempting to confirm the psychiatric diagnosis. In an attempt to enrich the types and quality of neuroanatomical information that can be derived from magnetic resonance images, we have recently applied the tools of computational anatomy to the study of selected brain structures in schizophrenia. The shape and symmetry, as well as the volume, of brain structures can be precisely quantified by using such methods. Further, the results of our studies indicate that schizophrenia patients have distinctive abnormalities of the shape and symmetry of the hippocampus and thalamus as compared to controls matched for age, gender and parental socioeconomic status. Also, our results suggest that there is biological heterogeneity among patients with schizophrenia in that some patients can be distinguished from others because they have more distinctive abnormalities of shape in one of these brain areas or the other. The aim of future research will be to add information about additional brain areas to further improve the sensitivity and specificity of neuroanatomical analysis as a potential tool for diagnosis.