Magnetic resonance imaging and the prediction of outcome in first-episode schizophrenia: a review of current evidence and directions for future research.

Abstract:
Magnetic Resonance Imaging (MRI) measures are promising outcome markers for schizophrenia, since regional frontal and temporal grey matter volumes reductions, and enlargement of the ventricles, have been associated with outcome in this disorder. However, a number of methodological issues have limited the potential clinical utility of these findings. This article reviewed studies that examined brain structure at illness onset as a predictor of outcome, discusses the limitations of the findings, and highlights the challenges that would need to be addressed if structural data are to inform the management of an individual patient. Using a set of a priori criteria, we systematically searched Medline and EMBASE databases for articles evaluating brain structure at the time of the first psychotic episode and assessed response to treatment, symptomatic outcome, or functional outcome at any point in the first 12 months of illness. The 11 studies identified suggest that alterations in medial temporal and prefrontal cortical areas, and in the networks that connect them with subcortical structures, are promising neuroanatomical markers of poor symptomatic and functional outcomes. Neuroimaging data,
possibly in combination with other biomarkers of disease, could help stratifying patients with psychoses to generate patient clusters clinically meaningful, and useful to detect true therapeutic effects in clinical trials. Optimization of Treatment and Management of Schizophrenia in Europe (OPTMiSE), a large multicenter study funded by the FP7 European Commission, could generate these much-needed findings.