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Vortragseinladung

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Thema: "Altered structural connectome in patients with non-lesional newly diagnosed focal epilepsy and relation to pharmacoresistance"

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The vast majority of adults with newly diagnosed focal epilepsy (NDfE) do not have an MRI-identifiable lesion but all patients have spontaneous onset of seizures. Pathological mechanisms contributing to seizure onset in the remaining non-lesional cases are unknown and there are a limited number of imaging studies in the early stages of human epilepsy. The purpose of this study was to identify brain network alterations in patients with NDfE, those with persistent seizures and those who are seizure-free after anti-epileptic drug administration (24-month outcomes). To achieve this, Network Based Statistics was applied to multi-shell diffusion and T1-weighted MRI data. All patient groups had an altered structural connectome compared to healthy controls. In particular we identified networks with increased mean, radial and axial diffusivity (but unchanged fractional anisotropy) involving limbic, frontal and temporal regions. Results may be suggestive of increased inter-axonal space due to dysmyelination or dystrophy. Our findings indicate that structural network changes are not necessarily a consequence of longstanding refractory epilepsy and instead are present at the time of diagnosis. Additionally, network analysis may have the potential to provide an early marker for pharmacoresistance.