

Unilateral temporal lobe epilepsy

Li et al. categorized and clinically characterize subtypes of brain [structural connectivity](#) patterns in unilateral [temporal lobe epilepsy](#) (TLE). [Voxel-based morphometry](#) (VBM) and [surfaced-based morphometry](#) (SBM) analysis were used to detect brain structural alterations associated with TLE from MRI data. Principal component analysis (PCA) was performed to identify subtypes of brain structural connectivity patterns. Correlation analysis was used to explore associations between PC scores and clinical characteristics. A total of 59 patients with TLE and 100 healthy adults were included in this study. Widespread cortical atrophy was shown in both left and right TLE ($P < 0.05$, FWE corrected). Six principal components (PCs) that explained more than 70% of the variance were extracted for left and right TLE, reflecting patterns of brain structural connectivity. PCs representing perisylvian connectivity were positively correlated with verbal IQ (left TLE: $r = 0.696$, $P < 0.001$; right TLE: $r = 0.484$, $P = 0.012$) and total IQ (left TLE $r = 0.608$, $P < 0.001$) and negatively correlated with disease duration ($r = -0.448$, $P = 0.009$). In left TLE, the PC in the ipsilateral mesial temporal region was negatively correlated with age at onset ($r = -0.382$, $P = 0.028$). In right TLE, the PC representing the default mode network was negatively correlated with the number of antiepileptic drugs ($r = -0.407$, $P = 0.039$). This study categorized subtypes of unilateral TLE based on brain structural connectivity patterns. Findings may provide insight into seizure pathways, the pathophysiology of epilepsy, including comorbidities such as cognitive impairment, and help predict treatment outcomes ¹⁾.

1)

Li Z, Jiang C, Xiang W, Qi Z, Gao Q, Peng K, Lin J, Wang W, Wang W, Deng B. Brain structural connectivity sub typing in unilateral temporal lobe epilepsy. *Brain Imaging Behav.* 2022 Jun 8. doi: 10.1007/s11682-022-00691-0. Epub ahead of print. PMID: 35674920.

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