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Theory of Mind and Its Brain Distribution in Patients with Temporal Lobe Epilepsy

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Abstract : Theory of Mind (ToM) refers to the ability to infer another's mental state. With appropriate ToM, one can behave well in social interactions. A growing body of evidence has demonstrated that patients with temporal lobe epilepsy (TLE) may have damaged ToM due to impact on regions of the underlying neural network of ToM. However, the question of whether there is cerebral laterality for ToM functions remains open. This study aimed to examine whether there is cerebral lateralization for ToM abilities in TLE patients. Sixty-seven adult TLE patients and 30 matched healthy controls (HC) were recruited. Patients were classified into right (RTLE), left (LTLE), and bilateral (BTLE) TLE groups on the basis of a consensus panel review of their seizure semiology, EEG findings, and brain imaging results. All participants completed an intellectual test and four tasks measuring basic and advanced ToM. The results showed that, on all ToM tasks; (1)each patient group performed worse than HC; (2)there were no significant differences between LTLE and RTLE groups; (3)the BTLE group performed the worst. It appears that the neural network responsible for ToM is distributed evenly between the cerebral hemispheres.

Keywords : cerebral lateralization, social cognition, temporal lobe epilepsy, theory of mind
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