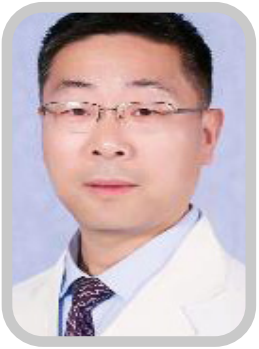

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Evaluating the treatment outcomes of repetitive transcranial magnetic stimulation in patients with moderate-to-severe Alzheimer's disease

Abstract:

The repetitive transcranial magnetic stimulation (rTMS) shows great potential in the treatment of Alzheimer's disease (AD). However, its treatment efficacy for AD patients in moderate to severe stage is relatively evaluated. Here, we proposed a randomized, sham-controlled, clinical trial of rTMS among 35 moderate-to-severe AD patients. A high frequency (10 Hz) stimulation of the left dorsal lateral prefrontal cortex (DLPFC), 60-session long treatment lasting for 3 months procedure was adopted in the trial. Each participant completed a battery of neuropsychological tests at baseline and post-treatment for evaluation of the rTMS therapeutic effect. Twelve of them completed baseline resting-state functional magnetic resonance imaging (fMRI) for exploration of the underlying neural contribution to individual difference in treatment outcomes. The result showed that the rTMS treatment significantly improved cognitive performance on the severe impairment battery (SIB), reduced psychiatric symptoms on the neuropsychiatric inventory (NPI), and improved the clinician's global impression of change (CIBIC-Plus). Furthermore, the result preliminarily proposed resting-state multivariate functional connectivity in the (para) hippocampal region as well as two clusters in the frontal and occipital cortices as a pre-treatment neuroimaging marker for predicting individual differences in treatment outcomes. The finding could brought some enlightenment and reference for the rTMS treatment of moderate and severe AD patients.

Biography

Zhang Shouzi from Beijing Geriatric Hospital, China, specializes in geriatric neurology with a focus on neurodegenerative disorders. His work emphasizes innovative therapies, including non-invasive brain stimulation, to improve cognitive outcomes in patients with Alzheimer's disease and related conditions.