1 Hz rTMS of the right orbitofrontal cortex for schizophrenic patients: a randomized, double-blind, sham-controlled pilot study

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Repetitive transcranial magnetic stimulation (rTMS) has demonstrated efficacy in treating patients with schizophrenia. The conventional stimulation sites of rTMS treatment in schizophrenia are the dorsolateral prefrontal cortex (DLPFC) and the temporoparietal cortex (TPC). However, the response of rTMS over these targets was quite heterogeneous. Recently, the orbitofrontal cortex (OFC) has been recognized as a potential therapeutic target for rTMS treatment in psychiatry. The present study aimed to explore the efficacy of OFC-rTMS in patients with schizophrenia. Here, we recruited 51 healthy controls (HC) and 89 schizophrenia patients (SZ) who were randomly assigned to OFC-rTMS (n=47) or sham (n=42) groups. Patients received rTMS treatment for 20 consecutive days in addition to pharmacotherapy. The positive and negative syndrome scale (PANSS) was performed to assess the clinical symptoms at baseline, after 10-day treatment, and after 20-day treatment. Mismatch negativity (MMN) data were obtained from HC and SZ groups at baseline and from the SZ group at the end of the treatment. We found that OFC-rTMS treatment improved the clinical symptoms, especially negative and general symptoms. MMN amplitudes were significantly reduced in patients with schizophrenia at baseline, and the rTMS treatment for 20 days did not improve MMN indicators. Our results suggest that OFC might be a promising target for rTMS treatment in schizophrenia.