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TREATMENT OF DEPRESSION USING SLEEP ELECTROENCEPHALOGRAM
MODULATED REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION

M. He¹, Z. Gu¹, X. Wang², H. Shi³

¹Department of Psychiatry & Neurology, ²Electroencephalogram Lab., ³Psychology Lab.,
Affiliated Lianyungang Hospital, Medical College of Xuzhou, Lianyungang City, China

Background and purpose: The conventional repetitive transcranial magnetic stimulation (rTMS) has some inadequate of efficacy weak and inadequate for the treatment of depression, easy symptomatic recurrence when stop the treatment. Ours invented the device of sleep electroencephalogram-modulated rTMS (SEM-rTMS) were safe and effective by proved of the animal experiments and clinical pre-test for the treatment of depression. The purpose of this study was to examine the efficacy and safety of SEM-rTMS for the treatment of depression.

Methods: After 7 days without psychoactive medication, 164 patients with clinically defined depression, were randomly assigned to receive SEM-rTMS (N=57), conventional rTMS (C-rTMS (N=55), or sham-rTMS (N=52) for 30 minutes/time/day for 10 days. Before and after scores on the 24-item Hamilton rating scale for depression (HAMD-24) and the clinical outcome at the 10th-day of therapy for all subjects were analyzed.

Results: Twenty two cases in the SEM-rTMS group improved mood as compared to 6 in the C-rTMS group and 2 in the sham-rTMS group ($\chi^2=15.89$, $p=0.0004$). After completion of the rTMS phase of the protocol, a (51±5) % reduction of HAMD-24 scores from the baseline in the SEM-rTMS group compared with a (34±4)% in the C-rTMS group ($q=26.09$, $p=0.001$) and a (14±3)% in Sham-rTMS group ($q=57.53$, $p=0.000$). The 88% total efficacy ratio in the SEM-rTMS group was significant higher than 68% in the C-rTMS group and 20 % in the sham-rTMS group ($\chi^2=12.01$, $p=0.0025$). No significant side effects were noted.

Conclusion: It is efficient and safe to treat depression with repetitive transcranial magnetic stimulation. (The registration. No: ChiCTR-TRC-00000438).