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► Efficacy of repetitive transcranial magnetic stimulation in alcohol dependence: a sham-controlled study.

Mishra B.R., Nizamie S.H., Das B. et al. [Request reprint](#)

Addiction: 2010, 105, p. 49–55.

In India the brains of alcohol dependent patients were repeatedly stimulated using a magnetic coil held close to the front right part of the skull. The result was to further reduce their craving for alcohol compared to a similar but inactive procedure.

Adapted abstract

[During transcranial magnetic stimulation an electromagnetic device which creates a rapidly changing magnetic field is held close to the skull, inducing weak electric currents in the brain without having to actually insert or attach electrodes ► *figure*. The figure illustrates the procedure but is not intended to show the particular device or skull location used in the featured study. Repetitive stimulation has been tested as a treatment tool for neurological and psychiatric disorders including migraines, strokes, Parkinson's disease, dystonia, tinnitus, depression and auditory hallucinations.]

Objective To study the anticraving efficacy of high-frequency repetitive transcranial magnetic stimulation of the right dorsolateral pre-frontal cortex at the front right side of the brain in patients with alcohol dependence.

Methods In India, 45 alcohol dependent patients who had not drunk for at least 10 days, and were experiencing withdrawal symptoms registering a score no more than 10 on the Clinical Institute of Withdrawal Assessment in Alcohol Withdrawal scale, were sequentially allocated to active repetitive transcranial magnetic stimulation or to a 'sham' procedure which mimicked this using a deactivated device applied in the same way and according to the same schedule. Patients were not told to which procedure they had been allocated



but may have become aware because of the sensations induced by the active procedure. Allocated in a 2:1 ratio, 30 patients received active and 15 patients sham stimulation for about 12 minutes to the right dorsolateral pre-frontal cortex in each of 10 daily sessions. During the study treatment period both groups were also given vitamin B capsules and medication to aid sleep, and after treatment they were prescribed anti-craving medications at the discretion of their clinicians. The Alcohol Craving Questionnaire was administered to measure the severity of alcohol craving at baseline, after the last session, and one month later.

Results Patients allocated to the real procedure experiences a greater reduction in craving for alcohol. Though statistically significant, the size of the extra reduction was modest. In the active group, four of 29 patients (14%) relapsed and one patient's relapse status was unknown because he could not be followed up. In the sham group, five of 15 (33%) patients relapsed. Though over twice the proportion of patients relapsed after the sham procedure, the difference was not statistically significant.

Conclusions Right dorsolateral pre-frontal, high frequency, repetitive transcranial magnetic stimulation was found to have significant anti-craving effects in alcohol dependence. The results highlight the procedure's potential (when combined with anti-craving drugs) to act as an effective strategy to reduce craving and subsequent relapse in alcohol dependence.

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