

NEW BRAIN STIMULATION TREATMENTS FOR DEPRESSION

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A whole new branch of treatments in psychiatry is currently under development. These involve novel brain stimulation techniques which have been examined as treatments for depression and other psychiatric disorders. Two of these new treatments are reviewed here.

Transcranial Magnetic Stimulation (TMS)

TMS is a technology developed in the 1980s for non invasive stimulation of the brain. It uses pulsed magnetic fields, delivered from a handheld coil placed on the head. In therapeutic applications of TMS, repeated pulses are given, grouped into trains lasting several seconds. A typical treatment session involves 20-40 trains given over 20–30 minutes. A typical course of treatment involves 5 sessions per week, over 4 weeks. There is no seizure and no anaesthetic or pre-medication is required. Over the last 20 years, multiple studies have shown TMS to be an effective treatment for depression. Patients who have received TMS have generally had very positive reports of the treatment, with few side effects, though some found the scalp activation by TMS pulses uncomfortable. TMS does not have detrimental effects on cognitive functioning and may even improve cognition.

TMS is currently emerging into clinical practice in Australia and overseas, though its availability in Australia is still mainly limited to research centres.

Transcranial Direct Current Stimulation (tDCS)

tDCS is another emerging treatment that looks extremely promising. It involves the use of very weak electrical currents, approximately 1/500th the strength of the stimulus used in electroconvulsive therapy (ECT). These currents are passed between 2 small rubber pads placed on the head. The currents are barely perceptible and result in very mild stimulation of the brain. There is no seizure or anaesthetic. The stimulation is given continuously for 20 – 30 minutes. Like TMS, approximately 20 sessions are required over a period of 4–6 weeks.

Since 2000, several studies have shown tDCS to be effective in treating depression. The efficacy appears similar to that of TMS. Cognitive functioning has been shown to be enhanced after tDCS. The treatment is safe and very well tolerated and there is no pain or discomfort.

In Sydney the largest controlled clinical trial of tDCS done worldwide has just been completed. This showed that tDCS was superior to a placebo treatment and enhanced cognition. tDCS is currently only available in research trials. Further research trials are underway at the Black Dog Institute in Sydney (www.blackdoginstitute.org).

Summary

Antidepressant effects with very few side effects have been demonstrated for both of these promising new treatments. Patients who do not improve with medications, or who are unable to tolerate medications, have found these treatments particularly useful. These treatments are also being investigated for the treatment of other psychiatric disorders such as schizophrenia. While the efficacy of these treatments may not be equivalent to that of ECT, they do not involve an anaesthetic or seizure, and have no adverse cognitive effects. This exciting new field of novel brain stimulation may potentially deliver a whole new array of treatment options for those with psychiatric disorders.

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