NICE guidance

Transcranial magnetic stimulation for auditory hallucinations

Interventional procedures guidance
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www.nice.org.uk/guidance/ipg680

1 Recommendations

1.1 Evidence on the safety of transcranial magnetic stimulation for auditory hallucinations is adequate and raises no major safety concerns. However, evidence on its efficacy is inadequate in quantity and quality. Therefore, this procedure should only be used in the context of research. Find out what only in research means on the NICE interventional procedures guidance page.

1.2 Further research should be in the form of randomised controlled trials and should use well described treatment protocols. Studies should report details of patient selection including specific psychopathology, underlying disease and other treatments, the area of brain treated and the imaging used to target it, and long-term outcomes for at least 1 year.

2 The condition, current treatments and procedure

The condition

2.1 Auditory hallucinations are when you hear sounds that do not exist (such as hearing voices). They are often symptoms of mental health problems such as schizophrenia, bipolar disorder, major depression and post-traumatic stress disorder. However, they may also be symptoms of temporal lobe epilepsy, dementia, neurological infections and brain tumours. And they are sometimes caused by lack of sleep, extreme hunger, or the use of recreational or prescribed drugs.

Current treatments

2.2 The treatment options for auditory hallucinations depend on the underlying cause. For example, antipsychotic medication may help with hallucinations for people living with schizophrenia. Some people find strategies such as learning to understand their voices, taking control and keeping busy are helpful in managing the condition.

The procedure

2.3 Transcranial magnetic stimulation is typically done with the patient awake and sitting in a chair. The operator places an electromagnetic coil against the scalp, over a specific region of the brain, usually the left temporoparietal area. Pulses of electrical current in the coil generate rapidly pulsating magnetic fields that pass through the skull and meninges and into the targeted area of the brain. The magnetic field is relatively powerful but short lived (milliseconds). The precise mechanism of action is unclear but it produces both excitatory and inhibitory effects on cortical neurons. The amount of stimulation and the target area is adjusted for each patient. Treatment usually comprises daily or twice daily sessions lasting about 20 minutes. The number of sessions varies but it could be up to 30 sessions. The aim is to stop or reduce the

auditory hallucinations.

2.4 Stimulation can be repetitive, with pulses of magnetic energy delivered at various frequencies or stimulus intensities. In the standard repetitive technique, individual pulses are repeated at a pre-set interval (repetition of pulses). In the theta-burst technique, short bursts of pulses are repeated at a pre-set interval (repetition of bursts). In the deep repetitive technique, deeper and broader brain regions are stimulated than in the standard technique.

3 Committee considerations

The evidence

3.1 NICE did a rapid review of the published literature on the efficacy and safety of this procedure. This comprised a comprehensive literature search and detailed review of the evidence from 7 sources, which was discussed by the committee. The evidence included 1 systematic review, 5 randomised controlled trials (3 of which are also included in the systematic review) and 1 review of safety events (including some of the same studies that are included in the systematic review). It is presented in the summary of key evidence section in the interventional procedures overview. Other relevant literature is in the appendix of the overview.

3.2 The professional experts and the committee considered the key efficacy outcomes to be: remission or reduction of the intensity or frequency of auditory hallucinations, and improvement in quality of life.

3.3 The professional experts and the committee considered the key safety outcomes to be: headache, inadvertent muscle stimulation, exacerbation of symptoms, and seizures.

3.4 Patient commentary was sought but none was received.

Committee comments

3.5 The committee was informed that there is more than 1 device available for this procedure.

3.6 The committee noted that there is a placebo effect with this treatment.

3.7 Treatment may be targeted using imaging such as MRI or electroencephalogram (EEG).

3.8 This treatment is typically used as an adjunct to other therapies.

3.9 A wide variety of treatment protocols were used in the evidence considered by the committee.

3.10 The committee noted that most of the evidence it considered came from patients with schizophrenia.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.

Accreditation