

Transcranial magnetic stimulation for obsessive-compulsive disorder

Interventional procedures guidance

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www.nice.org.uk/guidance/ipg676

Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the [Yellow Card Scheme](#).

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful

discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

1 Recommendations

- 1.1 Evidence on the safety of transcranial magnetic stimulation for obsessive-compulsive disorder 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 website.
- 1.2 Research should ideally be in the form of pre-registered, adequately powered, randomised controlled trials. It should report details of patient selection, including the use of concurrent therapies, type, duration and frequency of stimulation, and the intended target in the brain. Outcomes should include improvement in symptoms, quality of life and duration of effect.

2 The condition, current treatments and procedure

The condition

- 2.1 Obsessive-compulsive disorder is a mental health condition in which a person has obsessive thoughts (repeated, unwanted and unpleasant thoughts, images or urges). The person feels compelled to carry out compulsive (repetitive) behaviours to try to relieve the unpleasant feelings brought on by the obsessive thoughts.

Current treatments

- 2.2 [NICE's guideline on obsessive-compulsive disorder and body dysmorphic disorder](#) describes the treatment of the disorder. Treatment options include psychological interventions and drug treatment (typically, selective serotonin reuptake inhibitors).

The procedure

- 2.3 Transcranial magnetic stimulation (TMS) is done with the patient awake and sitting in a comfortable chair. The operator places an electromagnetic coil over a specific region of the head. The coil delivers electromagnetic pulses through the skull that stimulate neurons (brain cells) by inducing small electrical currents within the brain. Different areas of the brain may be targeted, and a variety of stimulation protocols may be used. Treatment with TMS usually comprises daily sessions lasting about 30 minutes, for a few weeks. The aim is to reduce the symptoms of obsessive-compulsive disorder.
- 2.4 In repetitive TMS (rTMS), repetitive pulses of electromagnetic energy are delivered at various frequencies (low or high) or stimulus intensities. The intensity of stimulation is usually titrated against the minimum intensity needed to elicit a motor response when stimulating the motor cortex, known as the motor threshold. Determining the motor threshold for rTMS can be done visually (such as by observing targeted hand muscle movements) or by using electromyography.
- 2.5 Conventional rTMS is repeated individual pulses at a pre-set interval (train of pulses), and theta-burst rTMS is repeated short bursts of pulses at a pre-set interval (train of bursts). Deep TMS stimulates deeper and broader brain regions compared with conventional rTMS.

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 10 sources, which was discussed by the committee. The evidence included 1 systematic review and meta-analysis, 7 randomised controlled trials (1 of which is also included in the systematic review), 1 case series and 1 review of seizures reported after deep repetitive transcranial magnetic stimulation (rTMS). It is presented in [table 2 of 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 reduction in obsessive-compulsive disorder symptoms and improvement in quality of life.
- 3.3 The professional experts and the committee considered the key safety outcomes to be headache, fatigue and concentration difficulties.
- 3.4 Patient commentary was sought but none was received.

Committee comments

- 3.5 The committee noted that there is more than 1 device available for this procedure, but that not all available devices are currently CE marked for treating obsessive-compulsive disorder.
- 3.6 The committee was pleased to receive commentary from a patient organisation.

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Endorsing organisation

This guidance has been endorsed by [Healthcare Improvement Scotland](#).