

# **Repetitive Transcranial Magnetic Stimulation** **(rTMS)**

## **How does rTMS work?**

rTMS stimulates the brain and promotes 'neuroplasticity.' This is the brain's ability to mend and build connections between nerve cells.

For depression, we stimulate the left side of the prefrontal cortex to help restore connections which are not working.

For anxiety, we may stimulate the right side of the brain with a slower type of stimulation to reduce its activity.

## **Am I suitable for treatment with rTMS**

rTMS is a suitable treatment for some people who suffer from depression or anxiety, which has not responded to anti-depressants and talking therapy.

Some clinics use rTMS to treat other psychiatric conditions, but we currently only use rTMS to treat resistant depression (including bipolar depression) and anxiety.

You need to be referred by your psychiatrist. We expect you to remain under the care of your usual mental health team during treatment.

## Who should not have rTMS?

We do not usually treat people with a diagnosis of epilepsy due to the risk of triggering a seizure. It is important that you tell us if you have ever had a seizure.

Because rTMS generates high magnetic fields, you cannot have rTMS treatment if you have any type of metal in or near your head, except for dental braces or fillings.

People who have any of the following should not receive rTMS:

- Facial tattoos with metallic or magnetic-sensitive ink (please discuss with us if you are unsure)
- Aneurysm clips or coils
- Stents in the neck or brain
- Deep brain stimulators
- Electrodes to monitor brain activity.
- Metallic implants in your ears and eyes
- Metal shards, shrapnel, or bullet fragments in or near the head
- Other metal devices or object implanted in or near the head.

Whilst cardiac pacemakers in the chest are a long way from the magnetic coil, the manufacturers of our rTMS machine say that it should not be used in people who have a cardiac pacemaker.

## **What are the side effects?**

The side effects of rTMS are less than for medications because rTMS only affects the targeted area of the brain and the scalp over it whereas medication can affect other parts of the body too.

rTMS commonly causes muscle twitching in the scalp during the session.

For some people, this leads to a headache which can usually be treated with simple painkillers such as paracetamol. Headache tends to reduce as sessions continue.

Some people feel tired after treatment.

There is a small risk of a seizure during iTBS treatment (less than 1 in 10,000). It is possible that this risk may be increased with the accelerated iTBS protocol that we use. Brain injury, alcohol use, sleep deprivation and some medications may also increase the risk of seizure.

The increased risk of a seizure stops once the magnetic pulses stop, so you will not be at increased risk of seizures once you go home.

If you take insulin, there is occasionally a drop in blood sugar during treatment. You should therefore inform us after treatment if you have symptoms of a hypo.

## **What time commitment does rTMS involve?**

You will come to the hospital 5 days a week, for up to 2 weeks. You will usually be at the hospital for less than 2 hours, except on the first day when you should allow 3 hours.

On each day that you attend, you will have 2 sessions. The 2 sessions will be separated by at least an hour. The sessions will typically last 12 minutes except for the very first session which will last 30-60 minutes. Each session with the accelerated intermittent theta burst (aiTBS) protocol involves having three lots of 600 pulses, each lasting 3 minutes, with a one-minute rest in between.

Most people can continue normal activities (eg reading, walking etc) after the treatment sessions and during the break between sessions.

### **Driving**

We recommend that you do not drive on the first day of your treatment. If your condition otherwise permits it, you can drive home after all subsequent treatments. Please talk to your psychiatrist if you are unsure about the DVLA driving rules about your condition.

## rTMS pricing

Patients who are referred for rTMS by an Oxford Health Consultant Psychiatrist are treated 'on the NHS' i.e. free.

The following pricing schedule applies to all other patients. Payment must be received before treatment can start.

Initial assessment with Psychiatrist: **£225**

Follow up review with psychiatrist: **£100**

Accelerated intermittent theta burst rTMS:

- 20 sessions (2 sessions per day for 10 days over 2 weeks) : **£ 2000**
- Further sessions : **£ 100 each**

If you do not come to your appointment, and do not give us adequate notice, we cannot reallocate it to another patient. Please contact us as soon as you know you cannot attend.

Email is best as it avoids

misunderstanding: [ketamineclinic@oxfordhealth.nhs.uk](mailto:ketamineclinic@oxfordhealth.nhs.uk) or phone 01865 902 522.

## **What will happen at my appointments?**

### **First session**

When you arrive, we will take your blood pressure, oxygen levels and pulse.

One of our doctors will talk with you to make sure that rTMS is a suitable treatment for you. Please ask questions and tell us if you are worried about anything.

If you agree to start treatment, we will ask you to sign a consent form and to complete some questionnaires.

We will ask you to remove any jewellery, including necklaces, earrings, face or tongue studs and hair grips. We will put your mobile phone and debit/credit cards where they will not be affected by the magnetic field.

### **Subsequent sessions**

You will need to complete monitoring questionnaires. You may either do this at home before you attend or when you arrive.

We will show you through to the treatment room. You will sit in a large adjustable chair, like a dentist's chair.

We will put specially designed caps on your head to determine the point where the magnetic coil will be focussed. We may make additional measurements if needed.

We usually adjust the treatment based on what is comfortable for you.

Sometimes, we work out the dose to give by applying brief pulses to establish your 'motor threshold'. Your motor threshold is the minimum amount of magnetic energy to make your thumb twitch; this varies from person to person.

We will place the coil over the target area using a flexible positioning arm.

We will give you earplugs to wear for comfort and hearing protection. During treatment, you will hear a series of clicking sounds and feel a tapping sensation on your head underneath the treatment coil.

### **After the session**

Afterwards, we offer you tea/coffee and biscuits.

Some people feel tired after the treatment and may prefer not to drive home. There are no formal restrictions on this, but you should not drive if you feel unsafe to do so.

### **Treatment duration and Follow-up**

The length of the course will depend on your response. If you have not responded at all to the treatment after a week, it is unlikely that further week of treatment will help. We do not usually recommend a course of longer than two weeks.

We like to follow you up with a phone call 2 weeks after your treatment and then 2 months after. We will discuss these follow-up arrangements with you at your last session.

After the course of treatment has finished, you may need to return for top-up sessions. The frequency of these gradually reduces from once a week to once every two or three months.