McLean Hospital

Transcranial Magnetic Stimulation Service

Transcranial magnetic stimulation (TMS) is a non-invasive treatment for severe depression offered by the Psychiatric Neurotherapeutics Program at McLean Hospital. TMS uses magnetic stimulation of the brain to help control mood in adults with major depression. The procedure was approved by the U.S. Food and Drug Administration in October 2008 after more than 10 years of clinical investigation in patients who failed to achieve satisfactory improvement from one course of pharmacotherapy (medication). For this reason, TMS is particularly helpful for people who have not experienced significant relief from antidepressant medications or have difficulty with their side effects.

How Does TMS work?

TMS uses focused magnetic impulses to non-invasively stimulate the brain in the prefrontal cortex (the region of the brain associated with mood regulation). During a TMS treatment, a clinician gently places a magnetic coil against one side of a patient's scalp. The magnetic fields penetrate approximately two to three centimeters beneath the coil directly into the brain to produce electrical currents. These currents activate cells within the brain that are thought to release neurotransmitters, which play a role in mood regulation. Since depression is believed to be caused by an imbalance of chemicals in the brain, TMS helps restore balance and relieve the symptoms of depression.

The Advantages of TMS

TMS requires no anesthesia or sedation and patients are awake and alert during the procedure. Because no medications are administered, there are no systemic effects or cognitive after-effects (memory loss and ability to concentrate); therefore, patients can return immediately to regular activity.

Treatment

Patients typically receive 20 to 30 treatments over four to six weeks, five times per week; with each treatment lasting approximately one hour. The course of treatment varies according to each individual. There also may be a taper phase. An initial assessment will determine the appropriate dose of the magnetic pulse and the exact area of the brain the coil should target. As treatment progresses, the clinician will conduct periodic re-evaluations of the dose level and coil placement.

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McLean Hospital is the largest psychiatric facility of Harvard Medical School, an affiliate of the Massachusetts General Hospital and a member of Partners HealthCare.

During a treatment session, the patient sits in a comfortable reclining chair similar to that found in a dentist's office. A headset is applied to deliver the magnetic stimulation. Ear plugs are provided to decrease the loud clicks associated with each magnetic pulse and the patient is given the option of watching TV. During the procedure, the patient is monitored continuously to ensure correct positioning and comfort level.

Are There Risks and Side Effects with TMS?

More than 10,000 treatments were safely performed during clinical trials. Patients reported no side effects like those associated with antidepressant medication (weight gain, dry mouth, drowsiness, etc.), no seizures and no cognitive side effects. Scalp discomfort during the procedure is the most common side effect. TMS should not be used for patients with implanted metallic devices that include metal plates in the skull or aneurysm coils, clips or stents. Special precautions are recommended for individuals with implants, such as pacemakers and implantable cardioverter defibrillators.

Is TMS Covered by Insurance?

Both private and public insurers are determining eligibility for TMS on an individual basis. However, until TMS is accepted more widely as a medically necessary treatment, insurance coverage will most likely not be authorized. Patients should work directly with their insurers to determine coverage. Patients can then work with a Patient Account representative to arrange payment schedules and to obtain assistance in applying for reimbursement of out-of-pocket expenses from their insurers.

The Psychiatric Neurotherapeutics Program

TMS is part of McLean's Psychiatric Neurotherapeutics Program (PNP), which also offers electroconvulsive therapy (ECT), a highly effective, conventional intervention for chronic depression, mania, catatonia and schizophrenia. The PNP, with components in clinical care, research and education, is dedicated to improving the quality of life for individuals with a broad range of psychiatric illnesses. Its collaborative team approach is aimed at maximizing the effectiveness of psychotherapy, medication management and psychosocial treatments already offered at McLean, with emerging techniques, technologies and interventions.

Contact

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