



Transcranial magnetic stimulation gives hope for patients with severe depression

There's nothing more frustrating to a physician than seeing a patient fail to respond to treatment. For patients with depression whose symptoms don't improve with medication, that frustration can further deepen their depression.

But there's good news. A new treatment provided by Novant Health Neurosciences & Psychiatry Institute is offering hope and healing for people whose depression has resisted conventional methods. It's transcranial magnetic stimulation (TMS), and doctors are impressed with the results they're seeing.



Michael Christo, MD

"TMS treatment is the branch of psychiatry we call neurostimulation," said Michael Christo, MD, a psychiatrist with Novant Health

Psychiatric Associates. "Typically for depression and different mood disorders we use medication and therapy as first-line treatment, but for a substantial amount of people those treatments don't work or are not tolerated."

TMS helps rebuild connections in the brain

TMS is the direct stimulation of the brain with the use of a standard MRI-strength magnet. The magnet causes an alternating current to pass through a metal coil placed against the scalp. The alternating magnetic fields pass almost unimpeded through the skull and into the precise regions of the brain the doctor suspects are being affected by depression.

The mechanism of action of repetitive TMS is unknown. However, one hypothesis is that the stimulation of discrete cortical regions alters pathologic activity within a network

of gray matter brain regions that are involved in mood regulation and connected to the targeted cortical sites. "In essence," said Christo, "neurons in the affected parts of the brain begin to connect a bit differently than they were before treatment," Christo said.

Patients can see dramatic results

"The average person we see for TMS has a diagnosis of a major depressive order, severe without psychosis. He or she has failed three to four medication trials of antidepressants," Christo said.

The patient sits in a chair that looks like a dentist's chair. A magnet is placed over the prefrontal cortex. "It fires in about 10-second increments, then pauses and continues. It feels a little like a woodpecker tapping your head," Christo said. "The sessions are about 20 minutes long, daily for six weeks."

The results can be dramatic. "What I've seen happen is a lot of times, people who are depressed go into remission and they stay in remission a very long time," Christo said. "And if a patient experiences a depressed state again after treatment, we've found that medications do work more effectively, or we can treat with TMS again."

A new treatment tool, with few side effects

And unlike antidepressants, which can cause sedation, weight gain, headaches, dampening of sex drive and other concerns, TMS is very well-tolerated. "Not only is it effective in this group of patients," Christo said, "but it has very few side effects, which is appealing."

Repetitive TMS has many molecular effects comparable to electroconvulsive therapy (ECT), including increased monoamine turnover and normalization of the

hypothalamic pituitary axis. And while ECT remains the gold standard neurostimulation for treatment of depression, it is much more invasive than TMS, involves the induction of seizures and requires anesthesia. The whole brain, rather than targeted regions, is affected and ECT involves the induction of seizures. TMS also does not require anesthesia, while ECT does.

Treatment available here in Charlotte

Novant Health partners with referring providers to treat patients with TMS in two locations in the Charlotte area:

Novant Health Psychiatric Associates
9929 Rea Road, Suite 201
Waxhaw, NC 28173
704-316-1650

Novant Health Psychiatric Associates
1900 Randolph Road, Suite 800
Charlotte, NC 28207
704-384-1246

“Today we have more tools than ever before to treat cases of depression that are deeply entrenched”

"That's why we encourage providers who have tried unsuccessfully to manage a patient's depression with medication to call us. TMS might be a great alternative to help treat this condition," Christo said.

