

# A NEW THERAPY FOR DEPRESSION

*Just six years in use, Transcranial Magnetic Stimulation is a promising treatment for patients*

BY KAREN SINGER

Using a red LED laser light aimed at a point between Dennis Chaves' eyebrows, Nicole Menillo made sure the 36-year-old Madison resident was properly positioned in a light blue padded chair at the Connecticut Psychiatric & Wellness Center on Bradley Road. She then adjusted a hand-cupped shaped device attached to a machine behind the chair until it was above the upper left side of his head.

"Are you ready?" Menillo asked. When Chaves replied, "Yes," she flipped a switch, and the device began sending magnetic pulses into his brain.

Chaves was awake and alert during the entire outpatient procedure.

It was Chaves' 19<sup>th</sup> session in a series of 30 aimed at alleviating his debilitating depression.

The therapy is called Transcranial Magnetic Stimulation (TMS). In 2008, the Food & Drug Administration (FDA) approved the first medical device for its use in treating Major Depressive Disorder (MDD) in adult patients not responding well to medication.

MDD affects approximately 14.8 million American adults annually, according to the Anxiety and Depression Association of America.

Robin Williams may have been one of them. Press reports following the late comedian's recent death say he committed suicide while battling depression, anxiety and the early stages of Parkinson disease.

"People need to know TMS is a viable treatment option for depression," says David Aversa, a psychiatrist who began offering the therapy at his Woodbridge center in 2010. Since then he has treated dozens of patients with results ranging from partial to full remission.



"Most have gone through it once, and haven't had to come back," Aversa says.

"TMS is a whole different way of treating the brain, a paradigm shift," explains Tarique Perera, president and founder of the Greenwich-based Clinical TMS Society. "While approved for depression, it may also help other brain diseases."

Traditional treatments for depression are antidepressants, which can produce side effects in the brain and body, and electroconvulsive therapy (ECT), a procedure requiring anesthesia and a muscle relaxant, in which electrical current is sent throughout the brain to induce a seizure.

(Think Claire Danes in *Homeland* or Jack Nicholson's more antiquated depiction of ECT in *One Flew over the Cuckoo's Nest*.)

ECT causes memory loss and possible physical side effects such as nausea, headaches and muscle spasms.

TMS is a much more precise therapy requiring no sedation. It zeroes in on the part of the brain believed to correlate with depression.

Invented in the mid-1980s, TMS an outgrowth of functional brain imaging techniques.

"For the first time in the history of psychiatry we have been able to direct our treatment to target the brain's circuitry," says Perera. "One of the most consistent findings in depression is decreased functioning in the prefrontal cortex, which will get better with the normalization of that region. TMS uses electromagnetic forces going through a coil, which can be sculpted to treat specifically, and non-invasively [i.e., non-surgically] stimulate the prefrontal cortex."

The magnetic pulses trigger electrical charges, activating neurons, the cells transmitting nerve impulses.

"And if you keep stimulating the prefrontal cortex," adds Perera, "over time the process becomes self-sustaining."

Kind of like what happens when you jump-start a car.

Data from three major studies and 35 others show an overall success rate of 55 percent with TMS therapy, Perera explains. Eleven percent of patients relapse six months after treatment with TMS, compared with 67 percent treated with medication and 89 percent treated with ECT.

A spokesperson for Neuronetics Inc., maker of the first FDA-approved TMS device, says that more than 20,000 U.S. patients have been treated with its NeuroStar TMS Therapy System, and 593 systems have been installed nationwide. Ten are in Connecticut.

In 2013, the FDA approved a second TMS device made by Brainsway, and expanded the prescription and administration of TMS therapy from psychiatrists to any licensed physicians.

At Aversa's center, patients seeking TMS therapy fill out a questionnaire to see whether they have experienced, for more than two weeks, five of nine symptoms including sleep disturbance, feelings of guilt or worthlessness, little interest or pleasure in doing things, low energy and suicidal thoughts.

"A lot of times I talk with their therapist once they meet that criteria," Aversa says, "to make sure they are no contraindications." Patients with magnetic sensitive metals in their head, for example, shouldn't have the treatment.



A former parole officer, Dennis Chaves heard about TMS from a friend and researched the therapy online before choosing Aversa's center.

"I've had severe depression for seven years, multiple psychiatrists and different depression meds," he says. "Nothing seemed to work."

During his 37-minute TMS session, each cycle of magnetic pulsing was preceded by a chime and lasted seven seconds, with a 25-second interval before the next cycle. The pulsing sounded like a cross between a woodpecker and muted jackhammer.

"It feels like someone is tapping on my head," Chaves explains. He had a slight headache after his first session.

Other potential short-term side effects of TMS include lightheadedness, scalp discomfort and facial muscle twitching. In rare instances, TMS can trigger seizures or mania, according to the Mayo Clinic and Johns Hopkins Medicine.

Before commencing TMS therapy, a doctor must determine the patient's motor threshold, which is the minimum amount of power needed to make his or her thumb twitch.

During treatment sessions at Aversa's clinic, patients watch DVDs, listen to music or chat with Menillo, the TMS coordinator, who often monitors the machine. They are never alone.

"For each treatment, the protocol is four to six weeks, five days a week," says Aversa. After their first treatment, some patients participate in a tapering process of additional treatments over several weeks.

"A few come six to 12 months later for a two-week booster course, and some have a full course a year later," Aversa says.

The beneficial effects of TMS lasted a year for Annette, 76, who recently returned to the center for a two-week booster, and asked to be identified by her first name only. "It's hard to describe depression," she says. "You just want to go to sleep. You wait for 9 o'clock at night. That's what you look forward to all day.

"TMS did help me," Annette adds. "Maybe more

people will try it."

Cost is a major drawback. Six weeks of TMS treatments (30 sessions) is around \$12,000, and some insurance companies are not eager to cover it. Neither is Medicare, which approves the therapy in some states but not Connecticut.

Paul Grabowski, a law student associate at the Center for Medicare Advocacy in Willimantic, has successfully argued one of the two appeals the center has handled in the past two years. "If you're going to go forward with a Medicare appeal," he explains, "make sure you have as many documents as possible, including a history of prescription medicines, your therapy history and statements from doctors to show progress [with TMS].

"Make sure there's a mountain of evidence to put forward."

Perera says the Clinical TMS Society is working with insurance companies to improve coverage for the therapy. Established in 2013, the society has around 250 members worldwide. Most are in the U.S.

Chaves noticed a major elevation in his mood two weeks into his TMS therapy.

"I was skeptical at first, but then I was amazed," he says. "Before I had no motivation and low energy. Now I have a lot of motivation to do things, like play with my dogs, and sometimes I feel that I don't need to take my anxiety meds.

"My mother can tell by the tone of my voice that I'm more upbeat and feeling better." ◆

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