

Effectively Treating Depression with TMS Digital Technology

By Sandeep Vaishnavi, MD, PhD

At The Neuropsychiatric Clinic of Carolina Partners in Raleigh, we use digital technology to help us take a more holistic approach to healing. This involves combining what we know about two disciplines—neuroscience and psychiatry—to better evaluate, test, and treat mood, behavioral, and cognitive symptoms of neuropsychiatric illnesses. Often, many of those illnesses, like ADHD, traumatic brain injury, and dementia in adults, are misdiagnosed or resistant to more classic treatment therapies.

TREATING DEPRESSION

We are especially excited about a new treatment for depression that combines advances in digital technology with what we know about brain circuitry and how we can externally influence these functions. What I am referring to is Transcranial Magnetic Stimulation (TMS), a cutting edge treatment that looks increasingly promising for patients who are unable to find relief through antidepressant medications and more traditional therapies.

The NeuroStar TMS Therapy, an alternative treatment for depression, does not involve medications or surgery. Since it is noninvasive there are no potential systematic side effects—something that we find especially attractive. TMS treatment involves administering short, electric-magnetic pulses—similar in type and strength to those produced by a magnetic resonance imaging (MRI) machine—to regions in the brain known to affect mood. The pulses are generated by a small curved device containing a magnetic coil that rests lightly on the patient's head and delivers this focused magnetic stimulation directly to the brain's circuitry. Patients remain alert in a comfortable chair during this process, which usually takes an hour, and they are able to resume normal activities upon leaving the treatment session.

The normal course of TMS consists of five treatments per week over a four- to six-week period, for a total of 20-30 treatments. Clinical evidence shows that patients have experienced a 50 percent decrease in symptoms and, in some cases, a complete remission of symptoms. Our patients who have begun this therapy at our clinic see a decrease in their symptoms early-on. These same patients previously had not achieved alleviation of their symptoms through traditional therapies.

TECHNOLOGICAL ADVANCES IN TESTING AND DIAGNOSIS

Since cognitive issues are very common in neuropsychiatric diseases we also use digital technology to test cognitive performance. Cognitive impairment may be associated with various pathologies, including Alzheimer's disease, vascular dementia, and mixed dementias. Cognitive decline may also be a secondary symptom of Parkinson's disease. The computer tests various cognitive domains, including verbal and visual memory and attention. These tests also help in diagnosing more subtle cognitive problems that would otherwise not be picked up. Computerized neurocognitive testing can be done quickly without necessarily resorting to full-day neuropsychological testing.

Patients have an expectation that technology will be an integral part of their health care. From electronic health records to digital blood pressure machines, we're seeing the medical field adapt and progress with technological advances. It's important that we embrace these advances and offer our patients access to the best new technology through treatments like TMS therapy and Neuropsychiatric testing. At the Neuropsychiatric Clinic at Carolina Partners, we're happy to say we've found new advanced treatments that work and that offer a safe and effective alternative to the traditional medication path for psychiatric disorders. **h&h**



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