

Sarah Mallard Wakefield, M.D. – Department Chair, Psychiatry

What is severe depression?

00:06

So depression is a mood disorder where people have these persistent feelings of low self worth and hopelessness and having difficulty kind of thinking I describe it a lot of times as thinking through mud, where everything just seems harder and everything seems heavy. In typical depression, you can still get through day to day activities, even though you feel like this and a lot of people can put on that mask and go on about their business, but it's just very effortful throughout the day, so you're exhausted trying to do even normal daily activities. The more severe the depression gets, the harder it is to function day to day, and some people find themselves not able to participate in activities of daily living because the weight is just too heavy.

Which areas of the brain are affected by depression?

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The exact location of depression in the brain is and continues to be difficult to understand. We see lots of areas of the brain affected in depression. One of the major regions that's affected in depression and one of the targets of transcranial magnetic stimulation is the dorsal lateral prefrontal cortex. This area of the brain is connected to the limbic system, which is very important in emotional and behavioral responses.

How does transcranial magnetic stimulation work?

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So the brain is both a chemical and an electrical organ. In in typical treatment of depression with medication, we are targeting increases in neurotransmitters and the chemicals in the brain. When we use transcranial magnetic stimulation TMS, we use electrical impulses from a coil that is placed next to a patient's head to create a magnetic field. That magnetic field actually passes through the skull and increases activity of neurons, thereby also increasing neurotransmitter or that chemical activity. And so the more all thoughts and perceptions behaviors are the result of neurons interacting with each other. And we know that depression tends to show low neuronal activity in that dorsal lateral prefrontal cortex. So in TMS we target that area to enhance that neuron signaling.

Is TMS a one time treatment?

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So TMS is definitely an investment in your health. It is not a one time session, there are 36 sessions in total, the first 30 happening Monday through Friday, five days a week for six weeks. And then as you complete the treatment, you spend six additional sessions several days apart each.

Describe the process of TMS appointment.

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When you come to the clinic for a TMS appointment. Each time you come to the clinic is about 20 minutes for the intervention. That 20 minutes consists of sitting in a comfortable chair, putting a helmet with that magnetic coil on your head and experiencing pulses of electricity two seconds on 20 seconds off for that 20 minute period.

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Do people need further treatment after TMS?

03:17

Many people benefit from TMS and do not need additional treatments in the future. There are people who benefit from staying on medication or starting medication later, but they have better results from that treatment than they would have otherwise because they engaged in TMS.

Are there any side effects?

03:37

TMS is a very safe non invasive procedure. The most common side effect is having a headache post intervention post procedure. There is a serious side effect of seizure that is very very rare, with no long term effects that we've seen associated with that TMS is FDA approved for those experiencing severe depression who are 18 years of age and older.

Can TMS treat things besides depression?

04:03

Currently TMS is FDA approved for severe depression and most major insurances and Medicare do cover it for this indication. Other diagnoses are being studied for this new exciting intervention, including obsessive compulsive disorder and smoking cessation.