

TMS Potential Alternative to Antidepressants in Pregnancy

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ATHENS, Greece — Transcranial magnetic stimulation (TMS) significantly reduces major depressive symptoms during pregnancy and appears to be a safe and effective alternative to antidepressants for women who do not wish to take medication while pregnant, new research shows.

"This is really an acceptability issue," study investigator Deborah Kim, MD, assistant professor of psychiatry, University of Pennsylvania, in Philadelphia, told *Medscape Medical News*.

"Women will say that they prefer psychotherapy over medication, but access to psychotherapy and its cost limit its use, and the fact that not everybody responds to psychotherapy means we need something else," she said.

"And TMS is good for women with moderate to severe depression who don't want to go on antidepressant drugs."

The findings were presented here at the 12th World Congress of Biological Psychiatry.

Safe, Effective

The study involved 12 women treated with active TMS and another 10 treated with sham TMS. All women had major depressive disorder (MDD) and were from 14 to 34 weeks' gestation.

Women received 20 sessions of right-sided TMS delivered to the dorsolateral prefrontal cortex at a dose of 1 Hz in a 15-minute train at 100% motor threshold (900 pulses/session) or the same number of sessions of sham TMS.

Dr Kim noted that left-sided TMS is more standard. However, investigators chose to use right-sided TMS to offset any risk for seizure. If seizure does occur in pregnancy, it can result in fetal death.

Twenty women completed all 20 of the active or sham TMS sessions.

At baseline, the mean Hamilton Depression Rating Scale (HDRS) scores were similar between the two groups, at 23.3 for women in the active coil group and 22.4 for women in the sham coil group.

Nine of the 12 women (75%) who received active TMS responded to treatment at the end of the 20-session protocol, as did five of 10 women (50%) who received sham TMS.

Response was higher in the active coil group, as reflected by a lower HDRS score at the end of the 20-session protocol, at 9.8 vs 12.9 for those in the sham TMS group.

"Neither progesterone nor any other levels of female hormones were different between the two groups, so we are not doing anything systemically to these women when they undergo TMS. Otherwise, they would not be able to have a successful pregnancy," said Dr Kim.

In fact, there was only one low-birth-weight baby in the TMS cohort, and the number of adverse events was very low.

Adverse events from the magnetic effect from TMS would not be expected, said Dr Kim, because the magnet only influences a 2x2-cm area of the cortex and so comes nowhere near the uterus.

Dr Kim also noted that supine hypotension is a unique adverse event that can occur in pregnancy. To offset this risk, women need to be positioned when supine at a 30° pelvic tilt.

High Placebo Effect

Asked about the very high placebo effect seen in the study among sham TMS recipients, Dr Kim explained that they used a TENS machine for sham TMS in this study.

Because TENS delivers low-level electrical stimulation, "patients could actually have a minimal therapeutic effect," Dr Kim told *Medscape Medical News*.

There is some evidence that pregnant women need a higher dose of TMS than is normally used, and the response rate seen in the active TMS group, though impressive, might have been better had they used a higher dose of TMS, she added.

"People did well during pregnancy, but post partum, they didn't do as well, so we think that we are not getting them well enough with the dose of TMS that we are using," Dr Kim observed.

On the other hand, the need to come in 5 days a week for 20 sessions did not appear to be a deterrent to patients wanting to participate in the study.

"These are people who can't work because they are depressed, so they like the structure of having somewhere to go every day, and women reported that having to go to the clinic every day really helped," she said.

Equivalent Efficacy

Commenting on the findings for *Medscape Medical News*, session chair Meir Steiner, MD, PhD, professor emeritus of psychiatry and behavioral neurosciences and obstetrics and gynecology, McMaster University, Hamilton, Ontario, noted that if you compare the antidepressant effect investigators achieved using TMS with that of antidepressants, TMS offers the same magnitude of reduction in symptoms.

"We don't yet know if TMS is safer than antidepressants," Dr Steiner observed.

"But it gives us another choice, so for women with moderate depression who say, 'I don't want to take your poison,' you can explain to them that TMS is different from antidepressants, and they can opt for it if they like."

"So TMS gives us choice, and it's great when there is a choice."

Dr Steiner noted, however, that if physicians have a severely depressed melancholic woman, electroshock therapy or antidepressants are still the preferred treatment for severe depression and that TMS is better suited for women with more moderate degrees of depression.

Dr Kim has received consulting advice from Neuronetics. Dr Steiner reports no relevant financial relationships.

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