Biological Psychiatry

Psychiatrists' Attitudes Toward Transcranial Magnetic Stimulation

To the Editor:

Transcranial magnetic stimulation (TMS) is an approved noninvasive psychiatric treatment option for depression that uses brain stimulation (1), and evidence of its efficacy among different devices with distinct coils has been growing across multiple large trials (2,3). This treatment option is increasingly accessible to patients and providers, with hundreds of psychiatrists across the United States now offering treatment and an increasing number of insurers covering it (4). Still, widespread knowledge about TMS is lacking in the psychiatric community. This educational gap for TMS among psychiatrists presents a major hurdle for the incorporation of this evidenced-based treatment. The following study sought to examine attitudes of academic psychiatrists toward TMS. It was hypothesized that in the absence of a formal curriculum in neuromodulation featuring TMS, results would demonstrate deficits in knowledge about this topic.

The Institutional Review Board at Beth Israel Deaconess Medical Center approved an exempt status for this study. A link to an online survey was distributed electronically to 258 psychiatrists within the Departments of Psychiatry at Beth Israel Deaconess Medical Center, St. Elizabeth's Medical Center, and Massachusetts General Hospital. Subjects from all three institutions were sent surveys asking about their attitudes toward TMS. Historical information about the subjects' training history and demographic information were also obtained. Subjects were asked to rate their level of agreement with statements about knowledge and attitudes toward TMS on a 6-point Likert scale from "Strongly Disagree" to "Strongly Agree." Group comparisons were done using univariate analyses of variance.

There were 122 surveys completed (47% response rate). Of the surveys, 70 (57%) were completed by residents, and 52 (43%) were completed by faculty. There were 33 subjects (27%) with formal training in neuromodulation (i.e., electroconvulsive therapy [ECT], TMS, vagal nerve stimulation, deep brain stimulation). Of subjects, 70 (57%) reported having access to TMS at their home institution, and the remaining 52 (43%) indicated they either did not have access or were unsure of access.

When asked if they knew how to refer patients for TMS, 67% of the subjects had a negative response. However, 71% of subjects indicated that they intended to refer patients in the future. Knowledge of how to refer for TMS seemed to change with institutional identification. For example, psychiatrists from Massachusetts General Hospital, where TMS is located solely within the psychiatry department, were significantly more likely to know how to refer patients for TMS than respondents from St. Elizabeth's Medical Center, where there is no clinical TMS program onsite ($F_{2,119} = 4.19$, $p < .05$) (Figure 1).

Knowing how to refer for TMS was also significantly lower for trainees than faculty ($F_{1,120} = 15.68$, $p < .001$). Respondents with TMS available at their home institution reported a more robust knowledge of how to refer ($F_{2,118} = 12.23$, $p < .001$), and there was a statistical trend in which having formal training in neuromodulation of any kind increased scores on this item ($F_{1,119} = 3.43$, $p = .066$). On average, respondents intended to refer for TMS in the future. Psychiatrists with access to neuromodulation in the form of ECT at their home institution had significantly higher scores on this item than psychiatrists who did not have access to ECT or who were unsure if ECT was available ($F_{2,118} = 4.41$, $p < .05$).

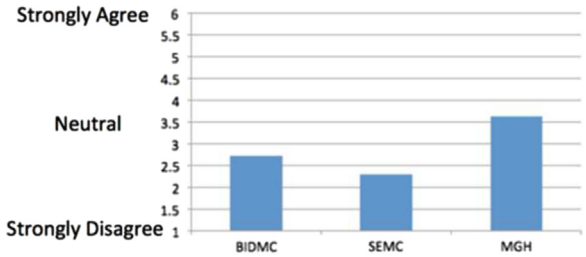

Figure 1. Respondents' ratings to the prompt, "I know how to refer someone for TMS [transcranial magnetic stimulation]." BIDMC, Beth Israel Deaconess Medical Center; MGH, Massachusetts General Hospital; SEMC, St. Elizabeth's Medical Center.

Respondents generally disagreed with the statement, "I know and understand the indications for TMS" with only 3 of 122 respondents indicating that they strongly agreed (Figure 2). However, psychiatrists with formal training in neuromodulation were significantly more likely to agree with this statement ($F_{1,119} = 11.46$, $p < .01$).

Though TMS is covered by a multitude of insurers including Medicare in this area of the country, on average, respondents disagreed with the statement, "TMS is covered by most insurance plans." Respondents who identified as being from institutions where TMS is available were less likely to agree with this statement ($F_{2,118} = 3.51$, $p < .05$).

This study examined psychiatrists' attitudes toward TMS and attempted to clarify the educational and clinical landscape of TMS knowledge and attitudes at three major Boston academic medical centers with distinct organizational structures for brain stimulation and access to TMS. The results

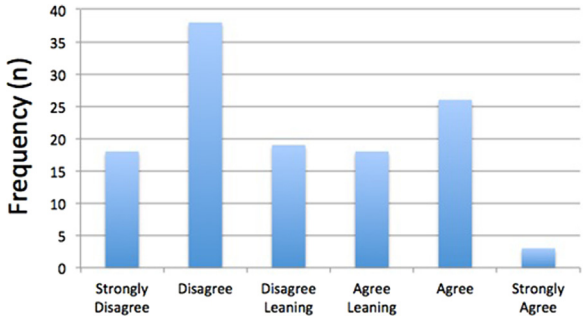

Figure 2. Respondents' ratings to the prompt, "I know and understand the FDA [Food and Drug Administration] indications for TMS [transcranial magnetic stimulation] use in treatment-resistant depression."

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demonstrate many extensive limitations in the current knowledge of psychiatrists and their attitudes toward an emerging treatment option for treatment-resistant depression. It is apparent that the educational and clinical environments to which psychiatrists have access, which in this population of academic clinicians in a city with extensive TMS resources was likely already greater than average, affects knowledge and attitudes toward TMS.

Our study demonstrated that even with local resources, psychiatrists who lacked formal education about TMS were uninformed about this treatment, with most not knowing the indications for referring a patient with depression and only one in four knowing how to refer. Although not assessed, the rates are likely even lower among community psychiatrists, as people without perceived access to TMS are least likely to know how to refer. Despite the lack of knowledge about referring for TMS, many psychiatrists still saw TMS as a treatment worthy of referral in the future. This discrepancy suggests a desire for education that has been unrealized by practicing psychiatrists.

Beyond general psychiatrists, we must also seek to provide better training to psychiatry residents. In our study, trainees reported more severe deficits in understanding TMS than their faculty counterparts, yet we also show that formal training improves one's perceived knowledge about TMS. These observations highlight the need for incorporating TMS in the formal residency curriculum.

Finally, there is also a growing need for formal postresidency training programs for neuromodulation subspecialists. We also echo prior calls for organized neuromodulation training in neurology (5) and psychiatry (6) and point to this kind of subspecialized training as a new area of expertise that needs formal education and oversight.

This study has limitations. Because this was a preliminary investigation of a new and upcoming topic of interest, no formally validated scales were available. Further validation in other community hospital systems and among more diverse groups of psychiatric practitioners would be useful to expand further and to be able to generalize these findings. We anticipate that the need for educational improvements in this emerging treatment area will be noted with even more urgency when evaluating alternative populations in less academic settings, but this hypothesis should be tested as the field continues to move forward.

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AP-L serves on the scientific advisory boards for Nexstim, Neuronix, Starlab Neuroscience, Axilum Robotics, Magstim, Neuroelectrics, and Neosync and is listed as an inventor on several issued and pending patents on the real-time integration of transcranial magnetic stimulation with electroencephalography and magnetic resonance imaging.

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Article Information

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