

Short Note

Ultrasonic Antidepressant Therapy Might be More Effective Than Electroconvulsive Therapy (ECT) in Treating Severe Depression

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ECT is widely acknowledged as an effective treatment for severe depression (1), but its drawbacks of entailing a seizure, general anesthesia, post-ictal confusion and memory disturbance can be problematical to the extent of preventing some patients from undergoing the treatments often enough to sustain relief. According to Higgins et al (2), stimulation of specific points on the surface of the temporal lobes reliably produces a pleasure response without causing a seizure, confusion or memory impairment. Due to reciprocal inhibition between the brain's reward and punishment pathways (3), such a response might be expected to relieve depression. Work done by Velling and Shklyaruk with animals, specifically rabbits, (4) suggests that much stimulation could be produced in humans through the intact skull and scalp by using ultrasound focused from outside of the head. Ultrasound transducers contained in water-filled, bag-like stimulators, like those used by Gavrilov (5) to stimulate auditory nerves through intact skull, when placed in contact with the outside of the head, would eliminate the need for conductive gel, which can be messy. Since there would be no pain or other tactile sensation, anaesthesia would be unnecessary. Hence, externally-focused ultrasound could provide the same benefit as ECT, that is, relief of depression, without

any of the drawbacks. And since the frequency of treatments would not be limited by these complicating factors, the therapeutic effects could be better sustained over time and, therefore, more effective. Additionally, the basic approach of Velling and Shklyaruk could possibly be adapted for many other analgesic and therapeutic clinical applications such as treatment of pain, nausea and insomnia.

Acknowledgements

The author wishes to acknowledge with gratitude the encouragement and support of Drs Robert A. Spangler, Michael R. Privitera, Nicholas J. LoCascio, C. Timothy Golumbeck, Louise A. Jameyson, Elizabeth Kelly-Fry, Robert J. Lanigan, Richard T. Mihran, Anthony A. Pace and Erica E. Wanecski.

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