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Neurosurgeon Demonstrates New Treatment Option for Substance Use Disorder at CNS Annual Meeting
Focused ultrasound technology holds promise for treating millions suffering from addiction

WASHINGTON, DC—On day two of the Congress of Neurological Surgeons (CNS) [2023 Annual Meeting](#), **Ali Rezai, MD**, executive chair at the Rockefeller Neuroscience Institute and the John D. Rockefeller IV chair in neuroscience at the West Virginia University, presented progress he and his multidisciplinary team are making applying focused ultrasound to treat substance use disorders (SUDs). Dr. Rezai, a functional neurosurgeon, has dedicated his career to advancing the care of people with neurological and mental health conditions.

SUD is a growing problem affecting millions of Americans, with over 110,000 overdose deaths in the U.S. in 2022. Despite improvements in medication and therapy-based treatments, recurrent use and relapses are common. Novel treatment approaches are urgently needed to combat this growing addiction crisis in the United States.

Surgery, such as brain electrode implantation, and targeted radiation, have been attempted for treating SUD, though with known risks or side effects. However, focused ultrasound is a non-invasive technology using high-frequency sound waves directed at specific targets in the brain.

“This transformative technology holds great promise for not only treating substance use disorder but also Alzheimer’s and Parkinson’s disease,” stated Dr. Rezai. “It is an example of emerging neuromodulation innovations for addiction and other conditions.”

Dr. Rezai presented the findings of this first-in-human study applying focused ultrasound to treat SUDs.

“This first-in-human study using focused ultrasound to reduce cravings and drug use of multiple substances has shown real promise.” Dr. Rezai added.

Dr. Rezai concluded, “Additional studies are needed with larger numbers of patients and randomized-controlled trials, but these initial findings offer hope for millions of people impacted by addiction.”

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Founded in 1951, the Congress of Neurological Surgeons is the global leader in neurosurgical education, serving to promote health and improve lives through innovative neurosurgical education, advancement of clinical practice & scientific exchange. The CNS Foundation's philanthropic mission is to improve worldwide patient health by supporting innovative programs that allow neurosurgeons to collaborate globally as researchers, learners, educators, and caregivers. For more information, visit www.cns.org.