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Brain-Computer Interface Technology Unveiled at Congress of Neurological Surgeons Annual Meeting

Breakthrough platform opens new possibilities for treating neurological diseases, including paralysis

WASHINGTON, DC—At the opening scientific session of the Congress of Neurological Surgeons (CNS) 2023 Annual Meeting, **Thomas J. Oxley**, MD, PhD, clinical instructor at the department of neurosurgery at Mount Sinai Hospital and CEO of the company Synchron, unveiled the power of his company's novel brain-computer interface (BCI) technology. Dr. Oxley, a vascular and interventional neurologist and world expert in BCI, presented the latest applications of this neural interface technology.

Paralysis may result in a loss of control of muscles in the body while the brain can remain intact. Motor intent is the brain signal underlying the physical will to move. A brain-computer interface is designed to restore the lost motor intent signal transmission associated with paralysis. In a minimally invasive endovascular procedure, the device is implanted in the brain's motor cortex via the jugular vein. Once implanted, it detects and wirelessly transmits motor intent to control personal digital devices and allow previously impossible communication.

Synchron's internationally acclaimed stentrode^{TM} device can record brain activity from within a blood vessel and capture the user's thoughts to control digital devices that allow movement and speech restoration to previously paralyzed patients. The system detects motor intent and sends that out of the brain wirelessly, restoring control of digital devices. This digital motor output is akin to a finger pressing a selection on a touch screen.

"The company is moving forward with a pivotal Food and Drug Administration trial evaluating permanently implanted endovascular BCI in patients with severe bilateral upper limb motor impairment who cannot make selections on the screen of a personal computing device," Dr. Oxley stated.

Elad I. Levy, MD, CNS president and professor and chair of neurosurgery at the State University of New York at Buffalo, concluded, "We are on the precipice of regaining functionality and communication for patients isolated from tragic conditions like ALS, stroke and traumatic spinal cord injury. The future of this technology has the potential to treat the tragically incurable."

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