

Daytime adaptive Deep Brain Stimulation for Parkinson's

Tech ID: 34501 / UC Case 2024-226-0

VALUE PROPOSITION

The global neuromodulation and neurostimulation device market has experienced robust growth in recent years driven by rising incidences of neurological disorders, chronic pain and mental health conditions, alongside advancement in minimal invasive technologies. Deep brain stimulation (DBS) is a widely used therapy for Parkinson's disease (PD) but currently lacks dynamic responsiveness to patient activities or to variations in severity of symptoms during daily life.

Feedback control has the potential to improve therapeutic effectiveness, but the optimal control strategy and additional benefits of "adaptive" neurostimulation are currently unclear. There is significant interest in adaptive DBS (aDBS) that uses real-time detection of neural signals to automatically adjust stimulation amplitude or other parameters in response to patients' needs.

TECHNOLOGY DESCRIPTION

UCSF investigators developed algorithms for personalized daytime adaptive DBS for Parkinson's and other movement disorders. Chronic adaptive DBS was optimized with personalized neural signals which is superior to conventional stimulation in Parkinson's disease and the benefits were demonstrated in a small cohort of PD patients.

RELATED MATERIALS

- ▶ [Oehr, C. R., Cernera, S., Hammer, L. H., Shcherbakova, M., Yao, J., Hahn, A., Wang, S., Ostrem, J. L., Little, S., & Starr, P. A. \(2024\). Chronic adaptive deep brain stimulation versus conventional stimulation in Parkinson's disease: a blinded randomized feasibility trial. Nature Medicine, 1–12.](#)

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

digital health, medical device, AI, machine learning, neurodegeneration, deep brain stimulation, Parkinson's disease

CATEGORIZED AS

- ▶ **Biotechnology**
 - ▶ Health
 - ▶ Other
- ▶ **Computer**
 - ▶ Software
- ▶ **Medical**
 - ▶ Disease: Central Nervous System
 - ▶ Other
 - ▶ Software

RELATED CASES

2024-226-0

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