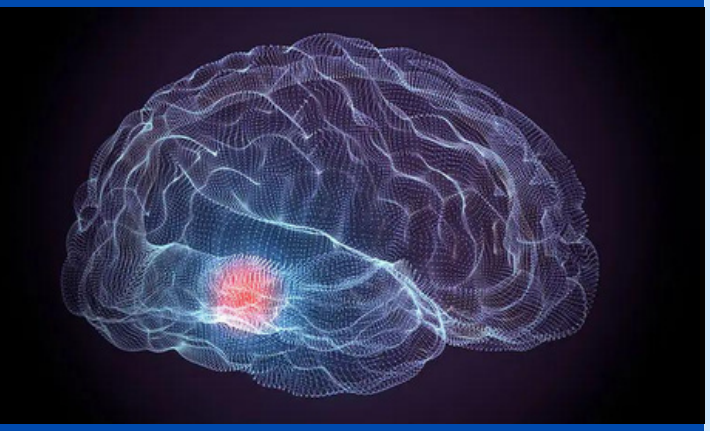
FIGHTING PARKINSON'S



https://www.medscape.com/viewarticle/989062

Focused Ultrasound Ablation (FUSA)

WHAT IS FUSA?

FUSA is an incisionless treatment that can create a targeted ablation of brain structures. Ultrasound beams gradually heat the target, in reversible amounts at first to determine if the target should be modified. The area is then permanently ablated in an attempt to treat symptoms.

Traditional Method: Deep-Brain Stimulation (DBS)

Some Disadvantages of DBS

- Potential risk to have intracranial bleeding and infection after surgery
- High invasiveness and unacceptable for some patients
- Access problems for some patients

How it works?

- Awake patients with drugs to relieve discomfort and nausea during the procedure
- MRI guidance to monitor tissue temperature and size of the ablated region
- Targeted ablations with ultrasound beams on the globus pallidus region on the brain
- Start with low energy, then switch to permanent ablation
- patients assessed after 1 week, 1 month, and 3 months
- "immediate and sustained" results

https://www.nejm.org/do/10.1056/NEJMdo006916/full/

The Study

FUSA of globus pallidus internus region of the brain

75% of people in the study underwent FUSA, and of them, 69% experienced significant improvements of multiple of their symptoms, while out of the 25% of patients who had a sham/placebo procedure, 32% had an improvement in multiple of their symptoms.

However, this trial had a small sample size, and more need be conducted to determine its exact effectiveness.

Advantages & Disadvantages

Advantage 1

Incisionless and **minimal** damage caused to surrounding tissue, meaning that it could be more favorable compared to DBS

Advantage 2

Before permanent ablation, one can perform **clinical testing** to decide whether the treatment is suitable for the patient & whether the **target brain area** should be modified or not

Disadvantage 1

Sensory and **gait disturbances** may occur and be permanent, dizziness and headaches may occur but are not permanent, and low risks of strokes, seizures, or infections are possible.

Reference

Krishna, V., Fishman, P. S., Eisenberg, H. M., Kaplitt, M., Baltuch, G., Chang, J. W., Chang, W.-C., Martinez Fernandez, R., del Alamo, M., Halpern, C. H., Ghanouni, P., Eleopra, R., Cosgrove, R., Guridi, J., Gwinn, R., Khemani, P., Lozano, A. M., McDannold, N., Fasano, A., … Elias, W. J. (2023). Trial of Globus Pallidus Focused Ultrasound Ablation in Parkinson's Disease. New England Journal of Medicine, 388(8), 683–693. https://doi.org/10.1056/nejmoa2202721

https://www.discoveryvillages.com/senior-living-blog/a-guide-to-parkinsons-disease/