

# Impact of Generator Replacement in a Patient with Advanced Parkinson's Disease

WSSFN 2025 Interim Meeting. Abstract 0125

Isis Franco Martin,<sup>1</sup> Igor Bagini Mateus,<sup>1</sup> Giovanna Novelli D. Kaczam,<sup>1</sup> João Vitor Medeiros Lech,<sup>1</sup> Giorgia Novelli D. Kaczam,<sup>1</sup> Ana Luiza Londero Schroder,<sup>1</sup> Rhaymysom Jasmy Gomes Abreu,<sup>2</sup> Emanuele Pires Canela Dos Santos.<sup>3</sup>

<sup>1</sup> Universidade de Varzea Grande- Univag. Brasil.

<sup>2</sup> Hospital Geral Cuiabá. Brasil.

<sup>3</sup> Universidade do Estado de São Paulo- Usp. Brasil.

Corresponding author: Isis Franco Martin      email:isisfranco@outlook.com

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## Abstract

**Introduction:** Deep Brain Stimulation (DBS) is an effective treatment for patients with advanced Parkinson's disease (PD) who are refractory to optimized pharmacological therapy. Continuous stimulation is essential to maintain motor stability, and battery depletion can result in rapid clinical worsening. Recent studies confirm the long-term benefits of DBS on motor function, quality of life, and chronic neuro-modulation.<sup>1</sup>

**Clinical description:** A 62-year-old male with a 12-year history of PD (akinetic-rigid subtype) initially presented with freezing, bradykinesia, and early morning rigidity. Despite treatment with pramipexole, entacapone, multiple levodopa formulations, clonazepam, tramadol, melatonin, and amantadine, motor symptoms remained refractory. In 2022, he underwent bilateral DBS implantation in the subthalamic nucleus (STN), resulting in significant rigidity improvement. After generator battery depletion, the patient experienced progressive return of symptoms: worsening bradykinesia, chronic pain, and loss of independence in daily activities. Neurological examination showed severe bradykinesia, marked hypomimia, dysarthric speech, mild asymmetric tremor, and freezing. Cranial CT confirmed correct lead placement. The patient underwent generator replacement, programming was reestablished using standard bilateral STN parameters: 130 Hz, 60  $\mu$ s pulse width, 2.8 V (left) and 3.0 V (right), in monopolar configuration (contacts 1–2 left, 9–10 right). Immediate postoperative improvement was noted, with reduced

rigidity and bradykinesia. At one-month follow-up, the patient reported complete pain resolution, functional recovery, improved sleep, and high satisfaction.

**Discussion:** This case illustrates the essential role of continuous DBS in motor control for advanced PD. Studies report sustained improvements in UPDRS-III and PDQ-8 scores after DBS<sup>1</sup>. Patient selection based on clinical and imaging profiles remains key to optimal outcomes.<sup>2</sup> Generator replacement is safe and effective, with low complication rates.<sup>3</sup>

**Conclusions:** DBS generator replacement led to rapid functional recovery and quality of life improvement. This case reinforces the need for structured follow-up, early battery monitoring, and individualized DBS care.<sup>2,3</sup>

## References

1. Sobstyl M, et al. Quality of Life and Motor Outcomes in Patients With Parkinson's Disease 12 Months After Deep Brain Stimulation in China. *Neuromodulation*. 2023;26(7):1333-1340.
2. Barbosa RMG, et al. New Perspectives of Deep Brain Stimulation Indications for Parkinson's Disease: A Critical Review. *Brain Sci*. 2024;14(7):638.
3. Sekhar P, et al. Deep Brain Stimulation Generator Replacement in End-Stage Parkinson Disease. *J Neurosurg*. 2022;136(5):1291-1298.