

Levodopa-induced dyskinesias (LID) were first reported by Cotzias et al, the group credited with the first successful use of levodopa in treating Parkinson's disease ¹⁾.

After levodopa, it became routine for patients with Parkinson's disease to "awaken" from frozen states, and nearly all were able to live at home. Tremors faded, stiffness waned, and many patients regained their ability to walk. Yet important and unexpected challenges emerged. The most worrisome were dopamine-related, medication-induced complications. Patients began to report fluctuations (doses wearing off), freezing (especially when walking), and dancelike movements (chorea), later termed levodopa induced dyskinesia. Many reported tremors that did not respond to pharmacotherapy. In addition, there was a growing realization that levodopa was not a cure and that the disease progressed despite miraculous "awakenings."

2015

A retrospective review was conducted on patients who underwent STN DBS for PD from May 2000 to July 2012. Only patients with levodopa induced dyskinesia prior to surgery and more than 1 year of available follow-up data after DBS were included. The outcome measures included the dyskinesia subscore of the Unified Parkinson's Disease Rating Scale (UPDRS) part IV (items 32 to 34 of UPDRS part IV) and the levodopa equivalent daily dose (LEDD). The patients were divided into two groups based on preoperative to postoperative LEDD change at 12 months after the surgery: Group 1, LEDD decrease >15%; Group 2, all other patients. Group 2 was further divided by the location of DBS leads.

Of the 100 patients enrolled, 67 were in Group 1, while those remaining were in Group 2. Twelve months after STN DBS, Groups 1 and 2 showed improvements of 61.90% and 57.14%, respectively, in the dyskinesia subscore. Group 1 was more likely to experience dyskinesia suppression; however, the association between the groups and dyskinesia suppression was not statistically significant ($p=0.619$). In Group 2, dyskinesia was significantly decreased by stimulation of the area above the STN in 18 patients compared to stimulation of the STN in 15 patients ($p=0.048$).

Levodopa-induced dyskinesia is attenuated by STN DBS without reducing the levodopa dosage ²⁾.

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Cotzias GC, Papavasiliou PS, Gellene R. Modification of Parkinsonism—chronic treatment with L-dopa. N Engl J Med. 1969 Feb 13;280(7):337-45. PubMed PMID: 4178641.

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Kim JH, Chang WS, Jung HH, Chang JW. Effect of Subthalamic Deep Brain Stimulation on Levodopa-Induced Dyskinesia in Parkinson's Disease. Yonsei Med J. 2015 Sep;56(5):1316-21. doi: 10.3349/ymj.2015.56.5.1316. PubMed PMID: 26256974; PubMed Central PMCID: PMC4541661.

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