

Less Pulsatile Levodopa Therapy reduced risk of Dyskinesia

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Statement of the Problem: Levodopa is a standard treatment for Parkinson disease (PD). However, its long-term therapy is associated with motor fluctuations and levodopa induced dyskinesia (LID). One of prime causes of these motor complications is pulsatile dosing related to the short half-life of levodopa. Currently, the common method of starting levodopa is to administer it three times daily. We have evaluated whether less pulsatile levodopa therapy can reduce the development of LID.

Methodology & Theoretical Orientation: We conducted a retrospective cohort study of patients with Parkinson's disease at the movement disorders clinic of Medstar Washington Hospital Centre. Patients were treated with less pulsatile (3-hour interval, 6 doses daily) levodopa between August 2002 and August 2018.

Findings: Ninety-five patients with PD taking levodopa were divided into two groups: 1. Levodopa naïve patients who were started on less pulsatile levodopa therapy (LPT) or who switched from traditional therapy (n=61) (mean disease duration 7.7 ± 4.8 , mean levodopa duration 5.6 ± 4.5 and mean observation 4.3 ± 3.4 years), and 2. patients on traditional therapy (TT) throughout the observation time or until LID appeared (n=34) (mean disease duration 8.3 ± 3.8 , mean levodopa duration 6.2 ± 4.2 and mean observation 4.1 ± 3.4 years). Three of the 61 LPT patients developed LID during the observation period (One of them developed LID after unintended short-term exposure to pulsatile doses). In contrast to this less than 5% LID incidence, dyskinesia occurred in 50% (seventeen of 34) of TT patients, an incidence similar to that seen in published data ($P < 0.001$).

Conclusion & Significance: Less pulsatile levodopa with 6 daily doses was associated with a very low incidence of LID. Until the development of improved levodopa formulations which eliminate pulsatile blood levels, the LPT method deserves further use in patients able and willing to comply with the inconvenience of frequent doses.

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