P104

Polyneuropathy in levodopa-carbidopa intestinal gel infusion therapy

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Background: Levodopa-carbidopa intestinal gel (LCIG) is an effective treatment for advanced Parkinson's disease (PD). The benefits of LCIG are uneven among patients, with some discontinuing treatment due to device-related complications, disease progression (comorbidities/dementia), polyneuropathy, troublesome dyskinesias, and caregiver and/or patient dissatisfaction [1,2].

Object: Rate of polyneuropathy-related LCIG with Vitamin-B-complex and folate supplementation.

Methods: Information on neurological, medication, and LCIG implant history were extracted from the medical records of 52 patients treated with LCIG between 2010 and 2020 in Ferrara. Data on electroneurography-electromyography (ENG-EMG) at baseline and during follow-up (up to 12 years) were used to detect the rate of polyneuropathy occurring during treatment and its relationship to LCIG discontinuation.

Results: Of 52 patients (mean-age 72,1±6,2; disease-duration-months 234,1±88,5; mean-months-on-LCIG-therapy 54,9±30,5), twenty-two (42,3%) discontinued the treatment: 36,4% (8 patients) for late stage-dementia and/or psychosis, 27,2% for device-related complications, 27,2% for comorbidities, 9,1% for narrow therapeutic window, one for troublesome-dyskinesia, and one for polyneuropathy. Patients who discontinued treatment had a significance longer PD duration (271,6±85,1 vs 206,5±81,6 months; *p-value* <0,01) without differences in LCIG duration treatment (54,0±35,6 vs 55,62±26,7), continuous dose (3,3±1,1 vs 3,4±0,9), and age (69,2±6,8 vs 71,2±5,9) . At baseline 19,2% showed sensory/motor axonal polyneuropathy; during follow-up the rate reached 23,4% (*ns* p=0.14*)*. However, only one patient, who had already toxic polyneuropathy at baseline, had severe sensory-motor axonal neuropathy, leading to discontinuation of LCIG after 8 months.
All patients received treatment with VitB-complex and folate after implantation (4,3±6,4 months), with no difference in treatment initiation (*ns* p=0.07).

Conclusion: In our patient cohort, one patient, who had polyneuropathy before LCIG, discontinued treatment for worsening polyneuropathy. In long-term follow-up (12 yrs), we do not have another case of polyneuropathy that led to discontinuation. We confirm that vitamin intake and proper EMG-ENG/clinical follow-up can reduce the rate of polyneuropathy in LCIG-treated patients and, consequently, the treatment discontinuation [3].

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