P123

The impact of dopaminergic therapy on sleep quality of fluctuating Parkinson's disease patients

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Introduction: Parkinson's disease (PD) is characterized by several nonmotor symptoms [1]. Among these, sleep dysfunction is highly prevalent (60%-98% of patients) [2-3]. The influence of various antiparkinsonian drugs on sleep quality has been evaluated so far, with conflicting results.

Objective: To analyze the correlation between sleep dysfunction (i.e., reduced sleep quality and excessive daytime sleepiness [EDS]) and dopaminergic therapy in a large cohort of advanced PD patients.

Methods: Patients consecutively evaluated for device-aided therapies eligibility were enrolled. Sleep dysfunction was measured by means of the PD Sleep Scale-2 (PDSS-2; score ≥18 indicates poor sleep quality [4]), and the Epworth Sleepiness Scale (ESS; score ≥10 indicates EDS).
The association between dopaminergic therapy (i.e., dopamine agonists [DA], nocturnal extended-release levodopa, DA-LEDD, levodopa-LEDD, and total LEDD) and disturbed sleep or EDS was evaluated with binary logistic regression analysis, correcting for age, sex, disease duration, motor impairment (Off-state MDS-UPDRS-III), and sleep treatment. Analysis of covariance was used to evaluate differences in PDSS-2 (total and sub-domains scores) and ESS between patients with and without DA treatment, and between patients treated with low or high doses of DA (cut-off: DA-LEDD=180 mg), correcting for the same potential confounders.

Results: We enrolled 281 patients (males: 66.5%; age: 60.3±7.9 years; disease duration: 11.6±3.7 years). 66.2% of patients reported poor sleep quality; 34.5% reported EDS. DA treatment was independently associated with a 2-fold lower odds of reporting relevant sleep disturbances (OR: 0.498; p=0.035), while DA-LEDD, levodopa-LEDD, total LEDD, and extended-release levodopa were not associated with disturbed sleep. EDS was not influenced by dopaminergic therapy. Patients with DA intake reported significant lower PDSS-2 total score (p=0.027) and "motor symptoms at night" domain score (p=0.044). Patients with higher doses of DA showed lower PDSS-2 total score (p=0.043).

Conclusion: Our study highlights the positive influence of DA on sleep quality, especially for high doses of DA.

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