

Leg movement activity during sleep in untreated and treated Parkinson disease

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Objectives: The objective of this study was to evaluate the time structure of periodic leg movements during sleep (PLMS) in untreated Parkinson diseases (PD) patients by means of an advanced analysis and to evaluate the effects of treatment on this activity in a cross-sectional comparison first, and in a prospective follow-up study, in a subgroup of previously untreated patients.

Methods: Forty-four consecutive PD patients were enrolled in the study; 19 had never been treated for PD (PDnother); 10 of these patients were reevaluated after an average time lapse of 19.6 months from baseline. The remaining 25 patients (PDther) were taking *L-Dopa* and/or dopamine agonists. Also 18 age-matched normal controls were included. All subjects underwent a polysomnographic recording and the time structure of their sleep leg movement activity was analyzed by means of the periodicity index and other advanced measures.

Results: Both PD groups tended to show increased PLMS and decreased isolated LM activity with respect to controls. PLMS index >15/hour was found in 26.3% of PDnother patients, 24.0% of PDther subjects, and in 16.7% of controls; none of the three PDnother patients who had PLMS index >15/hour at baseline had it at follow-up nor did the other seven patients. The intermovement interval distribution showed a clear peak at 10-40 s in the PDnother group; a suppression of this peak was observed after the introduction of dopaminergic treatment in the subgroup of 10 PDnother patients. Both groups of PD patients showed a progressively decreasing number of PLMS through the night; an almost complete abolition of PLMS was seen in the first two hours of sleep after the introduction of dopaminergic drug therapy.

Conclusion: Our data do not seem to support the hypothesis that PLMS are particularly frequent in PD but seem to indicate an interaction between PD pathophysiology and genetic predisposition for PLMS producing a slightly increased number of patients with this sleep motor phenomenon, when compared to controls.