

Neurocognitive function in patients with idiopathic restless legs syndrome (iRLS) before and after treatment with dopamine agonists

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Introduction: Restless legs syndrome (RLS) patients frequently report insomnia, characterized by difficulty falling asleep and frequent nocturnal awakenings. Daytime consequences such as fatigue, irritability, impaired concentration and depressed mood are frequently reported. Some authors observed cognitive deficit in tests used to assess executive functions similar to those observed in healthy subjects undergoing acute sleep deprivation.

Objective: To assess cognitive functions, quality of life, sleep quality, anxiety and depressive symptoms in iRLS patients at baseline compared to age-matched normal controls, and to assess changes in iRLS after 3 months of treatment with a dopamine agonist drug at low doses.

Methods: We evaluated 20 iRLS (F 60%) with severe RLS (mean IRLSRS 26, mean age 46.80 ± 10.10) and 15 age- and gender-matched controls. All patients were evaluated with polysomnography (PSG) at baseline and after 3 months of treatment (FU). Neurocognitive functions (global cognitive profile, memory, attention and executive functions, comprehension and language), daytime sleepiness (ESS), anxiety (STAY), depression (BDI), quality of life (SF-36) and quality of sleep (PSQI) were assessed at BL and FU.

Results: 18 iRLS subjects completed the study. At baseline, PSG showed a reduced TST, SWS%, SE%, an increase in SL, WASO, n° awakenings and PLMI. PLMI decreased significantly after 3 months of treatment. Almost all iRLS subjects' cognitive domains at baseline showed significantly lower scores compared to controls: in particular, short-term memory, verbal long term memory, executive functions, attention, language production resulted significantly improved ($p < 0.005$) after treatment. Moreover, iRLS at baseline showed significantly lower scores on the ESS, PSQI and the SF-36 ($p < 0.05$) compared to controls. At FU we observed a statistically significant overall improvement in the cognitive domains as well as in ESS, PSQI, SF-36, BDI ($p < 0.005$). Only the semantic fluency test and anxiety did not show any significant improvements.

Discussion: Our results on cognitive functions are in agreement with literature data on sleep deprivation. Our data showed that cognitive functions impaired at baseline when compared to controls significantly improved after 3-months pharmacological treatment reaching the scores of healthy subjects. Moreover, results pertaining to quality of life, daytime sleepiness and quality of sleep showed a significant improvement over time. Future studies on iRLS may confirm the involvement of the same cortical network involved in experimental sleep deprivation conditions.