

Nocturnal complex behaviors in Parkinson's disease: not always REM sleep behavior disorder

Luca Baldelli¹, G. Loddo², G. Mainieri^{1,3}, L. Sambati³, F. Mignani³, A. Montini¹, P. Cortelli^{1,3}, S. Capellari^{1,3}, G. Calandra-Buonaura^{1,3}, F. Provini^{1,3}

¹Dipartimento di Scienze Biomediche e Neuromotorie, Università di Bologna, Bologna, Italy

²Azienda USL di Bologna, Bologna, Italy

³IRCCS Istituto delle Scienze Neurologiche di Bologna, Bologna, Italy

Introduction: In Parkinson's disease (PD), Disorders of Arousal (DoA) have seldom been investigated in contrast with REM Sleep Behavior Disorder (RBD) [1-3]. DoA and RBD share some anamnestic features, although they have different clinical and therapeutic implications.

Objectives: To discuss clinical and video-polysomnographic (VPSG) findings of three PD patients (Pt) displaying nocturnal complex motor behaviors.

Methods: Three male PD patients (Pt1=65, Pt2=67 and Pt3=72yo) presenting sleep-related motor disorders with atypical features for RBD underwent one nocturnal VPSG.

Results: Pt1 (disease duration-dd=4y) had positive familial (brother) and personal history (since 24yo) of DoAs, Pt2 (dd=9y) and Pt3 (dd=5y) had a definite diagnosis of RBD and developed mild cognitive impairment during the disease course, with diurnal hallucinations. Pt2 had positive history for personal and bed-partner traumatic lesions during night-time.

At VPSG only Pt1 presented physiological REM atonia, his recording showed 10 behavioral episodes from NREM sleep suggestive of DoA. VPSG in Pt2 documented prolonged mixed states of light sleep and wakefulness manifesting with confusion and complex motor behaviors (i.e.shooting) instead. When questioned, the patient reported that he aimed at "some lights". Pt3 showed RBD, plus a prolonged episode following an early morning awakening from NREM where he sat on the bed looking around and moving his arms searching for something. When asked the patient reported having seen a "monster", however at the end of the episode he was amnesic.

Conclusions: In our case series, nocturnal VPSG revealed a wide range of non-RBD motor events, from DoA to confusional arousals/nocturnal visual hallucinations arising from a mixed EEG state of wake and sleep. A detailed history collection of nocturnal motor events shall raise the suspicion of non-RBD episodes even in PD patients and VPSG is crucial for their objective detection, characterization [4], and correlation with polygraphic parameters.

References

- [1] PL Ratti, M Sierra-Peña, R Manni et al. Distinctive features of NREM parasomnia behaviors in parkinson's disease and multiple system atrophy. PloS one. 2015;10(3):e0120973.
- [2] W Schrempf, MD Brandt, A Storch, H Reichmann. Sleep disorders in Parkinson's disease. J Parkinsons Dis. 2014;4(2):211-21.
- [3] M Terzaghi, B Minafra, R Zangaglia, M Picascia, N Pozzi, R Cremascoli, D Arnaldi, M Versino, E Sinforiani, V Rustioni, C Pacchetti, R Manni. NREM sleep arousal-related disorders reflect cognitive impairment in Parkinson's disease. Sleep Med. 2020 Nov;75:491-496.
- [4] A Fernández-Arcos, E Morenas-Rodríguez, J Santamaria, R Sánchez-Valle, A Lladó, C Gaig, A Lleó, A Iranzo. Clinical and video-polysomnographic analysis of rapid eye movement sleep behavior disorder and other sleep disturbances in dementia with Lewy bodies. Sleep. 2019 Jul 8;42(7):zsz086.