

ARE SLEEP QUESTIONNAIRES A SUBSTITUTE FOR POLYSOMNOGRAPHY IN EVALUATING PATIENTS WITH MOVEMENT DISORDERS? NO

Birgit Högl

Head of the Sleep Disorder Clinic, Department of Neurology, Innsbruck Medical University, Innsbruck, Austria

This presentation reviews the evidence, why sleep questionnaires are by no means adequate as a substitute for polysomnography in patients with movement disorders.

Movement disorders specialists have a keen interest in recognizing REM sleep behavior disorder, which does not only accompany, but often herald the onset of an Parkinsonian disorder, namely, synucleinopathies. It seems that history taking in REM sleep behavior disorder is quiet straightforward, as one can ask for vivid and action-packed dreams and any evidence for dream enactment.

However, during the waking day, dreams are often forgotten, and patients may be unaware of any nocturnal jerks and behavior, if they have no bed partner, unless they injure themselves. Even patients, who remember dreams sometimes, can often not tell, if they only dream of behavior, or if true behavior occurs.

From a clinical point of view, several disorders go along with nocturnal jerks or potentially violent movements, such as sleep apnea, nocturnal frontal lobe epilepsy, periodic leg movements with and without restless legs syndrome (Iranzo, 2005). Apparent dream enactment behavior also occurs in patients with Non REM parasomnias. A frequent cause for sometimes violent jerks at sleep onset are hypnic jerks, which occurs in a large proportion of the healthy population, but can have a pathological connotation in case of exaggerated sleep starts or propriospinal myoclonus at sleep onset (ICSD2).

Although several questionnaires and even specific single questions to detect REM sleep behavior disorder are available and reasonable sensitivity and specificities have been published in validation studies, the extended list of differential diagnosis makes it clear, that the uncritical use of a questionnaire can lead to false positive or false negative diagnosis.

Several studies have also shown that even in patients with severe REM sleep behavior disorder, the classical violent behaviors during REM sleep are rare and represent only a "tip of the iceberg", whereas small jerks and elementary simple behaviors are much more frequent (Frauscher, 2007). A critique to all available and established questionnaires is also, that the validation studies have been performed, with very few exemptions, in patients and / or controls, who had previously been informed that they were going to participate in a study for REM sleep behavior disorder and thus were perfectly aware of the condition. This may have increased the sensitivity and specificity values compared to a condition where patients or individuals are asked who are completely unaware what the question are about. Moreover, there is now increasing evidence that the use of specific questionnaires for RBD in the general population yields a surprisingly high number of positives, at least part of whom are false positive (Frauscher et al, Sleep in press).

Whereas questionnaires are thus much less specific, and potentially even less sensitive than expected, polysomnography has a stable feature that can easily be detected and quantified in patients with REM-sleep behavior disorder.

The presence of excessive tonic and phasic muscle activity in chin and extremity muscles. Cut-Offs to distinguish physiological REM-sleep twitching from RBD have been published by the SINBAR group (Frauscher, Iranzo et al, 2012) and it has been shown that night to night variability of REM-sleep without atonia in RBD is low, making RWA a stable feature in patients with RBD (Ferri, 2013).

To summarize, using questionnaires alone to detect RBD 1) will confound with a whole range of differential diagnosis, 2) produce false positives even in the healthy population, 3) but miss true RBD cases in healthy and Parkinsonians population, and is therefore not adequate as a substitute for polysomnography.

References

- Ferri R, Marelli S, Cosentino FI, Rundo F, Ferini-Strambi L, Zucconi M. Night-to-night variability of automatic quantitative parameters of the chin EMG amplitude (Atonia Index) in REM sleep behavior disorder. *J Clin Sleep Med.* 2013;9(3):253-8.
- Frauscher B, Gschliesser V, Brandauer E, Ulmer H, Peralta CM, Müller J, Poewe W, Högl B. Video analysis of motor events in REM sleep behavior disorder. *Mov Disord.* 2007;22(10):1464-70.
- Frauscher B, Gabelia D, Mitterling Th, Biermayr M, Bregler D, Ehrmann L, Ulmer H, Högl B. Motor events during healthy sleep: A quantitative polysomnographic study. *Sleep* 2014, in press.
- Iranzo A, Santamaría J. Severe obstructive sleep apnea/hypopnea mimicking REM sleep behavior disorder. *Sleep.* 2005;28(2):203-6.

Iranzo A, Frauscher B, Santos H, Gschiesser V, Ratti L, Falkenstetter T, Stürner C, Salamero M, Tolosa E, Poewe W, Santamaria J, Högl B; SINBAR (Sleep Innsbruck Barcelona) Group. Usefulness of the SINBAR electromyographic montage to detect the motor and vocal manifestations occurring in REM sleep behavior disorder. *Sleep Med.* 2011;12(3):284-8.

The International Classification of Sleep Disorders, Diagnostic and Coding Manual. American Academy of Sleep Medicine 2nd edition, Westchester 2005; ISBN 0-9657220-2-3.

Wörter ohne Titel: 582