Scoring Summary

This 30-second record fragment shows typical features of REM sleep behavior disorder (RBD). There is a low-voltage, mixed-frequency EEG typical of REM sleep (rapid eye movement sleep) and without epileptiform activity (1). Prominent rapid eye movements are consistent with REM sleep (2). Chin muscle tone is elevated relative to the lowest amplitude seen in N sleep (non-rapid eye movement sleep) (3). Bursts of EMG activity from both right and left anterior tibialis are seen (4). The patient vocalizes during the event (5), resulting in decreased airflow (6). However, no oxyhemoglobin desaturation is seen (7) and there is no other evidence that an apnea occurs.

Scoring Guidelines

Diagnostic criteria for RBD from the International Classification of Sleep Disorders, 2nd Edition, include polysomnographic and clinical signs. The polysomnographic signs are elevation of EMG tone or limb twiching during REM sleep. The AASM Manual for the Scoring of Sleep and Associated Events defines sustained muscle activity during REM sleep as at least 50 percent of an epoch of REM sleep having chin-EMG amplitude greater than the minimum amplitude in N sleep. Excessive, transient muscle activity is scored by dividing 30-second epochs into 10 three-second epochs. In RBD, excessive, transient muscle-activity bursts are 0.1 to 5.0 seconds in duration and at least four times as high in amplitude as the background activity. If five or more of the “mini-epochs” have EMG activity four times greater than background EMG, then the epoch is scored as having excessive muscle activity. The epoch above has both elevated chin-EMG and excessive limb-EMG activity in all mini-epochs. Some patients have almost exclusively arm and hand behaviors during REM sleep, indicating the need for both upper extremity and lower extremity EMG monitoring in fully evaluating for RBD. The record fragment above only includes leg monitoring.

Associated Complications

Studies have shown that 2/3 of men over the age of 50 who are diagnosed with idiopathic RBD develop one of the synucleinopathies (such as Parkinson’s disease, multiple system atrophy or Lewy body dementia). The average interval between the start of RBD and the start of the synucleinopathy is 13 years. Thirteen percent of patients with RBD are reported to have narcolepsy. The estimated prevalence of RBD is 0.38 percent in the general population, 0.5 percent in the elderly, 30 percent in patients with Parkinson’s disease and 90 percent in patients with multiple system atrophy. These findings, as well as lesion experiments in animals, point to a brainstem abnormality as the cause of RBD.

Clinical Distinctions

The clinical signs include disruptive, harmful or potentially harmful behaviors or abnormal REM sleep behaviors during sleep. Patients may be referred for evaluation after seriously injuring themselves. The clinical signs are important to distinguish RBD from sleepwalking, sleep terrors, nocturnal seizures, hypnogenic paroxysmal dystonia and other sleep disorders. In contrast to the other disorders, patients with RBD attempt to act out their dreams. This often involves complex, apparently goal-directed behaviors such as brushing away non-existent crumbs or attempting to avoid non-existent intruders. Patients with RBD typically awaken abruptly. This is in contrast to nocturnal seizures and parasomnia overlap...
disorder in which confusional arousals may occur. Episodes of RBD usually occur in the second half of the night, and patients often are aware that they were asleep and dreaming. In contrast, patients with sleepwalking have incidents in the first half of the night and often do not remember a dream.¹

The challenge for the technologist is to provide adequate documentation and assessment of the patient to allow for confirmation of the diagnosis. Video-recording of patients is essential when RBD is suspected. In addition, the technologist should question the patient after the event to determine if the patient is fully awake and if the patient recalls a dream. Ask the patient what he or she was dreaming about; in RBD the events of the dream often match the behaviors.

References

Additional Reading


Mark Pressman, PhD, has been in the sleep field for 29 years. He is currently Director of Sleep Medicine Services at both the Lankenau Hospital in Wynnewood, Pa., and the Paoli Hospital in Paoli, Pa., and he is a Clinical Professor of Medicine at Jefferson Medical College in Philadelphia. Dr. Pressman was an examiner at the very first sleep technologist certification examination in 1979.

[Course Objectives]

- Understand the Comprehensive Registry Examination content
- Have tools for self assessment of knowledge in sleep technology
- Have an enhanced knowledge of sleep technology
- Have a resource for further study

This review course is designed for technicians preparing for the Board of Registered Polysomnographic Technologists (BRPT) Examination or who would like a comprehensive overview of sleep technology. Each attendee will receive a course book that includes materials for review and a self assessment exam that assists in preparing for the polysomnographic technology registry exam.

More details are available at www.aastweb.org