•Case report•

Case Report of Rapid-eye-movement (REM) sleep behavior disorder

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Summary: A 23-year-old female student presented with a five-year history of abnormal sleep in which she would sit up or stand up for brief periods in the early morning, talk loudly for a couple of minutes and then lie back down. When woken by family members she would remember vivid dreams and nightmares. In one episode she had a fall that resulted in a subdural hematoma. On presentation at the psychiatric hospital she had a normal mental status exam except for being mildly depressed and anxious about the chronic fatigue from poor sleep. Overnight polysomnography (PSG) showed multiple waking periods each night, poor sleep efficiency and a lack of normal muscle paralysis during REM sleep. The patient was diagnosed with REM Sleep Behavior Disorder and treated with 1 mg clonazepam nightly. Her sleep improved dramatically and remained better at a six-month follow-up, but repeat PSG exam found that the lack of muscle paralysis during REM sleep remained.

1. Case history

The patient was a 23-year-old female student of Han ethnicity. Five years ago, for no obvious reason, she began to have episodes about every 20 to 30 days in which she would sit up in bed while sleeping (usually at about 01:00 h) with her eyes closed, speak loudly and clearly for about 1 to 2 minutes, and then lie back down to sleep. She reported that she often felt anxious or tense about common life stresses in the two to three days preceding these episodes. When this occurred her family members woke her and she was able to clearly recall her vivid dreams (that were sometimes nightmares). For example, a year and a half before she sought psychiatric treatment she had a nightmare about a steamroller in which she felt terrified and shouted 'save me' before jumping from a height of 1.6 meters and falling to the floor causing a subdural hematoma that was verified by X-ray tomography.

The patient had not previously sought medical help for these problems but eventually came for outpatient psychiatric treatment because of the risk of serious injury related to her abnormal sleep. Mental status examination showed that the patient was alert, oriented to time and place, had insight into her condition, was able to answer questions coherently, and was cooperative. The patient denied any hallucinations or delusions. She expressed sadness and anxiety, and reported frequent nightmares that left her feeling fatigued in the mornings. The patient could not remember her abnormal nighttime behavior and was worried about nighttime abnormalities occurring again.

Overnight polysomnographic (PSG) monitoring showed that the patient had a total sleep time of 7.3 h, a total time of waking during the night of 88.5 min (32 times), poor sleep continuity, decreased sleep efficiency, and a lack of normal muscle atonia (paralysis) during rapid eye movement (REM) sleep. Electromyograph (EMG) results showed excessive twitching in her chin (mentalis muscle) and limbs during REM sleep (see the ChinEMG, LegEMG2, LegEMG3 tracings in Figure 1) but no epileptic features.

The patient was diagnosed as having REM sleep behavior disorder (RBD) and given an oral dose of clonazepam, 1 mg nightly. Family members observed the patient the first night after taking medication; as previously, she sat up at about 01:00 h and then laid back down again after about 2 min but could not remember her nighttime behavior the next day. After the first night the nighttime behavior did not recur. After a week on the medication, the patient's anxiety and tension disappeared and the morning fatigue was greatly reduced. Results of a follow-up PSG showed a total sleep time of 7.9 h, a total time of waking during the night of 10.5 min (8 times), and significantly improved sleep continuity and sleep efficiency, but there was still a lack of muscle atonia during the REM

doi: 10.3969/j.issn.1002-0829.2013.02.010
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periods of sleep. The patient felt that the medication significantly reduced the occurrence of nighttime disturbances and increased the quality of her sleep. The patient only reported one nighttime abnormality in a follow-up six months after initiation of treatment: 4 months after beginning treatment she suddenly stood up while asleep, which woke her up but did not harm her.

2. Discussion

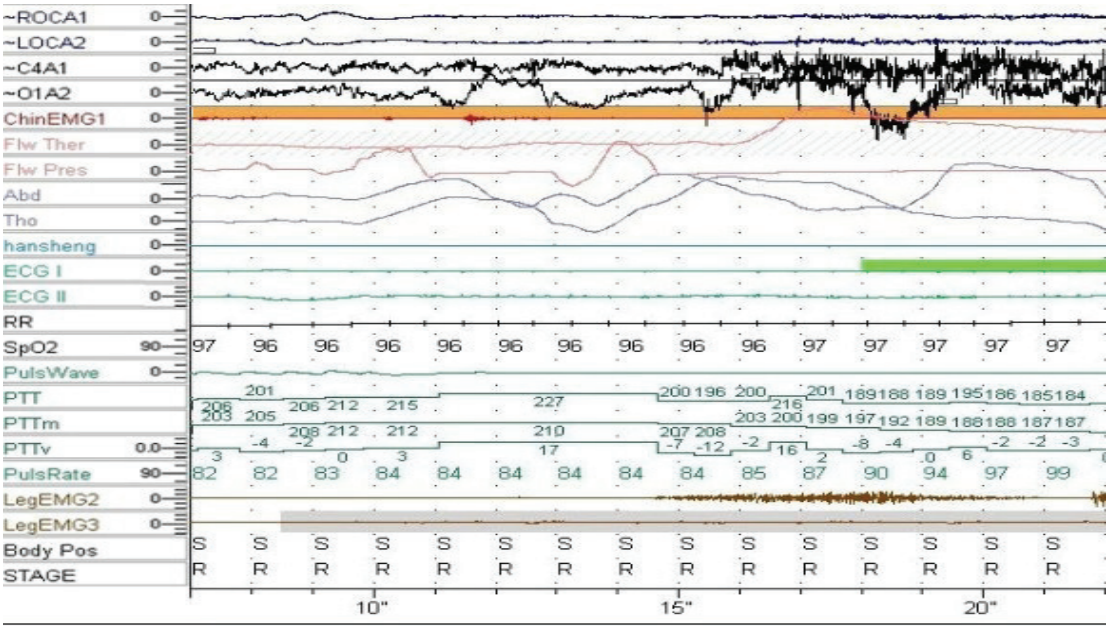
RBD is characterized by the loss of muscle relaxation during REM sleep and complex, dream-related movements during REM.[1] The prevalence of RBD in adults is 0.4 to 0.5%.[2] RBD can occur at any age with 50-years-old being the dividing line between early-onset RBD and late-onset RBD. Late-onset RBD is more common in men. According to Teman and colleagues[3] early-onset RBD occurs more frequently in women, particularly in those who use antidepressants. But Ju and colleagues[4] believe that there is no significant difference in the prevalence of RBD between young men and young women, though they do suggest that early-onset RBD in women is commonly associated with autoimmune diseases and antidepressant use.

This paper reports a case of early-onset RBD in a young woman who did not have any history of an autoimmune disease or of using antidepressants. The patient reported that prior to the episodes of abnormal sleep behavior she had felt stressed and had experienced mild mood swings. This case would, therefore, support the work of Siclairi and colleagues,[5] who believe that there may be a relationship between mood swings and the subsequent onset of RBD. Several researchers believe that RBD is an early marker of underlying neurodegenerative disorders.[4,6] The onset of RBD in our patient was relatively early (at 18 years of age) so whether or not this signifies the onset of a neurodegenerative disease remains to be seen. Long-term follow-up studies of this type of RBD are needed to understand its prognosis and outcome.

The diagnosis of RBD requires a history of abnormal sleep behavior and a multi-track PSG showing muscle activity during REM sleep.[7] Problematic sleep behavior presents as complex, involuntary facial and limb movements, sleep talk, and violent movements, all of which can harm the sleeper or those in bed with them. In addition to the abnormal sleep behavior, the patient described here also reported vivid dreams and nightmares when woken by family members. This suggests that the behaviors were occurring during REM sleep, a finding that was confirmed by the PSG exam that showed the characteristic muscle activity during REM sleep (normal REM sleep is associated with atonal muscles).

Patients with sleep disorders often seek treatment in a psychiatric department so a differential diagnosis is extremely important. The most important differential diagnosis to consider in adults with abnormal sleep behavior is nocturnal epilepsy. Individuals with nocturnal epilepsy will show EEG abnormalities outside of the sleep period and PSG monitoring should show characteristic epileptic waveforms. If there is some doubt about the diagnosis, 24-hour EEG monitoring

Figure 1. Polysomnographic recording of the patient during REM sleep prior to treatment



would provide a definitive diagnosis. Cranial CT examinations can help to rule out other possible organic brain disorders that have disturbed sleep as one of the symptoms.

Benzodiazepines, particularly low-dose clonazepam, are the first-line drug treatments for RBD.[8] For patients who have adverse reactions to these drugs, zopiclone[8] and melatonin[9,10] have also been found to be effective.[9,10] There are a few studies showing that pramipexole, paroxetine or L-dopa can be used for RBD, but the results of these studies are not consistent.[11] The patient described in this report was a healthy 23-year-old so she was treated with low-dose clonazepam; she responded well to 1 mg clonazepam nightly and had no significant adverse reactions. Even though her clinical symptoms improved, PSG monitoring revealed that there was still abnormal muscle activity during REM sleep, a finding that is consistent with that of other studies.[7] Despite the good clinical outcome there were occasional episodes of the abnormal sleep behavior during the follow-up. Family members of patients with RBD need to be advised of this possibility and patients with RBD should sleep in a safe environment to minimize the risk of injury.

In China, there are few scientific reports about RBD. Both clinicians and community members are largely unaware of the condition, so it is often misdiagnosed. As shown in this case, most patients and their family members do not seek treatment unless the episodes are frequent or result in serious distress or injuries. Disseminating knowledge about RBD both to the public and to health professionals is important for preventing treatment delays.

Conflict of interest

The authors report no conflict of interest related to this paper.

Acknowledgement

The authors would like to thank the patient, who signed a written informed consent to publish this case report.

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