CASE REPORT

REM sleep behaviour disorder: a treatable cause of falls in elderly people

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Introduction

Reports of falls occurring exclusively at night have usually been in the context of a hospital setting (attempting to climb out of bed or during sleep) rather than in people living at home [1]. We report a case of recurrent falls in an elderly woman, occurring exclusively at night and caused by rapid eye movement (REM) sleep behaviour disorder.

In this condition there is a loss of the normal atonia of postural muscles that usually occurs in REM sleep [2]. It results in complex, vigorous, dream-enacting behaviours during REM sleep [3]. These typical behaviours have the potential to cause serious injury at night, particularly from falls. This disorder appears to have been overlooked in the geriatric literature as a potential source of falls and injury at night.

Case history

A 77-year-old woman was admitted to hospital after an acute fall, preceded by a 9-month history of recurrent falls at night. These episodes were occurring weekly, and always after midnight. On the day of presentation she dreamt she was ‘standing in a garden and leant forward to pat a child on the head’. She was actually standing up in bed and as she reached over to ‘pat the child’, she fell to the ground. She awoke on the floor, having sustained a laceration to her forehead. Her husband reported that she was a snorer, but she did not complain of significant daytime hypersomnolence. There was no history of epilepsy.

Her intercurrent problems included type II diabetes mellitus of 2 years duration for which she required insulin. She had a 5-year history of hypertension treated with metoprolol 100 mg bd and felodipine 5 mg daily. Her background history included a coronary artery bypass graft in 1990, complicated by a post-operative stroke causing left-hand paraesthesia. She also had hypercholesterolaemia, treated with simvastatin 10 mg daily, and glaucoma, for which she applied 1% timoptol eye drops. She was married, independent and active. She was a non-smoker and non-drinker.

Clinical examination revealed an alert and oriented lady. She was mildly obese. Her blood pressure was 150/70 mmHg lying and 140/65 mmHg standing. She was in sinus rhythm with a pulse rate of 80 per min. Cognition was normal, with a Folstein mini-mental examination score of 30/30. Neurological examination was normal: in particular there was no ataxia. Visual fields and visual acuity were normal. There was a superficial laceration across the head anteriorly, requiring sutures. The rest of the physical examination was unremarkable.

Routine biochemistry, including blood glucose and haematology tests were all normal. An awake electroencephalogram was normal. A cerebral CAT scan was also normal. In consultation with the Sleep Disorders Centre, a provisional diagnosis of REM sleep behaviour disorder was made. Standard nocturnal polysomnography was performed [4]; in addition, electromyographic activity of all four limbs was monitored and the patient videotaped throughout the night. This study revealed loss of REM atonia, and movements of the right arm during REM sleep, thereby confirming the diagnosis. In addition there was evidence of moderate obstructive sleep apnoea, with frequent obstructive apnoeas and hypopnoeas (16 per hour) and maximal oxygen
lesions in the pontine and thalamic regions in our case vascular lesions [9]. The characteristic older age of onset following appropriate brain stem lesions, such as occurs where lesions of the pontine tegmentum reproduced REM sleep behaviour disorder. Long-term studies have been the cause of the disorder. Lends further support to the belief that these lesions may its aetiology [10]. The cerebral MRI finding of vascular pathology has been described in cat experiments, [5] in with structural damage to the pontine tegmentum from REM sleep behaviour disorder may arise in humans medial medulla of the cat have also been shown to cause stereotypical behaviours [7]. Experimental lesions in the medulla of the cat have also been shown to cause REM sleep without atonia [8]. It has been proposed that REM sleep behaviour disorder may arise in humans following appropriate brain stem lesions, such as occurs with structural damage to the pontine tegmentum from vascular lesions [9]. The characteristic older age of onset of this condition also suggests an 'organic brain factor' in its aetiology [10]. The cerebral MRI finding of vascular lesions in the pontine and thalamic regions in our case lends further support to the belief that these lesions may be the cause of the disorder.

Clonazepam is highly effective in the treatment of REM sleep behaviour disorder. Long-term studies have demonstrated a 77% complete response and 12% partial response, without the development of tolerance. It has been suggested that the effectiveness of this benzodiazepine agent may be through its serotonergic properties [3].

Our case describes an unusual cause of nocturnal falls in the elderly, and highlights the importance of a comprehensive sleep history in general history taking in the elderly. In cases of falls occurring only at night this diagnosis certainly needs consideration. Although REM sleep behaviour disorder is not a common modifiable risk factor for falls, recognition and treatment of this disorder will help reduce the consequent disability arising from this potentially treatable parasomnia, and avoid its misdiagnosis as nocturnal syncope or epilepsy.

**Key points**

- It is important to include a sleep history in general history taking of geriatric patients.
- Consider REM sleep behaviour disorder when falls occur exclusively during sleep.

**References**


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