Hypoglycaemia and somnambulism: A case report

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Abstract

Sleepwalking (somnambulism) is a sleep disorder classified as a parasomnia. Sleepwalkers develop motor activities that may be simple or complex: they can get out of bed, walk, urinate and even leave the house while remaining unconscious and unable to communicate. It is difficult to wake a sleepwalker, but it is not dangerous – as many people think [1]. Sleepwalking cases have been caused by jet lag, the consumption of narcotics, sedatives and alcohol, cardiac problems such as arrhythmias, and other medical conditions, including epilepsy, asthma and apnoea. In a quick search of the literature, only one case due to hypoglycaemia has been reported, describing a patient with type 1 diabetes whose sleepwalking was triggered by nocturnal hypoglycaemia. Our present case was similar, and our report also describes how it occurred and how the condition was remedied.

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Keywords: Hypoglycaemia; Somnambulism; Type 1 diabetes mellitus

Résumé

Hypoglycémie et somnambulisme : à propos d’une observation.

Le somnambulisme est un trouble du sommeil classé dans la catégorie des parasomnies. Les somnambules développent des activités motrices qui peuvent être simples ou complexes. Un somnambule peut sortir de son lit, marcher, uriner, et même sortir de la maison alors qu’il est inconscient et incapable de communiquer. Il est difficile de réveiller un somnambule mais ce n’est pas dangereux comme beaucoup le pensent. Ont été incriminés des décalages horaires, la consommation de narcotiques, de sédatifs, d’alcool, des troubles du rythme cardiaque ou d’autres affections comme l’épilepsie, l’asthme et les apnées du sommeil. En réalisant une rapide revue de la littérature, un seul cas de somnambulisme lié une hypoglycémie a été retrouvé. Nous rapportons l’observation d’un diabétique de type 1 dont le somnambulisme a été déclenché par une hypoglycémie nocturne. Nous décrivons les conditions de survenue de ce phénomène et le remède apporté.

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Mots clés : Hypoglycémie ; Hypoglycémie nocturne ; Somnambulisme ; Diabète de type 1

Sleepwalking (somnambulism) is a sleep disorder classified as a parasomnia. Sleepwalkers develop motor activities that may be simple or complex: they may be able to get out of bed, walk and urinate, and even get out of the house, while remaining unconscious and unable to communicate. It is difficult to wake a sleepwalker, but it is not dangerous – as many people seem to think [1]. Sleepwalking occurs during sleep phases 3 or 4 – in other words, during the phase known as “deep sleep” or “slow-wave (delta) sleep”. Sleepwalking is more common during childhood and adolescence. In general, episodes are isolated, but could be repetitive in 1–6% of cases. It is erroneously believed that sleepwalking is the conversion during sleep of the physical movements that the individual is performing during dreaming. However, this is not true, as sleepwalking does not occur during the rapid eye movement phase (REM), when dream images usually take place [2].

Sleepwalking cases have been caused by jet lag, the consumption of narcotics, sedatives and alcohol, cardiac problems such as arrhythmias, and other medical conditions such as epilepsy, asthma and apnoea. In a quick review of the literature, only one case due to hypoglycaemia has so far been reported [3].

Nocturnal hypoglycaemia is common in individuals treated with insulin and especially in those with type 1 diabetes, and such episodes could have serious consequences, especially in
asymptomatic cases [4–6]. It has always been a problem for diabetic patients, but it was not until 1970 that the condition was properly studied. Nocturnal hypoglycaemia rates vary from 7% to 60% in both children and adults. Early studies dealt with patients who had poorly controlled sugar levels, although today’s intensive therapies can still increase hypoglycaemia rates to above 50% [4].

The present report describes a patient with type 1 diabetes whose sleepwalking was triggered by nocturnal hypoglycaemia. How it occurs and how the condition was remedied is also described.

1. Case report

A 33-year-old male patient was diagnosed with type 1 diabetes at the age of 26 years after presenting with typical symptoms of diabetes, polyphagia, polyuria and polydipsia. His treatment consisted of 0.4 U/kg of basal insulin with a single nighttime dose of 32 U; after performing a blood test and observing his poor glucose control with an HbA1c of 9.8%, it was decided to intensify his treatment by increasing the nighttime basal insulin dose by 6 U. After this change, better control of glycated haemoglobin was achieved (HbA1c 7.6%). Unfortunately, the patient started having hypoglycaemic episodes two or three times a week that were treated with glucose intake. The patient also suffered from nighttime headaches and sometimes presented with nocturnal hypoglycaemia.

During these hypoglycaemic episodes, the patient suffered from nocturnal disorientation with mood swings; also, these events happened so often that it became a daily routine for his wife to try to calm him down by asking him such questions as “What time is it?”, “What day of the week is it?” and “What are you going to do next?”.

Once the episodes were treated, however, the patient realized that he was not awake, but just experiencing a hypoglycaemic episode. He recovered his reasoning ability, and started waking up normally and asking his wife what he had been doing during sleepwalking. His partner’s responses were as varied as running down the hallway of their home with a blanket over his head, playing with the dog and making a sandwich with chocolate instead of ham or cheese. It was thought that the nocturnal hypoglycaemic episodes were causing his somnambulism.

A glucose measurement less than 3.1 mmol/L (56 mg/dL) was considered a hypoglycaemic event, and any event occurring between bedtime and getting up the next morning was considered a nocturnal hypoglycaemic episode. It was also decided to involve the patient in looking for better glucose control by adjusting his basal insulin nighttime doses according to his preprandial glycaemia before dinner and at bedtime to achieve effective glucose control without hypoglycaemia.

Hypoglycaemic symptoms and signs are due to a lack of glucose in neurons, and may be divided in two categories: neurovegetative and neuroglycopenic [4]. The former category involves activation of the autonomous nervous system with the production of adrenaline in the suprarenal glands and its release into the bloodstream, and with noradrenaline in synaptic postganglionic nerve endings in the effector tissue, leading to tremor, pallor, palpitations and tachycardia that, in nocturnal hypoglycaemia, presents as sweating and palpitations. On the other hand, neuroglycopenic symptoms are due to the lack of glucose in the brain, thereby causing dizziness, confusion and changes in behaviour.

It appeared likely that our present case of nocturnal hypoglycaemia presenting as sleepwalking could be classified as the latter type of disorder.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

References