CASE REPORT

Myasthenia gravis and recurrent falls in an elderly patient

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Abstract

Presentation: an elderly man had recurrent hospital admissions with falls.
Outcome: acetylcholine receptor antibodies and single-fibre electromyogram were useful in the diagnosis of myasthenia gravis. Treatment prevented further hospital admissions.

Keywords: elderly, myasthenia gravis, recurrent falls

Introduction

Falls are common in elderly subjects, with an annual incidence of 28–35% in those over 65 and over 40% in those aged 75 and above [1, 2]. Here we report an unusual case of recurrent falls in an elderly patient.

Case history

A 94-year-old man presented with recurrent falls culminating in four hospital admissions in 10 months. Typically he became unsteady on standing, fell and was unable to get up. His history included appendicectomy, umbilical hernia repair, glaucoma, prostatectomy and sigmoid colectomy for carcinoma. His only medication was lactulose.

On examination he had a right ptosis from previous eye surgery. There was no postural hypotension. Biochemical profile, thyroid function, chest X-ray, electrocardiogram and 24-h electrocardiogram were unremarkable. Full blood count revealed a macrocytosis (haemoglobin 13.6 g/dl), a low serum vitamin B12 with positive autoantibodies to intrinsic factor but not to parietal cells. He complained of dysphagia for solids and nasal regurgitation. Upper endoscopy was normal.

He also complained of diplopia with a monotonous speech that became progressively weaker on prolonged conversation. Autoantibodies to acetylcholine receptors were positive. Although repetitive nerve stimulation in muscles of the hand failed to produce decrement in muscle action potentials, single-fibre electromyogram of the frontalis muscles revealed marked increase in jitter and blocking consistent with myasthenia gravis. We prescribed pyridostigmine which resulted in improvement in both swallowing and mobility.

Discussion

Causes of falls in old age are usually multi-factorial and include impaired visual acuity, disturbances of gait or balance, medication, neurocardiovascular (orthostatic hypotension, carotid sinus hypersensitivity) and neuromuscular causes. The neuromuscular cause is thought to be a result of an abnormality in neuromuscular junction transmission (especially the quadriceps muscle [3, 4]), since administration of anticholinesterase to some elderly subjects has resulted in cessation of falls [5].

The main cause of falls and repeated hospital admissions in this patient was undiagnosed myasthenia gravis. In a recent study, there was a delay in diagnosis of the condition in elderly patients at 4.5 months compared with 2.5 months in patients under 60 [6]. Myasthenia gravis is a disease in which there are too few functioning acetylcholine receptors resulting in muscular weakness. The incidence is between 2 and 4 per million, although recent studies suggest that the figure may be as high as 9–10 per million [6–8]. The disease is more common in women (a 2:1 ratio) and may be diagnosed for the first time in old age [8].

Acetylcholine receptors are very specific: 80–90% of patients (especially older men) with generalized myasthenia gravis will have positive antibodies. This falls to 50% in patients with ocular myasthenia gravis.
The diagnosis is usually confirmed by performing a tensilon test but its interpretation can be difficult. Repetitive nerve stimulation is the most common test for neuromuscular junction transmission as it is easy to do. However, this test can be normal in some patients (as in this case). Furthermore, an abnormal repetitive nerve stimulation response merely confirms an abnormality in neuromuscular junction transmission and is not specific for myasthenia gravis. Single-fibre electromyogram is the most sensitive test, demonstrating increased jitter in virtually all patients with myasthenia gravis if those muscles most likely to be involved are examined (Figure 1).

Ptosis is also increasingly common in old age [9]. In most cases (over 90%), ptosis is acquired but in only half of these is there a clear cause; a myasthenic aetiology is uncommon. The association of myasthenia gravis with other autoimmune diseases (such as pernicious anaemia) is well known. Our patient also had autoantibodies to striated muscle but a computerized tomographic scan of his chest excluded a thymoma.

On outpatient review he remained well. He had no further hospital admissions with falls but died at home of a myocardial infarction 1 year later.

Key points

- Myasthenia gravis is not uncommon in elderly people, and its incidence may be higher than previously reported. It may present with recurrent falls.
- Interpretation of a tensilon test can be difficult. It is only part of the diagnostic process
- Antibodies to acetylcholine receptors are a more specific test and are more likely to be positive (90%) in patients with generalized myasthenia gravis, especially older men.

Acknowledgement

We are grateful to K. A. Pang, formerly Senior Registrar in Neurophysiology, Walton Hospital, Liverpool, for his comments on the electromyogram studies.

References


Received 11 January 1999; accepted in revised form 27 April 1999