Letter to the editor

Iatrogenesis—the biggest geriatric giant of all?—Hypocalcaemia with stridor and vocal cord paralysis in an older adult

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1. Case report

An 89-year-old woman presented with a two-day history of stridor, deterioration in her general health and a fall. Prior to admission, she was well and independent in daily activities. Her history included two thyroidectomy operations over 30 years ago, complicated with post-operative hypoparathyroidism, hypocalcaemia and recurrent laryngeal nerve damage with hoarseness. She was on long-term maintenance L-thyroxine, calcium and vitamin D supplements. Three weeks prior, she was seen by a physician as follow-up after a brief admission for pneumonia. Her calcium level was borderline high at 2.6 mmol/L, hence, supplements were discontinued. The physician was not aware of the history of complications post-thyroidectomy as the patient and her carer were not able to supply this information.

On examination, she was exhausted and mildly confused with inspiratory stridor. She had spasms/myoclonic jerks in both upper limbs and Chvostek's sign was positive.

Room air arterial blood gases demonstrated mild alkalosis and hypoxia. Serum corrected calcium was 1.36 mmol/L; phosphate 1.9 mmol/L; parathormone (PTH) < 0.3 pmol/L (1.2–5.8 pmol/L). Electrocardiogram revealed prolonged QT interval (corrected) of 507 ms. Computed tomography of her brain revealed bilateral calcifications in the fronto-parietal white matter, lentiform nucleus, cerebellum and pons. (Fig. 1).

Flexible laryngoscopy revealed normal epiglottis with bilateral vocal cord palsy without laryngeal oedema.

She was electively intubated and ventilated with exhaustion and worsening of stridor. Treatment and progress of her hypocalcaemia are outlined in Table 1. Five days later, extubation was attempted but unsuccessful. Laryngoscopy revealed right vocal cord palsy with minimal movement of the left vocal cord. Serum calcium level was 1.82 mmol/L. She was transferred to the geriatric medicine ward two days later when her serum calcium level was corrected up to 2.22 mmol/L. Her stridor ceased and on reassessment, the right vocal cord remained immobile while the left vocal cord was mobile.

She was discharged after a period of rehabilitation with a tracheostomy in place, on oral one-alfacalcidol and calcium carbonate. On discharge, she required assistance of one person for her personal daily activities and was mostly confined to the wheelchair.

2. Discussion

Older adults are more susceptible to iatrogenic events [1,2] leading to increased morbidity and mortality. This case illustrated a series of iatrogenic events that affected the patient at different times in her life. The latest event was a very serious and life-threatening one and may be the biggest geriatric giant of all for her.

Severe hypocalcaemia is a great mimicker and can cause a myriad of symptoms in the older adult including congestive cardiac failure, parkinsonism and cognitive impairment [3]. Serum calcium needs to be part of a comprehensive assessment in an ill older person. Hypocalcaemia presenting as laryngospasm is rarely reported in the elderly [4] while it is commoner in children with smaller airways diameter [5]. Common causes of stridor in the adult include upper airway abscess, tumour and vocal cords dysfunction and these may be higher up on the treating physician’s differential diagnosis.

Although it is vital to know a person’s thorough background medical history and long-term medications, this can be difficult to achieve in the older adult for various reasons, including cognitive impairment, lack of support from carers who may know the medical history, lack of knowledge of the condition or the fact may have simply escaped the thoughts of the cognitively intact patient and carer at the time.

It is extremely important to think of iatrogenesis as the cause of any acute or chronic condition in an older patient. It is also important for a handover of medical history from one physician to another, when there is transfer of care of a complex patient. However, this may not occur in countries or economies where the patient is the consumer, seeking healthcare in different places for different reasons. Iatrogenic morbidity will continue to occur, but increased public awareness may help reduce the risk with continued research and analysis of strategies to reduce its occurrence [6,7].

Key points

- Iatrogenesis is one of the five geriatric giants that affects older adults.
- It must be considered as a cause of any acute or chronic condition in an older person.
- This case illustrates the importance of knowing a person’s comprehensive medical history, which can be difficult in the older adults who may not know their own history well for various reasons.

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Fig. 1. Series of images from CT brain scan showing areas of calcification at the basal ganglia region (A and B), pons (C) and cerebellum (D).

Table 1
Treatment prescribed for management of the patient’s hypocalcaemia.

<table>
<thead>
<tr>
<th>Day</th>
<th>Serum corrected calcium (mmol/L)</th>
<th>Treatment given</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>1.36</td>
<td>10 millilitres of 10% calcium gluconate intravenously</td>
</tr>
<tr>
<td>Day 1</td>
<td>1.40</td>
<td>Continuous intravenous infusion at 20mL/h of 50mL of calcium gluconate 10% diluted to a volume of 500 mL with 5% dextrose</td>
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<tr>
<td>Day 2</td>
<td>1.68</td>
<td>Infusion of calcium gluconate continued and enteral calcium carbonate and calcitriol commenced and titrated according to corrected calcium</td>
</tr>
<tr>
<td>Day 4</td>
<td>2.02</td>
<td>Enteral calcium and vitamin D supplements continued</td>
</tr>
<tr>
<td>Day 5 (day of extubation)</td>
<td>1.82</td>
<td>One dose of 10 millilitres of 10% calcium gluconate intravenously and enteral calcium and vitamin D supplement titrated</td>
</tr>
<tr>
<td>Day 10</td>
<td>2.04</td>
<td>Calcitriol switched to one-alfacalcidol and titrated</td>
</tr>
<tr>
<td>Day 28 (discharge)</td>
<td>2.08</td>
<td>Oral one-alfacalcidol and calcium carbonate</td>
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</tbody>
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References


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