Thyrotoxic periodic paralysis: an unusual presentation of weakness

B Paul, P Hirudayaraj, M W Baig

Thyrotoxic periodic paralysis (TPP) is a rare endocrine disorder. The prevalence as determined in a study of hyperthyroid patients in North America was 0.1%–0.2%. TPP is more common in Asians and more cases are being seen in Europe and America because of migration. The condition may present as a life threatening emergency and unfamiliarity with the syndrome could result in a fatal outcome. Compliance with therapeutic management plays an important part in the treatment of this condition.

CASE REPORT

A 35 year old Chinese man presented to the accident and emergency (A&E) department complaining of inability to walk. He described a sudden weakness of his legs two days before admission and was unable to walk or stand unassisted. His symptoms were progressive. There was no history of trauma, fever, diarrhoea, weight loss, heat intolerance, or palpitations. There was no significant past illness or family history.

On examination there was no tremor or goitre. His pulse was 72/min, blood pressure 116/61 mm Hg, and Glasgow Coma Score was 15/15. Neurological examination revealed increased tone in the lower limbs, 2/5 power at the hip, and 4/5 power distally. Tone and reflexes were normal bilaterally. There were no sensory abnormalities and the cranial nerves were intact. Coma Score was 15/15. Neurological examination revealed increased tone in the lower limbs, 2/5 power at the hip, and 4/5 power distally. Tone and reflexes were normal bilaterally. There were no sensory abnormalities and the cranial nerves were intact.

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Treatment of TPP requires urgent correction of potassium levels. Patients with potassium concentrations above 2.5 mmol/l and mild weakness should be treated with 80 mmol/24 h of oral potassium. Patients presenting with potassium concentrations below 2.5 mmol/l or with symptoms of paralysis should be treated with intravenous potassium. This should be given cautiously at a rate of 20 mmol/h as aggressive treatment with potassium supplements is known to cause rebound hyperkalaemia. As serum potassium concentrations...
rise oral potassium supplements should be introduced. Treatment of hyperthyroidism with antithyroid drugs is central to the management of TPP. Propranolol added to the initial treatment counteracts the peripheral effects of thyrotoxicosis and improves muscle strength. Glucocorticoids decrease the release of T3 and T4 from the thyroid and inhibit the peripheral conversion to T3.

Long term treatment of TPP entails control of hyperthyroidism. Propylthiouracil has been shown to effectively control hyperthyroidism and the symptoms. Euthyroidism must be maintained for at least six months before a cure of TPP may be considered. Symptoms recur with poor control. Iodine ablation and surgical management with subtotal thyroidectomy are curative.

To the best of our knowledge this is the third reported case of TPP in the UK. The diagnosis must be considered in patients of Asian origin presenting with acute paralysis. Considering migration trends into Europe and America, an increase in the number of cases in the UK can be expected.

Contributors
B Paul, the principal investigator initiated, planned, and researched into the writing of the paper. P Hirudayaraj participated in the study design, core issue discussion, data collection, research, and editing of the paper. M W Baig coordinated the research, discussed core aspects, and edited the paper.

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