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A Case of Resistant Hypocalcemia Treated with Teriparatide

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Abstract

Postsurgical chronic hypoparathyroidism is most commonly seen in adults. Synthetic recombinant human parathyroid hormone (rhPTH) 1-34 can be used to stabilize serum calcium levels in patients with resistant hypocalcemia in rare conditions. Here we report a 52-year-old woman with postsurgical uncontrolled hypocalcemia despite the usual therapy. Once-daily treatment with PTH 1-34 maintained serum calcium within the normal range and reduced the dose of previous medical therapies.

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Introduction

Parathyroid hormone (PTH) is the main hormone that regulates serum calcium levels by affecting kidneys, bones and gastrointestinal tract. Hypoparathyroidism is a rare disease accompanied by hypocalcemia that occurs in the absence or deficiency of PTH synthesis. Postsurgical chronic hypoparathyroidism is the most common cause in adults.¹ Second most common cause is autoimmune hypoparathyroidism.² Post-surgical transient hypocalcemia is more common and calcium replacement alone may be sufficient. The incidence of permanent hypocalcemia is 2% in the postsurgical patients operated for hyperparathyroidism.³ Oral calcium and vitamin D supplementation is used for the initial management of patients with chronic hypoparathyroidism. Serum calcium levels cannot remain within normal ranges despite calcium and

vitamin D supplementation in rare instances. In these situations, synthetic recombinant human parathyroid hormone (rhPTH) 1-34 can be used once or twice daily to stabilize serum calcium levels in patients with chronic hypoparathyroidism.⁴ In this case report, we described a 52-year-old woman with postsurgical uncontrolled hypocalcemia despite the usual therapy with calcium, magnesium and calcitriol. Once-daily treatment with PTH 1-34 maintained serum calcium within the normal range and reduced the dose requirement of previous medical therapies.

Case Report

A 52-year-old woman with Graves' disease underwent a total thyroidectomy in the year 2000. She had persistent hypocalcemia after



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the surgery. She was treated with levothyroxine sodium, calcium and vitamin D supplements. She had cataract surgery 10 months ago. She had multiple emergency department admissions and hospitalization due to recurrent hypocalcemia symptoms and signs. When she was admitted to the endocrine clinic, the laboratory evaluation confirmed severe hypocalcemia due to postsurgical hypoparathyroidism: calcium was 5 mg/dL, albumin was 4.1 g/dL, phosphorus was 4.1 mg/dL, magnesium was 1.6 mg/dL, 25-OH vitamin D was 14.8 mcg/L and parathyroid hormone (PTH) was 9 ng/L. Celiac autoantibodies were undetectable. Bone mineral densitometry was normal. Teriparatide (recombinant human PTH) was begun with the approval of the Ministry of Health. There was no emergency department admission or hospitalization within 9 months after the initiation of teriparatide treatment. At the last control of the patient, the calcium level was increased to 7.4 mg/dL and phosphorus was decreased to 2.7 mg/dL. The 25-OH vitamin D level was markedly increased to 34.5 mcg/L. The treatment of the patient continues with calcium, magnesium, vitamin D supplements, and teriparatide.

Discussion

Most of the patients with hypoparathyroidism are treated with high-dose vitamin D (calcitriol, cholecalciferol or ergocalciferol) and calcium supplements.⁵ As a result of these treatments some patients may have hyperphosphatemia and hypercalciuria that increase the risk of renal disease. In a randomized controlled study comparing once-daily treatment with rhPTH 1-34 and calcitriol, it was reported that serum calcium levels could be kept within the normal ranges and urinary calcium excretion could be reduced with rhPTH 1-34 therapy.⁴ However, rhPTH 1-34 is not yet first line therapy, because of high cost and subcutaneous administration. In our case, rhPTH 1-34 treatment was initiated due to resistant hypocalcemia. Serum calcium levels were normal or close to normal during follow-up period.

In a study of 31 patients treated with rhPTH 1-34, it was reported that 16 patients developed new-onset or progressive nephrocalcinosis due to hypocitraturia.⁶ In a patient who was followed up for 3 years, severe joint pain was developed with

the use of rhPTH and the pain decreased with the discontinuation of the drug.⁷ Since our case has been followed up for almost 1 year, none of the mentioned side effects was observed.

In conclusion, the use of rhPTH 1-34 is a good option in patients with resistant hypoparathyroidism. However, long-term follow-up and studies involving a large number of patients are needed in terms of side effects and complications.

Conflict of Interests

Authors declare that there are none.

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