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# NORMAL PARATHYROID HORMONE LEVELS DO NOT EXCLUDE THE DIAGNOSIS OF HYPOPARATHYROIDISM AFTER THYROIDECTOMY

Promberger R, Ott J, Kober F, Karik M, Freissmuth M, Hermann M. **Normal parathyroid hormone levels do not exclude permanent hypoparathyroidism after thyroidectomy.** Thyroid. December 29, 2010 [Epub ahead of print].

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## BACKGROUND

Permanent hypoparathyroidism is the most common complication after thyroid surgery and may occur in 4% of patients. The aim of this study was to analyze a series of patients with long-term hypocalcemia who had normal serum parathyroid hormone (PTH) concentrations.

## **METHODS**

The authors evaluated eight patients who had normal PTH levels with subnormal serum calcium levels 2 months after thyroidectomy. Calcium metabolism and bone turnover markers were studied carefully at 2 months and 12 months after surgery.

#### RESULTS

There were seven women and one man, with a mean age of 54 years. Four patients had benign nodular goiter, three had thyroid cancer, and one (age 19) had Graves' disease. The patients with carcinoma had total thyroidectomy and the others had neartotal thyroidectomy. The parathyroid glands were visualized during surgery, and in only one patient was there removal of two parathyroid glands for oncologic reasons. Seven of the eight patients had symptomatic hypocalcemia within 1 day after surgery and the other was symptomatic at 6 days. All were treated with long-term calcium therapy. Although PTH levels were initially low postoperatively, they rose progressively and were well within the normal range at 2 and 12 months after surgery. At 1 year, total calcium was slightly low in all eight patients and ionized calcium was low in six; all patients had normal magnesium and 25-hydroxyvitamin D levels.

## CONCLUSIONS

In patients with persistently low calcium levels during long-term follow-up after thyroidectomy, even normal PTH values may represent an insufficient parathyroid response.

## COMMENTARY • • • • • • • • • • • • • • • • •

This report provides an excellent description of mild hypoparathyroidism in the presence of normal serum PTH in patients who have had a thyroidectomy resulting in damage to the parathyroid glands. The authors, who are surgeons, do not describe the management of the hypocalcemia in these patients. This job usually falls to the endocrinologist. I shall describe a similar case that illustrates the subtle abnormalities of mild postoperative hypocalcemia. The son of a medical colleague had a total thyroidectomy for a papillary thyroid cancer with resection of two parathyroid glands and implantation of one gland into the sterncleidomastoid muscles. He had severe transient symptomatic hypocalcemia postoperatively, despite PTH in the lower normal range, followed by calcium levels in the low-normal range after tapering and then discontinuing calcitriol and calcium supplementation while consuming generous amounts of milk over the next five years. His mother, an endocrinologist, noted that he was twitching when moving into his college dormitory. In retrospect, he related that he felt that he could not run as fast nor could he jump since his surgery. Reevaluation showed total serum calcium in the lower half of the normal range and normal PTH levels, but ionized calcium was frankly low. He was empirically started on calcitriol and calcium supplements with resolution of twitching and a great improvement in his running and jumping in basketball games. The lesson here is that post-thyroidectomy hypoparathyroidism may be subtle, with symptoms of hypocalcemia manifest only during metabolic stress, and that a normal serum PTH level in this context may be misleading.

— Jerome M. Hershman, MD