



THYROID SURGERY

Is there a cost-effective way of predicting post-thyroidectomy hypocalcemia?

BACKGROUND

The parathyroid glands sit next to the thyroid gland and secrete parathyroid hormone (PTH) that regulates blood calcium levels. The parathyroid glands are often bruised and don't work well for a period of time after thyroid surgery. This can lead to low calcium levels (hypocalcemia), which may occur in up to 30% of patients after total thyroidectomy. Hypocalcemia is the most common complication of thyroid surgery. This study examined calcium levels in patients before and after total thyroidectomy and created an algorithm to detect patients at risk of hypocalcemia.

THE FULL ARTICLE TITLE

Lazard DS et al. Early detection of hypocalcemia after total/completion thyroidectomy: routinely usable algorithm based on serum calcium level. *World J Surg.* August 2, 2012 [Epub ahead of print]. doi: 10.1007/s00268-012-1727-5.

SUMMARY OF THE STUDY

A total of 136 patients who underwent total thyroidectomy were studied. Serum calcium and phosphorus were measured before surgery and at 6, 12, 20 and 48 hours after surgery. Hypocalcemia was defined as a calcium level of ≤ 7.6 mg/dl or symptoms of hypocalcemia any time

after surgery. In this group, 24% of patients had hypocalcemia by this definition. The lowest level of calcium occurred at 12 and 20 hours after surgery.

A decrease of ≥ 1.2 mg/dl between the preoperative calcium level and the value at 20 hours after surgery was the best predictor of hypocalcemia. None of the patients with a calcium level > 7.6 mg/dl at 20 hours after surgery had hypocalcemia. This combination of calcium levels before surgery and 20 h after surgery predicted 79% of the patients in whom hypocalcemia eventually developed.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Mild hypocalcemia is very common after thyroid surgery. This study suggests a method to identify those patients that are at risk for severe hypocalcemia that can either prolong hospitalization or result in re-admission to the hospital. Once identified, these patients can then be treated more aggressively with calcium replacement and better manage their post-operative course.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Thyroid Surgery: <http://www.thyroid.org/why-thyroid-surgery>

ABBREVIATIONS & DEFINITIONS

Hypocalcemia: low calcium levels in the blood, a complication from thyroid surgery that is usually short-term and relatively easily treated with calcium pills. If left untreated, low calcium may be associated with muscle twitching or cramping and, if severe, can cause seizures and/or heart problems.

Parathyroid glands: usually four small glands located around the thyroid that secrete parathyroid hormone (PTH) which regulates the body's calcium levels.

Parathyroid hormone (PTH): the hormone that regulates the body's calcium levels. High levels of PTH cause hypercalcemia, or too much calcium in the blood. Low levels of PTH cause hypocalcemia, or too little calcium in the blood.

Hypoparathyroidism: low calcium levels due to decreased secretion of parathyroid hormone (PTH) from the parathyroid glands next to the thyroid. This can occur as a result of damage to the glands during thyroid surgery and usually resolves. This may also occur as a result of autoimmune destruction of the glands, in which case it is usually permanent.