SUMMARY

Purpose: To evaluate the rapid parathyroid hormone assay (rPTH) as a peri-operative tool in predicting post-operative symptomatic hypocalcemia following thyroidectomy.

Methods: The authors conducted a prospective study of 69 patients undergoing total or completion thyroidectomy. Rapid PTH levels were obtained pre-operatively, intra-operatively, and post-operatively upon arrival in the post-anesthesia care unit (PACU). All patients were closely monitored post-operatively for the development of symptomatic or asymptomatic hypocalcemia.

Results: Of 60 patients undergoing thyroidectomy, 15 (25%) developed hypocalcemia: 7 were symptomatic and 8 asymptomatic. An intra-operative rPTH level less than 12 pg/ml was 71% sensitive and 95% specific for predicting post-operative symptomatic hypocalcemia, whereas a PACU rPTH level less than 12 pg/ml was 100% sensitive and 92% specific. A greater than 75% decline in pre-operative rPTH level when measured intra-operatively was 71% sensitive and 86% specific, whereas a greater than 75% decline in rPTH level in the PACU was 100% sensitive and 88% specific for predicting symptomatic hypocalcemia.

Conclusions: The rPTH assay is a highly accurate and effective tool for predicting symptomatic hypocalcemia immediately after thyroidectomy. Routine utilization of this assay is recommended, because it will allow safe and timely discharge of normocalcemic patients and the early identification of patients requiring treatment of post-operative hypocalcemia.

COMMENT

Post-operative hypocalcemia, hemorrhage and hematoma, and laryngeal nerve injury account for the majority of complications after thyroid surgery. The relatively high rate of post-operative hypocalcemia is directly related to the sensitivity of the parathyroid glands and their blood supply to surgical manipulation. Post-operative hypocalcemia is frequently transient (5-30% of cases), but is permanent in 0.5-3.8% of cases. Typically, hypocalcemia is not apparent for the first 24-48 hours after thyroidectomy and, therefore, close monitoring of serum calcemia (and symptoms of hypocalcemia) is mandatory during the first days following thyroid surgery. The rapid parathyroid hormone assay (rPTH) is a relatively new tool, mainly used during surgery of the parathyroid glands. In the present study, the authors evaluated the ability of the rPTH assay to accurately predict post-operative hypocalcemia in patients undergoing total or completion thyroidectomy and the results of their study clearly demonstrate and confirm the usefulness of the rPTH assay in thyroid surgery.

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FIG. 1.  Postoperative management algorithm for total thyroidectomy patients.