

## **Targeted parathyroidectomy: effectiveness and intraoperative rapid-parathormone dynamics.**

**Objective:** The objective of this study is to assess the effectiveness of selective parathyroid exploration, using preoperative image localization and intraoperative rapid-parathormone (rPTH) assay. The kinetics of intraoperative rPTH in parathyroid adenoma vs. multiglandular disease is assessed.

**Design:** This is a prospective noncontrolled study of a cohort of 100 patients with primary hyperparathyroidism, at a single academic institution. The patients underwent selective parathyroidectomy after preoperative localization, including sestamibi scan and ultrasonography. Intraoperative rPTH assay was used to determine the extent and success of parathyroidectomy. Frozen sections were used as additional confirmation. Follow-up serum calcium levels were used to assess the effectiveness of selective parathyroidectomy.

**Results:** Mean preoperative serum calcium (Ca) and baseline intact-parathormone were 11.6 mg/dL and 136, respectively. Data were available in 96 cases: 87 single-gland adenoma with two in ectopic mediastinal position, two double adenoma and seven cases of hyperplasia. Ten percent of patients with adenoma needed bilateral exploration for nonlocalizing or false negative imaging, or for intraoperative rPTH failure to decay. All of the patients undergoing unilateral targeted exploration were normocalcemic on follow up. There were only one failed exploration and two cases of recurrent mild hypercalcemia, all three in bilateral exploration cases. Intraoperative rPTH reduction by standard curves was predictive of successful excision of all of the abnormal glands, as confirmed by postoperative serum calcium levels. More than one postexcision rPTH measurement was useful by showing failure of a decaying slope in multiglandular disease.

**Conclusion:** Targeted parathyroidectomy, when appropriately selected and carried out, is an effective treatment of primary hyperparathyroidism in most cases. Intraoperative rPTH can correctly guide removal of hyperfunctioning glands. Targeted parathyroidectomy offers the advantage of less invasive surgery with less tissue dissection confined to one side and avoids surgically disturbing the remainder of the neck. This should reduce postoperative complications and allow for easier and safer re-exploration in the few cases with persistent or recurrent disease.

Sadeghi, N., Akin, A., Lee, J., Roland, J. and **Knoll, S.** Targeted Parathyroidectomy: Effectiveness and Intraoperative Rapid-Parathormone Dynamics. *Laryngoscope*, 118: 1997-2002, Nov 2008