Decreased Healthcare Utilization after Implementation of Postoperative Serum Calcium Algorithm Following Total and Completion Thyroidectomy

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ABSTRACT

Objective: The aim of this study was to evaluate health care utilization after the implementation of an algorithm to standardize postoperative serum calcium level in patients undergoing total or completion thyroidectomy.

Methods: On June 1, 2010 a standardized postoperative calcium monitoring algorithm was implemented at the University of Missouri for all patients undergoing total or completion thyroidectomy. Patients were selected for analysis if the following CPT codes were billed for their hospital stay: 60240, 60252, 60260, 60265 and 60271. Patient data was collected in a retrospective fashion for 18 months prior to and 18 months after the date of implementation. The three primary outcomes assessed were post-procedure length of stay, readmissions or emergency visits within 30 days, and readmissions specifically for hypocalcemia.

Results: Of 80 patients in the pre-algorithm group (December 2008-May 2010) were compared with 102 patients in the post-algorithm group (June 2010-December 2011). The primary outcome variable assessed was length of stay. The average length of stay went from 2.938 days to 1.5 days (p<0.0001). Total readmissions for all non-planned procedures and all emergency department visits within 30 days post-procedurally went from 11.25% of patients (p=0.2995). Readmissions for hypocalcemia went from 5% to 1.9% of patients (p=0.4071). Mean financial data for operative admission charges went from $24,309.23 to $24,058.39 (p=0.799). Mean financial data for the 30 day post-procedural window went from $1855.25 to $758.06 (p=0.006).

METHODS

After obtaining approval for this retrospective chart review from the University Institutional Review Board, patient data was collected on all patients billed between December 2008 to December 2011 for the thyroidectomy CPT codes 60240 (total or complete), 60252 (total or subtotal for malignancy with limited neck dissection), 60260 (removal of all remaining thyroid tissue following previous removal of portion of thyroid), and 60271 (including substernal thyroid, cervical approach [only total/completion from this category utilized]). This allowed us to analyze patients from 18 months prior to and 18 months after algorithm implementation. Patient demographic information was collected including age at time of service, gender, date of admission and date of discharge. Final pathology was reviewed, if the patient was undergoing a completion procedure prior pathology was also reviewed to determine presence of malignancy. All readmissions and emergency department to the University Hospital System were reviewed over a 30 day period. Special consideration was given for diagnoses of hypocalcemia or admission for hypocalcemic symptomaticity outside of the 30 day postoperative period. An itemized financial report was collected for each patient during their operative hospital stay and a 30 day post-procedural window. Charges were normalized for each item by assigning each individual billing code a standardized charge based on current billing rates, financial outliers greater or less than 2 standard deviations from the mean were removed from the financial analysis.

RESULTS

A total of 80 patients in the pre-algorithm group (December 2008-May 2010) were compared with 102 patients in the post-algorithm group (June 2010-December 2011). The primary outcome variable assessed was length of stay. The average length of stay went from 2.938 days to 1.5 days (p<0.0001). Total readmissions for all non-planned procedures and all emergency department visits within 30 days post-procedurally went from 11.25% to 6.86% of patients (p=0.2995). Readmissions for hypocalcemia went from 5% to 1.9% of patients (p=0.4071). Mean financial data for operative admission charges went from $24,309.23 to $24,058.39 (p=0.799). Mean financial data for the 30 day post-procedural window went from $1855.25 to $758.06 (p=0.006).

CONCLUSIONS

We conclude that utilization of a calcium management algorithm postoperatively following total and completion thyroidectomy procedures demonstrated a statistically significant decrease in the length of stay after procedure and a trend toward overall decrease in emergency department visits, all non-planned readmissions, and readmissions for symptomatic hypocalcemia.

REFERENCES