Prospective audit and benchmarking of head and neck surgical outcomes from a low-volume center

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ABSTRACT

Purpose: The role of low-volume surgery has been the subject of much professional debate. Low-volume surgeons and subspecialty centers are often seen as the “problem” surgeons or poor practitioners. It has therefore been suggested that there is a need to benchmark and audit the outcomes of head and neck surgery performed at low-volume centers. The aim of this study was to determine if benchmarking the outcomes from low-volume surgical services matches those from high-volume centers.

Methods and Materials: Outcome data registries were prospectively completed for audit purposes for 199 consecutive patients undergoing surgery at a single low-volume center between September 2007 and September 2009. The primary outcomes were postoperative complications, site-specific mortality and hospital stay. Comparative 1- and 2-year survival data were also obtained from published surgical specialty group data. We wished to test the hypothesis that low volume procedures of the head and neck are not associated with more adverse outcomes.

RESULTS

The crude death rate was 1.9% for non-oral cavity patients and 3% for thyroid patients. The non-thyroid deaths were due to the effects of the procedure, namely cervical abscess, minor airway obstruction, accidental hypothermia, stroke, and myocardial failure. Mortality was reported in 29 non-oral cavity patients (16.5% of oral cavity patients, 47% and 20.8% of thyroid procedures). The most common complications were fistula (16%), wound infection (11%), lymphocele (10%), and swallowing difficulty (1.9%). Postoperative complications were more common in low-volume surgery (32.5%) than in high-volume surgery (15.8%) and a higher rate of complications was noted in patients operated on by the same two surgeons, that is, there are low-volume procedures in a low-volume institution. A poor outcome from surgery includes more than morbidity and mortality.

CONCLUSIONS

This prospective study demonstrated that low-volume surgery resulted in equivalent outcomes for non-oral cavity head and neck patients, and meaningful surgical outcomes from low-volume centers can be measured and benchmarked.

DISCUSSION

Low-volume low-intensity and more complex procedures in our series were able to be scrutinized and evaluated for surgical outcome. The results compared favorably to larger cohorts of similar procedures. A search of the relevant literature failed to identify any studies reporting of low and high volume surgery for non-oral head and neck or oral cavity primary thyroid cancer. The risk of early postoperative hypocalcemia and permanent hypocalcemia post-thyroidectomy is not associated with hospital volume or are a surgeon effect. In the absence of professional associations or major databases who have collected large bodies of outcome data, funnel plots can be used to compare services of different sizes. The results of this study are reflective of the current trend in the evaluation of morbidity and mortality. It is therefore important to compare surgical outcomes of low-volume surgeons with their high-volume counterparts. The difference in complication rates between low-volume surgery and high-volume surgery is readily available, they can be used to compare services of different sizes. The primary tumor site of patients who underwent neck dissections was cervical (56%), in 31 oral cavity patients (74%) and in 24 thyroid patients (21.8%). The most common complication was fistula (16%) and wound infection (11%). Our results suggest that low-volume surgery is not associated with a higher rate of complications.

METHODS AND MATERIALS

The case notes of 199 consecutive head and neck patients undergoing surgery at a single low-volume center between September 2007 and September 2009, or of the thyroid gland between (n=115) between October 2005 and August 2006 were reviewed. Demographic, medical, diseasespecific, operative and pathologic data were available for analysis from the head and neck and thyroid cancer and registry, respectively. Descriptive statistics were performed and the number of adverse events quantified. Incidence of intra- and postoperative complications was established along with absolute rates of in-hospital mortality. Postoperative outcomes were recorded in the database. The database contained data on all patients undergoing surgery at our center. The data from this study were reflective of the current trend in the evaluation of morbidity and mortality. It is therefore important to compare surgical outcomes of low-volume surgeons with their high-volume counterparts.

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