Temporal Trends in Head and Neck Cancer Surgery Reconstruction

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INTRODUCTION

Over the past 2 decades, there has been a paradigm shift in the primary treatment of laryngeal and oropharyngeal cancers, with increased utilization of chemoradiation compared to surgery. Consequently, the rate of salvage surgery for both laryngeal and oropharyngeal cancers nationally has been shown to be increasing, with a gradual shift in the performance of surgery to high volume centers and by high volume surgeons. The relationship between increased hospital volume, surgeon volume and improved postoperative outcomes for complicated intra-thoracic and intra-abdominal procedures measured through indices of short and long term mortality have been demonstrated. We hypothesized that this relationship would exist for HNCA reconstruction and undertook this study to evaluate temporal trends in HNCA reconstruction and variables associated with in-hospital mortality, postoperative complications, length of stay and costs using a national hospital discharge database.

METHODS

The International Classification of Disease, 9th revision (ICD-9) codes were used to identify adult patients ≥18 years of age) who underwent an ablative procedure for a malignant oral cavity, laryngeal, hypopharyngeal or oropharyngeal neoplasm in 1993-2010. The Nationwide Inpatient Sample was used to estimate the number of reconstructive cases in head and neck cancer surgery performed in the United States. N Engl J Med 2002;346(15):1128

RESULTS

Figure 1. Distribution of surgical cases in 1993-2000 and 2001-2010. There was a significant increase in mandibullectomies and total laryngectomies in 2001-2010

Figure 2. Proportion of cases in which reconstruction was performed in 1993-2000 and 2001-2010 showing a significant increase in reconstructive procedures following mandibullectomy and total laryngectomy in 2001-2010

Figure 3. Distribution of annual reconstructive surgical case volume by hospital and surgeon in 1993-2000 (3A) and 2001-2010 (3B) showing an increase in flap reconstruction performed by high-volume hospitals and high-volume surgeons

DISCUSSION

These data demonstrate an increase in the number of reconstructive cases in HNCA surgery performed in the United States with an increase in patients undergoing reconstruction, a trend towards centralization of care by higher volume providers, and a significant relationship between surgeon volume and outcomes. The increased use of flap reconstruction in HNCA surgery occurred despite a decrease in procedures performed for laryngeal, hypopharyngeal, and oropharyngeal primary site disease, with an increase in the use of flap reconstruction in cases with a history of prior radiation and in cases performed by high-volume surgeons and at high-volume hospitals. High-volume surgeons were significantly more likely to perform flap reconstruction in conjunction with laryngectomy and prior radiation, and were associated with reduced in-hospital mortality, length of hospitalization, and costs. These data suggest a favorable trend towards centralization of HNCA reconstructive care, with meaningful differences in the type of surgical care provided by high-volume surgeons that are associated with improved outcomes.

CONCLUSIONS

These data suggest that there are meaningful differences in the type of reconstructive care provided by high-volume surgeons, which may have implications for training and the delivery of care in an era of diminishing health-care resources and increased use of nonoperative treatment.

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