

# Endocrine Surgery in the Geriatric Population

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## KEYWORDS

• Endocrine surgery • Geriatric • Thyroid • Risk stratification

## KEY POINTS

- The boom in the elderly population of the United States will undoubtedly impact endocrine surgery.
- Because of the increased likelihood of comorbidities with age, surgical management of these patients can be complex.
- Therefore, careful consideration of surgical indications and risk stratification as well as meticulous perioperative management are paramount.

## INTRODUCTION

The elderly constitutes a large, and rapidly growing, portion of the US population.<sup>1</sup> Those who survive to 70 years of age can expect to live an additional 14 years, and those who survive to 80 years of age can expect to live an additional 8 years.<sup>2</sup> The boom in this population subset will undoubtedly impact endocrine surgery. This impact is evidenced by the increased incidence of malignancy and nodular thyroid disease with age; this is particularly concerning, as current thyroid cancer guidelines offer no surgical recommendations that are specific to the geriatric population.<sup>3</sup> Because of increased likelihood of comorbidities with age, surgical management of these patients can be complex. Therefore, careful consideration of surgical indications and risk stratification as well as meticulous perioperative management are paramount.

## THYROID DISEASE

In general, data regarding thyroid surgery in the geriatric population are sparse and conflicting, as evidenced by a PubMed review of *geriatric thyroidectomy*, which demonstrated only 23 articles. Although age parameters differ somewhat between

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studies, the accepted norm is that patients 16 to 64 years old are classified as young, those 65 to 79 years old are classified as elderly, and those 80+ years old are classified as superelderly.<sup>4</sup> There are several single-institution studies that report similar complication rates of thyroidectomy among young and elderly patients. This finding is demonstrated in the data by Passler and colleagues,<sup>5</sup> who concluded that thyroid surgery in patients greater than 75 years old can be performed with low morbidity. In their single-institution study, Tartaglia and colleagues<sup>6</sup> found no significant differences in the incidence of postoperative complications or perioperative mortality when comparing patients greater than 65 years old with a younger cohort. Raffaelli and colleagues<sup>1</sup> specifically studied patients older than 70 years who underwent thyroid surgery and found complication rates similar to historical values. Furthermore, this study cites relatively high rates of thyroid carcinoma and toxic goiter as rationale for an aggressive approach in the geriatric population. Rios and colleagues<sup>7</sup> studied patients older than 65 years who underwent thyroidectomy for goiter and concluded that surgical morbidity and mortality are similar as that of a younger age cohort. Overall these studies suggest that individual risk/benefit analysis, careful preoperative preparation, and close monitoring of comorbidities can mitigate potential increased risk due to age.

Other single-institution studies and seemingly a preponderance of the population-based studies suggest that age may confer an increased risk for thyroid surgery. Seybt and colleagues<sup>8</sup> prospectively analyzed patients undergoing thyroid surgery. Their experimental group was composed of patients older than 65 years, and their control group was aged 21 to 35 years. Like other single-institution studies, they noted a similar rate of complications between the two groups. However, they also noted a trend toward a higher rate of readmission in the elderly group. Unplanned readmission was later studied specifically by Tuggle and colleagues,<sup>3</sup> who used the Surveillance, Epidemiology, and End Results database to identify patients greater than 65 years of age who underwent thyroidectomy. They found that 8% of these patients underwent a 30-day unplanned rehospitalization and that unplanned rehospitalization was associated with increased comorbidity, complication during index stay, and small hospital size. The mean cost of rehospitalization was greater than \$5000, and unplanned rehospitalization was significantly associated with death at 1 year. Specifically, survival for unplanned readmission patients at 1 year after discharge was 82%. Additionally, it was noted that large hospitals and postdischarge visits to outpatient providers were associated with a decreased rate of unplanned readmission.

Other studies have sought to evaluate, on a population level, the cost and complications of thyroid surgery in the aging population. Grogan and colleagues,<sup>4</sup> in their prospective cohort study using the National Surgical Quality Improvement Program database, identified an experimental group of nearly 8000 patients who underwent thyroidectomy and a control group of nearly 4000 patients who underwent parathyroidectomy. They stratified the patients by age and evaluated the incidence of nonendocrine complications, such as urinary tract infection, wound infections, cardiac complications, and so forth. With comorbidities controlled, they found that age was an independent risk factor for pulmonary, cardiac, and infectious complications after thyroidectomy. Furthermore, they demonstrated that the elderly cohort was twice as likely, and the superelderly were 5 times as likely, to have a complication compared with young patients. A similarly designed study by Sosa and colleagues<sup>9</sup> evaluated not only clinical outcomes but also economic outcomes of thyroid surgery in the geriatric population. They discovered that high-volume surgeons, defined as performing greater than 30 thyroidectomies per year, had improved clinical and economic outcomes relative to low-volume surgeons. They also found that these high-volume surgeons only performed 29% of the thyroidectomies in the elderly and 15% of the

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