Parathyroidectomy in the elderly population: does age really matter?
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Introduction
Primary hyperparathyroidism has an incidence of 1 in 500 females and 1 in 2000 males, occurring in 0.1%-0.3% of the general population. It is two to three times more common in women than men.

Diagnosis of primary hyperparathyroidism is usually based on biochemical evaluation, symptomatology, and/or localization studies. A single adenoma accounts for approximately 85% of cases of primary hyperparathyroidism, as compared to diffuse hyperplasia (10-15%) or carcinoma (1%).

Management of primary hyperparathyroidism can be varied but is primarily surgical. At our institution, nearly 700 patients underwent parathyroidectomy over a 10-year period. The objective of this study was the comparison of parathyroidectomy patients based on age. Demographic, historical, and procedure-related variables were compared between age groups, as were outcomes. Furthermore, this study assessed the rate and type of complications based on age.

Other studies in the literature report parathyroidectomy as a safe and effective option in the elderly patient population. Similarly, we hypothesized that there is no difference between older and younger parathyroidectomy patients, with respect to surgical outcomes and complication rate; therefore, analysis was performed of nearly 450 patients younger than 65 years and 250 patients older than 65 years undergoing this procedure to further clarify this issue.

Materials/Methods
Review of a prospective clinical database of patients undergoing surgical evaluation and management of primary hyperparathyroidism was performed. This included all parathyroidectomies performed from May 1998 until June 2007.

Data collected included age, gender, pre-operative and post-operative calcium levels; pre-operative PTH levels; length of hospital stay, length of surgery, length of post anesthesia care unit (PACU) stay; history of previous neck surgery; history, extent, and findings upon neck exploration; and type and timing of complications.

Results
687 patients underwent parathyroidectomy, including 247 (36%) >65 years old. Discharge was more often on day of surgery in younger patients (42.5% vs. 29.2%, p=0.007) and >23 hours for older patients (24.7% vs. 12.3%, p<0.0001). Older patients stayed longer in the recovery-room (134 vs. 107 minutes, p=0.005). (Table 2) There was no difference in history of prior neck surgery, extent of exploration, or intraoperative findings (data not shown). PTH levels were low-abnormal (56-110) in younger patients (47% vs. 29%, p=0.046) but high-abnormal (>220) in older patients (16.6% vs. 9.55%, p=0.009). (Table 1) Despite post-operative normocalcemia, older patients tended to have persistently elevated PTH (10.5% vs. 6.4%, p=0.07) whereas younger patients had normal PTH (81.6% vs. 70%, p=0.0007). (Table 4) Overall complication rates were low (6-8%), with over 93% in either group having no major complications. There was no difference in timing or types of complications, except that elderly patients were more likely to have cardiac complications (2.83% vs. 0.45%, p=0.022). (Table 3)

Conclusions
Parathyroidectomy is a commonly performed procedure at our institution, with nearly 450 patients younger than 65 years and 250 patients older than 65 years undergoing this surgery over a decade. The majority of affected patients are female, with approximately one-third of patients being older than 65 years of age.

In this study, outcome following parathyroidectomy was good, with postoperative normocalcemia in >80% of patients, regardless of age. Elderly patients were more likely to have normocalcemia with persistently elevated PTH levels postoperatively, with higher abnormal PTH levels preoperatively.

While this difference is not quite statistically significant, it is important to keep in mind when managing the elderly postoperative parathyroidectomy patient. Future studies are warranted to clarify this issue further. Increasingly, hypovitaminosis D is implicated in patients with postoperative normocalcemia with persistently elevated PTH. This study may indicate an increased incidence of or susceptibility to hypovitaminosis D in patients older than 65 years compared to younger patients, but requires additional investigation. Elderly patients do tend to have longer lengths of hospital and PACU stay, however their surgery time is not increased.

Importantly, elderly patients do not have an increased risk of complications, displaying rates of both minor and major complications essentially equivalent to the younger age group in this study. This finding is consistent with other reports in the literature, which describe parathyroidectomy in such patients to be safe, well tolerated, and effective. Notably, however, elderly patients are still more likely to have systemic cardiac complications than younger patients, warranting careful screening and observation. Nevertheless, when properly indicated, parathyroidectomy remains a safe and effective option for elderly patients with primary hyperparathyroidism.

References