

Stratified Postoperative Outcomes Following Transsphenoidal Pituitary Surgery in the Elderly Population: a Retrospective Single-Center Review

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Methods

A retrospective chart review of the Keck Medical Center of USC Pituitary Database was conducted to identify patients >70 years who underwent transsphenoidal surgery for pituitary adenomas between January 1995-February 2017. Surgical outcomes were analyzed in elderly (>70) versus non-elderly (<70) patients. Elderly patients were additionally stratified according to age (70-79 versus >80 years).

Introduction

Patients over the age of 70 make up approximately 5% of patients with PAs, a number that is steadily growing with increasing life expectancy. Transsphenoidal surgery (TSS) for pituitary lesions is performed on elderly patients with increasing frequency. In general, surgery in the geriatric population must be more stringently evaluated to assure that benefits outweigh risks, as most deaths related to surgery occur in patients over 70. We aimed to retrospectively study postoperative safety outcomes following TSS in the elderly population stratified by decade of life.

Results

The cohorts included 115 elderly patients (70-79 years: 94 patients; >80 years: 21 patients) and 770 non-elderly patients. Geriatric patients presented with higher rates of vision loss (59% vs 38%, p<0.01), dizziness (17% vs 7.8%, p<0.01) and altered mental status (7.3% vs 3%, p<0.05). Mean tumor diameter in the elderly vs. non-elderly groups was 25.25 vs. 21.99 mm (p<0.05).

	Non-Geriatric	Geriatric (70+)		P-Values
		70-79	80+	
No. Patients	770	115		
		94	21	
Mean Age (Years)	47.59	76.34		
		74.58	84.33	
Median Age (Years)	48.39	75.6		
		74.56	83.47	
Mean Tumor Size (mm)	21.99	25.25		0.0022*
		24.27	28.93	0.1634
First Operation (%)	82.53%	86.61%		0.6471
		85.71%	90.48%	0.5559
Female	52.67%	42.61%		0.0459*
		40.43%	52.38%	0.3098
Male	47.33%	57.39%		0.0459*
		59.57%	47.62%	0.3098
Average Hospital Stay	3.55	3.78 3.56 4.75		0.6427
(days)				0.2254

Demographics and characteristics of geriatric and nongeriatric patients. Geriatric patients were the subcategorized by age (70-80 years old, or 80+), and subsequently analyzed.

Results Continued

The proportion of complication free procedures was similar in both cohorts: 75.5 % in elderly vs 73.1% in younger patients. Geriatric patients had higher rates of postoperative hyponatremia (10.2% vs. 4.7%, p<0.05) and lower rates of transient diabetes insipidus (0.9% vs. 7.9%, p<0.01). Patients >80 had higher rates of hyponatremia compared to those 70-79 (15.8% vs 9.0%, p<0.40) and higher rates of cranial nerve palsy (10.5% vs. 0%, p< 0.03). The mean hospital stay in the younger group was 3.6 days compared to 3.8 days in geriatrics (70-79, 3.6 days; >80, 4.8 days).

Conclusions

In this study, age was not a significant risk factor for the majority of surgical and endocrine complications. Medical complications occurred at an increased frequency in patients >70 years. In addition, our analysis suggests an increased complication rate in patients > 80 years, which is most significant for surgical complications. This study supports the conclusion that PAs can be safely resected in elderly patients, however, consideration of elderly patient's comorbidities and appropriate precautions should be taken.

Complications in Young vs Geriatric Patients						
Complication	Non-Geriatric	Geriatric	P value			
CSF Leak	4.08%	2.78%	0.7882			
Hyponatremia	4.66%	10.19%	0.0353*			
DI transient	7.87%	0.93%	0.0038*			
DI permanent	0.44%	0.00%	1.0000			
Meningitis	1.46%	0.93%	1.0000			
Sinusitis	0.87%	0.93%	1.0000			
Bacteremia	0.73%	1.85%	0.2443			
Pneumonia	0.58%	0.93%	0.5195			
DVT/PE	0.29%	0.00%	1.0000			
Abdominal Hematoma	0.29%	0.93%	0.3555			
Visual Loss	0.58%	0.93%	0.5195			
Epistaxis	1.17%	1.85%	0.6336			
CN Palsy	0.87%	1.85%	0.2984			
Hematoma	1.46%	0.00%	0.3734			
Stroke	0.58%	0.93%	0.5195			
Carotid Artery Injury	0.15%	0.00%	1.0000			
Hydrocephalus	0.73%	1.85%	0.2443			
Death	0.29%	0.93%	0.3555			
Other	6.27%	12.04%	0.0410*			
None	75.51%	73.15%	0.6318			

Complication rates in younger vs. geriatric patients who underwent transsphenoidal surgery for the resection of pituitary adenoma