



Factors predicting outcome of acromegalic patients undergoing pituitary surgery

Hemanshu Prabhakar, MD¹; Ankur Luthra, MD¹; Girija P Rath, MD, DM¹, and Parmod K Bithal, MD¹

¹Department of Neuroanaesthesiology, All India Institute of Medical Sciences, New Delhi, India

BACKGROUND

Acromegaly is a chronic, insidious, debilitating disease, which occurs due to chromophobe adenoma of the pituitary resulting in excessive secretion of growth hormone in an adult.

These patients often have multi system involvement including respiratory, neurological, neuromuscular and skeletal systems.

OBJECTIVE

To determine factors affecting outcome of acromegalic patients undergoing surgery for pituitary tumors.

The primary outcome was duration of intensive care unit (ICU) and hospital stay.

We also determined the effect of various perioperative variables and postoperative complications on the duration of ICU and hospital stay.

METHODS

Data were collected from the records of all acromegalic patients undergoing pituitary surgery during the period from January 2005 to December 2012.

Demographics, type of surgery, size of the pituitary tumor, preoperative investigations and intraoperative data like blood loss, duration of anesthesia and surgery and perioperative complications were noted.

Data were also collected for postoperative recovery profile, duration of mechanical ventilation, intensive care unit and hospital stay.

Data are presented as Mean (SD), Median (Range) or number (%). Continuous variables were analysed using Wilcoxon rank-sum test whereas categorical variables were subjected to Pearson's Chi square tests. Statistical dependence between two variables was calculated using Spearman's rank correlation test. Kruskal-Wallis equality-of-populations rank test was used to determine association between postoperative complications and ICU and hospital stay.

RESULTS

One hundred and twenty nine acromegalic patients were operated for pituitary surgeries during the study period.

The size of tumor ($p = 0.03$; $\rho = 0.18$), intraoperative blood loss ($p < 0.00001$; $\rho = 0.5$), intraoperative complications ($p = 0.002$; $\rho = 0.26$), duration of surgery ($p < 0.00001$; $\rho = 0.36$) and anaesthesia ($p = 0.0001$; $\rho = 0.34$), total fentanyl consumption ($p = 0.01$; $\rho = 0.23$) and duration of mechanical ventilation ($p < 0.00001$; $\rho = 0.5$) **affected the ICU stay**;

Duration of symptoms ($p = 0.02$; $\rho = 0.2$), size of the tumor ($p = 0.01$; $\rho = 0.22$), duration of surgery ($p = 0.008$; $\rho = 0.23$) and anesthesia ($p = 0.005$; $\rho = 0.24$) and duration of ventilation ($p = 0.003$; $\rho = 0.31$) **affected the hospital stay**.

There was mortality in 3 patients (2.3 %) while 7 patients (5.4 %) had moderate disability (diminution of vision) at discharge while 119 (92.2 %) patients showed good recovery.

Variables	Mean (SD) / N (%) / Median (Range)
Age (yrs)	35.7 (9.5)
Sex	
Males	68 (53 %)
Females	61 (47 %)
Weight (kg)	72.3 (15.6)
Duration of symptoms (yrs)	4.2 (3.5)
Comorbidities	
Hypertension	19 (14.7 %)
Diabetes Mellitus	19 (14.7 %)
Both	13 (10 %)
Hypothyroid	10 (7.7%)
None	68 (52.7 %)
Baseline hemoglobin (g %)	12.2 (1.5)
Size of the tumor (cu cm)	8.8 (7.8)
Type of surgery	
TNTS	45 (34.9 %)
SLTS	65 (50.3 %)
Endoscopic TNTS	11 (8.5 %)
Craniotomy	8 (6.3 %)
GH levels (ng/ml)	40 (0.05-1260)
Type of anesthesia	
Inhalational	114 (88.4 %)
TIVA	15 (11.6 %)
Amount of crystalloids infused (ml)	1835.6 (662.6)
Blood Loss (ml)	277.6 (254.8)
Total opioid consumption (µg)	251.5 (65.5)
Duration of surgery (min)	128.5 (67.0)
Duration of anaesthesia (min)	188.6 (78.0)

Variables	N (%)
Intraop comp	
None	113 (87.6 %)
Bradycardia/Hypotension	2 (1.6 %)
Tachycardia/Hypertension	6 (4.7 %)
Desaturation	1 (0.8 %)
Massive Blood Loss	3 (2.3 %)
Arrhythmias	2 (1.6 %)
Reexploration	2 (1.6 %)
Postop compl	
None	66 (51.2 %)
CSF Leak	32 (24.8 %)
Electrolyte imbalance	14 (10.9 %)
Hydrocephalus	2 (1.6 %)
Pneumonia	7 (5.4 %)
Rexploration	5 (3.9 %)
Epistaxis	3 (2.3 %)
Recovery	
Death	3 (2.3 %)
Moderate Disability	7 (5.4 %)
Good recovery	119 (92.2 %)

Variables	Median (Range)
Duration of Ventilation (hours)	0 (0 – 240)
ICU Stay (days)	1 (1-10)
Hospital Stay (days)	12 (4-34)

CONCLUSIONS

The size of tumor, duration of symptoms, duration of surgery and anesthesia and duration of mechanical ventilation is associated with prolonged ICU and hospital stay in acromegalic patients undergoing pituitary surgery.