

# Predictive Factors for Acromegaly Remission after Transsphenoidal Surgery in a Portuguese tertiary care center

Ariana Maia<sup>1</sup>, Catarina Cidade Rodrigues<sup>2</sup>, Diana Borges Duarte<sup>1</sup>, Isabel Ribeiro<sup>1</sup>, Cláudia Amaral<sup>1</sup>  
<sup>1</sup> Centro Hospitalar Universitário do Porto, <sup>2</sup> Centro Hospitalar Tâmega e Sousa



## Introduction:

Acromegaly is a rare progressive endocrine disease resulting from increased release of growth hormone (GH) and insulin-like growth factor I (IGF1), in most cases due a GH-secreting pituitary tumour. **Transsphenoidal surgery (TSS)** is considered the first line treatment, being effective in ~75% of pituitary microadenomas with much lower remission rate for invasive macroadenomas (44.5% for suprasellar tumours, 33% for suprasellar tumours with visual compromise and 41.5% for tumours with parasellar and/or sphenoidal expansion). Our study aims to evaluate predictive factors for disease control in acromegaly patients submitted to TSS in our center.

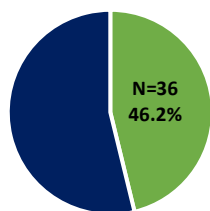
## Methods:

**Retrospective observational study.** Clinical records of patients diagnosed with acromegaly who undergone TSS at our center between 1976 and 2021 were reviewed. **Remission criteria** was defined based on IGF-1 levels  $\leq 1.3 \times$  ULN (upper limit of normal) and random GH <1  $\mu\text{g/L}$ /nadir GH after OGTT <0.4  $\mu\text{g/L}$ , with a minimum follow-up period of 12 months after surgery approach. General patient characteristics, biochemical profile and imaging tests were retrospectively assessed and related to remission achievement. IGF-1 index was calculated by dividing IGF-1 levels by age and gender-adjusted upper limit of normal (ULN).

## Results:

### 78 acromegalic patients submitted to TSS

Female (n,%)	42 (53.0)
Mean age (years)	46.4 $\pm$ 12.4
Tumor type (n;%)	
Microadenoma	17 (21.8)
Macroadenoma	56 (71.8)
Mean tumor diameter (mm)	19.7 $\pm$ 10.3
Mean IGF-1 levels at diagnosis	721.1 $\pm$ 309.6
Cavernous sinus invasion (n,%)	33 (42.3)
T2 hyperintensity (MRI) (n,%)	13 (16.7)
Optic chiasm invasion (n,%)	17 (14.9)



■ Remission ■ Non-remission

	Remission Group (n=36)	Non-remission Group (n=42)	p
Median pre-operative random GH ( $\mu\text{g/dL}$ )	5.2	12.6	<b>p=0.024</b>
Mean IGF-1 index	2.3	3.0	<b>p=0.021</b>
Mean tumour size (mm)	15.1	23.7	<b>p=0.001</b>
Cavernous sinus invasion	9	24	<b>p=0.03</b>
Optic chiasm invasion	5	9	P=0.362

Statistical analysis was performed using IBM SPSS® version 24.0 and a p value below 0.05 was considered statistically significant.

## Discussion:

Our study reinforces the unsatisfactory rates of acromegaly remission achieved after surgical intervention in patients with larger tumours (macroadenomas), with slightly higher remission rates in our center than those reported in the medical literature, supporting medical therapy role as a first/second line adjuvant. Higher pre-operative random GH, IGF-1 index, tumour size and cavernous sinus invasion were predictive factors of non-remission.