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SÃO JOÃO

Predictive factors for remission and recurrence in Cushing's disease: a single-center study

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Introduction

Cushing's disease (CD) is characterized by pathologic hypercortisolism caused by an adrenocorticotropic hormone (ACTH)-secreting pituitary adenoma. The primary modality for definitive treatment is pituitary surgery. The rarity of CD has made it difficult to establish reliable predictive factors of outcomes.

Objective

Assessment of clinical, hormonal, radiological, surgical and histological findings as predictors of remission and relapse of CD.
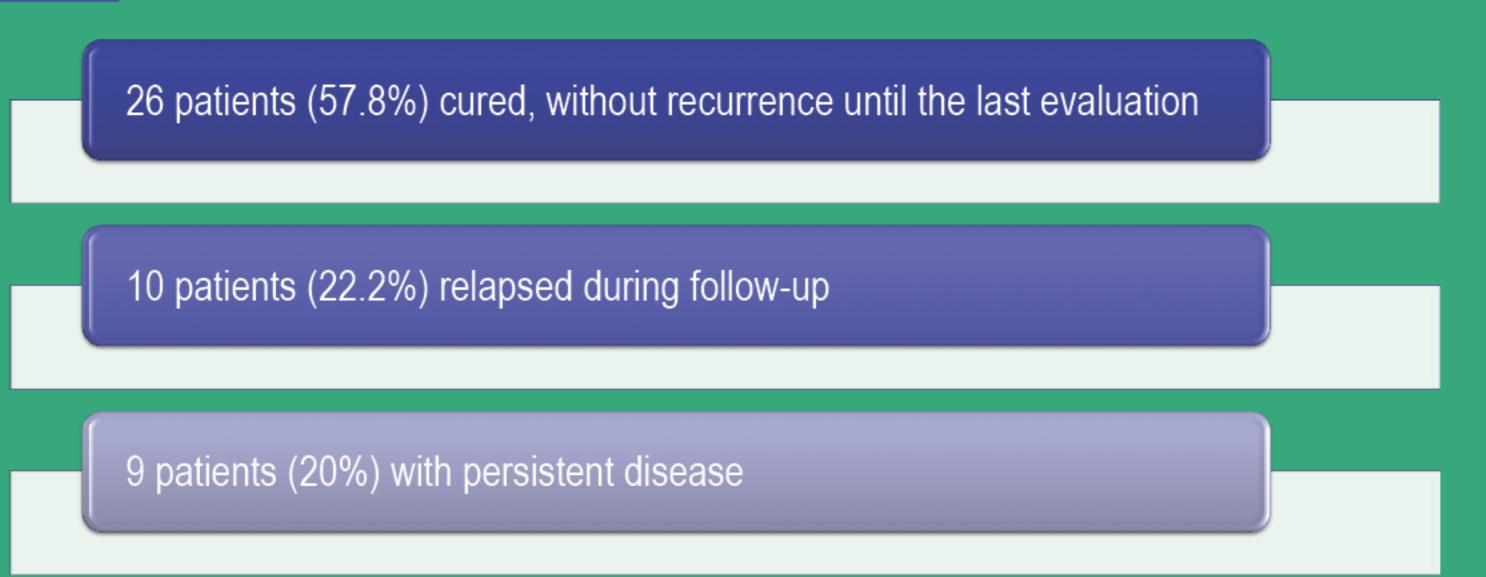
Methods

Cross-sectional, retrospective study of patients with CD who underwent pituitary surgery between January/1998-October/2013.

✓ Serum cortisol **(normal range: 7-25µg/dL)**, ACTH **(normal range: <63.3ng/L)**, urinary free cortisol **(normal range: 75-270µg/24h).**

Results

45 patients — After pituitary surgery (1st or 2nd intervention):

- 26 patients (57.8%) cured, without recurrence until the last evaluation
- 10 patients (22.2%) relapsed during follow-up
- 9 patients (20%) with persistent disease

AGE AND SEX

	CURED	NOT CURED	RELAPSE
Age [years, mean (SD)]	37.8 (12.6)	42.2 (14.3)	35.5 (13.1)
Sex [n (%)]			
Male	4 (15.4%)	2 (22.2%)	-
Female	22 (84.6%)	7 (77.8%)	10 (100%)

PREOPERATIVE COMORBIDITIES

	CURED	NOT CURED	RELAPSE
Arterial hypertension [n (%)]	15 (57.7%)	7 (77.8%)	7 (70%)
Diabetes *mellitus* [n (%)]	9 (34.6%)	1 (11.1%)	3 (30%)
Dyslipidemia [n (%)]	12 (46.1%)	4 (44.4%)	3 (30%)
Psychiatric disorders [n (%)]	12 (46.1%)	3 (33.3%)	7 (70%)

BASAL HORMONAL STUDY

	CURED	NOT CURED	RELAPSE
ACTH [ng/L, mean (SD)]	72.5 (38.8) n=26	86.1 (48.9) n=10	75.0 (54.8) n=8
Serum cortisol [µg/dL, mean (SD]	27.0 (9.5) n=26	28.7 (14.7) n=10	30.9 (7.0) n=7
Urinary free cortisol [µg/dia, mean (SD)]	416.6 (389.8) n=26	575.6 (451.9) n=10	540.4 (535.9) n=8
Overnight dexametasone supression test [µg/dL, mean (SD)]	24.8 (17.1) n=16	16.1 (4.8) n=5	37.7 (25.9) n=4

MAGNETIC RESONANCE IMAGING

	CURED	NOT CURED	RELAPSE
Microadenoma [n (%)]	15 (60%)	3 (37,5%)	5 (50%)
Macroadenoma [n (%)]	6 (24%)	2 (25%)	1 (10%)
Indirect signs of tumoral lesion [n (%)]	-	2 (25%)	1 (10%)
No image [n (%)]	4 (16%)	1 (12.5%)	3 (30%)
Total	25 (100%)	8 (100%)	10 (100%)

SURGICAL TECHNIQUE

	CURED	NOT CURED	RELAPSE
Transesphenoidal [n (%)]	24 (%)	9 (%)	10 (%)
Transfrontal [n (%)]	2 (%)	-	-
Total	26 (100%)	9 (100%)	10 (100%)

No significant differences between groups (cured, not cured, disease relapse) relating **age, gender, presence of preoperative comorbidities (hypertension, DM, dyslipidemia and psychiatric disorders), basal hormonal study, magnetic resonance imaging findings** or **surgical technique.**

HISTOLOGY

	CURED	NOT CURED	RELAPSE	P
ACTH-producing adenoma [n (%)]	**24 (92.3%)**	**5 (55.6%)**	**8 (80%)**	
No adenoma identified [n (%)]	2 (7.7%)	4 (44.4%)	2 (20%)	<0.05*
Total	26 (100%)	9 (100%)	10 (100%)	

Conclusion

The absence of adenoma identification in pituitary histology after surgery was associated with higher risk of persistence or recurrence of CD. Those patients would benefit from a closer follow-up and early evaluation. No other predictive factors were found.

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