ADRENOCORTICAL CARCINOMA
PROGNOSTIC FACTORS

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INTRODUCTION

Adrenocortical carcinoma is a rare and malignant tumor developed from adrenal cortex. It represents <0.1% of all cancers, and an estimated 0.7 to 2 cases per million inhabitants (1) incidence. Poor prognosis, the 5-year survival is 45% (2); its evolution depends on several factors: clinical, biological, morphological and histological therapeutic.

The objective of this study is to evaluate the different factors that influence the prognosis of adrenocortical carcinomas.

MATERIELS & METHODES

It is a retrospective study of 28 patients (17 w and 11 man) admitted for adrenocortical carcinoma in endocrinological department between 1988 and 2013.The mean age at diagnostis was is between 36±12 years. We have studied the impact of age, sexe, tumor size and its hormonal secretion, radiological features, staging ENSAT, the initiated treatment and Weiss score in the patient's survival and metastasis occurrence and/or recurrence.

Patients were divided into 2 subgroups. The first, with metastasis and/or recurrence; the second, without metastasis or recurrence throughout the follow-up period the data were analyzed by the Chi 2 test.

RESULTS

- Tumor average size is 105±44 mm
- 78.5% cases, the tumor is secreting, in which 39.2% the secretion is mixed (cortisolic and androgenic)
- on CT-scan, tumor appears heterogeneous sparing areas necrosis in 50% of cases and calcifications in 17.8%
- 60.7% of patients were in stage II of EN SAT when they have been diagnosed, and 17% in stage IV
- 23 patients (82.1%) received surgical treatment, with complete resection in 91% of operated patients
- 7 (87.5%) had Weiss's score ≥3
- Average followed period is 42 months
- 12 (42.8%) patients developed metastasis and / or recurrence, which 5 (17.8%) at diagnosis
- During this period, 25% of patients died on average 38 months after diagnosis

• COMPARISON OF THE TWO GROUPS

		With metastasis and/or reccurence		No metastasis or recurrence		*P*
		N	%	n	%	
All the studied groupe		12	42,8	16	57,14	
Average age (X ± SD ans)		37,5± 9		36,3 ± 14		0,73
Sexe	Woman	7	58,3	10	62,5	0,86
	Man	5	41,6	6	37,5	0,86
Average tumor size (X ± SD mm)		133 ± 36		82,6 ± 37		0,001
Hormonal secretion	Cortisol	1	8,3	4	25	0,52
	Cortisol+ androgenes	7	58,3	4	25	0,16
	Cortisol+ Œstrogenes	3	25	2	12,5	0,72
	Androgenes	0	0	1	6,25	/
	Mineralocorticoïdes	0	0	0	0	/
	No secreting	1	8,3	5	31,25	0,75
Aspect on CT scan	Necrosis	8	66,6	6	37,5	0,12
	Calcifications	2	16,6	3	18,75	0,72
ENSAT staging	Stade I	0	0	2	12,5	/
	Stade II	6	50	11	68,75	0,53
	Stade III	1	8,3	3	18,75	0,81
	Stade IV	5	41,6	0	0	/
Surgical act and complete resection		7	77,7	14	100	0,83
Weiss's Score	< 3	0	0	1	25	/
	≥ 3	4	100	3	75	0,22
Average followed period (month)		42		26		

DISCUSSION

Adrenocortical carcinoma is a rare and aggressive tumor of the adrenal cortex. In general, it has a variable prognostic that should guide therapeutic decision.

The prognosis of adrenocortical carcinoma is variable and depends on the stage of the tumor. An advanced tumor stage, a weiss's score of ≥ 3 are predictors of poor outcome neoplasia. In agreement with the literature, these tumor characteristics are found in our patients.

Adrenocortical carcinoma occurs more frequently in women with a peak incidence in childhood and adulthood between 30 and 50 years (3).

Sex and age did not seem to influence the prognosis (case of our patients). However, some authors have actually found the involvement of age> 45 years (4) or> 55 years (5)

The tumor in 80% of cases secreting (1) (6), essentially cortisol, still, it may secrete other hormones such as androgens, rarely estrogens and aldosterone (7). The existence of a particularly cosecretion cortisol and androgens should suggest malignancy. However, its prognostic value has not been found in our patients, and is inconstant established by different studies. Instead, Berruti et al suggest a better prognosis secretion of androgens (8).

Tumor size is an average of 10 cm, and 95% of adrenocortical carcinoma have a size of more than 5cm (3). According to Weiss et al there is not a significant prognostic factor, however, a size> 12 cm, that predicts an incomplete surgical resection, is associated with a poor outcome (4), which was confirmed by our study where the average tumor size was 13.3 ± 3.6 cm in the group with metastasis and / or recurrence.

In addition to the size, the existence in the CT-scan of heterogeneous enhancement, necrosis area and calcification (30%) is highly suggestive of malignancy (7), but not of a bad prognosis (case of our patients).

Recently, a new classification was proposed by ENSA in 2008, amending and improving the prognosis prediction and therapeutic strategy of the WHO / UICC. This is the most powerful prognostic factor (8). It includes 4 stages, the fourth one concern patients with distant metastasis. Given the known tumor aggressiveness, a large number of patients (50-80%) , in the literrature review, are already at the stage IV (6), a much greater number than that found in our study. This is, probably, related to clinical expression of hormonal hypersecretion, whence early diagnosis. However, the majority (35-85%) (6)(7) could develop metastasis or recurrences during evolution, as was the case in our series.

Initially used for diagnosis, the histological Weiss's score is increasingly recognized as a prognostic factor (7), essentially a high mitotic index. When it is ≥ 3, it confers a relapse risk of the order of 50-100% after surgery (8).

Therapeutically, a fullest possible surgical resection remains the treatment of choice whenever possible. Indeed, the nature of the resection (R0 complete or incomplete R1) strongly influences the prognosis (1)

The medical treatment with mitotane and chemotherapy is used as adjuvant therapy in patients at high risk of recurrence , or palliative one in metastatic or inoperable patients (8).

Currently, new drugs are being evaluated in the context of clinical trials. Loco-regional treatment, external beam radiotherapy, hepatic chemoembolization and radiofrequency can be used alone or associated with medical treatment.

Conclusion

In agreement with the literature, the prognosis of adrenocortical carcinoma is variable and depends on the stage of the tumor. An advanced tumor stage and Weiss score > 3 are predictors of poor prognosis. Secreting character and existence of intratumoral necrosis, also predictors of recurrence and metastasis, were not found in our study. Prospective follow-up on a larger series is necessary to demonstrate and allow a better multidisciplinary care.

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