PRIMARY HYPERALDOSTERONISM: CLINICAL AND THERAPEUTIC APPROACH OF A CENTER

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Introduction: Primary hyperaldosteronism (PHA) is the main cause of secondary hypertension, with a prevalence estimated between 6-20% in patients with resistant hypertension. Clinical suspicion is critical, especially if aldosterone-to-renin ratio (ARR) >25, however the diagnosis is dependent on confirmatory evidence, including aldosterone suppression tests.

Methods: A retrospective study including 44 patients with suspected PHA, identified between 2010 and 2015 at the Endocrinology, Diabetes and Metabolism Department of Coimbra Hospital and University Centre, Portugal, was performed. Diagnostic criteria and treatment response were evaluated.

Results

N=44 patients

Suspicion of secondary hypertension
Refractory hypertension
Hypertension with hypokalemia
Hypertension and adrenal mass

N=16 patients

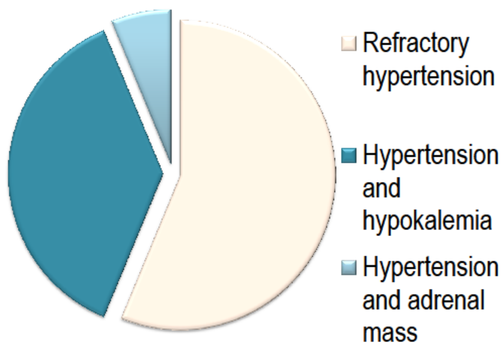
Men: n= 9 (56.25%); Women: n= 7 (43.75%)
Median age=60.5 years

28 patients excluded

- 15 patients: ARR < 25
- 11 patients: negative infusion saline test (IST)
- 2 patients: negative captopril test

1) Clinical presentation

Clinical presentation	n	%
Refractory hypertension	**9**	**56.25**
Hypertension and hypokalemia	6	37.5
Hypertension and adrenal mass	1	6.25



2) Hypertension (HT) - characterization

Median duration: 9.00 years

Stage of HT	I	**14**	**87.5**
	II	1	6.3
	III	1	6.3
	IV	0	0

Associated Diseases		N	%
Cardiovascular	Stroke	0	0
	EAM	**1**	**6.25**
	AF	0	0
	CHF	0	0
Chronic renal disease		0	0
Hypertensive retinopathy		0	0

Median number of antihypertensive drugs
N= 1.75 (min 1; máx 3)

ARBs	2 (12.5%)
ACE inhibitors	1 (6.3%)
Calcium channel blockers	**11 (68.8%)**
Beta-blockers	3 (18.8%)
Thiazide diuretics	**4 (25%)**
Spironolactone	1 (6.3%)
Antiadrenergics	2 (12.5%)

3) Analytical evaluation

Parameter	Result*	VR
Plasmatic renin µUI/mL	1.65	7-76
Plasmatic aldosterone pg/mL	213.00	40-310
ARR	**131.44**	-
Potassium mmol/L	3.45	3.50-5.10

*Median

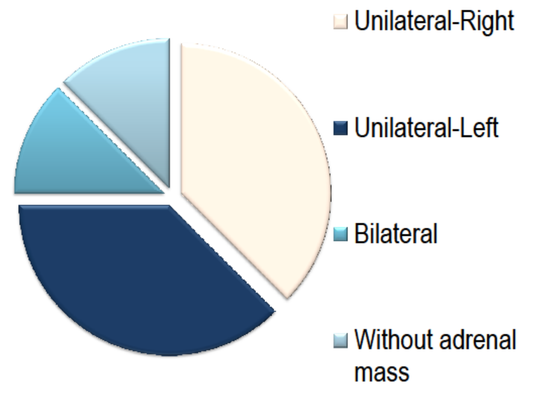
14 patients with ARR > 25 and positive aldosterone supression test

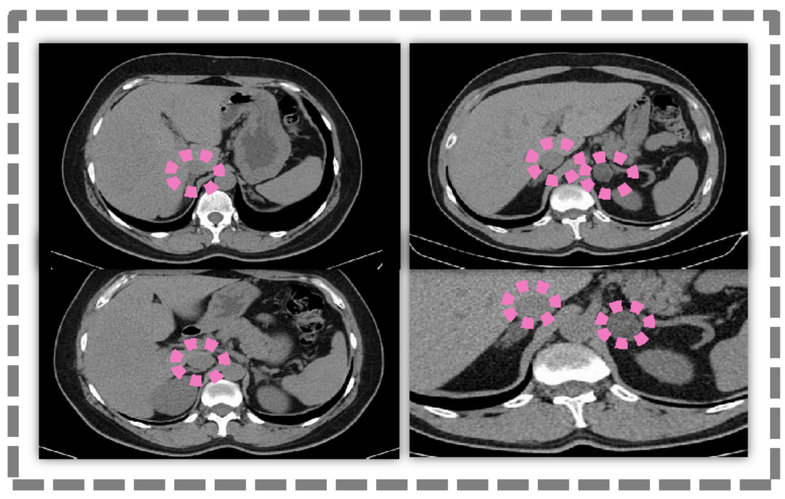
2 patients with ARR < 25 and positive aldosterone supression test

3) Radiological evaluation

Localization		n	%
Unilateral adrenal lesion	Right	6	**37.5**
	Left	6	**37.5**
Bilateral		2	12.5
Without adrenal lesion		2	12.5

Average size: **1.44±0.88cm**





4) Treatment

Surgical

8 patients
Adrenocortical adenoma (n=7)
Adrenal hyperplasia (n=1)
❖ *Weiss Criteria: 0-1*

4 patients mantained medical therapy, with dose reduction

Medical

8 patients
Bilateral adrenal lesions (n=2)
Non surgical conditions (n=1)
Refused surgery (n=5)

3 patients initiated therapy with espironolactone; 2 with eplerenone

5) Follow-up (6 months)

Parameter	Before treatment	After treatment	*p*
Systolic BP[1] (mmHg)	143.00	133.00	**0.008***
Diastolic BP (mmHg)	82.00	80.00	0.197*
Nr of antihypertensive drugs	2.00	0.75	**0.004***
Plasmatic Aldosterone	213.00	148.00	0.317*
Plasmatic Renin	1.65	20.00	**0.003***

**p<0.05;Friedman Test*
[1]*Blood Pressure*

Parameter	Medical treatment	Surgical treatment	*p*
Systolic BP (mmHg)	140.00	120.00	**0.021****
Diastolic BP (mmHg)	80.00	80.00	0.953**
Nr of antihypertensive drugs	1.00	~0.00	0.397**
Plasmatic Aldosterone	205.50	132.60	**0.086****
Plasmatic Renin	14.60	17.00	0.462**

** *p<0.05;* Mann Whitney Test

Conclusions: On follow-up at 6 months, it was found a significant overall reduction in the levels of systolic BP and the number of antihypertensive drugs. Surgical treatment produced a more significant reduction in the levels of systolic BP compared with medical treatment alone and the reduction of serum aldosterone levels was also higher in the group undergoing surgery. Further studies are needed in order to clarify the ideal cut-off of ARR, as well as the benefits of medical vs surgical treatment.

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ECE 2016 60--EP
Adrenal cortex (to include Cushings)
Diana Martins
Poster presented at: ECE2016 28 – 31 May 2016 MUNICH, GERMANY
PosterSessionOnline.com