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Case Report

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Resistant Hypertension Secondary to Primary Hyperaldosteronism

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ABSTRACT

Resistant arterial hypertension is associated with multiple factors and secondary causes must be ruled out. One of the causes is primary hyperaldosteronism; the approach and its deflnitive diagnosis are described below.

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Introduction

Primary Renin-independent hyperaldosteronism is an adrenal disorder with common manifestations such as headache and muscle weakness. It can present with hypokalemia, metabolic alkalosis, and mild hypernatremia, and 11% of patients present with arterial hypertension that is resistant to three drugs, which justifles ruling out this aetiology. Adrenal hyperplasia is the cause in 60-70% [1,2].

Describe the approach to a patient with primary hyperaldosteronism and its deflnitive diagnosis.

Case Report

A 54-year-old woman with 7-year-old systemic arterial hypertension being treated with telmisartan, hydrochlorothiazide, prazocin, metoprolol, and nifedipine. Type 2 diabetes a month ago on treatment with metformin. Grade 3 obesity. No other relevant history.

She is assessed for uncontrolled blood pressure, four years ago she presented episodes of hypertensive crisis of up to 212/103 with admissions to the emergency department. Occasionally palpitations, diaphoresis, flne tremors of both hands and recurrent bitemporal pulsating headache with phosphenes and gait instability. She is currently asymptomatic.

On examination, blood pressure was 168/90 mmHg, heart rate 68 beats per minute. Weight 104 kg, height 1.61 m, Body Mass Index 40 kgm2. Dorsal hump, skin tags and axillae with acanthosis nigricans.

Complementary studies (see Table 1). Electrocardiogram, chest x-ray, renal ultrasound and Doppler without flndings.

Laboratories	Hemoglobin 15.6 mg/dl, leukocytes 6.5 thousand/mm3, platelets 289,000, glucose 109 mg/dl, HbA1c 5.8%, total cholesterol 166 mg/ dl, HDL 36.4 mg/dl, LDL 102 mg/dl, triglycerides 191 mg/ dl, BUN 17 mg/dl, creatinine 0.75 mg/dl, total bilirubin 0.5 mg/dl, albumin 4.5 g/dl, total protein 7.7, AST 34 u/l, ALT 49 u/l, sodium 140 meq/l, chlorine 102 meq/l, potassium 3.51 meq/l, calcium 9.4 mg/dl, phosphorus 3.5 mg/dl, magnesium 2 mg/dl, TSH 4.05 mIU/l, TT4 8.09 ug/dl, FT4 1.13 ng/dl, TT3 78.1 ng/dl, FT3 3.36 pg/ml. EGO pH 6, density 1.011.
Cortisol, suppression test, metanephrines and normetanephrines	Basal cortisol 1.90 mcg dl. Suppression test with 1 mg dexamethasone less than 1.00 mcg/dl. Urine metanephrines: 201.03 mcg/24 hours Plasma metanephrines: 39.2 pg/ml (<54). Plasma normetanephrines 103 pg/ml (30-170) Total metanephrines: 142.2 pg/ml (33-190).
Screening test	Aldosterone 180.9 pg/ml = 18.09 ng/dl Renin 1.2 uUi/l PAC/DRC 15.07.
Confirmatory test	Intravenous saline infusion with Aldosterone 34 ng/dl.
Contrast abdominal CT	Adrenal glands with normal characteristics. Simple right renal cyst.
MRI of adrenal glands	Glands with normal characteristics.

Hydralazine 20 mg every 8 hours and verapamil 80 mg every 12 hours are indicated to suspend telmisartan, nifedipine, metoprolol, and diuretic for six weeks. A screening test was performed with a positive and later conflrmatory result with a positive intravenous saline infusion for four hours, diagnosing primary hyperaldosteronism. In imaging study no flndings of adenoma, which is caused by adrenal hyperplasia.

The antihypertensive regimen was adjusted with oral spironolactone 25 mg every 12 hours, oral telmirsartan 80 mg every 24 hours, and verapamil 80 mg every 12 hours with adequate control.

Conclusions

In resistant arterial hypertension, secondary causes must be ruled out. The proper interpretation of the evidence is essential for the proper study of the case. Initially with a screening test, aldosterone > 15-20 ng/dl and PAC/DRC ratio > 2.4 with adequate withdrawal of ACEI/ARB, diuretics, calcium antagonists and beta-blockers to increase diagnostic performance and later conflrm with a second test suppression with sodium and measurement of plasmatic aldosterone at the end > 5 ng/dl. Once the adenoma has been ruled out, treatment with spironolactone or eplerenone is offered [3,4].

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