Hormonal Mechanisms

6.12 Long-Term Effects of Pharmacological and Surgical Treatment on Cardiovascular Parameters in Patients with Primary Aldosteronism

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Aim. To evaluate the long-term effects of surgical and pharmacological treatment on cardiovascular parameters in patients with primary aldosteronism (PA).

Methods. We prospectively re-examined 18 patients with aldosterone-producing-adenoma, after surgery, and 33 patients with idiopathic hyperaldosteronism (IHA) on pharmacological treatment. At base-line, age, BMI, duration of known hypertension, clinic and ambulatory blood pressure and aldosterone and PRA values were not significantly different between the two groups.

Results. After adrenalectomy (28.9 ± 5.4 months), all patients had normalization of aldosterone levels (21.8 ± 3.3 vs 51.6 ± 6 ng/dL, $P < 0.03$), PRA values (1.6 ± 0.3 vs 0.3 ± 0.09 ng/mL/hr, $P < 0.01$) and plasma potassium (4.3 ± 0.1 vs 3.1 ± 0.14 mEq/L, $P < 0.0001$) associated to a decrease in systolic (127.4 ± 2.5 vs 160.5 ± 4.9 mmHg, $P < 0.0001$) and diastolic (82.4 ± 2.4 vs 102.5 ± 2.8 mmHg, $P < 0.0001$) blood pressure and to a reduction in drugs number required for blood pressure control (0.6 ± 0.2 vs 1.1 ± 0.2). In addition, a significant reduction in LVMI (110.3 ± 4.2 vs 132.1 ± 4.7 g/m²; $P < 0.001$) and in LVMI/h (50 ± 2.7 vs 57 ± 3.0 , $P < 0.01$) was detected. In patients with IHA on pharmacological treatment, after a similar follow-up period (31.5 ± 4.4 months), PRA values (0.72 ± 0.1 vs 0.39 ± 0.06 ng/mL/hr, $P < 0.003$) and plasma potassium (3.7 ± 0.1 vs 3.2 ± 0.07 mEq/L, $P < 0.0001$) increased while aldosterone levels did not change (68.6 ± 15 vs 66.7 ± 12 ng/dL). Pharmacological treatment significantly reduced systolic (137.6 ± 3.0 vs 156.0 ± 3.0 mmHg, $P < 0.0001$) and diastolic (87.7 ± 1.9 vs 96.3 ± 1.6 mmHg, $P < 0.001$) blood pressure but this result was obtained after increasing the drugs number (2.29 ± 0.15 vs 1.78 ± 0.16 , $P < 0.02$), including aldosterone receptor antagonists in all cases. Despite the decrement in blood pressure values, no variation was found in left ventricular mass (LVMI: 137.8 ± 5.0 vs 135.1 ± 4.5 g/m²; LVMI/h 64.8 ± 2.5 vs 64.8 ± 2.4).

Conclusions. Our data show that in patients with primary aldosteronism the persistence of high aldosterone levels in spite of a normalization of blood pressure interferes with the regression of cardiac mass. This finding suggests that aldosterone exerts in humans a direct effect on the heart independently of the haemodynamic discharge.