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Hormonal Mechanisms

6.15 Roles of Clinical Criteria, CT Scan and Adrenal Vein Sampling in Differential Diagnosis of Primary Aldosteronism Subtypes

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Introduction. Context in patients with primary aldosteronism (PA) it is fundamental to distinguish between subtypes that benefit from different therapies. CT scans lack sensitivity and specificity and must be followed by adrenal venous sampling (AVS). Since AVS is not widely available, a list of clinical criteria has been suggested that indicates the presence of an aldosterone-producing adenoma (APA).

Aim. To test the sensitivity and specificity of the last generation CT scans; - to test prospectively the usefulness of clinical criteria in the diagnosis of APA; - to develop a flow-chart to be used when AVS is not easily available.

Methods. 71 patients with confirmed PA underwent CT scan, AVS and biochemical evaluation. The presence of grade 3 or resistant hypertension, profound hypokalemia (<3.0mEq/L), high plasma (<25 ng/dL) and urinary (>30 mcg/24 hour) levels of aldosterone and age younger than 50 years, were all factors considered to be compatible with a 'high probability' of having an APA.

Results. 44% and 56% of patients were diagnosed as having an APA and a bilateral adrenal hyperplasia (BAH), respectively. 20% of patients with PA displayed hypokalemia CT scans displayed a sensitivity of 0.87, a specificity of 0.71, a positive predictive value of 0.71, a negative predictive value of 0.88, an accuracy of 0.78. In 15/70 patients (21.4%) the diagnosis obtained only by CT scan would have been wrong: 11 patients with an appearance of APA on CT scan (six patients with a nodule >10 mm) were found to have BAH by AVS and four patients with a diagnosis of BAHon CT scan were diagnosed as having APA after AVS. The posture test displayed a lower sensitivity and specificity (0.64 and 0.70, respectively). The distribution grades of hypertension were not significantly different between APA and BAH; 48% of patients with APA displayed hypertension grade of 3 or less. Biochemical criteria of 'high probability' of APA displayed a sensitivity of 0.32 and a specificity of 0.95. 26% of patients with APA and 69% of patients with BAH were normokalemic.

Conclusions. Our study underlines the central role of AVS in the subtype diagnosis of PA. The use of the clinical criteria to distinguish between APA and BAH did not display a satisfactory diagnostic power. Nevertheless, in those units in which AVS cannot be performed routinely, for patients with bilaterally normal appearance of the adrenal glands, medical treatment can be considered and in very young patients (< 40 years), with a nodule > 1cm on the CT scan, adrenalectomy can be performed.