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Original article

Should the Monitoring Protocols for Adrenal Incidentalomas be Changed?☆,☆☆

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ABSTRACT

Background: The prevalence of adrenal incidentalomas is increasing with the ageing of the population and the use of high resolution imaging techniques. Current protocols propose a comprehensive monitoring of their functional and morphological state, but with no conclusive clinical evidence that endorses it.

Method: Retrospective study of 96 patients diagnosed with adrenal incidentaloma between 2008 and 2012. We evaluated clinical, functional, and imaging at baseline and during follow-up.

Results: Initially, 9 cases were surgically removed: 4 due to hyperfunction (2 Cushing syndromes and 2 pheochromocytomas) and 5 due to size larger than 4 cm. During follow-up one case of pheochromocytoma was diagnosed and another grew more than 1 cm, needing surgery. In 98.86% of nonfunctional and benign lesions, there were no functional and/or morphological changes in the final evaluation.

Conclusions: The results of our study challenge the validity of current diagnostic–therapeutic protocols of incidentalomas, which should be reassessed in prospective studies taking into account efficiency characteristics.

¿Deberían modificarse los protocolos diagnóstico-terapéuticos de los incidentalomas suprarrenales?

Palabras clave:
Incidentaloma suprarrenal
Síndrome de Cushing
Feocromocitoma

RESUMEN

Antecedentes: La prevalencia de los incidentalomas suprarrenales está aumentando por el envejecimiento de la población y el empleo de técnicas de imagen de alta resolución. Los protocolos actuales proponen un seguimiento de su estado funcional y morfológico exhaustivos, sin una evidencia clínica concluyente que lo avale.

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Adrenalectomía

Método: Estudio retrospectivo de 96 pacientes diagnosticados de incidentaloma adrenal entre 2008 y 2012. Se evalúan características clínicas, funcionales y de imagen, basales y durante el seguimiento.

Resultados: Inicialmente, 4 casos fueron intervenidos por hiperfunción (2 síndromes de Cushing y 2 feocromocitomas) y 5 por tamaño superior a 4 cm. Durante el seguimiento, tan solo se diagnosticó un caso de feocromocitoma y otro creció más de 1 cm, indicándose cirugía. En el 98,86% de los incidentalomas diagnosticados inicialmente como benignos y no funcionantes, no se objetivaron modificaciones funcionales y/o morfológicas en la evaluación final.

Conclusiones: Los resultados de nuestra serie cuestionan la validez de los protocolos de seguimiento de los incidentalomas adrenales vigentes en la actualidad, que deberían ser revaluados atendiendo a características de eficiencia mediante estudios prospectivos.

Introduction

An adrenal incidentaloma (AI) is a mass with a diameter larger than 1 cm, discovered unexpectedly in an imaging test performed on a patient not suspected to have any adrenal disease. The strictest definitions exclude patients undergoing imaging tests as part of an extension or follow-up study for cancer.[1] Its prevalence increases with age: less than 1% in young subjects, 3% in subjects in their 50s, and more than 15% in people older than 70 years.[2,3] This incidence has greatly increased in recent years, probably in relation to the widespread use of high-resolution imaging tests and the progressive ageing of the population.

The initial management of these lesions should be focused on ruling out hormonal hypersecretion and/or malignancies susceptible to surgical treatment.[4] However, most cases consist of benign non-functioning lesions for which the follow-up recommendations are controversial. Both the lack of prospective trials and the high financial and emotional costs incurred by patients question the current exhaustive recommendations for the assessment and follow-up of adrenal incidentalomas.

The objective of this study was to analyse the diagnostic–therapeutic strategies used in our field and to assess the usefulness of the evaluation and follow-up protocols for adrenal incidentalomas with an initial benign diagnosis and normal hormonal function.

Materials and Methods

A retrospective, descriptive study was conducted on 96 patients diagnosed with adrenal incidentaloma who were seen at the outpatient Endocrinology unit of Hospital Universitario Puerta del Mar de Cádiz [Puerta del Mar University Hospital of Cádiz] from 2008 to 2012. Those patients with active cancer in the last 5 years were excluded.

The epidemiological and anthropometric variables, the metabolic comorbidities and the morphological and functional characteristics at the time of diagnosis of incidentaloma and during its follow-up were collected.

Urinary free cortisol (electrochemiluminescence, Roche Diagnostics, Mannheim, Germany), catecholamines (high performance liquid chromatography, Chromsystems GMBH, Gräfelfing, Germany), and 24-h urine metanephrines (high performance liquid chromatography, Chromsystems GMBH, Gräfelfing, Germany) were determined in all patients. Plasma cortisol (electrochemiluminescence, Roche Diagnostics, Mannheim, Germany) after 1 mg of nocturnal dexamethasone, corticotropin (IRMA, DIAsource ImmunoAssays, Louvain, Belgium), and the cortisol secretion circadian rhythm were assessed in those cases with urinary free cortisol above the upper limit of normal. The serum aldosterone and the plasma renin activity (PRA) (radioimmunoassay, Beckman Coulter, Marseille Cedex, France) were measured only in patients with hypertension and/or hypokalemia.

The diagnosis of subclinical Cushing syndrome was established in the absence of clear symptoms of hypercortisolism but with at least two positive screening tests (urinary free cortisol above the upper limit of normal, loss of the circadian rhythm, plasma cortisol following inhibition with 1 mg of dexamethasone >1.8 μg/dL).[5]

Hydrocarbonate metabolism abnormalities were defined according to the criteria proposed by the American Diabetes Association[6] and high blood pressure was defined when values exceeded 140/90 mmHg or a hypotensive treatment was prescribed. Obesity was considered when body mass index (BMI) was ≥ 30 kg/m^2, and osteoporosis when *T*-score was <-2.5 SD by bone densitometry.

The coding and analysis of data were performed with the statistical SPSS programme version 15.0 for Windows. The quantitative variables were expressed by mean±SD, median and range. The Student's *t*-test was used for the comparisons among groups and the Wilcoxon test was used to compare the maximum diameter. The qualitative variables were expressed by percentages and were compared by chi-square test. The statistical significance was considered in all cases for *P*-values $<.05$.

Results

Out of the patients studied, 55.2% were males, with a mean age of 61.38±12.2 years and a BMI of 29.66±4.9 kg/m^2. Sixty-six cases (70.2%) were detected by computerised tomography, 18 (19.1%) by magnetic resonance imaging and 10 (10.6%) by ultrasound. The reason why the imaging test was performed was: digestive disease in 17 cases (21%),