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## **INCIDENCES OF LABORATORY HYPERCORTISOLISM IN PATIENTS WITH ADRENAL INCIDENTALOMAS**

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**Actuality.** Adrenal incidentalomas (AI) are incidental findings on imaging studies that have emerged as a diagnostic challenge in clinical endocrinology. Their association with subclinical hypercortisolism (SH) has garnered attention. In this article, we present the analysis of cases from the Minsk City Endocrinology Dispensary presenting the correlation between Adrenal incidentalomas and subclinical hypercortisolism.

**Goal:** to present the prevalence of adrenal incidentalomas and subclinical hypercortisolism and analyse the associated parameters

**Materials and methods.** Data from patient case histories of the Minsk City Endocrinology Dispensary over the period 2021-2023 were used for the analysis. Patients were selected with a cutoff of  $\geq 50$  nmol/l in the result of the dexamethasone suppression test (DST). Analysis of literature using the keywords “subclinical hypercortisolism”, “subclinical Cushing’s”, “adrenal incidentalomas” using scientific databases PubMed and Google Scholar in the time period 2013-2024 (inclusive).

**Results and their discussion.** 35 patients were observed ( $n = 35$ ), with a median age of 65 years (interquartile range (IQR) = 51.5 – 72.5 years). The mean result of the DST was  $159.85 \text{ nmol/l} \pm 188.55$  indicating a wide variability of the results. 25 of the patients (71.4%) had adrenal adenomas of which 7 were bilaterally, 6 on the right and 12 on left. Mean serum cortisol level was  $260.39 \pm 168.45 \text{ nmol/l}$ . The adrenocorticotrophic hormone (ACTH) levels was recorded in 11 patients with a median value of  $13.57 \text{ nmol/l}$  (IQR = 4.74 – 24.76). 26 of the individuals had metanephrin values assessed with a mean  $22.79 \pm 16.53 \text{ nmol/l}$ , and 26 different patients had normetanephrin assessed with a mean  $175.2 \pm 2524 \text{ nmol/l}$  indicating a very high variability of results. Additionally plasma renin activity (PRA) was analyzed ( $n = 15$ ) with a median of  $0.78 \text{ nmol/l}$  (IQR = 0.464 – 1.87)

Additionally, the cortisol level following DST in those with adenomas was compared with those without using the Wilcoxon rank-sum test, with a test-result of  $p = 0.0017$ , showing a statistically significant difference between the two groups ( $p < 0.05$ ). The median in the group without adenomas was higher than in those with adenomas.

Pertaining to the adenomas, the largest noted was  $35 \times 25 \times 56$  (density: -13 HU). The density of the adenomas displayed great diversity ranging from -40HU to +30 HU. Two of the adenomas were noted to have distinct components inside with different densities compared to the respective adenoma itself.

In terms of comorbidities, it was of interest that the mean BMI of the patients ( $n = 25$ ) was  $29.69 \text{ kg/m}^2$ , with 22 patients having a BMI  $> 25 \text{ kg/m}^2$ . Other common comorbidities of the patients included dyslipidemia, hypertension and type II diabetes mellitus.

**Conclusions.** This analysis provides extensive data on the prevalence of adrenal incidentalomas and its characteristics, subclinical hypercortisolism and the heterogeneity of the associated parameters as well as the incidence of the most common comorbidities.