Computed tomographic diagnostic evaluation of the adrenal and pituitary adenomas in Syndrome and Morbus Cushing

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INTRODUCTION: Cushing syndrome is the clinical manifestation of hypercortisolism. Obese subjects (O) suspected of hypercortisolism first have to be biochemically differentiated from patients with Cushing syndrome with adrenal adenoma (CS) and Morbus Cushing (MC) with pituitary adenoma and adrenal hyperplasia (AH). After the biochemical differentiation of CS and MC, computed tomographic (CT) morphological assessment is necessary by which the localization will be proved and the size of the tumor determined. The aim of this study was to determine diagnostic assessment accuracy of the CT imaging of the adrenal and pituitary adenomas in patients with CS and MC, which were biochemically, clinically and histologically, after surgery, diagnosed.

MATERIALS AND METHODS: Adrenal glands were assessed with CT scan in 66 subjects, 36 O suspected for Cushings, 14 CS and 16 MC. Pituitary CT scan was performed in 16 MC and 11 O. Sensitivity (S), specificity (SP), positive predictive value (PPV), negative predictive value (NPV) and diagnostic accuracy (DG) were determined of the CT scan test results in the examined subjects.

RESULTS: Adrenocortical adenomas (CA) were detected by means of CT of the adrenal glands in CS as clearly determined oval, homogenous, unilateral adrenal masses with mean diameter value of 3.42±1.24 cm.

	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	DG accuracy (%)
CT suprarenal (cortical adenoma)	93	91.7	81.25	97.1	92
CT suprarenal (adrenal hyperplasia)	75	91.7	80	89	86.5
CT hypophysis (MC)	56.25	91	90	59	70

MC – Morbus Cushing   PPV/NPV – positive/negative predictive value

CONCLUSION: Adrenocortical adenomas in CS were detected with high S of 93%, NPV of 97.1% and DG of 92% as an oval unilateral adrenal masses and discovered adrenal CT scan as a useful diagnostic procedure in adrenal tumors diagnosis. Bilateral adrenal hyperplasia in MC was determined with lower S of 75% as well as PPV of 80% and DG of 86.5%. Low values of the S 56.25%, NPV 59% and DG of 70% of the pituitary CT scans as well as adrenal CT scans in MC indicated the need of previous biochemical differentiation of MC and O in order to exclude adrenal as well as pituitary incidentalomas and also showed the need of more precise MRI investigation of the pituitary gland in MC.
Key words: Cushing syndrome, CT imaging, adrenal and pituitary adenomas, diagnostic accuracy