p073
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Early prediction of operative success in Cushing's disease by avoidance of perioperative glucocorticoid administration

In Cushing's disease perioperative administration of glucocorticoids interferes with the detection of surgical success, namely the postoperative decline of intrinsic serum cortisol levels. Reoperation on patients with surgical failures is recommended before scarring occurs [1, 2]. Here, we report on prediction of outcome by detection of early postoperative serum cortisol and its safety. 270 patients with a follow up of at least 12 months underwent transsphenoidal surgery for Cushing's disease without perioperative glucocorticoid administration. Blood was drawn any 4 hours and stored at +4°C. Hydrocortisone was administered when hypocortisolism was detected in serum or clinically. No complication due to the lack of perioperative administration of glucocorticoids were observed. Perioperative serum cortisol levels were: below 60 μg/dl in 140 patients (52 %, recurrence rate [RR] 5.7 %), in 138 cases as early as in the first postoperative morning [POM1]; between 60 and 100 μg/dl in 33 patients (12 %, RR 18.2 %), in 25 on POM1; between 100 and 250 μg/dl in 64 cases (24 %, RR 29.7 %), 43 on POM1; and still elevated in 32 patients (12 %). The lower the end point of cortisol level the faster it was reached (Chi²p < 0.0001). Early decline of cortisol level is predictive for long term remission (Chi²p < 0.001). The procedure is safe provided that clinical monitoring is available.No Addison crisis developed. 1. Knappe UJ, Lüdecke DK (1996) Acta Neurochir 65; 31 - 34; 2. Ram Z, Niemant LK, Cutler GB, Chrousos GP, Doppman JL, Oldfield EH (1994) J Neurosurg 80, 37 - 45.

p074
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Hypothalamic and enhanced growth hormone secretion

A 49-year-old woman complaining of headaches for several months was admitted to our hospital. She had secondary amenorrhea for one year. An intra- and suprasellar tumour was demonstrated by MRI. Further symptoms were facial soft tissue swelling and a decrease of physical performance. In 1995, a surgery of left-sided carpal tunnel syndrome was performed. The anterior pituitary function was partially affected with decreased basal and stimulated gonadotropin and growth hormone (GH) levels and a decreased basal cortisol.

The IGF-1 level was increased (401 ng/ml). An oral glucose load exhibited an adequate suppression of GH to 1 ng/ml.

Because of the acromegaly stigmata the test was repeated three weeks later, showing a pathologocal response (GH decreased from 5.7 to 2.95 ng/ml only).

111In-Octreotide scintigraphy demonstrated a strong uptake of the pituitary tumor.

Thus, a somatotrophic adenoma was suspected and the patient underwent transsphenoidal surgery. Unexpectedly, intrasurgical histological tissue analysis revealed a hypophysisis. The detailed histological report showed the typical signs of an infiltrated gland with lymphocytes, plasma cells, fibrotic material and scattered giant cells.

Testing of pituitary function six weeks after surgery demonstrated a GH deficiency (GH was stimulated from 2.4 to 3.2 after arginine administration). GH suppression following an oral glucose load was normal. Octreotide treatment did not lead to a tumor shrinkage.

These endocrine and clinical data reported thus clearly suggest the presence of a persistent oversecretion of GH as demonstrated by the oral glucose suppression test. Together with the results of the octreotide scintigraphy, clinical diagnosis of acromegaly was suspected but could not be confirmed by tissue analysis.

To our knowledge, this case represents the first report of an enhanced secretion of GH in a severe hypophysis.