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ABSTRACTS OF SHORT PAPERS

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Parathormone

Neurosecretion

Paraneoplastic Hormone Production

Kidney, Varia

Steroid Receptors, Carcinomas

4. Hypersecretion of ACTH, growth hormone and prolactin in a patient with pituitary adenoma*

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Patients with pituitary tumors and hypersecretion of two pituitary hormones have been observed. The most common combination seems to be hypersecretion of growth hormone (hGH) and prolactin [1]. The combination of hypersecretion of other pituitary hormones, such as ACTH and hGH [2] or prolactin (PRL) and TSH [3] is extremely rare. The following case report concerns a patient with a pituitary adenoma with hypersecretion of three pituitary hormones: hGH, ACTH and PRL. The 45-year old male patient was readmitted to our hospital in August 1977 for evaluation of pituitary function. This patient was known to us since 1968 when he was first admitted to our hospital because of active acromegaly. Before pituitary surgery was performed, an acutely manifesting Cushing's syndrome with excessively elevated ACTH-levels was observed [2]. He was therefore first totally adrenalectomized followed by transfrontal pituitary surgery. One year later, the Cushing syndrome had disappeared but hGH-levels were still elevated. In the following seven years he was lost to follow-up. At readmission he still had active acromegaly but no excessive pigmentation. Pituitary function tests revealed elevated hGH-levels between 55 and 75 ng/ml, whereas ACTH-levels under substitutional therapy were only moderately elevated up to 100 pg/ml. PRL-levels were also found to be extremely high, ranging from 460 to 600 ng/ml. Gonadotropin and TSH-secretion was blunted, necessitating replacement therapy.

hGH-hypersecretion: The elevated hGH-levels could not be suppressed by an oral glucose load which revealed a diabetic carbohydrate tolerance with extremely elevated insulin levels. Administration of TRH and GnRH led to a stimulation of hGH, documenting the in-

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appropriate regulation of hGH-secretion. Administration of the dopamine agonists l-Dopa (0.5 g) and bromocriptine (2.5 mg) led to a fall from a basal level of 55 to 18 ng/ml (l-Dopa), respectively 58 to 12 ng/ml (bromocriptine). Somatostatin (SRIF) inhibited hGH-secretion in the same manner.

ACTH-hypersecretion: ACTH-levels were significantly suppressed after 2.5 mg bromocriptine from a basal level of 86 to 30 pg/ml and the administration of SRIF suppressed ACTH from 99 to 21 pg/ml.

PRL-hypersecretion: PRL-levels could not be stimulated by TRH and the administration of SRIF led only to a minor fall of PRL from 512 to 420 ng/ml. In contrast, administration of the dopamine agonists led to a significant fall of PRL from 501 ng/ml to 294 ng/ml (l-Dopa), respectively from 442 to 100 ng/ml (bromocriptine).

The anatomical evaluation of the pituitary by lateral skull X-ray and computer tomography revealed a large pituitary tumor with suprasellar extension. The tumor histology from 1969 showed a pituitary adenoma which could not be differentiated by classical staining but showed evidence of necrosis in the adenomatous tissue which might explain the only moderately elevated ACTH-levels after bilateral adrenalectomy (autohypophysectomy).

Despite suprasellar extension and active acromegaly the patient refused to be operated again and was therefore treated medically with bromocriptine. After 7 weeks of treatment with 7.5 mg bromocriptine daily, a fall of hGH-levels to 26 and of PRL to 163 ng/ml could be observed. The ACTH-levels were not significantly influenced by long-term bromocriptine administration. Because hGH- and PRL-levels are not completely normalized, the dosage has been raised in the meantime and the patient will be eventually irradiated.

To our knowledge this patient represents the first documented case of topic hypersecretion of three pituitary hormones. It is interesting to note that the hormone excess of all three hormones can be uniformly inhibited by dopamine agonists. It is tempting to speculate that disturbance of hypothalamic dopamine-mediated neutrotransmission may be the cause of the threefold pituitary hormone excess.

References

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3. Horn, K. et al.: J. clin. Endocrinol. Metab. 43 (1976), 137

Prolactin was determined by means of NIAMDD-kits.
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