was significantly increased in patients compared to controls (38% vs 14%). The presence of colonic adenomas was not significantly correlated with GH and IGF-I levels, duration of acromegalic disease and its status (active or remission) but a male predominance was seen (2). All these findings have been confirmed by Delhougne and Colleagues (1).

The most interesting finding of our study was that the probability of developing colonic adenomas appeared to be greatly increased in younger acromegalic patients, while in the general population colonic adenomas occur more frequently with advancing age (3). The prevalence of adenomas in controls was indeed exceedingly high in patients under 50 years of age (46% vs 7% in controls), whereas the difference was less remarkable at older ages (2). This age pattern was also observed by Delhougne and Colleagues but they did not discuss this point (1). Conversely, the demonstration that in acromegalic patients the risk of adenomatous polyps is higher at ages when it is minimal in the general population strengthens the conclusion of a disease-related risk independent of the well-known age-dependent one. An increased risk at older ages would be otherwise difficult to prove since colonic adenomas are very prevalent in elderly persons.

The fact that acromegaly is a more aggressive disease in young patients (4) could offer an explanation for this peculiar age distribution of colonic adenomas. In elderly patients, who generally have a milder course, age-dependent risk conceivably gains importance with respect to disease-dependent risk.

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References


A GONADOTROPH ADENOMA WITH A HIGH PROPORTION OF BASIC FSH ISOHORMONES BY CHROMATOFOCUSING*

To the editor:

Gonadotroph adenomas are rarely associated with a specific endocrine syndrome even when serum FSH levels are increased (1). However, a recent article in JCEM reported one case of functioning gonadotroph adenoma that resulted in ovarian hyperstimulation (2). Earlier, Heseltine et al described a small group of men with FSH-secreting tumors and bilateral testicular enlargement (3).

We report a case of a 47 yr old man bearing an FSH secreting adenoma diagnosed on the basis of visual disturbance. This patient also exhibited an increased testicular volume (>30 mL; normal range: 12-25 mL), and was thus close to Heseltine’s patients. Preoperative serum hormone levels were: FSH: 29.2 IU/L (normal range: 1–7), LH: 1.0 (normal range: 0.5–10), prolactin: 14 ng/mL (normal range: <20) and testosterone: 3.35 ng/mL (normal range: 3-10).

The patient underwent transphenoidal surgery allowing removal of a large part of the adenoma. Adenoma cells showed a strong positive staining with anti-a subunit, anti-FSHβ and anti-LHβ monoclonal antibodies (Immunotech, Marseille, France). No staining was observed with antiprolactin and antigrowth hormone antisera (NIH). Post-operative serum hormone values were: FSH: 16.4 IU/L, LH 0.9 IU/L, a subunit: 1.18 IU/L (normal range: 0.2–1.0 IU/L), and α inhibin: 430 IU/L (normal range: 330–710 IU/L). FSH bioactivity was evaluated on a postoperative sample with an in vitro bioassay using a CHO cell line transfected by the hFSH receptor (4) and shown to be high: B/I ratio: 2.28 (normal range: 1.0 ± 0.2).

Chromatofocusing analysis of FSH isoforms from the patient’s adenomatous tissue was performed on a PBE-94 column (Pharmacia, Uppsala, Sweden) and compared to control pituitaries. As shown in Fig. 1, the adenoma was characterized by a great amount of basic FSH isoforms (pI > 6.0) i.e. almost 35% of whole FSH immunoreactivity eluted from the column. On the contrary, the major proportion of FSH isoforms from seven normal pituitaries and five other gonadotroph adenomas were detected at pH value less than 5.5 (data not shown), as previously reported (5). It should be stressed that basic isoforms are more active than the acid ones at least in vitro (6), and that may explain the high serum FSH bioactivity.

This is the first report of a gonadotroph adenoma with an unusual chromatofocusing profile of FSH isoforms. Previous studies have shown that FSH produced by pituitary tumors had an isoelectric profile similar to those of normal pituitary and exhibited normal or supranormal biological activity in granulosa cell bioassay (7, 8). The existence of a testicular enlargement suggests that basic FSH isoforms may have a higher growth stimulating action at the gonadal level than more acidic isoforms. However, analysis of FSH polymorphism in more cases of gonadotroph adenoma, especially the ones with obvious endocrine syndrome, is mandatory to confirm this hypothesis.

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FIG. 1. Chromatofocusing profile of immunoreactive hFSH recovered from gonadotroph adenoma. Note the existence of a high content of basic isoforms eluted above pH 6.0. The numbers above each peak correspond to the pI of the isoforms. The arrow indicates treatment with 1 mmol/L NaCl.
**References**
