

zation" of A in this tissue. The high rate of excretion of Adiol in the urine of patients with hirsutism of adrenal origin primarily reflects the elevated secretion of A by the adrenals. In patients with virilism of ovarian origin (PCO) both the elevated secretion of A and the increased transformation of A into T-DHT and Adiol may be responsible for the elevated excretion of urinary Adiol. In women with idiopathic hirsutism the high excretion rate of Adiol in the urine may be essentially explained by an abnormal ability of sexual skin to transform in situ inactive androgen precursors supplied by the blood, into active androgens. The genetic or acquired origin of the enzymatic abnormality of the androgen responsiveness of sexual skin observed in idiopathic hirsutism remains unclear.

36. Correlations between hirsutism, cycle disturbances and normal menstrual cycle stages with plasma androgen levels, G. MAGRINI, F. MÉAN, P. BURCKHARDT, B. RUEDI and J.P. FELBER, Division de Biochimie Clinique, Département de Médecine, C.H.U.V., 1011 Lausanne, Switzerland

The aim of this study was to investigate some biochemical parameters that might better reflect clinical hyperandrogenism and the relative frequency and correlates of elevated plasma androgen levels in hirsutism, compared to the levels found at different stages of the normal menstruating cycle.

Eighty hirsute women, 70 of whom had abnormally high levels of at least one androgen were divided into 3 groups: 40 had normal cycles, 30 irregular cycles and 10 amenorrhoea. A control group of 20 normally menstruating women was also studied in the early and mid-late follicular, peri-ovulatory and luteal phases.

Plasma testosterone (T), androstenedione (A), $17\alpha\text{OH}$ -progesterone ($17\alpha\text{OHP}$), DHEA-S and cortisol (F) were measured by specific radioimmunoassays.

The correlative study shows that: 1) whereas more than two thirds of the cases of hirsutism had elevated $17\alpha\text{OHP}$ and A levels, plasma T was increased in only half of them, and DHEA-S and F in a third; 2) in the group of hirsute women with irregular cycles, mean $17\alpha\text{OHP}$, T and A levels were even more significantly increased compared to the group with normal cycles; 3) whereas the percentage of increased A and $17\alpha\text{OHP}$ levels in hirsutism with irregular cycles (90-95%) was not substantially greater than in the group with normal cycles (70-80%), the percentage of increased T levels was doubled (72% vs. 38%, $P < 0.005$). Moreover, the data show that in the group of hirsute women studied, only $17\alpha\text{OHP}$ and A had a very high frequency of clearly abnormally raised levels. On the other hand, under basal conditions, simultaneous determination of A+T+ $17\alpha\text{OHP}$ seems to be a good biochemical parameter for reflecting clinical hyperandrogenism.

The results also show significant modifications in the ratios between the different androgenic steroids, depending on the stage

of the menstrual cycle.

37. Modern diagnostic methods for the detection and management of ovarian disease, G. LEYENDECKER, Universitäts-Frauenklinik 53 Bonn-Venusberg

The review will be confined to hypothalamic ovarian failure, its pathophysiology, diagnosis and management.

As an introduction, a concept of the normal endocrine regulation of the HPO axis in the human female is presented. An adequate hypothalamic secretion of Gn-RH is regarded as the *primum movens*. This secretion is considered to be permissive in that the cyclicity of events in the human menstrual cycle is regulated only of the levels of the pituitary and ovary.

Hypothalamic ovarian failure is considered to be the consequence of deficient hypothalamic Gn-RH release with corpus luteum insufficiency, anovulatory cycle, oligomenorrhoea and amenorrhoea forming a pathophysiological entity on the basis of a gradually reduced hypothalamic Gn-RH secretion.

On the basis of this understanding of the pathophysiology of hypothalamic ovarian failure the various clinical tests (Gn-RH-, oestradiol-provocation-, clomiphene-, progesterone-test) propagated and used for classification of this disorder are analysed and evaluated.

Finally, various therapeutic regimens are reviewed and special emphasis is put on the aspects and prospects of Gn-RH-substitution. It will be demonstrated that, with chronic intermittent administration of Gn-RH, normal pituitary and ovarian function can be instituted in hypothalamic ovarian failure.

38. Infertility with normal menstrual rhythm: hormone profiles in response to HMG (pergonal) treatment, W.P. BLACK¹, R. FLEMING¹, M.C. MACNAUGHTON¹, A. CRAIG², P. ENGLAND³ and J.R.T. COUTTS¹, ¹Department of Obstetrics and Gynaecology, University of Glasgow, Glasgow Royal Maternity Hospital, Rottenrow, Glasgow, G4 0NA, ²Clinpath Services Ltd., Lane End Rd., High Wycombe, Bucks, and ³Department of Path. Biochemistry, Royal Maternity Hospital, Rottenrow, Glasgow G4 0NA, U.K.

Unexplained infertility may be a result of ovulation after poor follicular development (1). Twenty-seven infertile women, with a normal menstrual rhythm, were therefore treated with HMG in an attempt to improve follicular growth. Patients provided serial daily blood samples - throughout two menstrual cycles - the first was a control cycle and in the second patients received three ampoules of HMG intra-muscularly on each of days 1, 3 and 5. Using sensitive, specific, precise radioimmunoassays the levels of prolactin, LH, FSH, progesterone and oestradiol were determined in all plasma samples. The responses of patients to HMG were variable. Comparison of follicular phase oestradiol