29 HYPERPROLACTINAEMIA IN TWO BOYS. W.Klemm, K.Rager, D.Gupta, K.Nolte, K.v.Putkamer, J.R.Bierich, E.Keller, Univ. Women's Hosp. Tübingen and R.Fahlbusch, Neurochirurg.Kl. München.

In order to evaluate the prolactin (HPL) levels in boys with gynaecomastia, we tested 2 boys whose basal HPL levels were higher than normal (14.1±3.3 ng/ml). The first boy, aged 14 yrs with a sexual development of stage II, showed basal HPL level at 35 ng/ml and under TRH, registered a maximal of 74 ng/ml. This increment was also much higher than that seen in the normal controls under TRH (37.1±9.8 ng/ml). The second subject (16 yrs, PIV) with gynaecomastia and galactorrhoea having basal levels of 150 ng/ml, rising to 450 ng/ml after stimulation, showed a vast enlargement of sella. In both boys we succeeded to supress the HPL to at least 50% of the basal values either by a single dose of L-Dopa or repeated doses of CB 154. In the second boy the tumor was removed by surgery. HPL could be found in the tumor tissue. Heterogeneity of this HPL was shown after separation by column chromatography. The other pituitary hormonal evaluation (TSH, LH+FSH) in these subjects was found to be within the normal range both before and after the administration of the releasing hormones. It may be concluded that the assessment of the hypothalamic-pituitary axis is a necessity as a screening-test when gynaecomastia is present with puberty in boys, with basal hyperproladtinaemia.

30 LOCALIZATION OF THE ENZYME DEFECT IN A CASE OF CONGENITAL ADRENAL LIPOID HYPERPLASIA (CALH). R.J.Kraaipoel, H.J.Degenhart, H.K.A. Visser and J.G.Leferink, Dept. Pediatrics, Erasmus Univ. Rotterdam. Lab. for Toxicology, State Univ. Utrecht, The Netherlands.

According to the classical scheme cholesterol is converted in the adrenal cortex into pregnenolone and isocaproaldehyde via 20α-OH cholesterol (20α) and 20α, 22R-di-OH cholesterol (20α,22R). Earlier we described a 20α-hydroxylase deficiency in postmortem tissue of a patient with CALH (1). Recent experiments in our laboratory showed that adrenal cortex mitochondria in the presence of $H_2{}^{18}O$ convert cholesterol into pregnenolone and ^{18}O-labeled isocaproaldehyde. A similar experiment with 20α resulted in the formation of ^{18}O-labeled pregnenolone. In the presence of $H_2{}^{18}O$ 22R-OH cholesterol (22R) was converted into 20α, 22R with the ^{18}O attached to the C_{22} atom. We suggest that cholesterol is converted into pregnenolone and isocaproaldehyde via Δ^{20-22} cholesterol, 20,22-epoxycholesterol and 20α,22R. We have isolated 20,22-epoxycholesterol from reaction media. Both chemically and enzymatically the epoxide could be converted into 20α,22R. According to this new scheme (2) an oxidative desaturase, catalyzing the conversion of cholesterol into Δ^{20-22}cholesterol, should be deficient in the case described (1).

(1) DEGENHART et al. (1972) Acta Endocr.(Kbh) 71, 512.
(2) KRAAIPOEL et al. (1975) FEBS Letters 50, 204.

31 PENILE SIZE AND GROWTH IN CHILDREN AND ADOLESCENTS WITH ISOLATED GONADOTROPIN DEFICIENCY. Z.Laron* and A.Kaushanski, Institute of Pediatric and Adolescent Endocrinology, Beilinson Hospital, Petah Tikva and Sackler School of Medicine, Tel Aviv University, Israel.

The length and circumference of the penis were measured in 20 children and adolescents with isolated gonadotropin deficiency (IGnD) followed for many years in our clinic. It was found that 4 out of 5 had smaller than normal size penises even in the prepubertal age, one of them having been diagnosed as micropenis already at birth. Androgen therapy (Depot Testosterone or HCG) administered between 15 and 19 years of age caused a marked increase in penile size, many reaching normal length and circumferences. Our data is interpreted as evidence that pituitary gonadotropin, (probably mainly LH) secretion affects the penile size of the newborn and young child long before puberty. Once diagnosed treatment should be initiated already at younger age, between 11-13 years. This should enable normal virilization including development of the penis and prevent psychological problems at puberty. If gonadotropin deficiency is diagnosed in infancy treatment for a limited period might be theoretically indicated to mimic the high LH levels registered during infancy in boys.

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32 THE EFFECT OF VARIOUS DRUGS UPON FETAL ADRENAL STEROID PRODUCTION. F.C. Leaf, University Department of Child Health, Royal Hospital for Sick Children, Yorkhill, Glasgow G3. 8SJ. Scotland.

The effect of the drugs: sulphadiazine, sulphadimidine, sulphathiazole, sulphamethizole, elipten, primidone, phenobarbitone, phenytoin and aspirin, upon formation of 17a-hydroxyprogesterone, 11-deoxy-corticosterone, and cortisol, from 4-^{14}C labelled progesterone, by human fetal adrenal cortex was studied. Slices of tissue from dead, aborted fetuses were incubated in Krebs-Ringer-bicarbonate medium with added glucose for 30 min. Steroids were extracted with benzene/chloroform 6:1 and dichlormethane, separated using a Bush A paper chromatogram followed by two TLC's and in some cases GLC analysis of the major fractions. Preliminary results from about 25 incubations with aspirin show marginal decreases in production of cortisol (3-5%) in fetuses of about 12 weeks. Single incubations with other drugs indicate that phenytoin and the sulphonamides may reduce cortisol production by up to 15%. None of the other drugs investigated gave any significant result. The results indicate that drugs present in the maternal blood supply may have detrimental effects on fetal cortisol production. No statistically significant effects on formation of intermediates were apparent in the small number of incubations studied so far.
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33 EFFECT OF HGH TREATMENT ON GROWTH OF NON-GH-DEFICIENT SHORT CHILDREN. H.L.Lenko and J.Perheentupa, Children's Hospital, University of Helsinki, Finland.

Twenty-three prepubertal children, 4.4-10.7 years of age and more than 2.5 SD below the mean height for age have been treated with HGH, 4-6 mg weekly, for one year. All had plasma GH levels higher than 7 ng/ml during insulin or arginine test. Fourteen had been small for gestational age; five of them had Mulibrey nanism, one Turner's syndrome, and two autosomal chromosome anomalies. Ten had familial short stature. In adition, a girl with cartilage hair hypoplasia has received 2 mg HGH daily for one year. The growth velocity was measured for one year prior to treatment. An acceleration by 2-4 cm/year was achieved in eight of the children; only one of these was of the familial short group. Three accelerated by 1-2 cm/year and 11 by less than 1 cm/year. Nine of the children have been followed for a whole year after the treatment. The post-treatment growth velocity was less than the pre-treatment velocity by more than 1 cm in five. The velocity of the girl with cartilage hair hypoplasia accelerated by 3.1 cm/year during the treatment. Our findings confirm that some children with prenatal growth failure may gain from HGH treatment.

34 STUDIES OF GROWTH HORMONE (GH) SECRETION IN JUVENILE DIABETES (J.Dbt). E.Locard, L. David, A.Ruitton, F. de Chabanol and R. Francois. Service de Pédiatrie. Pav Sbis. Hôpital Edouard Herriot and INSERM Unit 34. Lyon, France.

From studies of exercise induced GH secretion, HANSEN (Scand.J. Clin.Lab.Invest. 28, 195, 1971) and PASSA et al (Lancet ii, 72, 1974) concluded that GH hypersecretion was frequent in J.Dbt and was a possible etiological factor of diabetic retinopathy. To further investigate the role of GH in J.Dbt, blood glucose (BG) and plasma GH were determined during controled exercise performed 1rst in basal condition, 2nd under glucose infusion in 7 controls and 15 J.Dbt aging 12 to 30 years, 4 of them having a retinopathy. All diabetics received their daily insulin injection. None were ketotic during the study.
Before exercise the J.Dbt had GH levels higher than normal. During both tests, when compared with control values, the pattern of GH rise appeared to be different in the J.Dbt. with BG lower or in the same range than the controls, and in the J.Dbt with abnormally high BG: in basal condition significantly higher GH rise ($p<0,05$) were found only in the J.Dbt with normal or low BG. Glucose infusion blocked the GH rise in the controls and in the hyperglycemic J.Dbt but did not in those with BG curves similar to the controls. The 4 patients with retinopathy figured in the hyperglycemic groups and showed an exercise induced GH rise similar to the controls.
This study confirmed that GH hypersecretion is present in J.Dbt; however, it gives no evidence that GH hypersecretion is a factor contributing to diabetic retinopathy.