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Androgen receptors in the neo-natal period : evidence for some "physiological" androgen resistance in male infants.

In previous studies, it has been reported that cultured skin fibroblasts have specific receptors which bind dihydrotestosterone (DHT) with high affinity and high specificity. Such a receptor has been demonstrated in adult external genitalia, in new born foreskin and in fetal sex skin, but few data are available concerning the early infancy. The present investigation was designed to find out whether the increase in testosterone (T) levels from birth to 3 months in male infants could be correlated with a variation in sex skin DHT-receptors. Sex skin fibroblasts were raised from 10 male infants aged from 20 to 180 days. Kd and B_{max} values were determined in 3 different sub cultures.
No significant variation in androgen receptor concentration could be detected from birth to 6 months. The levels of DHT-receptor was similar to normal values for new born foreskin or adult external genitalia. Thus, the T rise in early infancy do not induce any variation in sex skin androgen receptors and high levels of plasma T and androgen receptors in target cells are not accompagned by clinical signs of hyperandrogenism.
These data suggest that in the neo-natal period androgen receptor levels should not be regulated by T. Some degree of androgen resistance can be evocated in male infant.

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Oral absorption of DHEA-sulphate and administration to hypopituitary girls.

In 16 subjects ("Addisonian"adults and hypopituitary children before -or without- adrenarche) the plasma levels of DHEA (D) and its sulphate (DS) were measured after administration of DS per os, in a single dose of 30 mg/m^2 body surface. DS levels rose from a mean of 0.09 µg/ml at time 0, to a peak of 2.39 µg/ml after 240 min.; a concomitant rise in the mean D concentration from 53 to 300 ng% was observed. After 6 hrs DS levels showed a slowly progressive decline, whereas for D a "plateau" forming was observed. From these data it appears that nearly 40 % of the DS administered reaches unmetabolized the general circulation whereas the rise of D is mainly due to in vivo hydrolysis of absorbed DS (conversion rate + 0.15 %).
After administration of a daily dose of 15 mg/m^2 body surface to prepubertal hypopituitary girls (in order to realize a pharmacological adrenarche), plasma concentrations of 0.5 to 1.5 µg/ml DS were reached after one week. The very preliminary clinical data available however do not show a clearcut effect upon growth nor upon pubic hair development in these girls.

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Gonadotropine response to 3 hours LHRH infusion in cryptorchid (C) and normal (N) children.

LHRH was injected i.v. for 3 hours (0.55 µg/min.) in 12 C and 6 N children. Basal, peak and Δ FSH values were similar in C and N. In contrast, LH peak (4.1 ± 0.35 SEM mIU/ml) and Δ (2.5±0.35 mIU/ml) values in C were lower than those (11.5±1.15 ; 9.2±1.67 mIU/ml) found in N ($p < 0.001$). The above results were compared with those obtained after a single bolus injection of LHRH (100 µg/1.73 m^2) in 72 C and 11 N. In C the LH peak was lower after infusion than following bolus injection ($p < 0.005$); no difference was observed in FSH peak. In N the infusion induced LH and FSH peaks nigher than after the bolus ($p < 0.005$).

Therefore, LHRH infusion seems to be a more appropriate test than the single bolus injection for the recognition of LH defect in cryptorchidism.

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METABOLIC DECOMPENSATION AND DURATION OF REMISSION PHASE IN TYPE I DIABETES MELLITUS (D.M.).

The remission in type I D.M. is characterized by a low insulin requirement, no glucose excretion and detectable serum C-peptide. The initial hemoglobin A_{1c} (HbA_{1c}) concentration determines the duration of the remission: a high HbA_{1c} is followed by a short and a low HbA_{1c}-concentration by a long remission phase (Vetter et al., Ped.Res. 13, 1190 (1979)). In the present study of 21 newly diagnosed children with type I D.M. the following parameters were determined: initial HbA_{1c}-concentration, the time (days of glycosuria), the mean insulin dosage (U/kg/day) to recompensate the carbohydrate metabolism, and the duration of the remission.
Results: the regression analysis revealed: HbA_{1c} vs. mean insulin dosage $r=0.92$; $p<0.001$; HbA_{1c} vs. duration of glycosuria $r=0.63$; $p<0.01$ and HbA_{1c} vs. duration of remission $r= -0.84$; $p<0.001$; mean insulin dosage vs. duration of remission $r= -0.76$; $p<0.001$.
Conclusion: the initial metabolic derangement of type I D.M. seems to determine the duration of the remission. Early diagnosis and strict treatment may prolong the duration of the remission phase.

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Studies in Danazol (D) treated pubertal boys with gynecomastia (G).

Diurnal variations of LH,FSH and PRL,values before and after LHRH/TRH,testosterone (T) and estradiol (E_2)were determined in 3 pubertal boys with G (>6cm) before(b) and after 200mg D for 90 days. Pubertal development were classified as P4. Results (mean,standard deviations):

			18:00	04:00	08:00	before 30 min after LHRH/TRH
FSH		b	90±10	149±18	94±5	201±30
(ng/ml)	90	d	56±5	72±3	53±5	128±19
LH		b	21±2	32±4	22±1	107±25
(ng/ml)	90	d	16±2	20±5	15±1	73±8
PRL		b	8±1	17±6	7±2	24±8
(ng/ml)	90	d	7±1	20±8	7±2	22±4
T		b	257±146			
(ng/100ml)	90	d	40±12			
E_2		b	82±24			
(pg/ml)	90	d	21±12			

In conclusion: the reduction of basal gonadotropins, their response to LHRH as well as the reduction of the sleep-related hormone increases suggest that D acts at hypothalamic-pituitary level.The reduction in breast size to 2 cm in diameter in 2 boys may be due to decreased gonadotropins and lowered E_2 levels.

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Gamma peptide examinations in chemical diabetes.

The authors took into consideration the criteria of chemical diabetes according to Guthrie. In case of 17 children by p.os GTT were measured beside the usual blood glucose-, and serum Insulin levels, /ELISA; Boehringer/ the gamma /C/-peptide /Ryk Mallinckrodt RIA/ values, too. The results of C-peptide tests in the various groups were the following:chemical diabetes without obesity /0-30-etc-180 min./:1.27±0.28; 3.77±1.2; 5.28±1.84; 4.88±0.96; 4.01±0.97; 3.96±1.1; 2.53±1.05 ng/ml; chemical diabetes with obesity: 2.41 ±0.58; 7.02±2.04; 7.48±1.9; 8.24±2.55; 8.91±2.95;8.18 ±2.67; 7.23±2.31 ng/ml; obesity without chemical diabetes: 2.13±0.62; 6.46±1.67; 7.15±2.07; 7.45±1.96; 6.78±1.38; 6.06±2.11 ng/ml. If besides the means also the individual curves are analised it can be stated that a./the normalisation of blood glucose curves according to Guthrie is usually not parallel with the normalisation of insulin and C-peptide curves; b./ the chemical diabetes without obesity, however, is usually coupled with normal insulin and C-peptide answers assuring the assumption that other factors provoke pathological glucose metabolism; c./it also occurs rarely that the insulin and C-peptide curves are not parallel.