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Treatment of cryptorchidism by intranasal synthetic LH-RH analogue.

The effect of an analogue of LH-RH (Ho 766, Hoechst) given by nasal spray to 20 cryptorchids was evaluated. 10 boys were treated with 100 µg (group A) and 10 boys with 25 µg (group B) of the analogue given every other day for 16 days.

In group A there was no testicular descent. In 3 (30%) bilateral cryptorchids of group B there was a descent of both testes.

The LH-RH analogue had a dose dependent effect on FSH but not on LH release. An LH-RH test carried out before treatment and after the 4th and the 8th administrations demonstrated in group A a decrease in FSH and an increase in LH pituitary reserve. In group B, no significant changes either during or after therapy were evident.

No side effects were noted during or after therapy with the analogue.

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Cortisol circadian rhythms in obese children.

Circadian rhythms of cortisol was studied in 51 children (31 obese and 14 controls); mean ages were 10.36±0.597 (X±SEM) vs 9.87±0.575 p<0.05 respectively. Cortisol levels were determined/4 hours/24 hours period; first sample taken at 08.00h. Cortisol values were corrected to 0 as the minimum value and applied to the function $Y = a_0 + a_1 \cos(Dx + E) + b_1 \sin(Dx + E)$.

A statistically significant adjustment to the above function was obtained for both groups, p<0.05. The mean amplitude found for the obese group was significantly less than that obtained for the control group (143.09±21.79 vs 311.78±33.57, p<0.001), as was its shift along the abscissa (a_0 : 77.25±2.05 vs 156.76±18.95, p<0.001).

3 different populations of obese children were detected: I (22.58%) with a 24h. period and a mean a_0 , D and amplitude similar to those of the control group. II (32.26%) with a less than 24h. period and differing significantly from the control group: a_0 : 54.26±8.5 vs 156.76±18.95, p<0.001; D: 0.37±0.27 vs 0.26±0.02 p<0.01 and amplitude: 86.7±15.7 vs 311.78±33.57, p<0.001. III (45.16%) with greater than 24h. periods and differing significantly from the control group: a_0 : 67.45±14.5, p<0.001; D: 0.2±0.002, p<0.01 and amplitude: 122.57±24.08, p<0.001.

Conclusions: As determined by objective analytic method, the existence of pathologic circadian rhythms of cortisol in obese children with respect to controls of the same age.

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Stimulation of 3H glucosamine incorporation into chick cartilage as an index of serum somatomedin activity.

Pelvic cartilages from chick embryos were incubated with precursors of proteoglycan synthesis: 3H glucosamine, 3H serine and 35S, in the presence of sera from patients with isolated growth hormone deficiency (IGHD), acromegaly & Laron type dwarfism (LTD) as well as healthy male adult serum (NHS).

Serum 5% v/v	3H serine	3H glucosamine	35S
Type	n	% uptake into GAG chains above basal rate (m±SE)	
None	13	100	100
NHS	13	150±14.0	160±12.0
IGHD	8	140±10.1	113±9.3 (p > .01)
LTD	5	125±12.2	86±9.9 (p < .001)
Acromegaly	6	142±14.1	197±11.0 (p > .01)
			153±10.4
			195±13.0

Using the bioassay of Hall, but incubating both 3H glucosamine and 35S, SM activity in IGHD (n=3) was 0.01 U/ml (3H glucosamine) and 0.55 U/ml (35S), and rose to normal values after hGH administration. No such effect was found in LTD patients. SM activity estimated by 3H glucosamine based bioassays appears to be a better indication of clinical status than values derived from assays using 35S.

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Normal Values of Serum Prolactin (PRL) in Children before and during TRH-Stimulation.

72 healthy children, age 1 month to 14 years, were investigated in a cross-sectional study with informed consent of their parents. RIA-determinations of serum-PRL, before as well as 30', 60' and 90' after TRH (200mcg/m² i.v.) were done.

Results (ng/ml-mean SEM)					
age (yrs)	1(n=5)	2,3(n=10)	4,5(n=10)	6,7(n=10)	8,9(n=10)
basal	9.5±2.9	14.4±2.7	9.5±1.8	12.6±2.9	11.7±3.6
30'	27.5±2.9	30.8±2.0	23.6±2.9	29.4±3.4	32.4±4.1
60'	21.5±2.3	19.9±1.4	15.6±1.9	18.0±1.3	20.8±3.7
90'	16.2±1.3	14.4±1.3	11.1±1.4	11.4±1.6	13.4±3.3
age (yrs)	10(n=6)	11(n=7)	12(n=4)	13(n=5)	14(n=5)
basal	11.3±2.0	11.0±1.9	6.7±1.2	6.5±1.6	11.8±2.7
30'	21.3±3.9	30.9±4.6	20.4±2.2	33.9±7.2	35.7±6.5
60'	14.2±1.7	19.8±2.1	11.8±1.6	22.1±3.8	23.2±4.6
90'	12.7±2.4	12.2±1.4	8.1±1.2	12.2±3.9	16.4±2.9

Conclusions: The basal PRL-values differ widely and do not show any significant correlation with the age-groups. In contrast, the values found after TRH-stimulation show a significant increase of values before and during puberty. This situation is best represented by calculating a "stimulation-factor" (stimulation value/basal value). Our study shows, that the highest significance of the "stimulating-factor" is already present in the 30' value.

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Growth hormone (hGH) response to oral clonidine in obese children and adolescents.

Obesity is associated with low plasma IR-hGH and blunted response to standard stimuli. The hGH response to a single oral dose of clonidine (0.150 mg/m²) was compared with insulin tolerance test (ITT) (0.1 U/kg i.v.) in 13 obese (subcapular skinfold >25 mm and weight >2SD of the median), 7 males (M) and 6 females (F) aged 5-17 yrs. The peak levels were

hGH ng/ml		5.5 - 8.0	8.1 - 11.5	18 - 31			
	n	M	F	M	F	M	F
Clonidine	13	3	-	-	-	4	6
I T T	12	5	-	2	2	-	3

Clonidine decreased plasma insulin levels by mean of 65% in all the F subjects, while in the M subjects insulin pattern was variable. Blood glucose levels did not change following clonidine and decreased to <50 mg/dl during ITT in all the subjects. Blood pressure decreased by a mean of 20 mmHg during clonidine test. It is concluded that: 1) clonidine is a more potent stimulus for hGH secretion than ITT also in obese children; 2) obese females are more responsive than males to ITT and clonidine; 3) impaired hGH responsiveness to clonidine might indicate a state of hypothalamic obesity.

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Comparison of height predictions (BAYLEY-PINNEAU vs. TW 2) with final height in tall girls.

Height predictions (HP) are the base for the initiation of hormone treatment. Reliability of height prediction is established in normal growing children but not in tall girls. We studied 92 healthy girls with excessively tall stature, comparing different methods of height prediction with their final height which was 179.5 ± 4.1 cm (SD). Predictions were made once for each subject at mean chronological age of 12.5 ± 1.7 years and mean height of 168.6 ± 11.0 cm. Bone age was determined according to the atlas of GREULICH and PYLE (GP) and by the TANNER-WHITEHOUSE 2 (TW 2) method for TW 20-, RUS-, and carpal-bone age.

Height prediction according to BAYLEY and PINNEAU (BP) showed better accuracy than HP TW 2 by a mean difference between predicted and final height of 0.7 and 1.7 cm, respectively. Both methods underestimated final height of tall girls. Inclusion of midparent height did not improve results. In our series the error between predicted height using HP TW 2 and adult height corresponded well with TANNER's findings in ballet dancers. In conclusion GP bone age determination and BP height prediction seem to be good methods for predicting adult height in tall girls safely.