5

INFLUENCE OF HEIGHT, CHRONOLOGICAL (CA) AND BONE AGE (BA) AT THE ONSET OF PUBERTY ON FINAL HEIGHT IN BOYS WITH HYPOPITUITARISM TREATED WITH GROWTH HORMONE (GH). Estefan,V;Menconça B.B.;Cristovao,F.; Arnhold, I.J.P.; Villares, S.M.; Hashimoto, M.; Kohek, M.B.F.;Bloise, W.; Nicolau, W.
Division of Endocrinology, Hospital das Clinicas, University of São Paulo, Brasil.

Eleven males with panhypopituitarism were studied for 1.7 to 4.1 years after the onset of puberty (heights -3.9 to 6.8 S.D.(table). They were treated with pituitary GH extracted at the Hospital das Clinicas, University of São Paulo, 0.1 U/kg/dose, I.M.,3 times a week for 1.5 to 3.3 years. Three patients developed puberty spontaneously and the others were treated with testosterone esters,25 to 250mg a month at a BA of 11.5years,except one with BA 9 y. CA 18.5y and growth velocity 2cm/y,during GH therapy. 3 patients reached final height(*)and in the others final height was determined by the method of Bayley-Pinneau with a BA of at least 13.5y.

CASE	ON ONSET OF PUBERTY CA years	HEIGHT cm	BA years	FINAL HEIGH PREDICTION cm	BA years
1	12.7	116.9	7.0	150.1	14
2	18.5	122.7	9.0	149.1	13.5
3	14.2	117.5	11.0	136.5*	17
4	16.6	135.6	13.0	167.9	15
5	16.0	132.1	11.0	160.1	13.5
6	22.9	134.0	13.5	147.4	15
7	19.3	133.0	11.5	158.9	14
8	20.0	131.0	12.0	156.4	14
9	18.8	143.9	11.0	159.2*	17
10	18.3	143.4	11.0	160.9	14
11	22.9	141.1	13.0	156.2*	17

We observed a linear correlation between height at the onset of puberty and at the end of the study period($r=0.76, p<0.05$)and did not observe correlation between CA and BA at the onset of puberty and final height($r=0.25$ and $r=0.16, p>0.05$).

We concluded that in boys with hypopituitarism the main influence of final height is the height at the onset of puberty. We suggest that in hypopituitarism patients with gonadotropin deficiency, testosterone therapy be delayed and in patients with isolated GH deficiency, puberty be retarded to increase height at the onset of puberty and eventually increase final height.

6

STATURAL GROWTH OF CHILEAN SCHOOL CHILDREN
S. Muzzo, R. Burrows, L. Leiva. Endocrinology Unit. Institute of Nutrition and Food Technology. University of Chile. Santiago. Chile.

Enviromental and genetic factors are involves in the growth of the human being. It is importante to compare of a population with tables of countries with optimal enviromental factors and with a maximal expression of genetic potential of growth. It seems specially important if from these comparisons programs arise that improve enviromental factors (nutrition, physical activities, education). Genetic factors could differ from one country to another, specially as consequence of ethnic differences. We are interested in knowing growth of school chilean children, and their differences according to sex and socioeconomic level (SEL) in order to build up national tales. A sample of 6140 school age children of Great Santiago Area of Chile was obtained. It was representative of 6 to 16 years old males and 6 to 14 years old females. The school age children of Great Santiago Area represent around 45% of the total school children of Chile. Stature was always measured by the same 2 investigators. SEL was evaluated according to a modified Graffar scale obtained through a questionative to the parents. Significants differences in percentiles and averages of stature of our children, compared with NCHS (WHO) tables, were found. These differences were due to a fall in groups channels in our children and is maintained through out different ages. A difference in stature according to SEL was found, being lower for SEL. However, these differences are greater in females than in males; this is similar to previous research in our group that found stature sexual dimorphism due to an earlier pubertal initiation in females of lower SEL compared with females of higher levels.

7

GROWTH AND THYROID FUNCTION IN CHILDREN WITH CHRONIC RENAL FAILURE. Zantleifer D, Ferraris J, Granillo E, Fainsten-Day P, Mileo Vaglio R, Gutman RA, Pasqualini T.
Hospital Italiano de Buenos Aires, Argentina.

Growth hormone,IGF-1 and thyroid function were evaluated in 12 patients with chronic renal failure treated by continuous peritoneal dialysis or hemodialysis. Age ranged from 3 3/12 to 18 years (median 11 1/2,9 Tanner I and 3 Tanner II).Mean height standard deviation score was -2.9 ± 1.7. Nine out of 12 patients had height standard deviation scores greater than 2 SD below the mean.Growth hormone(GH) was measured by RIA every 30 min from 9PM to 5AM. Mean nocturnal GH was 3.6 ± 1.9ng/ml. GH response to arginine (14.5 ± 11.3 ng/ml) was 8ng/ml in 8 of 12 patients,and it did not correlate with mean nocturnal LH levels. GH response to GRF (19.8 ± 20.3ng/ml), measured in 5 patients,correlated with mean nocturnal GH levels(r: 0.88 p 0.05). There was no correlation between IGF-I levels(0.73 ± 0.54 UI/ml) and spontaneous or post-stimulated GH levels. In 9 patients thyroid hormone levels were:total T4 5.8 ± 1.4ug/dl, total T3 101 ± 34ng/dl, basal TSH 3.4 ± 1.4uU/ml, 30-60 min TSH response to TRH 12.2 ± 5.9 and 90 min TSH response to TRH 10.9 ± 6.0. Free T4 levels (0.8 ± 0.3ng/dl) were low in 5 of 9 patients. Height did not correlate with any of the hormonal levels. We conclude that, although height was low in our patients, mean nocturnal GH levels were normal. The blunted GH response to arginine in 1/3 of our patients and the delayed TSH response to TRH suggest hypothalamic-pituitary dysfunction.

8

THE SURFACE OF EPIPHYSIS OF THE KNEE: AN INDEX OF THE ONSET OF NEONATAL HYPOTHYROIDISM (NH).L. Gruñeiro, A Chiesa and C Bergadá. División de Endocrinología.Hospital de Niños R. Gutiérrez. Buenos Aires. Argentina.

The assesment of skeletal maturation has been considered an important feature of peripheral thyroid hormone action. The surface of the epiphysis of the knee (SE) was calculated, following the method described by Rochiccioli et al, in 30 infants with NH detected in different screenings programs. The anatomical situation of thyroid gland was demonstrated by ^{131}I or ^{99m}Tc scintigraphy. 25 had athyreosis (Group I) and 5 ectopics glands (Group II). The SE of the distal femoral epiphysis (FD) in all hypothyroids was 10.27 ± 2.08 mm^2 and that of proximal epiphysis of tibia (TP) was 4.48 ± 1.7 mm^2 (Normal values= FD=26.2 ± 0.79 mm^2; TP$_2$ 13.5 ± 0.38 mm^2).Group I=FD=8.01 ± 1.6 mm^2, present in 15/25; TP=2.3 ± 1.08 mm^2 present in 4/25. Group II FD=21.3 ± 1.08 mm^2,present in 4/5, TP=15.9 ± 7.1 mm^2 present in 4/5. There was significant difference in the 2 group in FD ($p<0.02$) and TP ($p<0.05$). No correlation was observed with growth and height attained at 2 and 4 years of age. T4 and T3 serum levels were higher in infants with ectopic glands than athyreosis $p<0.005$. In conclusion:1)the epiphysis of the knee was present in 63% of infants with NH,2)The SE of both epiphysis was smaller in hypothyroids than in normals,3)FD appears in 60% of infants with athyreosis and 80% with ectopic glands: TP only in 16 and 80% respectively,4)SE was higher in infants with ectopic glands than in athyreosis. Thus, the calculation of SE of the knee may be considered as a criterion of duration and severity of NH and may be useful to judge the onset and degree of thyroid deficiency.

9

FINE NEEDLE ASPIRATION BIOPSY (FNAB) OF THE THYROID GLAND IN CHILDREN AND ADOLESCENTS.
Bisi H, Asato de Camargo RY, Longatto Fº A. e Fernandes VSO.
Clínica Endocrinologica do Hosp. Serv. Público Municipal e Departamento de Patologia USP. Sao Paulo. Brasil.

Between 1981 and 1989, 2000 patients with thyroid nodules underwent fine-needle aspiration biopsy (FNAB) at the Hospital do Servidor Público Municipal de Sao Paulo; out of them, 53 were children and adolescents. The ages varied from 7 to 20 years old,with a mean age of 15 years old; 50 (94,3 %) were female and 3(5,6 %) were male.
The cytologic findings showed 20 follicular patterns, 13 inflammatory patterns (10 Hashimoto's thyroiditis, 2 suppurative thyroiditis and 1 Lymphocitic), 6 hemorrhagic cysts, 3 epidermoid cysts, 2 papillary patterns and 3 Hürthle patterns. In 6 cases, the cytological material were unsatisfactory.
2 cases of Papillary Carcinoma and 1 Hürthle neoplasm diagnosed in the cytology has histological confirmation. No false positives or negatives were reported.
In conclusion, in despite of limitations of the technique, the FNAB provides the clinician a more direct information about thyroid lesion and it is helpful for the evaluation of thyroid nodules in childhood.

10

EVALUATION OF THYROXINE (T_4) BINDING PROTEINS AND OF THYROID HORMONE: SERUM FRACTIONS IN CHILDREN AFTER CARDIAC SURGERY. Belgorosky A, Weller G, Vega L,Iorcansky S,Charler E,Sasbon J,Mendilaharzu J,Rivarola MA.Lab de Invest., and Unidad de Cuidado Intensivo, Hosp. de Pediatría "Garrahan", Buenos Aires, Argentina.

Non-thyroidal illness was evaluated in 9 children, chronological age 3.88 ± 3.16 y ($\bar{X} \pm SD$), before (B), immediately after (I), and 24 and 48 hs after cardiac surgery. Serum levels of T-binding globulin (TBG), and T_4-binding prealbumin (TBPA), albumin (ALB), Total T_4 and T_3 (TT_4, TT_3), Albound T_4 and T_3 (ALB-b T_4 and T_3), free T_4 and T_3 (by calculation according to the law of mass action) were determined. ALB-b T_4 was also measured experimentally in undiluted serum, using labelled T_4. Serum TGB and TBPA were significantly lower in B, I, 24 and 48 hs (TBPA only) (261 ± 17.05, 272 ± 70.17, 259 ± 65.47, 374 ± 103, and 3013 ± 625, 2870 ± 493, 3373 ± 1443, 2309 ± 398 nmol/l respectively) than in controls (C)(456 ± 71 and 5999 ± 2226, respectively, $p<0.01$). Serum TT_4 was significantly lower in I, 24 and 48 hs than in C (88.12+20, 94.91+29.40, 105.5 ± 34.27 and 149 ± 25 nmol/l respectively, $p<0.01$). Serum ALB-b T_4, either calculated or experimentally measured was not different in patients and C. Serum TT_3 was significantly lower in B, I, 24 and 48 hs. than in C(2.12 ± 0.11, 1.50 ± 0.57, 0.95 ± 0.42, 0.92 ± 0.37 and 3.04 ± 0.61 nmol/l, respectively, $p<0.01$) as well as free T_3 and ALB-b T_3 at 24 and 48 hs, compared to C(3.22 ± 1.07, 2.15 ± 0.96, 330 ± 11, 240 ± 85 in patients and 7.37 ± 1.9, 675 ± 178 pmol/L in C, respectively, $p<0.01$). It is concluded that after cardiac surgery in children, although serum TT_4 and TT_3 are low, free T_4 and ALB-b T_4 are normal.