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PRESENCE OF THE SRY GENE IN TESTICULAR CELLS OF AN XX MALE WITH NEGATIVE SRY IN BLOOD CELLS.

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Testis differentiation is under the control of a testis-determining factor borne by the Y chromosome. SRY, a gene cloned from the sex-determining region of the human Y chromosome, has been equated with the testis-determining factor. Between 80 and 90% of sex-reversed XX male individuals have an anomalous Y in X chromosome translocation during meiosis. It has been postulated that XX male SRY negative individuals might experience testicular differentiation in the absence of the SRY gene. However, there is scarce information on the presence of SRY in testicular tissue of XX males with absence of the SRY gene in leucocytes from peripheral blood. We studied a 16-year-old 46 XX male who had hypospadias, bilateral gynecomastia, and 8cc bilateral testes with multiple testicular cysts. A testicular biopsy showed atrophic seminiferous tubules, germinal aplasia and relative Leydig cell hyperplasia. The SRY gene was studied by PCR and Southern blot analysis in DNA extracted from blood leucocytes using a SRY fragment as a probe, and only by PCR in DNA extracted from testicular tissue embedded in paraffin. The SRY gene could not be demonstrated in peripheral leucocytes neither by repetitive PCR nor by Southern blot analysis in the presence of adequate controls. However, SRY was present after PCR amplification of testicular tissue. We conclude that the SRY gene should be studied in testicular tissue for etiologic diagnosis in XX males who are SRY negative in peripheral leucocyte studies. This finding suggests that the SRY positive cell line in the gonad was responsible for testicular differentiation in this subject.

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EFFECT OF GROWTH HORMONE (GH) ON GONADOTROPIN CONCENTRATIONS IN ADOLESCENT MALES WITH GROWTH HORMONE DEFICIENCY: A PRELIMINARY REPORT. Martínez, A., Ropelato, M.G., Heinrich, J.J., Bergadá, C. CEDIE. Division of Endocrinology, Ricardo Gutiérrez Children's Hospital, Buenos Aires, Argentina.

The in vivo and in vitro effects of GH on the gonads are well known, but there are scant data about their possible influence on gonadotropin secretion. We studied five male patients with idiopathic growth hormone deficiency, 14.8 - 18.7 years of age, all of them with normal spontaneous adult pubertal development. They were studied in two opportunities: A) under GH treatment (0.5 IU/Kg/week), B) after discontinuing GH treatment. Blood samples were drawn every 20 minutes during the night for LH and FSH measurements. After the 12 hour sampling period was completed, a sample for testosterone was drawn. LH, FSH and testosterone were measured by RIA and LH was also measured by IFMA. The detection limits for LH and FSH (RIA) were 1.0 IU/L, and 0.02 IU/L for LH (IFMA). CLUSTER program was used for the analysis of spontaneous gonadotropin concentrations. Results showed that there were no differences in the levels of testosterone, LH and FSH measured by RIA, between the periods with or without GH treatment. In addition, there were no differences in the mean LH levels, the mean peak amplitude and frequency measured by IFMA, but the area under the curve and the average of nadir points were significantly lower during GH treatment ($p< 0.025$ and $p< 0.04$ respectively). These preliminary data suggest a role of GH on the regulation of LH secretion in growth hormone deficient patients, although the site at which this regulation may be exerted is not known.

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BONE MINERALIZATION OF SCHOOL AGE CHILDREN ACCORDING TO CALCIUM INTAKE. Muzzo, S., Burrows, R., Lillo, R., Pumarino. H., Leiva, L. Endocrinology Unit INTA, and Departments of Nuclear Medicine and Endocrinology. University of Chile School of Medicine, Santiago, Chile.

Nutrition is one of the factors that influences bone mineralization (BM). We have shown that the Chilean teenager has a low calcium intake during a period of rapid calcium accretion, which may favor osteoporosis in adult life. Thus, we evaluated the influence of a low calcium intake on BM in school age children. We studied 36 children with calcium intakes below the recommended allowance (RDA) and 28 controls of the same age and sex with an adequate calcium intake. Calcium intake was measured by three 24 hour recollection surveys, the percentage of adequation of weight for height (W/H) according to WHO tables, and puberal development was assessed by the method of Tanner. Bone mineral density (BMD) and total bone mass (TBM) were determined in whole body, spine and hip, with a Norland densitometer (Gd 156). The group with calcium intake below 50% had a lower % of adequation of height for age (97.7 ± 4.0%), TBM (98.9 ± 17.9) and BMD (97.8 ± 11.1%) in whole body compared with the group with intake over 100% (115.9 ± 17.4; 109.7 ± 18.0 and 104.7 ± 11.1%, respectively). In spine and hip there was a clear tendency for a lower TBM and BMD, which did not reach statistical significance. The recollection survey showed a lower protein intake in the group with low calcium intake compared with controls. The influence of isolated calcium deficit or in combination with protein deficit upon skeletal mineralization is discussed.

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BONE MINERAL DENSITY (BMD) DURING THERAPY FOR CONGENITAL ADRENAL HYPERPLASIA DUE TO 21-HYDROXYLASE DEFICIENCY (CAH). Bachega, T. S.S., Madureira, G., Matielli, J., Borelli, A., Leite, M. O. R., Eloise, W., Bianco, A.C., Arnhold, I.J.P., Mendonca, B. Gonads and Intersex Unit, Division of Endocrinology, HCFMUSP, Sao Paulo, Brasil.

We studied the influence of therapy with cortisone acetate (CO) 20 mg/m²/day and 9α fluorohydrocortisone (9F) 50 µg/day, on BMD of lumbar spine L2-L4 by dual energy x-ray absorptiometry (Hologic QDR-1000) in 17 patients with CAH (4 salt wasting and 13 with simple virilizing forms). BMD was expressed as % of the value observed in normal children of same chronological age (CA) and race. Due to the advancement of height age (HA) and bone age (BA) in some patients with CAH, BMD was also compared with these ages. Duration of therapy ranged from 0.7 to 9.8 years, with a mean of 4.7 years. Patients were divided into 3 groups: G1 on treatment with CO and 9F and good hormonal control, G2 on treatment with CO and 9F with fair hormonal control, and G3 with CO only and fair hormonal control.

	n	CA Yr	HA Yr	BA Yr	BMD (%) for CA	BMD (%) for HA	BMD (%) for BA
G1	6	5.8	6.1	6.2	101.7	101.2	98.8
G2	7	7.2	8.0	9.3	97.6	95.0	86.6
G3	4	7.3	9.8	12.1	108.8	94.5	84.0

BMD was normal when compared to CA, HA and BA in all types of therapy and hormonal control. We observed an inverse correlation between the years of advancement in BA (BA-CA) and BMD % for BA ($p=0.009$), suggesting that BMD does not follow bone maturation. We conclude that patients with CAH treated with CO alone or with 9F have normal BMD.

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QUALITY OF LIFE IN HYPOPITUITARY ADULT PATIENTS DIAGNOSED DURING CHILDHOOD. Kelselman, A., Heinrich, J.J., Pantano, L.L., Martínez, A.S., Bergadá, C. CEDIE. Division of Endocrinology, Ricardo Gutiérrez Children's Hospital, Buenos Aires, Argentina.

Fifty-three adult patients (14 women and 39 men), with a mean age of 23.7 ± 6.1 years (range 18 - 45 yr) with idiopathic hypopituitarism (77% MPHD) diagnosed during childhood and treated with growth hormone for different periods of time, were interviewed. Each of the patients answered a questionnaire and the Beck Depression Inventory (BDI) was used to determine depression status. Men had attained a final height of 154.9 ± 8.7 cm and women 145.8 ± 7.2 cm. Results. Social Aspects. 43 of 53 patients are still living with their parents. Only 4 (7.5%) are married and 2 of them have one son each. Fifty per cent have never dated, and more than 61% have never experienced sexual relationships. 35 of 53 patients have very few friends. More than 2/3 of the patients are not satisfied with their appearance. The most frequently cited complaints were related to poor height and excess weight in females, and poor virilization, reduced muscle mass and strength in men. Almost all patients complained of being treated as younger than their chronological age. Half of the total sample showed depression symptoms in the BDI test. 2/3 of the patients with gonadotropin deficiency felt that sex hormone replacement therapy was started later than they would have desired. Laboral Aspects. 30% of the patients are unemployed and have never worked. Employment was obtained through relatives in 60% of the cases. Educational Aspects. Primary school was finished by 20% of the patients. Half of the patients did not finish secondary school and 11% finished or are still at the University. 64.2% were held back at school for one or more years. 36% complained or being overprotected by teachers and more than 50% of being "teased" by their peers. In spite of being disappointed with their final height, 95% of patients think that treatment with growth hormone helped them and they would recommend it to younger patients. Hormone treatment is not enough, however, so psychosocial support must be considered to help these patients go through life.

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THE GROWTH HORMONE-IGF-I-IGFBP-3 AXIS IN CHILDREN WITH GROWTH RETARDATION. Pennisi, P., Ropelato, G., Jasper, H. Division of Endocrinology, Ricardo Gutiérrez Children's Hospital, Buenos Aires, Argentina.

Different results have been reported regarding the usefulness of IGFBP-3 determinations to diagnose growth hormone (GH) deficiency. We studied the GH-IGF-I-IGFBP-3 axis in 53 children with growth retardation (height < 3rd. percentile). We measured GH by RIA during two stimulation tests, IGF-I by RIA on unextracted plasma, IGFBP-3 by IRMA (DSL). Arbitrarily we selected two groups of patients according to the maximal GH response: Group I with GH < 5 ng/ml (n=35), Group II with GH > 10 ng/ml (n=18). We carefully excluded patients with: hypothyroidism at the time of study, renal failure, malnutrition, celiac disease and Turner's Syndrome. Results: our IGF-I normal control values have been reported (J. Pediatr. Endocrinol. 6:179,1993). The IGFBP-3 plasma concentrations in our normal population are shown in the Table.

Table 1

Age(yrs)	n	mean(µg/ml)	SD
0-4	12	1.85	0.46
4-8	13	2.34	0.53
8-12	15	2.67	0.51
12-16	13	3.41	0.82

Table 2 Frequency of abnormal values

	Group I	Group II
IGF-I	25/35(71.4%)	3/18(16.7%
IGFBP-3	21/35(60%)	0/18(0%)
Both	20/35(57.1%)	0/18(0%)
Either	26/35(74.3%)	3/18(16.7%)
None	9/35(25.7%)	15/18(83.3%)

Conclusions: 1) IGF-I detects GH deficiency more frequently than IGFBP-3 (25/35 vs 21/35). IGFBP-3's contribution to detection made by IGF-I is 1/35 (2.9%). IGF-I's contribution to detection made by IGFBP-3 is 5/35 (14.3%). 2) A low IGFBP-3 value appears to exclude the diagnosis of constitutional growth retardation (Group II) and tends to confirm the diagnosis of GH deficiency. 3) A normal IGFBP-3 value does not allow discrimination between groups I and II (40% and 100% of normal values respectively).