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ANALYSIS OF CLINICAL DATA OF 107 PATIENTS WITH GROWTH HORMONE DEFICIENCY. Estefan, V.; Mendonça, B.B.; Arnhold, I.J.P.; Cristovao, F.; Hashimoto, M.; Molinar M.B.P.T.; Villares, S.M.; Bloise, W. and Nicolau W.
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Clinical and radiological data and associated hormonal deficiencies were studied in 107 patients with growth hormone deficiency: 46 had isolated growth hormone deficiency (IGHD)(25 males, 21 females) and 61 had multiple hypothalamic-pituitary hormone deficiencies (MHPD)(45 males, 16 females).

	IGHD	MHPD
Chronological age (years)	11.0 ± 3.6	14.5 ± 4.5
Height (cm)* / S.D.S.**	110.5 ± 14.0/-4.5±1.7	118.6 ± 14.0/-5.2±1.4
Weight (Kg)* /S.D.S.**	20.5 ± 6.5/-2.3±0.9	25.0 ± 7.6/-2.5±0.9
Height age (years)*	5.2 ± 2.1	6.4 ± 2.5
Bone age (years)*	7.3 ± 3.3	7.5 ± 3.1
Onset of growth delay (years)*	2.8 ± 2.1	4.2 ± 2.0
Onset of puberty (years)*	13.7 ± 2.0	13.4 ± 3.1
Growth velocity (cm/y.)*	3.1 ± 1.2	2.9 ± 1.2

* Mean ± standard deviation - ** Standard deviation score (Marcondes et al.)

Of the patients with IGHD, 82.2% were prepuberal, 40% had micropenis, 21.4% cryptorchidism, 61.4% were born by normal delivery (1 forceps), 29.5% delivered by cesarean section, 9.1% pelvic presentation and 2 pairs of twins. 17.5% had neonatal problems, 27.3% associated anomalies, 9.1% parental consanguinity and 13.3% affected siblings.
In the group with MHPD 91.8% were prepuberal, 38.6% had micropenis, 11.1% cryptorchidism, 51.8% normal delivery (4 forceps), 17.8% delivered by cesarean section, 30.4% with pelvic presentation at bird, 61.5% had neonatal problems, 12.5% associated anomalies, 10.9% parental consanguinity and only 1 affected sibling. 14 patients with IGHD and 25 with MHPD had cranial CT-scans; abnormalities were described by the radiologist in 50% and 68%, respectively: 7.7% had empty sella, 38.5% partially empty sella, 5.1% small sella turcica and other less frequent changes. The high incidence of empty sella is probably due to the small dimension of the sella in this condition. Associated hormonal deficiencies: GH + TRH (21.1%) GH + TRH + LHRH + CRF (14.0%), GH + TRH + LHRH (10.5%), GH + LHRH (10.5%), GH + TRH + CRF (8.8%).

2

THE 24 H GROWTH HORMONE (GH) SECRETION PROFILE IN PATIENTS WITH DIABETES MELLITUS I (IDDM): RESPONSE OF GH TO TRH ADMINISTRATION.
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The growth hormone has been implicated in the pathogenesis of several metabolic derangements mainly with regard to vascular lesions specially proliferative retinophaty and nephropathy. It is known that in IDDM poorly controles there is an increase secretion of GH and anomalous responses to the hypothalamic hormones. There is absolutely no clear explanation to the increased GH secretion, but it is probable that IGF 1 (somatomedin) decreased levels do not block the somatostatin secretion and hence the GH secretion increases. In this paper, we studied 4 IDDM children (3 F and 1 M), 10 yr/12 to 14 yr/12 years old in which the GH secretion profile and TRH response was done in 2 separated occasions; with poor metabolic control and with "better" control. We used glycosilated hemoglobulin (HbA1 C) as metabolic control parameter. Clinical and laboratory data of the 4 IDDM children are in the table. These data show that with better metabolic control there is decreased GH secretion ($p < 0.05$).

PATIENT/SEX/AGE	GH M ± SD ng/ml	HbA C (%)[1]	N° of PULSES	TRH/GH B	TRH/GH P	SmC(1gF A) mU/ml	TESTO ng/dl	E2 pg/ml
1 F 10 4/12	5.22±11.8	14.0	17	0.5	8.0	0.9	55	36
	1.20±1.41	9.6	11			1.2	22	20
2 M 11 4/12	2.08±4.37	20.7	13	11.0	26.9	1.8	10	
	2.52±4.10	13.4	15	0.2	0.8	1.8	67	
3 F 14 2/12	26.89±30.0	18.6	13	2.2	27.0	0.89	40	20
	9.24±9.21	11.6	17			0.9	41	18
4 F 11	2.38±3.6	15.5	14	1.5	17.0	0.86	10	19
	1.29±1.48	12.8	10	0.8	8.9	1.33	7	

Conclusion: Our data show that IDDM patients with better metabolic control had lower GH levels. These data suggest that better metabolic control increases somatostatin secretion and hence decreases GH secretion.

3

COMPARISON OF THE EFFECT OF CLONIDINE AND PYRIDOSTIGMINE AS PROVOCATIVE TESTS GROWTH HORMONE SECRETION.
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The oral administration of clonidine has been found to be effective for assessment of Human Growth Hormone (hGH) secretion, by specific activation of central postsynaptic α-2 receptors. The aim of this work was to compare GH response to clonidine (0.100 mg/m2 pre-puberal or 0.150 mg/m2 pubertal children), with GH response to Pyridostigmine Bromide administration (70 mg/m per os), cholinesterase inhibitor, in normal and short stature children. We have evaluated 32 children, 13 low normal stature children (standard deviation for height > -2.0) and 19 short stature children (standard deviation for height < -2.0). In provocative tests, growth hormone deficiency was defined as a level of GH lower than 7.0 ng/ml. Blood was collected initially after 30 min of rest and then at 30, 45, 60, 90, 120, 150 and 180 min. after oral drug administration. The group of short stature children was subdivided in 2 sub-groups: non-GH deficient (non-DGH)(n=17), and GH deficient (DGH)(n=2), according to their clonidine responses. Both clonidine (CLO) and pyridostigmine (PY) stimulated hGH release (non statistical difference; $p > 0.05$), as shown if table 1:

	BASAL (M ± SD)	PEAK (M ± SD)
NORMAL (13)		
CLO	0.69 ± 0.52 ng/ml	16.36 ± 9.94 ng/ml
PY	2.11 ± 2.55 ng/ml	11.71 ± 7.68 ng/ml
NON-DGH (17)		
CLO	1.50 ± 1.40 ng/ml	13.20 ± 5.90 ng/ml
PY	1.20 ± 1.60 ng/ml	12.70 ± 5.90 ng/ml
DGH (2)		
CLO	1.40 ± 1.27 ng/ml	1.45 ± 1.34 ng/ml
PY	3.20 ± 3.82 ng/ml	3.30 ± 3.90 ng/ml

The false negative results are shown in table 2:

	CLO	PY
NORMAL (13)	3 children	1 child
NON-DGH (17)	0	3 children

No false positives were observed in the short stature children group. We conclude that pyridostigmine is a useful drug in the diagnosis of growth hormone defficiency in short stature children.

4

Gn-RH INFUSION, USEFUL TEST IN THE DIAGNOSIS OF GONADOTROPIN DEFICIENCY IN PATIENTS WITH HYPOPITUITARISM. A. Martínez, H. Domené, J.J. Heinrich, C. Bergadá. División de Endocrinología. Hospital de Niños R.Gutiérrez. Buenos Aires. Argentina.

It is still difficult to make an accurate diagnosis of gonadotropin deficiency at prepubertal age. It is important to know in hypopituitary patients if spontaneous puberty will occur or if treatment with sex hormones will be necessary to obtain and adequate response to hGH at pubertal age. Sixteen male patients (chronological age 13.9 - 21.9 years, Bone age 9-18 years) with idiopathic hypopituitarism and 11 normal boys between 14.2 to 16 years (Bone age 11.7 - 13.0 years) with early puberty were studied. Gn-RH infusion (0.83 ug/min) was perfprmed and samples for LH and FSH were obtained at 0, 15', 30', 45', 60' and 120'. Testosterone levels were determined at the star of the infusion. All hormones were measured by RIA. In the hypopituitary patients group three differents patterns of response were elicited: a) two patients showed a LH response similar to control group (maximal response 18.8 and 31.4 UI/L respectively), b) 8 patients showed an LH response below 5 UI/L (X±SD 1.99±1.44 UI/L). c) 6 patients showed an intermediate LH response (X±SD 7.68±2.97 UI/L). During follow-up patients of group a) underwent normal pubertal progression. No patients of group b) showed pubertal development; In group c) one patient progressed normally into puberty and 3 patients experienced an arrest of pubertal progression. In patients with hypopituitarism the lack of response of LH to Gn-RH infusion at pubertal bone age strongly suggest the diagnosis of gonadotropin deficiency. On the other hand, a normal response excluded this diagnosis. Patients with subnormal LH response to Gn-RH infusion, are probabley affected by a partial gonadotropin deficiency, consequently, a close follow-up and eventually further evaluation is advisable to assure the state of gonadotropin reserve.