23

SERUM SEX HORMONE-BINDING GLOBULIN (SHBG) AND NON-SHBG-BOUND TESTOSTERONE IN PREPUBERTAL BOYS WITH CHRONIC RENAL INSUFICIANCY. Belgorosky A, Ferraris JR, Ramírez JA, Rivarola MA. Lab. Invest. Hosp. de Pediatría "Prof. Juan P. Garrahan" and Servicio de Nefrología.Depto. Pediatr. Hosp. Italiano, Buenos Aires, Argentina.

We have recently shown in normal children of both sexes, that serum SHBG decreases significantly from infancy to late pre-puberty, and that serum non-SHBG-bound (bioavailable, B) testosterone (T) and estradiol (E_2) increase significantly with age. It was postulated that the increase in BT and E_2 could produce maturation changes in the central nervous system triggering the onset of puberty. We have also shown an age-related delay in the decrease of serum SHBG and in the increase of BT in patients with growth hormone (GH) deficiency. It was proposed that this mechanism could play a role in the prepubertal delay of patients with GH deficiency. As another model of delayed puberty, serum SHBG and BT were determined in 8 boys with chronic renal failure (CRF) in chronic dialysis for 0.25 to 3 years mean chronological age (CA) 9.90±4.43 years. A significant decrease of serum SHBG with age was found, $r=0.76$, $p<0.01$. The negative slope was not significantly different from normal (Controls, C, $n=31$, CA 10.17±2.61 years). Serum SHBG was significantly higher ($\bar{X}$±SD 125±77.72 nmol/l) and serum BT lower (0.16±0.12 nmol/l) than in C (66.22±34.87 and 0.24±0.12, $p<0.01$ and $p<0.05$ respectively). It is concluded that, similarly to the findings in GH deficiency, increments in SHBG and decrements in BT could play a role in the pubertal delay of boys with CRI.

24

ADRENAL TUMORS IN INFANCY AND ADOLESCENCE. I.Bergadá, M. Ciaccio, S. Maglio, B. Diez y H. Chemes. División de Endocrinología,Unidad de Oncohematología, Hospital de Niños "Dr. R. Gutierrez", Buenos Aires, Argentina.

The study analyzed retrospectively the cases of functional cortical adrenal tumors in a pediatric population treated between 1970 and 1988 in our Hospital. Seventeen cases occurred during this period,12 were females(70%). Seven cases presented as virilizing while the other 10 had Cushing Syndrome. The age of presentation ranged from 0.4 to 14 years, 10 cases occurred in less than 5 year-old patients, 2 cases in 5 to 10 year-old patients, while 5 were older than 10 years. Four girls with virilizing tumors developed central precocious puberty on follow-up. Fourteen cases with tumors weighing 100 gr or less had a clinical course before diagnosis from 1 to 19 months, one case with a 185 gr tumor had a clinical course of 12 months while two cases with tumors weighing more than 500 grs. had a clinical course before diagnosis of 3 and 6 months. Of these two patients one with metastasis at diagnosis died 5 months after surgery and the other developed a lung metastasis 1 ½ years after surgery. Twelve cases have been followed for 1 to 16 years with a benign clinical course. The histology had shown that criteria for malignancy as cytologic pleomorphism, mitoses, vascular and capsular invasion did not correlate with the clinical course.In summary, most of the patients present a benign course if associated to small size tumors (100 gr) that confirms other studies, however those patients with tumors heavier than 500 grs and a fast clinical course before diagnosis are more likely to have the worst prognosis.

25

COMPARISON OF ADRENAL TUMORS IN CHILDREN AND ADULTS. Menezes, C.A.V.; Camargo, M.H.A.; Sarno, F.; Mendonça B.B.; Albergaria, M.A.; Arnhold, I.J.P.; Bloise, W.; Halpern A.; Saldanha, L.B; Sobrinho,R.B.A.; Waichenberg,B.U. Division of Endocrinology, Hospital das Clinicas, University of São Paulo, School of Medicine, São Paulo, Brasil.

Adrenal tumors are considered malignant neoplasias and few studies distinguish between affected children from adults. We compared clinical, hormonal and pathological aspects and outcome in a group of children and adults with adrenal tumors secreting glycocorticoids and/or androgens. Pathologic classification was according to Weiss: grades I and II-benign, Grade III-suspected malignancy and Grade IV-malignant. 15 caucasian children with chronological age 0.6 to 14.58 years (X=+3.22 with virilization(V) 14 cases, Cushing's syndrome (C) 1 case and V + C - 2 cases. Only one out of 9 children with V had normal cortisol suppression after dexamethasone. Duration of disease was from 0.25 to 5.5 y.(X= 1,45y.). All children had unilateral adrenalectomy (associated to nephrectomy in 2) and metastasis were not observed at surgery. The children were followed for 0.5-1 y. (4 cases), 1-4 y. (5 cases) and >5 y.(6 cases) and all are clinically and biochemically cured. 20 adults (caucasian, except 1 black) ages 18 to 57 y. (X=35y.)had V (7 cases), C-S (12 cases) and V+C (1 case). Only one adult out of 6 with V had normal cortisol suppression after dexamethasone. Duration of disease was from 0.25 to 5 y.(X=2y.). All adults had unilateral adrenalectomy (associated to ipsilateral nephrectomy in 5 cases, 3 with hepatic, pulmonary or lymph node metastasis).

	n	SEX	TUMOR WEIGHT(g)	PATHOLOGY (WEISS)	FOLLOW-UP years	PRESENT CONDITIONS
CHILDREN	15	12 F 3 M	4-190 (X=43.5)	9 cases I and II 3 cases III 3 cases IV	0.5 -9 0.74-8.0 1.0 -3.3	15 cured
ADULTS	20	19 F 1 M	7.5-1500 (X=299.1)	3 cases I 7 cases II 3 cases III 5 cases IV	0.9 -2 2 -4 0.5 -1.2 4.2 -7.0	3 cured 3 died 2 cured + 1 metastasis 3 cured * 2 died

We concluded that: 1) The female sex, is more affected in both age groups; 2) Virilization is more common in children and Cushing's syndrome in adults; 3) lack of cortisol suppression after dexamethasone administration suggests glycocorticoid secretion by virilizing tumors in children and adults; 4) Weiss' classification did not predict outcome accurately and 5) The outcome in children was more benign than in adults.

26

ANTI-BETA CELL IMMUNE MODULATION AND INSULIN SECRETION IN A MODEL OF EXPERIMENTAL DIABETES OBTAINED BY PASSIVE TRANSFER OF "DIABETIC SPLENOCYTES". Fabiano de Bruno L, Osinde E, Venturino C, Rosso D, Basabe J. Fundación Laboratorio de Investigaciones Pediátricas(FLIP), Hospital Gral. de Niños "Dr. P. de Elizalde", Buenos Aires, Argentina.

In previous studies,we observed that normal mice transferred with $5x10^6$ splenocytes from diabetic mice by multiple low dose of streptozotocin-(Model 1,M1)-showed anti-beta cell immune aggression(Im. Aggr.)at 7 and 15 days after cell injection and inhibition of both phases of glucose-stimulated insulin secretion(I.S. x gl.) only at day 15. On the other hand, mice transferred with $2x10^6$, $2x10^6$ and $1x10^6$ splenocytes every 48hs-Model 2(M2)-showed Im.Aggr. at 7 and 15 days after transfer, but no alteration of the I.S.x gl. even 40 days after cell injection. In the present report we studied if Im. Aggr. modulation in M2 could induce alterations in the I.S x gl. Anti-beta cell Im.Aggr. was evaluated by the glucose theophylline stimulated I.S. from dispersed rat islet cells. A single dose of 40mg streptozotocin injected 15 days before(M3) or after (M_4) the splenocytes transfer,increased,in the receptor mice,the anti-beta cell Im.Aggr. ($p < 0.01$) only when injected 15 days before, but induced inhibition of the first phase I.S.x 1g ($p < 0.05$), in both cases, at day 15 post-transfer. The injection of $5x10^6$ diabetic splenocytes(M1), 15 days after M3 transfer, increased the Im.Aggr. ($p < 0.01$) but not the inhibition of I.S.x gl. The modulation of Im.Aggr. intensity and frequency seems to be a main factor in the beta cell function observed in the receptor mice.

27

USE OF SOMATOSTATIN IN NESIDIOBLASTOSIS. I. Bergadá, E. Aebert, J.C. Cresto. División de Endocrinología, Hospital de Niños "R.Gutierrez",Buenos Aires,Argentina.

Description of two cases with severe neonatal hyperinsulinism due to nesidioblastosis in whom intravenous (i.v.). Somatostatin was used to improve their metabolic control. The first case is a newborn with persistent hypoglycemia despite the use of i.v. dextrose(20 mg/Kg/min), diazoxide(22 mg/Kg/day) and prednisone(1.5 mg/Kg/day). Somatostatin in a dosage of 8-10 ug/Kg/hour produced a marked increase in blood glucose concentration, allowed to withdraw the i.v. dextrose and to taper the dose of corticosteroids. Concomitantly the increasing volumes of oral feedings allowed a better nutritional state before subtotal pancreatectomy. The second case is a three months old girl with severe hyperinsulinism were Somatostatin was used, first before pancreatectomy at a dosage of 5 ug/Kg/hour with reduction of i.v. dextrose from 20 to 10 mg/Kg/min. After surgery the patient persisted with hypoglycemia and again Somatostatin allowed to mantain euglycemia when parenteral nutrition with increasing concentration of aminoacids was introduced. Finally after a second pancreatectomy and with persistent hypoglycemia Somatostatin in a dosage of 4 to 8 ug/Kg/hour produced a marked reduction of i.v. dextrose from 15 to 4 mg/Kg/min. In summary in accordance with previous reports, i.v. Somatostatin has proved to be useful in reducing the amount of i.v. dextrose, and in the management of hypoglycemia in patients with severe hyperinsulinism.

28

VITAMIN D DEPENDENT RICKETS TYPE II (VDR-II). RESPONSE TO PROLONGED THERAPY WITH NOCTURNAL CALCIUM INFUSIONS. Cattani A, González G, González A, Vergara R. Deptos. de Pediatría y Endocrinología, Metabolismo y Nutrición. Esc. de Medicina, Pontificia Univ. Católica de Chile, Santiago, Chile.

Congenital resistance to 1,25(OH)2 D3 is an infrequent cause of rickets. Resistance to high dose of calcitriol (>5µg/d) is rare. This report communicates a severe case of VDR-II treated with IV infusions of calcium. Case report: Three-year old boy. Seizures and brochopneumonia at 14 and 16 months of age, with following findings: Weight and height<p3 (NCHS), normal hair, clinical and radiological signs of rickets. Blood tests: Ca=6,8mg%, Alb=4,8g%, Alk.P=3500 u/L (NR< 450), 25 OHD3=50ng/ml (NR 14-45), 1,25 (OH)2D3=1000 pg/ml (NR 20-76). cAMPur.=62 nmol/mg creat. In spite of therapy with 2g p.o. of Ca and P,vit D3 100.000 U/d and later calcitriol 6µg/d, he was admitted at 2 8/12 years of age with multiple pathological fractures. Vit D administration was discontinued and nocturnal IV calcium infusions plus oral phosphate was given for 10 hours every night.

Days of infusion	0	7	15	27	34	51
Ca (mg/10h/IV)	-	630	720	990	990	990
P (mg/24h p.o.)	-	140	510	860	860	860
Ca (mg/dl) pre IV	5.2	6.3	5.6	5.2	6.0	7.9
Ca_s (mg/dl) post IV	-	7.8	8.9	8.5	8.4	8.2
P_s (mg/dl) pre IV	3.1	-	-	2.6	4.2	2.1

Clinical, radiological and biochemical improvement has been noted, with fracture healing. Conclusions: 1. IV Calcium infusions have been effective and harmless. 2. Bone mineralization has occurred in absence of biological activity of 1,25 (OH) 2D3. 3. In spite of severe VDR-II, no alopecia has developed.