

L.TATO¹, A.M.BELLIGOLI*, S.AVANZINI*, A.B.BURLINA*, A. OTTOLENGHI*. Pediatric Clinic and Pediatric Surgery - University of Padua - Verona - Italy

Influence of testicular retention on Pituitary response to LH-RH in prepubertal unilateral cryptorchid children. LH deficiency and normal or high FSH were reported in prepubertal cryptorchid children. In order to test the influence of testicular retention on gonadotrophin secretion, 13 surgical treated and 5 HCG treated unilateral cryptorchid children (aged 4-5 years) were compared with a control group of 10 normal children (aged 4-5 years). The response to LH-RH (100 µg/m² i.v.) was evaluated in all subjects, in cryptorchids also 2 years after treatment. No difference was observed between treatments and then the data were pooled for statistical analysis. LH response to LH-RH was significantly (p<0.01) lower in cryptorchid children both before (1.18±0.44ng/ml) and after treatment (1.27±0.39ng/ml) than in controls (2.28±0.35ng/ml). Cryptorchid children show significant (p<0.01, paired t test) higher FSH peak levels before treatment (1.81±0.18ng/ml) than 2 years after (1.48±0.59ng/ml). Nevertheless no significant difference of basal or stimulated FSH was observed between cryptorchid and controls. The explanation for these results might be the rise of the inhibin production by the testis artificially descended. Inhibin, a not yet defined substance, exerts a negative feedback on FSH secretion.

G.J. Bruining, B.M. de Jongh, R.K.B. Schuurman, J. Molenaar, S.L.S. Drop, H.K.A. Visser and J.J. van Rood, Sophia Children's Hospital, Erasmus University, Rotterdam, Dept. of Immunohematology University Medical Center, Leiden The Netherlands. HLA-antigens in Familial Insulin Dependent Diabetes of childhood (IDD) in The Netherlands. Twenty-two Dutch Caucasoïd families were ascertained for two or more children with IDM. The HLA-A, B, C and DR antigens and C4, BF, C2 and GLO polymorphisms were determined and the sera were screened for various autoimmune antibodies. We also determined a locally defined split of DR4 (LB4 and LB10). Fourteen families had two children affected, one three and one four (Group A). Six families had two children and one parent affected (Group B). The probands (first affected child per family) showed, after correction for the number of antigens tested, a significant increase in DR3 and DR4. However the increase in DR4 was due to an increase in LB4 alone and not to LB10. The decrease in DR2 was not significant. The HLA-relationships between probands and siblings were:

	Identical	Haploidentical	Different
Group A affected	15	4	0
Group A normal	4	23	14
Group B affected	2	3	1
Group B normal	14	33	18

The data suggest DR3 and DR4 (LB-4) are associated with increased susceptibility to IDM in the Netherlands. The haplotype assortments are compatible with a recessive mode of inheritance. More studies are in progress to determine the significance of the split of DR4 for the susceptibility to IDM.

F.WALDHAUSER*, H.FRISCH*, G.WEISSENBACHER*, U.ZEITL-HUBER* and K.TOIFL* (Intr. by W.SWOBODA). Dep. Ped., Univ. Vienna, Hospital of Barmherzige Brüder, Eisenstadt and L.Boltzmann Inst., Vienna, AUSTRIA.

Day- and Nighttime Serum Melatonin in Children and Adults. Melatonin (MLT), a hormone of the pineal gland, has been suggested to inhibit sexual maturation. Recently SILMAN et al (1979) showed significantly higher serum MLT levels in prepubertal boys than in adults. LENKO et al (1980) did not confirm these results. In 107 individuals (84 children, 23 adults) we measured daytime (7.30-9 a.m.) and nighttime (10p.m.-1a.m.) serum MLT levels. The RIA of LYNCH et al (1978) with slight modifications was applied using the antibody of LEVINE et al (1975). We found widely scattered and significantly higher MLT levels in prepubertal children compared to adults (values in pg/ml):

Age (years)	0-2	2-4	4-6	6-8	8-10	10-12	12-14	adults
day: mean	150**	178*	77*	69*	35	21	26	24
(±SEM)	(64)	(88)	(32)	(33)	(10)	(3,0)	(3,6)	(1,6)
night: mean	251***	370**	217***	187***	255***	173**	109	79
(±SEM)	(52)	(119)	(46)	(34)	(37)	(34)	(19)	(8,6)
n	16	13	11	7	12	14	11	23

*vs. adults p<0.05, **vs. adults p<0.01, ***vs. adults p<0.001
The daytime MLT levels had already declined to adult values within onset of puberty (27±5,5 at Tanner II), whereas nighttime levels had decreased during puberty. No sex difference in serum MLT was observed. Our data are compatible with the concept of the inhibiting effect of MLT on sexual maturation.

E. COLLE, R.D. GUTTMANN*, T.A. SEEMEYER*, Montreal Children's & Royal Victoria Hosps., McGill Univ., Montreal, Que., Canada.

Spontaneous diabetes and lymphocytic infiltration of the pancreas in the rat are associated with gene products of the MHC. The BB Wistar-derived rat develops a spontaneous diabetic syndrome similar to the human disease, characterized by acute hyperglycemia and insulinopenia. Early, the pancreas shows lymphocytic infiltration within islets, around ducts, and as discrete foci within acinar tissue. Later, disappearance of B cells with persistence of A and D cells is found. A spectrum of severity includes severe ketotic hyperglycemia requiring insulin, stable non-ketotic hyperglycemia with failure to gain weight, and a non-diabetic form characterized only by lymphocytic infiltration of the pancreas. We determined the relationship of the pancreatic lesion to gene products of the major histocompatibility complex of the rat (RTI). We produced (BB (RTI uu) x LEW (RTI ll)) hybrids and examined the pancreas from F1, F2, and F3 progeny.

	Genotype			χ ² =9.42 p<0.01
	uu	ul	ll	
Lymphocytic infiltration	+ 16	23	0	
	- 56	84	36	

Seven cases of overt diabetes occurred, 4 in F2 uu, 3 in F3 ul. We conclude that the lymphocytic infiltration as well as diabetes in the hybrid rat is associated with the presence of at least one u haplotype derived from a diabetic BB rat. In addition, non-MHC gene(s) are involved.

R.P.WILLIG, J.C.COMMENTZ* and N.STAHNKE*
Dept. of Pediatrics, University of Hamburg, FRG
Plasma Melatonin Concentrations in Precocious and Pseudoprecocious Puberty

Hormones of the pineal gland are supposed to have antigonadotropic effects in animals. In man the interrelationship between the pineal hormones, gonadotropins and sex hormones are not sufficiently investigated. On this account we studied diurnal plasma patterns of melatonin in 10 girls with precocious puberty as well as in 10 children with pseudoprecocious puberty. Melatonin was determined by radioimmunoassay using a recently raised antiserum. - In spite of high gonadotropins (LH-RH-test: LH-peak 23.2±11.2 and FSH-peak 10.8±2.7 µg/l) high plasma melatonin levels were observed in true precocious puberty (range: 5-45 pg/ml during the day and 85-285 pg/ml at night). These values were similar to melatonin concentrations in a control group of healthy children at the same stage of puberty (67±15(SE) during the day and 125±16(SE) pg/ml at night. - In pseudoprecocious puberty with low gonadotropins due to high androgen and 17α-hydroxyprogesterone levels in congenital adrenal hyperplasia (CAH) melatonin plasma levels were in the same range found in precocious puberty. Melatonin ranged between undetectable values and 73 pg/ml during the day and increased up to 375 pg/ml at night. - In precocious puberty gonadotropin values seem to increase independently of plasma melatonin concentrations which conversely are not altered by high androgen levels in pseudoprecocious puberty due to CAH.

M.J. ELDERS, L. ELSAS*, H. SCHEDEWIE, V.L. HERZBERG*, D.E. HILL*, J. OLEFSKY*, A. RUBENSTEIN*. Pediatrics, Univ. of Ark. Med. Sci., Little Rock, Ark.

Correlation of metabolic parameters with high and low affinity insulin receptor binding in leprechaunism (L). In vitro binding of ¹²⁵I-insulin to erythrocyte and fibroblast surface receptors (IRB) was studied in a 3-year-old girl with L, her parents, and controls. At low insulin concentrations (0.1-2 ng/ml), both erythrocyte and fibroblast IRB were decreased relative to controls. Scatchard analysis of IRB showed a typical curvilinear profile for controls, but a linear function in the L patient, which paralleled the low-affinity IRB component in the parents at low insulin concentrations. Partially impaired IRB was demonstrated in the parents at low insulin concentrations. Erythrocyte IRB was 2.8 percent in the proband versus 3.6, 6.5, and 8.2 percent in the father, mother, and 24 adult controls, resp. Concanavalin A, which has been shown to inhibit high-affinity, low-capacity insulin receptors decreased IRB in the mother's cell and controls, but had no effect on erythrocyte IRB in the patient and her father. Stimulation by insulin of CH₃-AIB transport was similar in control and L cells; however, stimulation of 2-deoxyglucose uptake and phosphorylation was impaired in L cells. Both the characteristics of erythrocyte and fibroblast IRB, as well as the resulting metabolic changes are consistent with a defective high-affinity, low-capacity insulin receptor, but intact low-affinity, high-capacity binding. We propose that this represents the molecular derangement basic to L.