

47

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Testicular function and morphology after chemotherapy in childhood for ALL.

Testicular biopsies were performed in boys, previously treated or currently receiving chemotherapy for ALL, to establish the incidence of occult leukaemic infiltration. The general morphology of the testicular biopsies was also studied and each boy underwent an HCG test and an LHRH test. We studied 44 boys, 32 prepubertal, 8 early pubertal and 4 late pubertal. The mean tubular fertility index (TFI = percentage of tubules containing spermatogonia) was reduced to 51%. The mean basal FSH, LH and testosterone levels, mean peak gonadotrophin responses to LHRH and mean testosterone responses to HCG did not differ between the prepubertal and early pubertal ALL groups compared to groups of normal boys of similar pubertal maturation. The late pubertal ALL group was too small for such comparison. No significant relationship existed between the TFI and any of the hormonal indices studied. Individually 3 prepubertal ALL boys (n=32), 3 early pubertal (n=8) and 2 late pubertal (n=4) showed an abnormality in their gonadotrophin responses to LHRH but only 1 of the 44 ALL boys had no testosterone response to HCG. We conclude that moderately severe tubular damage of the testis unassociated with Leydig cell impairment may not be detected in the prepubertal boy using current tests of testicular function.

48

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Patterns of peptide-carrier protein complexes in the urine from patients diagnosed as anorexia nervosa.

An anorexigenic tripeptide isolated from the urine from patients with anorexia nervosa was presented at the ESPE meeting in Berlin, 1975. The synthetic analog had similar anorexigenic effect (Acta endocr. 1978, 89: 196). This effect was observed in the urine from a limited number of patients thought to have anorexia nervosa, only, all had the same UV-280 pattern on chromatography of the urine protein precipitate on Sephadex G-25 gel columns. One boy and 28 girls had this pattern and were considered to have a primary hypothalamic type of anorexia nervosa. The pattern of the urinary protein complexes has been obtained from additionally 69 girls and 2 boys diagnosed as anorexia nervosa. They had 4 reproducible and quite different patterns: (1) similar to that for normal controls, 16; (2) similar to that for patients with autism, 20; (3) similar to that for children with the hyperkinetic syndrome, 2; and (4) 31 girls and 2 boys had a hystericiform and malevolent type of neurosis with a special pattern. The different groups had characteristic psychopathological features, and the chromatographic screening of the urinary protein pattern has been of diagnostic as well as therapeutic value in food refusal syndromes.

49

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Distribution of Glucocorticoid Receptors in Rat Intestinal Epithelium.

Corticosteroids influence intestinal function. Glucocorticoid receptors are present in cytosol of small intestinal mucosa of normal and steroid depleted adult rats. We examined the distribution of cytoplasmic glucocorticoid receptor proteins in small intestinal villous and crypt cells using the technique of Weiser to separate cells into 6 fractions. Fraction 1 was highly enriched in villous tip cells and fraction 6 in crypt cells. Alkaline phosphatase, sucrase and ³H-Thymidine incorporation were used to monitor the composition of each fraction. Steroid cytosol receptor activity was measured in each fraction using ³H-dexamethasone and a standard charcoal adsorption technique. In normal rats receptor activity was detected in all fractions but was significantly greater in fraction 6 than in fraction 1 (p<0.005). These data suggest that cytoplasmic corticosteroid receptors in normal rats have higher binding activity in crypt cells than in villous tip cells. Corticosteroid hormones may influence immature crypt cells more than mature villous tip cells in normal rats since glucocorticoid receptor activity is substantially higher in crypt cells.

50

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Alpha-fetoprotein (AFP) and human chorionic gonadotropin (HCG) in ectopic pinealoma with precocious puberty.

Precocious puberty as a result of ectopic pinealoma with secretion of HCG and AFP has rarely been described in children and adolescents. With these two markers the effectiveness of treatment can be assessed. An 8 1/2 year old boy is described who presented with a 3 months history of precocious puberty. The tumor was located at the posterior part of the third ventricle in the area of the pineal gland. Plasma levels of testosterone (> 1000 ng/dl), HCG (87.5 ng/ml) and AFP (200 ng/ml) were remarkably elevated before treatment. An ¹⁹²-iridium implantation was performed since the tumor was inoperable. One year after operation the boy is doing well with a considerably reduced tumor mass and normal HCG and AFP levels. The disadvantage of accelerating bone age needs to be accepted when tumor markers like HCG are used to assess the diagnosis and course of treatment in ectopic pinealoma.

51

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H-Y antigen in familial XX true hermaphroditism.

Two siblings (SG, SF) with ambiguous external genitalia at birth were reared as a female and a male respectively. In both patients the presence of ovotestis was histologically proved, and mammary glands developed at puberty. Karyotype was 46XX in all examined cells. SF's mammary glands were surgically removed and histologically revealed the picture of male glands with enlarged ducts as observed in gynecomastia. H-Y antigen was determined by prof. U. Wolf in Freiburg, by the cytotoxicity test, using rats of the highly isogenic Lewis strain: both patients were H-Y positive. Their mother was H-Y negative, indicating an autosomal dominant mode of inheritance transmitted by the father. The varying expression of the mutation may be dependent on the degree with which the H-Y structural gene is repressed or the function of the H-Y antigen is modified by other genes. The alternative formation of an ovotestis or a testis in XX individuals (XX male syndrome and true hermaphroditism) is therefore expected to be a variation of the same pathological condition.

52

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Somatomedin activity in the human fetus.

Fourteen human fetuses of 14 to 28 months of gestat. age have been collected immediately after spontaneous abortion. Blood, liver and all the endocrine glands were carefully removed and studied. Hormonal secretion was evaluated for pituitary gland by explant cultures and immuno-reactive HGH production referred to the weight of the gland.

Blood serie samples stored at -40° were estimated for SMA activity according two procedures: i.e. K. HALL's bioassay on chick embryo pelvis cartilage, and MARSHALL's radioreceptor assay on human placental membranes. Valuable results are attained for 9 fetuses and showed a positive correlation to the gestational age weight and size of the fetus. R.R.A. values seemed to be significantly higher than that from bioassay.

Increase of fetal SMA values during antenatal development seemed grossly parallel to pituitary GH production.

Currently used bioassay techniques are not sufficiently accurate to evaluate the relationship between fetal hormonal production of hGH, insulin, somatomedin (s) and liver function.