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Natural history of juvenile autoimmune thyroiditis.

We have followed 46 patients with juvenile autoimmune thyroiditis for 2.3-12.5 (mean 5.5) years. The diagnosis was based on the presence of a firm goitre with lymphocyte infiltration. A cytological re-evaluation was performed 1.4-12.5 (mean 4.5) years later. Thyroxin replacement, instituted in 29 cases initially, was later discontinued in 27. It had to be restarted in 14 cases; the others remain off medication already for 0.6-4.2 (mean 1.2) years. Initially, 27 patients were euthyroid, 13 subclinically hypothyroid, and 8 hypothyroid. Finally, 26 patients were euthyroid, 13 subclinically hypothyroid, and 8 hypothyroid, but an extensive exchange of individual patients had taken place between the groups. Thyroid size had remained unchanged in 14 patients, had decreased in 23 and increased in 9 patients. Cytologically, all glands remained virtually unaltered. At the end of follow-up circulating antithyroglobulin antibodies (PH method) were present in high titres in 30% and absent in 30% of the patients. Circulating antimicrosomal antibodies were present in high titres in 46% (CF) or 58% (PH) and absent in 37% (CF) or 13% (PH). High serum levels of IgG were found initially and high levels of IgM at the end of the follow-up.

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Distribution of TSH levels in dried blood spot among 137,207 Greek newborns: incidence of Primary Congenital Hypothyroidism and Transient Hyperthyrotropinemia.

In September 1979 screening for Congenital Hypothyroidism (C.H.) was started in Greece. As the screening method Thyroid-Stimulating Hormone (TSH) determination in dried blood spots collected on the 5th day of life was chosen. To date 137,207 newborns (65% of all live births in Greece) have been screened. The distribution of TSH levels in a single estimation was as follows: $<$12.5μIU/ml 87.7%, 12.5-30μIU/ml 11.4% and $>$ 30μIU/ml 0.9%. Values $>$30μIU/ml were confirmed by a second estimation from the initial card in 171 cases, which were recalled for a new blood specimen (recall rate 0.12%). Among them 97 had TSH values between 30 and 50μIU/ml and TSH estimation from a blood spot on a new card 1-3 months later showed TSH values $<$ 12.5μIU/ml. In 41 cases with TSH values 50-80μIU/ml, serum TSH and T_4 revealed 4 cases of C.H. (9.7%), while 37 cases had serum TSH and T_4 values within normal limits and were considered as Transient Hyperthyrotropinemias (T.H.). Finally among 33 cases with initial TSH values $>$80μIU/ml, in 29 (88%) the diagnosis of C.H. was confirmed on biochemical and clinical grounds, while 4 were considered as T.H. The overall incidence of primary C.H. in our population was 1:4,157.

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Prolonged hypothyrotropinaemia in congenital primary hypothyroidism.

Recently it has been reported that children with congenital hypothyroidism may have persistent elevation of TSH despite normal serum T_4 level with exaggerated response to TRH, indicating a functional abnormality.*We report 2 patients showing the converse situation.- K.K.(♀, 4.9.70.) and A.M.(♂, 22.5.74.) had early symptoms of hypothyroidism and serious psychosomatic demage, later convulsions. Thyroid replacement was begun at the 4th and 2nd month of life respectively. Neither responded with TSH increase to 100 μg of i.v. TRH during their first years in repeated tests despite low T_4 level. 99mTc scan showed the absence of functioning thyroid tissue. In a 3-day TSH (AMBINON) test they did not respond with T_4 elevation. K.K. was able to secrete GH and FSH in DOPA and LHRH tests; A.M. heigh- and bone age were nearly normal. K.K. was 8 yrs old at the first moderate TSH increase (T_4:33,8 nmol/L;TSH:4,9 μU/ml) and A.M. 5 yrs (T_4:7 nmol/L;TSH:22 μU/ml) during a temporary cessation of thyroid therapy. Finally a 7-day oral TRH test (1mg/day) increased the TSH level of K.K. to 27,8 μU/ml and of A.M. to 84 μU/ml. During the last two years both children have shown nearly normalized TSH responsiveness.- In conclusion: early deficiency of thyroid hormones may alter the TSH control of man as well as in hypothyroid rats. This demage may prolonged but recovers eventually. The use of TSH alone determinations for neonatal screening of congenital hypothyroidism can miss these rare cases.
*Redmond,G.P. & Soyka,L.F.: J.Pediat.98,83.1981.

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Urinary free T4 and T3 in healthy infants and during noise exposure.

There is concern about noise exposure in the hospital environment and its effects on infants.Stress reactions are difficult to measure especially in this age group.Timed 12 h urine collections were made in 86 reconvalescent infants to determine normal day/night excretion.Collections were also made before,during and after standardized 70 or 80 dB broadband noise exposure. Ethics Committee approved,after undisturbed sleep was demonstrated in some infants,which was confirmed later throughout the study in 43 infants.
T4 and T3 were determined by RIA after extraction,incubation and elution using Sephadex columns(Habermann, 1976).Intraassay variation was 5.6 and 5.4% for T4 and T3 resp.Interassay variation along the steep part of the standard curve was 8.1-11.7% for T4 and 8.1-9.9% for T3.Recoveries were 109 ± 8 and 109 ± 7% ($\bar{x}$ ± s) for T4 and T3 resp.
Median and ranges below 5 wks. were 0.185(0.068-0.527) μg/day for T4 and 0.145(0.042-0.388) for T3.For ages 5 - 45 wks.T4 was 0.227(0.047-0.501)and T3 0.326(0.073-0.605).Higher T3 values reflect iodine deficiency.There was no difference between day/night or after the noise.

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Effect of methyldopa on thyroid stimulating immunoglobulins producted by peripheral lymphocytes from patients with juvenile Graves'disease.

In an attempt to test effects of methyldopa (inhibitor for suppressor T-cell) on the production of thyroid stimulating immunoglobulins (TSI), peripheral lymphocytes were preincubated with or without the drug followed by cultures with human thyroid plasma membrane for 7 days. Thyroid stimulating activities (TSA) in the supernatants of cultures were measured as cAMP generated during incubation of ATP with bovine thyroid membrane, and then were expressed as a percentage of control level. When the cells were preincubated in the presence of methyldopa, IgG synthesis from both patients and normal subjects generally increased. The pretreatment of methyldopa enhanced mean TSA from a level of 120±48% to 192±57% in the patients (P 0.01), while the effect was not observed in normal subjects. All these activities producted by lymphocytes in vitro were well correlated with those of IgG purified from the sera through DEAE-cellulose column chromatography. These results demonstrated that methyldopa is of use for in vitro production of TSI. The findings suggest that the inhibitory effect of methyldopa on T-cell proliferation may enhance the TSI production.

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Screening for congenital hypothyroidism in Finland.

In Finland thyroid screening was started in October 1979 and stepwise expanded to cover the whole country by mid-1980. Other metabolic defects worth neonatal screening are unknown in our country. Hence we can use the earliest possible screening, and cord serum samples are mailed to this laboratory from the whole country. Until October 1980 all infants with TSH >45mU/l were placed on thyroxin substitution immediately after drawing a second blood sample and clinical examination. If TSH was normal in the second sample the therapy was discontinued. Among 33500 infants screened 12 sure or propable cases of hypothyroidism were detected (0.036% or 1/2790). 0.21% were false positives. To decrease this figure we then elevated the (primary alarm) limit to 60 mU/l and started determining T4 from the samples with TSH level between 45 and 60 mU/l, giving alarm in cases with T4 <120 nmol/l (secondary alarm limit). Of 30510 infants so screened by April 1981 8 were hypothyroid by the primary limit and one by the secondary limit (0.029% or 1/3390). 0.06% were false positives. We are aware of one "false negative" case; it was due to maintenance of euthyroidism by foeto-foetal transfusion. Our median age at start of therapy is 5 days (TSH limit) or 8 days (T4 limit).