

Hypothyroidism in an Area of Endemic Goiter and Cretinism in Central Java, Indonesia

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In an area of severe endemic goiter in Central Java, Indonesia, clinical overt or mild hypothyroidism appeared to be present in 7 out of 20 cretins and also in 12 out of 94 non-cretinous subjects, all 5–20 years of age, living in the village of Sengi. Hypothyroidism was not found in a control group of 70 subjects of the same age living in Londjong just outside the edemia. In hypothyroid subjects the plasma PBI-concentration was $0.98 \pm 0.32 \mu\text{g}/100 \text{ ml}$ (mean \pm SD) vS $2.72 \pm 1.24 \mu\text{g}/100 \text{ ml}$ in euthyroid subjects from Sengi and $4.86 \pm 0.80 \mu\text{g}/100 \text{ ml}$ in controls from Londjong. Values for T3 were $56.3 \pm 31.7 \text{ ng}/100 \text{ ml}$ in hypothyroids, $140.5 \pm 38.5 \text{ ng}/100 \text{ ml}$ in euthyroids from Sengi and $121.6 \pm 27.4 \text{ ng}/100 \text{ ml}$ in controls. The TSH levels (geometric mean and range) in these 3 groups were, respectively, 210.1 (108.0–342), 15.6(3.0– 372) and 4.1 (0.8–7.0) $\mu\text{U}/\text{ml}$. The differences between the mean concentration of PBI, T3 and TSH in the hypothyroid and euthyroid groups were highly significant ($P < 0.001$).

These data strengthen the clinical diagnosis of hypothyroidism in cretins as well as in non-cretinous subjects. All hypothyroid subjects had a PBI $< 1.8 \mu\text{g}/100 \text{ ml}$ and T3 $< 120 \text{ ng}/100 \text{ ml}$ and TSH $< 100 \mu\text{U}/\text{ml}$. In 8 hypothyroid subjects, restudied 18 months after iodized oil injection, hypothyroidism was either corrected or markedly improved. It therefore appears that iodine deficiency per se in post natal life may lead to (juvenile) hypothyroidism, which can be corrected by iodine therapy. Our findings have implications for the definition and diagnosis of endemic cretinism. Not all hypothyroid subjects in an area of endemic iodine deficiency should be classified as cretins.

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