

THYROID FUNCTION AND HEMATOPOIESIS

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HYPOTHYROIDISM AND ANEMIA

Fein HG, Rivlin RS.

Anemia in thyroid diseases.

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Thyroid hormones generally stimulate erythropoiesis. These agents also increase erythrocyte 2,3-DPG concentrations, which serve to enhance the delivery of oxygen to tissues. In the absence of thyroid hormones, anemia frequently develops and may be normocytic, hypochromic-microcytic, or macrocytic. Anemia is an uncommon finding in hyperthyroidism but when present may be morphologically similar to that observed in hypothyroidism. Pernicious anemia has been strongly associated with hypothyroidism, hyperthyroidism, and thyroiditis. Complete correction of anemia often requires restoration of thyroid function as well as specific hematinic therapy. Continued attention to hematologic status is essential in the management of patients with thyroid diseases.

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Anemia in hypothyroidism

Antonijevic N, Nesovic M, Trbojevic B, Milosevic R.

Poliklinika Vizim, Beograd.

INTRODUCTION: Anemias are diagnosed in 20-60% patients with hypothyroidism. Real values of the degree of anemia are estimated by radioisotopic analysis due to the lower volume of plasma in hypothyroidism causing false high levels of hemoglobin in blood. Anemia is often the first sign of hypothyroidism. Diagnosis of hypothyroidism should be considered in every case of anemia with uncertain etiology because sometimes signs of overt hypothyroidism needn't necessarily be evident. Microcytic, macrocytic and normocytic are regularly described anemias.

CLASSIFICATION: Microcytic anemia is usually ascribed to malabsorption of iron and loss of iron by menorrhagia. Macrocytic anemia is caused by malabsorption of vitamin B12, folic acid, pernicious anemia and inadequate nutrition. Pernicious anemia occurs 20 times more frequently in patients with hypothyroidism than generally. Macrocytosis is found in up to 55% patients with hypothyroidism and may result from the insufficiency of the thyroid hormones themselves without nutritive deficit. Normocytic anemia, so-called uncomplicated anemia, arises due to thyroid hormones deficit itself not followed by nutritive deficit. This type of anemia is considered to be an adaptation to a decreased basal metabolism. Thyroid hormones directly or indirectly, through erythropoietin, stimulate growth of erythroid colonies (BFU-E, CFU-E). Normocytic anemia is characterized by reticulopenia, hypoplasia of erythroid lineage, decreased level of erythropoietin, mainly regular erythrocyte survival. Acanthocytosis findings in cytologic blood smear suggest hypothyroidism in about 90% of cases.