

Patients with hyperthyroidism may have low red-cell, white-cell, and platelet counts

The background of the study. Most patients with hyperthyroidism have normal blood counts, but some have a minor degree of anemia (low red-cell count), leukopenia (low white-cell count), or thrombocytopenia (low platelet count). Rare patients have more severe or combined abnormalities. This report describes four patients with hyperthyroidism caused by Graves' disease who had low levels of all three cell types (pancytopenia).

Case reports. Patient 1 was a 71-year-old man who had weakness, pallor, and goiter. In addition to hyperthyroidism, he had anemia (low hemoglobin), leukopenia, and thrombocytopenia (Table). Bone marrow biopsy revealed an increase in blood-cell precursors. After treatment with methimazole and then radioiodine, his blood-cell values were normal.

Patient	Hemoglobin (g/dl)	White Cells ($\times 10^6/L$)	Platelets ($\times 10^9/L$)
1	7.3	2.5	23
2	9.5	2.8	75
3	11.9	3.9	96
4	4.0	3.0	10
Normal	12.0–18.0	5.0–10.0	150–300

The other patients were a 39-year-old woman, a 39-year-old man, and an 18-year-old woman. All had hyperthyroidism caused by Graves' disease. Patient 2 had normal blood-cell values after treatment with methimazole for four months. In Patient 3, blood-cell values initially improved in response to methimazole therapy, but he later had intermittent episodes of hyperthyroidism and pancytopenia associated with cessation and resumption of therapy. He was ultimately treated with radioiodine, after which his blood-cell values were normal. Patient 4 had persistent pancytopenia despite antithyroid drug and radioiodine therapy, and her bone marrow changed from containing many blood-cell precursors to containing few of them; this change was not considered to be thyroid-related.

Studies at the time of diagnosis of hyperthyroidism in all these patients revealed no evidence of rapid breakdown of red cells (hemolysis) or of the nutrients needs for normal bone marrow function (iron, vitamin B12, or folic acid deficiency).

The conclusions of the study. Patients with hyperthyroidism caused by Graves' disease may have low red-cell, white-cell, and platelet counts that improve in response to antithyroid therapy.