Abstract


Hemoglobin, iron, and vitamin B12 deficiencies and high blood homocysteine levels in patients with anti-thyroid autoantibodies.

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BACKGROUND/PURPOSE: Autoimmune thyroiditis can be diagnosed by measuring patients' serum levels of thyroid stimulating hormone (TSH), anti-thyroglobulin antibody (TGA), and anti-thyroid microsomal antibody (TMA). This study evaluated whether there were hematinic deficiencies, high blood homocysteine levels, and serum gastric parietal cell antibody (GPCA) positivity in patients with TGA or TMA.

METHODS: The blood hemoglobin (Hb), iron, vitamin B12, folic acid, homocysteine and TSH concentrations and the serum GPCA level in 190 TGA- or TMA-positive patients were measured and compared with the corresponding levels in 190 age- and sex-matched healthy control subjects.

RESULTS: We found that 31 (16.3%), 27 (14.2%), 12 (6.3%), and 2 (1.1%) TGA- or TMA-positive patients had deficiencies of Hb (Men<13g/dL, Women<12g/dL), iron (< 60μg/dL), vitamin B12 (< 200pg/mL), and folic acid (< 4ng/mL), respectively. Moreover, 25 (13.2%) and 48 (25.3%) TGA- or TMA-positive patients had abnormally high blood homocysteine level and serum GPCA positivity, respectively. TGA- or TMA-positive patients had a significantly higher frequency of Hb (p<0.001), iron (p<0.001), or vitamin B12 deficiency (p=0.001), of abnormally elevated blood homocysteine level (p<0.001), or of serum GPCA positivity (p<0.001) than healthy control subjects. Of 190 TGA- or TMA-positive patients, 8 (4.2%) had lower serum TSH level (< 0.1μIU/mL, suggestive of hyperthyroidism), 163 (85.8%) had serum TSH level within normal range (0.1-4.5μIU/mL), and 19 (10%) had higher serum TSH level (>4.5μIU/mL, suggestive of hypothyroidism).

CONCLUSION: There are significant deficiencies of hemoglobin, iron, and vitamin B12, abnormally high blood homocysteine levels, and serum GPCA positivity in TGA- or TMA-positive patients. In addition, the majority (85.8%) of TGA- or TMA-positive patients had euthyroid and only a small portion (14.2%) of TGA- or TMA-positive patients had either hypothyroidism or hyperthyroidism.

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