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Original Article

Serum thyroid autoantibodies are not associated with anemia, hematinic deficiencies, and hyperhomocysteinemia in patients with Behcet's disease

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KEYWORDS

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Abstract *Background/purpose:* Our previous study found that 13 of 63 recurrent aphthous stomatitis (RAS)/Behcet's disease (BD) patients have thyroglobulin antibody (TGA) positivity and/or thyroid microsomal antibody (TMA) positivity (TGA/TMA positivity) but without gastric parietal cell antibody positivity. This study mainly assessed whether the serum TGA/TMA positivity was significantly associated with anemia, hematinic deficiencies, and hyperhomocysteinemia in TGA/TMA-positive RAS/BD patients.

Materials and methods: The mean blood hemoglobin (Hb), iron, vitamin B12, folic acid, and homocysteine levels were measured and compared between 13 TGA/TMA-positive RAS/BD patients and 41 gastric and thyroid antibodies-negative RAS/BD patients (Abs-RAS/BD patients) or 126 healthy control subjects.

Results: We found no significant differences in the mean blood Hb, iron, vitamin B12, folic acid, and homocysteine levels as well as no significant differences in the frequencies of blood Hb and folic acid deficiencies and of hyperhomocysteinemia between 13 TGA/TMA-positive RAS/BD patients and 41 Abs-RAS/BD patients. The 41 Abs-RAS/BD patients even had a significantly greater frequency of serum iron deficiency than the 13 TGA/TMA-positive RAS/BD patients. Moreover, although a significant greater frequency of anemia was demonstrated in 13

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TGA/TMA-positive RAS/BD patients than in 126 healthy control subjects, there were no significant differences in the mean serum iron, vitamin B12, folic acid, and homocysteine levels as well as no significant differences in the frequencies of serum iron and folic acid deficiencies and of hyperhomocysteinemia between 13 TGA/TMA-positive RAS/BD patients and 126 healthy control subjects.

Conclusion: The serum TGA/TMA-positivity is not significantly associated with anemia, hematinic deficiencies, and hyperhomocysteinemia in TGA/TMA-positive RAS/BD patients.

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Introduction

Recurrent aphthous stomatitis (RAS) is a common oral mucosal disease characterized by recurrent and painful ulcerations on the movable oral mucosae. Behcet's disease (BD) is a chronic, multisystemic, and inflammatory disorder. According to the criteria for diagnosis of BD proposed by the International Study Group for BD, the RAS is universally present in all BD patients (so-called RAS/BD patients in this study).^{1,2}

Our previous study showed that 14.3%, 20.6%, and 20.6% of 63 BD patients have serum gastric parietal cell antibody (GPCA), thyroglobulin antibody (TGA), and thyroid microsomal autoantibody (TMA, also known as thyroid peroxidase antibody, TPO) positivities, respectively.³ Moreover, we also demonstrated that 30.2%, 34.9%, 6.3%, 6.3%, and 14.3% of 63 BD patients have blood hemoglobin (Hb), iron, vitamin B12, and folic acid deficiencies and hyperhomocysteinemia, respectively.⁴ The serum GPCA positivity, major-typed RAS, minor-typed RAS, BD itself, and the concomitant presence of atrophic glossitis (AG) in BD patients are found to be associated with anemia, hematinic deficiencies, and hyperhomocysteinemia in RAS/BD patients.^{4–6} However, we have not yet known whether the serum TGA positivity and/or TMA positivity (TGA/TMA positivity) plays a significant role in causing anemia, hematinic deficiencies, and hyperhomocysteinemia in the TGA/TMA-positive RAS/BD patients.

In our oral mucosal disease clinic or dental clinic, patients with RAS, AG, burning mouth syndrome, oral lichen planus are frequently encountered and patients with OSF or specific jaw bone lesions are sometimes seen.^{7–38} For these particular groups of patients, complete blood count, serum iron, vitamin B12, folic acid, homocysteine, GPCA, TGA, and TMA levels are frequently examined to assess whether these patients have anemia, hematinic deficiencies, and serum GPCA, TGA, and TMA positivities.^{7–35}

To assess the role of serum TGA/TMA positivity in the development of anemia, hematinic deficiencies, and hyperhomocysteinemia in RAS/BD patients, 13 TGA/TMA-positive RAS/BD patients without serum GPCA positivity, 41 gastric and thyroid autoantibodies-negative RAS/BD patients (Abs-RAS/BD patients), and 126 age- and sex-matched healthy control subjects were retrieved from our previous studies and included in this study.^{3–6} The mean blood hemoglobin (Hb), iron, vitamin B12, folic acid, and homocysteine levels in these RAS/BD patients and control subjects were measured and compared between 13 TGA/

TMA-positive RAS/BD patients and 41 Abs-RAS/BD patients or 126 healthy control subjects to assess whether the serum TGA/TMA positivity was a significant factor causing anemia, hematinic deficiencies, and hyperhomocysteinemia in TGA/TMA-positive RAS/BD patients.

Materials and methods

Subjects

This study included 13 (2 men and 11 women, age range 21–82 years, mean age 58 ± 14 years) TGA/TMA-positive RAS/BD patients without the serum GPCA positivity.³ For evaluation of the role of serum TGA/TMA positivity in causing anemia, hematinic deficiencies, and hyperhomocysteinemia in RAS/BD patients, 41 Abs-RAS/BD patients and 126 age- and sex-matched healthy control subjects were retrieved from our previous studies and included in this study.^{3–6} All the patients and control subjects were seen consecutively, diagnosed, and treated in the Department of Dentistry, National Taiwan University Hospital from July 2007 to July 2017. The diagnoses of RAS and BD in our original 63 RAS/BD patients as well as their inclusion and exclusion criteria have been described in our previous studies.^{3–6} Healthy control subjects had dental caries, pulpal disease, malocclusion, or missing of teeth but did not have any oral mucosal or systemic diseases.^{3–6} In addition, none of the RAS/BD patients had taken any prescription medication for BD and RAS at least 3 months before entering the study.

The blood samples were drawn from our RAS/BD patients and healthy control subjects for measurement of complete blood count, serum iron, vitamin B12, folic acid, and homocysteine concentrations as well as serum GPCA, TGA, and TMA levels. All the RAS/BD patients and healthy control subjects signed the informed consent forms before entering the study. This study was reviewed and approved by the Institutional Review Board at the National Taiwan University Hospital.

Determination of complete blood count and serum iron, vitamin B12, folic acid and homocysteine concentrations

The complete blood count and serum iron, vitamin B12, folic acid, and homocysteine concentrations were determined by

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