Oral manifestations in vitamin B12 deficiency patients

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Background: The purpose of this study was to compare clinical features of vitamin B12 deficiency patients.

Methods: 50 patients with vitamin B12 deficiency were included. Patients' chief complaints, oral manifestations, blood examination results, and past medical histories were reviewed.

Results: The chief complaint was tongue pain for all patients (70%). Other symptoms of the patients included dry mouth (20%), pain in other intraoral mucosal areas (06%)and dysgeusia (04%).

Conclusions: Vitamin B12 deficiency and its associated etiological factors should be considered in patients with glossodynia.

Keywords: Oral, Vitamin B12.

Introduction

Glossodynia is one of the most common oral symptoms in elderly people. This symptom has various etiologies, including trauma, local infection, anemia, diabetes mellitus, nutritional deficiencies, and trigeminal neuropathy.[1-3]Vitamin B12 is one of important nutritional components that affect oral health. Individuals with decreased levels of vitamin B12 have been reported to exhibit various oral manifestations such as glossitis, glossodynia, recurrent ulcers, cheilitis, dysgeusia, lingual paresthesia, burning sensations, and pruritus.[4-8] Moreover, 64.3 % of vitamin B12 deficiency patients (9 of 14 patients) with oral signs and symptoms were non-anemic and normocytic, suggesting the importance of more detailed blood screening in this patient group.[9]Most patients with vitamin B12 deficiency encountered in dental clinics have a history of gastrectomy due to gastric cancer. These patients have difficulty in absorbing vitamin B12 because the source of intrinsic factor, a glycoprotein known to be involved in vitamin B12 absorption in the ileum, is partly or totally eliminated by gastrectomy.[10,11]

Hence, this study was conducted to assess oral manifestations in vitamin B12 deficiency patients.

Material and methods

This study was a retrospective study based on chart review. Inclusion criteria was low vitamin B12 level (<200 pg/mL) and there was no specific exclusion criteria. Among the patients who were examined, 50 patients were found to have a decreased level of vitamin B12 and were included in this study.Each patient's oral symptoms, oral manifestations, blood test results, and prior medical history

were examined. Additionally, the outcomes of medical consultations as well as the evolution of oral symptoms were reviewed. Before beginning therapies for oral complaints, blood tests were performed during the initial evaluation.Red blood cell (RBC) count, hematocrit, haemoglobin (Hb), hematocrit (Hct), hematocrit (Hct), hematocrit (Hct), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular haemoglobin concentration (MCHC), and mean corpuscular haemoglobin (MCH) are among the results of blood examination. The normal range for these parameters is: male The value of 25 pg/mL was used to calculate the mean when the vitamin B12 level was "25 pg/mL."

Results

The chief complaint was tongue pain for all patients (70%). Other symptoms of the patients included dry mouth (20%), pain in other intraoral mucosal areas (06%)and dysgeusia (04%).

Table 1: oral manifestations of subjects with vit b12 deficiency.

Oral manifestations	**Number of subjects**	**Percentage**
Tongue pain	35	70%
Dry mouth	10	20%
Pain in intraoral mucosal areas	03	06%
Dysgeusia	02	04%

Discussion

Vitamin B12 is one of the important micronutrients for brain development and function. The developing brain was more sensitive to the deficiency of this micronutrient than the mature brain. Fetal requirements are obtained by active transport through the placenta. Vitamin B12 (cobalamin) deficiency is common in Indians; largely owing to vegetarianism.[12] Micronutrient deficiency is a serious childhood problem in developing countries. Deficiencies of vitamins A, B12, iron, folic acid, and zinc are preventable causes of poor child growth and school performance.[13] For the pediatric dentists, it is a matter of concern because oral health is the reflection of the body. Healthy teeth and gums provide a healthy body. Poor oral health has its effects to various organ systems, during pregnancy causing prematurity to long-term effects in off-springs, can be a risk factor to heart diseases. There are certain essential nutrients, micro- and macro-nutrients which are required for overall development of an individual.[14,15]

In this study,the chief complaint was tongue pain for most of the patients (70%). Other symptoms of the patients included dry mouth (20%), pain in other intraoral mucosal areas (06%)and dysgeusia (04%).

Pontes et al[16]found presence of oral signs and symptoms, including glossitis, angular cheilitis, recurrent oral ulcer, oral candidiasis, diffuse erythematous muco-sitis, and pale oral mucosa in subjects with cobalamin deficiency offering the dentist an opportunity to participate in the diagnosis of this condition.

Conclusion

It was concluded that glossodynia was the most common oral manifestation among subjects with vitamin B12 deficiency.

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