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Oral Manifestations for Thalassemia Patients at the Thalassemia Center Located at Ramadi Women and Children Hospital

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ABSTRACT

Thalassemia is one of the most confusing hemoglobinopathies. It is a kind of chronic inherited microcytic anemia characterized by defective hemoglobin synthesis and ineffective erythropoiesis. There is no fixed oral evidence that can be found in patients with thalassemia. 46 women and 35 men were examined with thalassemia and counted all the oral manifestations associated with this disease in order to know what evidence could be related to the disease and examined 48 women and 37 men from the normal person as a control group.thalassemia patients had significantly higher frequencies of all oral manifestations than healthy controls ($p < 0.001$ for all), in which burning sensation of oral mucosa (79%), lingual varicosity (88.9%), dry mouth (74%), atrophic glossitis (37%), and numbness of the oral mucosa (34.6%) Recurrent aphthous ulcerations (18.5), Dysfunction of taste (24.7), Oral lichen planus (21) were the oral manifestations for thalassemia patients.there were many oral lesions related to thalassemia.

Keywords: thalassemia, oral manifestation

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INTRODUCTION

Human blood cells are exposed to many genetic disorders, which, in turn, lead to anemia or polycythemia. One of these imbalances is a defect in the functions of enzymes such as a deficiency in the enzyme glucose-6-phosphate dehydrogenase. Another genetic defect leads to hemoglobinopathies.

In this study, the oral evidence associated with thalassemia in patients with it will be identified. In the case of thalassemia, the body produces abnormal hemoglobin (HB). (HB) is a component of four protein chains, two α and two β globin chains coordinate into a heterotetramer.the α globin chains is encoded with two nearby genes in chromosome 16, but the β chain is encoded with a single close gene at chromosome 11 .α-thalassemia and β-thalassemia are the two main types of thalassemia: when a gene or genes related to the α globin protein are mutated or missing the type of thalassemia is the α-thalassemia, and if the defects occur on the β globin protein the type of thalassemia is β-thalassemia . Both of the two types of thalassemia either: thalassemia major (when the defective genes from father and mother); or thalassemia minor (when the gene that have been defected come from either father or mother). (1).

Anemia or polycythemia occurs due to the exposure of blood cells to genetic disorders that affects them (2). Any disturbance that occur on the function of the enzymes such as glucose 6-phosphate dehydrogenase deficiency may also cause anemia or polycythemia. Hemoglobinopathies may result from other genetic disturbances. The blood transfusion usually worsens the problem of thalassemia because of the iron over load which give poor prognosis and complicate the management of thalassemia patients. In many study they found that in the jaws of thalassemia patients, cortical bone is thin, decays in some areas of alveolar bone, enlarged bone marrow spaces and coarse trabeculation (3). In some patients, lamina dura is thin, short root of the teeth, prominence of premaxilla. The mandible appears less prominent than maxilla due to the dense mandibular cortical layer which tries to decrease the expansion (4).

Other symptoms and signs include deformity in the bone of the face, growth failure of growth, disturbances of breath, fatigue, and yellow skin (jaundice). atrophic glossitis (AG) or generalized oral mucosal atrophy and tenderness or burning sensation of oral mucosa are signs of mild to severe anemia (5).

To date, no specific oral manifestations of thalassemia patients has been found for either α- or β-thalassemia, or even the proportion of patients who have these manifestations. In this study, 65 TT patients were collected from the thalassemia center at the Women and Children Hospital in Ramadi. The oral manifestations that collected include the following : dry mouth, dysfunction of taste, burning sensation and numbness of oral mucosa, lingual varicosity, AG, oral lichen planus (OLP) and recurrent aphthous ulcerations (RAU).

MATERIAL & METHODS

All oral manifestations in patients with thalassemia were examined from the thalassemia Center's visitors at the Women's and Children's Hospital from June 2019 to October of the same year. We excluded all the thalassemia patients with autoimmune diseases such as rheumatoid arthritis, systemic lupus erythematosus,pemphigus vulgaris,Sjogren syndrome and inflammatory diseases(6). Burning mouth syndrome (BMS) was diagnosed when there was no mucosal alterations that occurred with the burning sensation of oral

mucosa (7). The appearance of oral ulceration every month of the year, the diagnosis was recurrent aphthous ulcer RAU (8). Atrophic glossitis when there was area at the central portion of the tongue with complete or partial absence of filiform papillae, these erythematous area about 2 X 3 cm. (9). Scattered pinpoint petechiae was present at the affected area of the hard palate which appear inflamed in the midline. The oral mucosa appeared paler than normal.

Oral lichen planus diagnosed according to:
1. The form of the lesion: radiating grayish white Wickham striae or papules known as nonerosive OLP, when combined with erosion or ulceration bilaterally on vestibular or buccal mucosa known as erosive OLP.
2. Characteristics of the biopsy specimens of OLP, which is either: parakeratosis or hyperkeratosis , epithelium acanthosis when basal epithelial cells degeneration , a pronounced band-like lymphocytic infiltrate in the lamina propria, and the absence of epithelial dysplasia (10,11and 12).

RESULTS

The results of this study have been summarized in table (1) for 81 thalassemia patients and 85 healthy persons as control group for the oral manifestations that related to thalassemia. The oral manifestations are significantly higher in thalassemia patients than in control group ($p < 0.001$ for all), dry mouth (74%), burning sensation of oral mucosa(79%), lingual varicosity (88.9%),and numbness of the oral mucosa (34.6%), atrophic glossitis (37%), Recurrent aphthous ulcerations (18.5), Dysfunction of taste (24.7) , Oral lichen planus (21). Oral manifestations for TT patients (Table 2).

The finding of Oral manifestation	The presentation (%)		*p* (Chi-square test)
	Patients with thalassemia trait (*n* = 81)	Healthy controls (*n* = 85)	
Dry mouth	60 (74)	0 (0)	<0.001*
Burning sensation	64 (79)	0(0)	<0.001*
Lingual varicosity	72 (88.9)	0 (0)	<0.001*
Numbness	28 (34.6)	0 (0)	<0.001*
Atrophic glossitis	30 (37)	0 (0)	<0.001*
Recurrent aphthous ulcerations	15 (18.5)	0(0)	<0.001*
Dysfunction of taste	20 (24.7)	0 (0)	<0.001*
Oral lichen planus	17(21)	0 (0)	<0.001*

Chi-square test for Comparison the result of oral manifestation in 81 thalassemia patients and 85 healthy person was $p < 0.05$.

DISCUSSION

In this study, we found dry mouth (74%), burning sensation of oral mucosa (79 %),lingual varicosity (88.9),numbness of the oral mucosa (34.6%),atrophic glossitis (37%),recurrent aphthous ulceration (18.5%),dysfunction of taste(24.7%) ,oral lichen planus (21) .in other study previously done for 399 burning mouth syndrome patients they found dry mouth 43.9%,, burning sensation of oral mucosa 92.5%,, lingual varicosity75.7%, , numbness of oral mucosa(19.8%), (13) ,and for 176 atrophic glossitis patients they found lingual varicosity 98.9%, dry mouth 79.0%, numbness of oral mucosa 57.4%, and dysfunction of taste 27.8%(14). So, the significantly higher rate of all oral manifestations due to the relation of their present in burning mouth syndrome patients or atrophic glossitis patients; these manifestations include including burning sensation of oral mucosa, dry mouth, lingual varicosity, numbness of oral mucosa, and dysfunction of taste than healthy controls hemoglobins reduced in anemia. This will lead to carry insufficient oxygen to oral mucosa which cause atrophy of oral mucosa (6). Thalassemic patients complain from burning sensation, numbness of oral mucosa and dysfunction of taste due to atrophy of oral mucosa. In the present study, it has been concluded that thalassemic patients have specific oral manifestations in comparison with normal person.

The hyperplasia and the expansion of the marrow cavity are the main cause of the most common orofacial manifestations. Moreover, it has always been concluded that TT patients do have specific oral manifestations and a particular blood profile compared to normal controls. The most common orofacial manifestations are due to intense compensatory hyperplasia of the marrow and expansion of the marrow cavity (15).

Patient with thalassemia major have swelling and Pain in the parotid glands due to the deposits of iron in the serous cells.

Loss of papillae on the tongue and glossodynia are the symptoms of folic acid deficiency and Iron-deficiency anemia similar to those present on thalassemic patients (16). Folic acid deficiency is a common complication of thalassemia minor (17).

Therefore, the differential diagnosis of glossodynia and loss ofpapillae is the thalassemia.

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