Nat. Volatiles & Essent. Oils, 2021; 8(6): 4766-4771

NVEO
Natural Volatiles & Essential Oils

Prevalence Of Dental Caries Among B Thalassemia Children Compared With Healthy Controlled Children In Basrah Governorate\Iraq

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ABSTRACT

Background: thalassemia is hemolytic disease characterized by deficiency of the alpha formation or beta globin chain synthesis, the aim of the study is to evaluate the relation of B-thalassemia and caries of teeth.

Materials and methods: the sample consist of 48 patients were examined, the case group were examined in thalassemia center in Basrah city while controlled group was examined among children attending college of dentistry dental clinic. Decayed, missed and filled teeth indices were used for detection of caries experience in deciduous and permanent teeth according to criteria of WHO (1987).

Results: results illustrate the DMFT total mean value of permanent dentitionfor thalassemia patients aged 6-8 years old was (4.33) while for controlled patients(0.62) with statistically significant difference, at age 9-12 years old the total mean value of DMFT of permanent dentition for thalassemia patients (1.00) while for controlled patients(2.50) with statistically significant difference.

The total mean value of dmft of primary dentition for thalassemia patients aged 6-8 years old was (6.77) while for controlled patients(6.23) with no statistically significant difference, regarding the age of 9-12 years old the total mean value of dmft of primary dentition for thalassemia patients (4.80) while for controlled patients(3.33) with no statistically significant difference.

Key word: thalassemia, DMFT and dmft.

Introduction

Thalassemia means thegenetic bleeding disease where the hemoglobin is synthesized in abnormal form that lead to destruction of red blood cells and impair in oxygen transport.[1]

The beta thalassemia major disorder is the severest aspect of hereditary hemolytic anemia(Cooley's Anemia). It is the consequence of the unusual lβ-chain hemoglobin synthesis, usually it is starting to appear earlier in the life of prenatal between 4 and 6 months during the HbF to HbA switching. Children seeking from this disorder most of the time have hematocr it in about 20% and those children usually suffering from most of the chronic anemia disorder complications for example the growth retardation.[2,3]

Dental caries is irreversible disease caused by microbial factor, in which there isdissolving of the organic tissue and demineralization of the inorganic ones that lead to cavity formation [4]. For dental caries to occur four factors must be available (the host, microflora, substrate and time) [5,6].

There are few studies conducted regarding the caries prevalence among children suffering from beta thalassemia in Iraq, some studies mentioned that teeth caries prevalence higher withc hildren carrying thalassemia in comparison with healthy ones [7, 8, 9]while other study conclude that it was similar[10], therefore this study was made to evaluate the degree of dental caries prevalence for children with beta thalassemia in comparison to healthy ones and develop appropriate preventive program for the patients.

MATERIALS AND METHODS

This comparative study starts from January 2021 to October 2021, the sample in this study comprised of 48 patients with an age ranged 6-12 years old(32 males, 16 females) attending the Specialized center of thalassemia in Basrah city / south of Iraq, the patients diagnosed as having β –thalassemia major and they were attending thalassemia center for their scheduled management. Sample of comparative healthy children with similar gender and age were examined.

Clinical examination was carried out in a suitable room under standardized condition using plane mouth mirror no. (4) And sickle shaped xplorer no. (0). Tooth was diagnosed to be carious according to the criteria suggested by WHO 1987; examination was carried out startedfrom the upper second molar in the right side proceeding from this tooth to the other adjacent tooth or space and ending with the lower right second molar. The deciduous teeth crown condition recorded depend on the alphabetical system of coding, on the other hand we follow the numerical coding system for permanent teeth condition(WHO 1987). If both deciduous and permanent teeth located in the same space, the permanent teeth status was considered alone. SPSS version 27 used for data analysis

Results

Caries experience of permanent dentition DMFT seen in table1, results illustrate the total DMFT mean value of B thalassemic patients (2.43) was higher than controlled (1.21) but no statistically significant difference were found.

Total thalassemic males (3.50)had higher mean value than controlled males (0.75) with statistically significant difference, while total thalassemic and controlled females had the same mean value (2.00).

Regarding the age 6-8 years old, the total mean value of DMFT in B thalassemic patients (4.33) was higher than controlled (0.62) with statistically significant difference, P-value (0.002).

Both thalassemia males and females had higher mean value than controlled patients at age 6-8years old with statistically significant difference, P-value (0.001).

At age 9-12 years old, the total mean value of DMFT of controlled patients (2.50) was higher than thalassemia patients (1.00) with statistically significant difference.

Regarding caries experience of primary dentition dmft seen in table 2 the total mean value of dmft of thalassemia patients (6.22) was higher than controlled (5.32) with no statistically significant difference.

At age of 6-8 years old, the total mean value of dmft in B thalassemia patients (6.77) was higher than controlled (6.23) with no statistically significant difference.

Thalassemia male patients had higher mean value (7.10) than controlled one (6.10) at 6-8 age while controlled females (6.67) have higher mean value than thalassemia ones(5.67) with no statistically significant difference.

At age (9-12) total thalassemic patients had higher mean value (4.80) than controlled ones (3.33) with no statistically significant difference.

Table (1): caries experience DMFT (mean SD) of permanent teeth of B- thalassemia major and control group according to age and gender

Age	gender	type	Mean	Std. Deviation	N	p-value	Sig.
6-8	F	control	2.00	2.000	3	0.001	S
		thalass	6.00	.	1		
	M	control	.20	.632	10	0.001	S
		thalass	3.50	.707	2		
	Total	control	.62	1.261	13	0.002	S
		thalass	4.33	1.528	3		
9-12	F	control	2.00	1.414	4	0.087	NS
		thalass	1.00	.000	4		
	M	control	3.50	.707	2		
	Total	control	2.50	1.378	6	0.047	S
		thalass	1.00	.000	4		
Total	F	control	2.00	1.528	7	1.0	NS
		thalass	2.00	2.236	5		
	M	control	.75	1.422	12	0.01	S
		thalass	3.50	.707	2		
	Total	control	1.21	1.548	19	0.237	NS
		thalass	2.43	1.988	7		

Table (2): caries experience dmft (mean SD) of primary teeth of B- thalassemia major and control group according to age and gender

Age	der	Type	Mean	Std. Deviation	N	p-value	Sig
6-8	F	Control	6.67	2.517	3	0.381	NS
		Thalassemia	5.67	2.517	3		
	M	Control	6.10	3.784	10	0.276	NS
		Thalass	7.10	3.107	10		
	Total	control	6.23	3.444	13	0.632	NS
		thalass	6.77	2.948	13		
9-12	F	control	3.00	2.582	4	0.087	NS
		thalass	5.00	2.000	3		
	M	control	4.00	2.828	2	0.457	NS
		thalass	4.50	3.536	2		
	Total	control	3.33	2.422	6	0.102	NS
		Thalass	4.80	2.280	5		
Total	F	control	4.57	3.047	7	0.122	NS
		thalass	5.33	2.066	6		
	M	control	5.75	3.621	12	0.207	NS
		thalass	6.67	3.172	12		
	Total	control	5.32	3.384	19	0.122	NS
		Thalass	6.22	2.861	18		

Discussion

Thalassemia is a disease that cause a change to the life of individual, dentists should have excellent disease oral manifestation knowledge to educate the parents and the children and improve the dental care for the child.

This study showed higher dental caries prevalence for B- thalassemia patients compared to controlled children.

The results illustrated that the total DMFT and dmft mean value in B thalassemia patients higher than controlled patients and this agreed with other studies[11, 12, 13, 14], regarding age groups of 6-8 years old the total mean value of DMFT in B thalassemic patients was higher than controlled patients with statistically significant difference this is agreed with Ghanimet al [15,16]this may be attributed to parents neglect of maintaining good oral hygiene and focusing on the medical heath of the child, malocclusion, systemic disease and decrease in the (IgA) level all these factors contributed to increase rate of dental caries.

Regarding gender differences, total thalassemia males had higher DMFT mean value (3.50) than females (2.00).

Thalassemic patients in this study were examined in a center where they received blood transfusion to raise the hemoglobin level in the blood, this cause change of the immune system of the patients and made him more susceptible to multiple disease and infections including dental caries [17].

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