

Oral Health Status among Group of Patients with Juvenile Idiopathic Arthritis According to Duration of Illness and Age Group in Iraq

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ABSTRACT

Background: Juvenile idiopathic arthritis (JIA) is a chronic disease of childhood. Increased prevalence of periodontal disease and dental caries in juvenile idiopathic arthritis is due to difficulties in executing good oral hygiene. This study was conducted to assess oral health status in patients with Juvenile idiopathic arthritis according to age and duration of illness.

Materials and methods: A research was conducted among Juvenile idiopathic arthritis patients attending Baghdad Teaching Hospital with different age and both gender, underwent a clinical evaluation of their dental and oral condition. Diagnosis of dental caries was done according to the criteria of WHO (1997). Dental plaque, gingival condition, calculus were assessed by PI/ GI/Cal I following the criteria of Silness and Loe (1964), Loe and Silness (1963), Ramfjord (1959) respectively .

Results: The study showed the percentage of caries-free patients was 6.17%. Mean value of caries experience of primary teeth decreased with increasing age while caries experience of permanent teeth increased with increasing age, PI and Cal indices mean values increased with increase age and difference was found significant. Mean value of dmft decreased with the disease advance and significant difference was found. Caries experience of permanent teeth increase with increase disease duration and difference was significant.

Conclusion: The systemic effect of disease may impact on oral health

Keywords: Juvenile idiopathic arthritis, oral health. (J Bagh Coll Dentistry 2016; 28(4):158-161)

INTRODUCTION

Juvenile idiopathic arthritis (JIA), the most common chronic rheumatic disease in children ⁽¹⁾ is comprises a group of distinct clinical entities of unknown etiology ⁽²⁾. This disease is characterized by joint inflammation with symptoms persisting for more than six weeks and onset before 16 years of age ^(3,4).

Oral manifestations associated with JIA include increased dental caries, poor oral hygiene, and malocclusion. Oral hygiene is poor across all age groups. Poor oral hygiene may be results of upper-limb involvement, which may affect the patient's ability do the fine-motor movements required for efficient, tooth brushing and flossing ⁽⁵⁾.

Patients with JIA have a higher caries index and more decayed, filled, and missing teeth than age-matched groups as well as increased frequency of decayed teeth in all major age groups ^(6,7). Studies have demonstrated that chronic arthritis in children has a multifaceted impact on their lives when they advance in age with arthritis ⁽⁸⁻¹⁰⁾.

This impact can be on one end hard disease outcomes like organ failure or mortality and on the other end soft outcomes such as psychological status or quality of life ⁽¹¹⁾.

Continuing active disease over prolonged periods results in significant levels of disability that adults with JIA often encounter ⁽¹²⁾.

On our knowledge there are no available Iraqi studies that investigate oral health status in juvenile idiopathic arthritis and these patients need special attention about oral health, preventive program. For the previous reasons we decided to conduct this study to gain knowledge regarding oral health status as part of multidisciplinary treatment of this target group.

MATERIALS AND METHODS

A research were conducted among patients attending Baghdad Teaching Hospital, both gender, underwent a systematic clinical evaluation of their dental and oral condition. Diagnosis and recording of dental caries was assessed according to the criteria described by WHO ⁽¹³⁾.

Plaque index of Silness and Loe ⁽¹⁴⁾ was used for plaque assessment, Ramfjord index ⁽¹⁵⁾ was applied for the assessment of calculus, gingival index of Loe and Silness ⁽¹⁶⁾ was followed for recording gingival health condition and all these were assessed according to the age of the patients which were registered according to the last birthday ⁽¹³⁾ and duration of illness were taken from medical records to extract data and confirm the diagnosis.

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RESULTS

Results of this study showed that eighty one patients (forty six female and thirty five male) with mean age 17.59 ± 9.63 with age range (2.5-48 years old and Illness duration 8.45 ± 9.29 with range (2 month-38 year) with JIA attending Baghdad Teaching Hospital Department of Rheumatology in five months period. Of the total sample, there were 6.17% of patients free of caries. Disease in the primary dentition was looked at in the 2.5-15 years age group and in a 2.5-5 years subset.

In this latter subset the subject group would only have primary teeth, whereas in the 2.5-15 years group the older subjects would also have some permanent teeth. Caries experience of primary dentition (dmft) mean value decrease with increasing age as shown in Table (1) while

caries experience of permanent dentition (DMFT) were examined in three age groups: 6–10 year, comprising patients with permanent teeth but who would also be expected to have some remaining primary teeth; 11-20 year, the young permanent dentition; and 21+ year, the mature permanent dentition.

Caries experience of permanent dentition increased with age and difference was found statistically highly significant as shown in Table (2). PI and Cal indices mean values increased with age and the difference was statistically significant Table (3, 4). Mean value of dt, ft and dmft decreased with the disease advance and statistically significant difference was found as shown in Table (5). DMFT increase with increase disease duration and difference was statistically significant Table (6).

Table 1: Caries experience of primary dentition (mean and standard deviation) among patient with Juvenile Idiopathic Arthritis according to age

Caries experience	Age group (Year)	No.	Mean	SD	df	T-test	Sig.
dt	2.5-10	26	3.42	2.80	40.89	3.85	0.00**
	11-15	27	0.96	1.70			
	Total	53	2.17	2.60			
mt	2.5-10	26	0.12	0.33	25	1.81	0.08
	11-15	27	0.00	0.00			
	Total	53	0.06	0.23			
ft	2.5-10	26	0.23	0.51	25	2.29	0.03*
	11-15	27	0.00	0.00			
	Total	53	0.11	0.38			
dmft	2.5-10	26	3.77	3.02	39.03	4.14	0.00**
	11-15	27	0.96	1.70			
	Total	53	2.34	2.80			

Not significant at $P > 0.05$, *Significant at $P < 0.05$, **=highly significant at $P < 0.01$

Table 2: Caries experience of permanent dentition (mean and standard deviation) among patient with Juvenile Idiopathic Arthritis according to age

Caries experience	Age group (Year)	No.	Mean	±SD	F-value	Sig.
DT	6-10	19	1.00	1.41	10.00	0.00**
	11-20	39	4.08	3.12		
	21+	16	4.44	2.68		
	Total	74	3.36	3.00		
MT	6-10	19	0.00	0.00	14.30	0.000**
	11-20	39	0.15	0.43		
	21+	16	1.56	2.00		
	Total	74	0.42	1.13		
FT	2.5-10	19	0.16	0.69	6.46	0.003**
	11-20	39	0.38	0.67		
	21+	16	1.56	2.39		
	Total	74	0.58	1.34		
DMFT	6-10	19	1.16	1.46	14.93	0.00**
	11-20	39	4.62	3.35		
	21+	16	7.56	5.14		
	Total	74	4.36	4.09		

**=highly significant at $P < 0.01$

Table 3: Plaque index (mean and standard deviation) among patients with Juvenile Idiopathic Arthritis according to age

Variables	Age groups	No.	Mean	±SD	ANOVA	
					F-value	Sig
PI I	2.5-10	26	0.83	0.29	5.01	0.009**
	11-20	39	1.05	0.23		
	21+	16	1.06	0.4		
	Total	81	0.98	0.31		

Table 4: Calculus index (mean and standard deviation) among patients with Juvenile Idiopathic Arthritis according to age

Variable	Age group (year)	No.	Mean	±SD	Median	Mean rank	Chi-square	Sig.
Cal I	2.5-10	26	0.00	0.02	0.00	32.81	10.98	0.004**
	11-20	39	0.08	0.27	0.00	42.46		
	21+	16	0.17	0.30	0.00	50.75		
	Total	81	0.07	0.24	0.00	-----		

df=2, **=highly significant at P<0.01

Table 5: Caries experience of primary dentition (mean and standard deviation) among patient with Juvenile Idiopathic Arthritis according to duration of illness

Caries experience	Duration of illness (Year)	No.	Mean	±SD	T-test		
					T-value	df	Sig.
dt	≤ 6.00	30	2.47	2.72	2.46	24.4	0.02*
	6.01+	23	0.90	1.52			
mt	≤ 6.00	30	0.07	0.26	0.85	51	0.40#
	6.01+	23	0.00	0.00			
ft	≤ 6.00	30	0.14	0.41	2.22	42	0.03*
	6.01+	23	0.00	0.00			
dmft	≤ 6.00	30	2.67	2.93	2.69	26.9	0.01*
	6.01+	23	0.90	1.52			

#=Not significant at P > 0.05, *Significant at P < 0.05

Table 6: Caries experience of permanent dentition (mean and standard deviation) among patient with Juvenile Idiopathic Arthritis according to duration of illness

Caries experience	Duration of illness	Mean	±SD	F-value	P-value
DT	≤10	2.81	2.88	3.52	0.04*
	11-20	4.25	2.86		
	21+	5.20	3.08		
MT	≤10	0.12	0.38	27.38	0.000**
	11-20	0.17	0.58		
	21+	2.30	2.16		
FT	≤10	0.35	0.71	8.99	0.000**
	11-20	0.33	0.65		
	21+	2.10	2.88		
DMFT	≤10	3.27	3.21	13.66	0.000**
	11-20	4.75	3.11		
	21+	9.60	5.30		

* Significant at P<0.05, **=highly significant at P<0.01.

DISCUSSION

Unfortunately this is the first Iraqi study of oral health status among JIA. In the present study prevalence of dental caries was 93.83%. Oral health can be indirectly affected by JIA this may be attributed to a combination of etiological factors, including difficulties in executing good

oral hygiene, unfavorable dietary practices, and side effects from the long-term administration of medication⁽¹⁷⁾.

On our knowledge no previous study concerning oral health assessment of juvenile idiopathic arthritis according age or duration of illness to compare with. Mean value of caries

experience of primary dentition (dmft) was decreased with increase age and all caries experience fraction of primary dentition decrease with disease advance. This finding is in agreement with Al-Haddad et al. (18); this result may be attributed to transition of primary to mixed dentition.

The opposite was true for permanent dentition, mean value of caries experience of permanent dentition (DMFT) were increased with increase age groups. This comparison according dental caries with ageing is found in several Iraqi studies in addition to present study despite of juvenile idiopathic arthritis. The results of these Iraqi studies showed that caries prevalence increased with age (19,20) also in Iraqi a study of oral health of systemic lupus erythematosus (SLE) patients there was highly significant positive correlation between age of SLE patients and DMFT (21). These results are attributed to the irreversibility of caries process and accumulative nature of the disease on the one hand, and the paucity of planned preventive programmers in Iraq. In this study scores of plaque/gingival/calculus indices increased with increasing age. Increasing dental plaque with age reported by many previous studies that could be attributed to in young age no detectable loss of the bone or connective tissue attachment which usually start late in life in most people and observed also among JIA patients and may increase in severity with age advancing (8,22), or effect of disease and medication were all elements that apparently contributed to impairment of periodontal health condition (6) also the relation between dental caries and oral cleanliness, especially dental plaque was recorded by other studies (23, 24).

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