PREVALENCE OF PERIODONTAL DISEASE AMONG RHEUMATOID ARTHRITIS PATIENTS

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ABSTRACT

Background: Patients with rheumatoid arthritis (RA) may have higher prevalence of periodontitis.
Aim: To determine the prevalence of periodontal disease among rheumatoid arthritis patients.
Patients and methods: Cross-sectional study was done on 250 patients, who were selected by from patients attending Duhok Center for Rheumatic Disease and Medical Rehabilitation. Periodontal health status of the patients based on probing pocket depth score, clinical attachment loss, and disease activity score was determined. Validated questionnaire was used to record smoking, body mass index, tooth brushing, duration of rheumatoid arthritis disease.
Results: The age range of patients was 35-60 years. All rheumatoid arthritis patients have some degree of periodontal diseases, 133(53.2%) with mild and 117(46.8%) with moderate periodontitis.
A significant prevalence of periodontal diseases occurred in patients with age group (40-54) years was 144 (57.6%) compared to younger age 46 (18.4%) and older age 60 (24%) respectively, p-value <0.001 The duration of diseases was more significant in intermediate (1 year to 3 years) 125 (50%) compared to early (< 12 months) 45 (18%) and longer disease (> 3 years) 80 (32%) p-value<0.001.
Conclusion: All patients were suffering from some degree of periodontal diseases with no significant difference in severity between males and females.

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Keywords: Periodontitis, Rheumatoid arthritis

Rheumatoid arthritis (RA) is characterized by systemic inflammation of wrist and hand joints and leads to destruction of joints and permanent deformity; it is associated with early mortality; its cause has not been established yet.[1] Periodontal disease (PD) is an inflammation of the tissue which supports and surrounds the tooth and leads to a chronic inflammatory status. Several relations have been found between PD and different diseases like RA, diabetes and hypertension.[2]

Berthelot et al. found that a significant relationship is present between these two chronic inflammatory diseases; the pathological process of both are similar.[3] Abbas et al. indicated that subjects at risk of developing periodontitis are at the same time at risk of developing RA, or vice versa.[4]

Periodontitis is as a risk factor for RA has been shown in some pilot studies.[5-8] After management of periodontitis, a decrease in disease activity of RA occurred, probably due to a reduction in periodontitis associated inflammatory burden. Increased levels of erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) have been noticed in RA patients with

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periodontitis because periodontitis also has inflammatory burden.9-12 Thus, increased systemic inflammation in periodontitis may increase severity of RA.[13] Likewise, Helicobacter pylori infections may be the cause for increased severity of RA by posing inflammatory burden; eliminating Helicobacter pylori from RA patients improved their laboratory markers of disease activity and clinical condition.[14] Several studies found that patients with RA have significant periodontitis compared to non-RA individual.[15-16] Other study concluded that patients with RA are twice as likely to have periodontal disease compared to non-RA individual.[17]

The goal of this study was to find the prevalence of periodontal disease among rheumatoid arthritis patients in Duhok city.

PATIENTS AND METHODS

This cross-sectional study occurred during December 2013 until May 2015. The study population consists of 250 patients both male and female, chosen from every third patient attended Duhok Center for Rheumatic Disease and Medical Rehabilitation during the period of the study. All patients were informed about the nature of the study and then verbal consent was obtained from each one. The study protocol was approved by the ethics Committee of the General Directorate of Health in Duhok. All RA patients have already diagnosed by Rheumatologists according to revised American College of Rheumatology /European League Against Rheumatism classification criteria for rheumatoid arthritis.18 The exclusion criteria for the RA, include patients that are not able to tolerate any of the study procedures, and being diagnosed with diabetes I or II, Osteoporosis, Pregnancy.

In Dental Health Polyclinic, assessment of periodontal disease was done by using of disposable gloves and mask, disposable dental mirror and calibrated periodontal probe (William probe). The clinical attachment loss (CAL) examination was done by Williams probe. For chronic periodontitis 4 sites were examined for each tooth: distobuccal, mesiobuccal, midlingual and midbuccal (Loe and Brown)[19]. This included CAL and probing pocket depth (PPD). The CAL was estimated by measuring the distance from cement-enamel junction to base of the pocket. The severity was measured according to the scale of the American Academy of Periodontology[20]:

Mild: 1-2mm of attachment loss

Moderate: 3-4 mm of attachment loss

Severe :≥ 5 mm of attachment loss

The Body Mass Index (BMI) was measured. The weight was checked using digital scales with the patient wearing the lightest possible clothes, while the height was measured by special height ruler with patients standing straight without shoes. A BMI < 25 was considered normal, 25-29.9 overwight and those with BMI ≥ 30 were consedred obese[21]

Statistical analysis

Analysis of data was done using SPSS version 23 (2015). Quantitative data were analyzed with Chi-square test; p –value less than 0.05 was considered significant.

RESULTS

The study was done on 250 patients (99 male and 151 female) with RA. Mean age ± standard deviation of participants was 48.8 ± 8 years and the mean BMI was 28.1± 2.9. The prevalence of tooth brushing was 22.8%. The prevalence of smoking was 36%, as shown in Table 1.

Table (1): Demographic and other clinical characteristics

		No.	%	Mean	SD	Range
Gender	Male	99	39.6			
	Female	151	60.4			
	25 - 39	46	18.4			
Age (years)	40 - 54	144	57.6	48.8	8.5	27.0 - 66.0
	55 - 69	60	24.0			
Duration of	1	45	18.0			
Disease (years)	2	125	50.0	2.1	0.7	1.0 - 3.0
	3	80	32.0			
	18.5 - 24.9	31	12.4			
BMI (kg/m2)	25 - 29.9	137	54.8	28.1	2.9	23.3 - 34.3
	≥ 30	82	32.8			
Tooth brushing	Yes	57	22.8			
	No	193	77.2			
Smoking	Yes	90	36.0			
	Not smoker	160	64.0			
Total		250	100			

All rheumatoid arthritis patients suffered from periodontitis; with 133 (53.2%) with mild and 117 (46.8%) with moderate periodontitis as shown in Table 2.

Table (2) Prevalence of periodontal disease in rheumatoid arthritis patients

CAL	No.	%
Mild (< 3 mm)	133	53.2
Moderate (3-4.9 mm)	117	46.8
Mean± SD (range)	2.64± 1.24 (0 – 4.9)	
Total	250	100

Table 3 shows that the prevalence of moderate periodontal diseases was significantly higher among patients aged more than 55 years in comparison to other age groups (p<0.001). Similarly the prevalence periodontitis was higher among those who have longer duration of RA (p <0.001). Severe periodontitis was significantly higher among obese patients (95.1%) in comparison to those who are normal (3.2%) and overweight (27.7%) respectively. (p <0.001)

Table 3 also reveals that the severity of periodontitis was significantly lower in those who are in the habit of regular tooth brushing (p <0.001) while no significant association was found with tobacco smoking.

Table (3) Characteristics of the patients according to chronic periodontitis

		CAL severity						P-value*
		< 3		3 - 4.9		Total		
		No.	%	No.	%	No.	%	
Gender	Male	52	52.5	47	47.7	99	39.6	0.863
	Female	81	53.6	70	46.3	151	60.4	
Age (years)	25 - 39	35	76.1	11	23.9	46	18.4	
	40 - 54	79	54.9	65	45.1	144	57.6	<0.001
	55 - 69	19	31.7	44	68.3	60	24.0	
Duration	1	38	84.4	7	15.6	45	18.0	
of	2	72	57.6	53	42.4	125	50.0	<0.001
Disease (years)	3	23	28.8	57	71.3	80	32.0	
BMI (kg/m2)	18.5 - 24.9	30	96.8	1	3.2	31	12.4	
	25 - 29.9	99	72.3	38	27.7	137	54.8	<0.001
	≥ 30	4	4.9	78	95.1	82	32.8	
Tooth brushing	Yes	42	73.7	15	26.3	57	22.8	<0.001
	No	91	47.1	102	52.8	193	77.2	

		CAL severity						P-value*
		< 3		3 - 4.9		Total		
		No.	%	No.	%	No.	%	
Smoking	Yes	51	56.7	39	43.3	90	36.0	0.410
	No	82	51.3	78	48.8	160	64.0	
Total		133		117		250	100	

*Calculated out of the total 250 patients

DISCUSSION

Chronic periodontal disease is a potential focus of inflammation, which causes the metabolic control of patients with RA to worsen.22 The pathobiology of rheumatoid arthritis and periodontal disease is the same, both are chronic inflammatory diseases, with releasing of cytokines, production of other inflammatory cell product and activation of complement. 23,24

In the present study, osteoporosis was considered a risk factor for periodontal disease progression, 25 so we excluded it from the study, as well as epidemiological studies have consistently shown that diabetes is associated with increased risk of periodontitis, 26,27 so it was excluded too.

The study found that tooth brushing will significantly reduce the severity of periodontitis. This could be due to the fact that RA patients may have more difficulties in achieving good oral hygiene because of functional limitation or joint pain and this agree with other studies. 28,29

Smoking has frequently considered as a risk factor of periodontal disease 30. Despite that, however, the study found no significant association between smoking and the severity of the disease.

The mean of periodontal diseases among RA patients in current study was (2.64 ±1.24), while other study found higher potentiality for periodontitis involvement among RA patients, possibly due to similar nature of the two diseases.31 Mercado et al in a cohort study on 1412 patients showed that percentage of the RA patients who had progressive destructions in periodontal tissues was 62.5% while in non-RA patients was 43.8% 13.

No significant difference was detected between male and female in the severity of periodontal diseases. On ther other hand, a significant association was found between the severity of periodontal disease and old ages, longer duration of the disease, obesity and non regular tooth brushing. Similar results were reported in other studies.32

All rheumatoid arthritis patients suffer from different severities of periodontal disease with no significant difference between male and female. There is need for a detailed immunological and clinical studies in a larger sample for studying this common and important diseases.

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پوختە

بەلافبوونا ئێشێت پدیێ دناف نەخوشێت ئێشێن گەهان

پێشەکی: ئارمانج ژڤێ ڤەکولینێ دیارکرنا بەلاڤبوونا ئێشێت پدیێ دناف نەخوشێت ئێشێن گەهان تا چ رادەیە.

ریکێن ڤەکولینێ: ڤەکولین ل سەر ٢٥٠ نەخوشان هاتە کرن بریکا گوترەیی ئەوێن ژیێ وان دناڤبەرا (٣٠–٦٠) سالیێ دا ئەوێن سەرەدانا بنگەهێ ئێشێن گەهان دکەن. ساخلەمیا دەف و ددانا گرێدای پیڤانا کویراتیا ڤالاهیێن پدیێ و دژواریا ئێشێن پدیێ.

ئەنجام: بەلاڤبوونا ئێشێت پدیێ دناف نەخوشێت ئێشێن گەهان ١٣٣ (٥٣,٢٪) نەخوشیا پدیێ یا سڤك. ١١٧ (٤٦,٨٪) ژوان ئێشێت پدیێ ناڤەندی. جیاوازیەکا بەرچاف دئێشێت پدیێ دا دناف بەرا نەخوشێت ئەوێن ژیێ وان دناڤبەرا (٤٠–٥٤) سالی دا هەبو بەراورد گەل وان ئەوێن ژیێ وان کێمتر ٤٦ (١٨,٤٪) و بەراورد گەل وان ئەوێن ژیێ وان پتر ٦٠ (٢٤٪).

دەرئەنجام: ئەنجامێت ڤەکولینێ دیارکر کو چ جیاوازیێن بەرچاف یا دژواریا ئێشێن پدیێ دناڤبەرا هەردو رەگەزاندا نەبو هەر چەندە ریژا رەگەزیێ مێ پتر بو ژ رەگەزیێ نێر.

الخلاصة

مدى انتشار امراض اللثة في المرضى المصابين بالتهاب المفاصل

الخلفية والأهداف: احتمالية ان يكون التهاب اللثة اكثر انتشارا في المرضى المصابين بالتهاب المفاصل.
تهدف الدراسة الى ايجاد مدى انتشار امراض اللثة في المرضى المصابين بالتهاب المفاصل.
طريقة البحث: تمت الدراسة على ٢٥٠ من المرضى الدين تتراوح اعمارهم بين ٣٠-٦٠ الدين يراجعون مركز التاهيل الصحي لامراض المفاصل. مدى صحة الفم واللثة يعتمد على قياس عمق الجيوب اللثوية و مدى فعالية المرض.
النتائج: انتشار امراض اللثة في المرضى المصابين بالتهاب المفاصل كانت ١٣٣(٥٣.٢%) التهاب لثة خفيف و ١١٧ (٤٦.٨%) التهاب لثة متوسط . يوجد اختلاف معنوي في امراض اللثة في المرضى الذين تتراوح اعمارهم بين (٤٠-٥٤) سنة كانت ١٤٤ (٥٧.٦%) مقارنة بالاقل اعماراً ٤٦ (١٨.٤%) والاكبر أعماراً ٦٠(٢٤%).
الاستنتاجات: توصلت الدراسة الى انه لا يوجد اختلاف معنوي في شدة امراض اللثة بين الجنسين ولو ان نسبة الاناث اكثر من نسبة الذ كور.