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PROFILE OF A POPULATION WITH RHEUMATOID ARTHRITIS DIAGNOSIS IN SOUTHEASTERN BAHIA

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ABSTRACT

Objective: This study aims is to evaluate the periodontal and dental condition and its associations with sociodemographic, behavioral and clinical characteristics in individuals with a diagnosis of rheumatoid arthritis. **Methodology:** The research was approved by the ethics committee in research with the number of opinion 2.234.767 and CAAE 72679117.5.0000.5578. The sample consisted of 67 individuals diagnosed with rheumatoid arthritis. The following variables were used: age, race, work-related activity, marital status, level of education, drinking and smoking habits, type of drug treatment, diagnosis time, other associated co-morbidities, periodontal condition, dental condition, salivary flow alteration, tooth brushing frequency, flossing, autonomy in hygiene and number of teeth in oral cavity. After data analysis, they were tabulated and analyzed descriptively and analytically using the SPSS 13.0 program. **Results:** The average age of the population evaluated was 51.3 years (± 11.46), with a preference for females (85.1%) with an average diagnosis time of 10.66 years (± 8.8), higher incidence of caries (58.2%). **Conclusion:** The average age of the population evaluated was 51.3 years (± 11.46), with a preference for females (85.1%) with an average diagnosis time of 10.66 years (± 8.8), a higher incidence of dental caries (58.2%).

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INTRODUCTION

Rheumatoid arthritis (RA) is an autoimmune disease of unknown origin, characterized by symmetrical peripheral polyarthritis that leads to malformation and joint destruction due to bone and cartilage wear. Usually, it affects large and small joints presenting systemic manifestations such as morning stiffness, fatigue, and weight loss. RA can also affect other organs reducing life expectancy by five to ten years (Laurindo *et al*., 2004). Although it does not represent a direct risk of death, it leads to a reduction in the patient's quality of life (Almeida *et al*., 2014).With the progression of this disease, patients manifest an inability to practice activities of both daily and professional life. (Laurindo *et al*., 2004). The job separation rate may reach over 60% after 15 years of diagnosis (Mota *et al*., 2010).Thus, for both the affected individual and society, RA promotes a remarkable socioeconomic concern (Almeida *et al*., 2014). RA affects patients' quality of life by reducing their autonomy; brushing their teeth is a painful act for most, which is why the patient's oral health is often disregarded (Garcia *et al*., 2012). Mota *et al*. (2012) also state that inflammation of the joints can lead to destruction and severe joint limitation, so that the movements become complex and unable to be performed. Oral clinical examination in RA patients points to the presence of multiple carious lesions, especially in the cervical teeth, dental absences and restorations, even in patients with satisfactory oral hygiene. Patients may present with xerostomia and hyposalivation, and this reduction in the efficiency of salivary action increases the biofilm, and dental caries index. The most common manifestation in the oral and maxillofacial joint is temporomandibular joint dysfunction, which may present clinically with pain, tenderness and joint stiffness, causing limitation of mandibular movement (Lima, 2010). The use of new therapeutic classes and the implementation of various treatment and follow-up strategies for these patients are observed (Mcinnes *et al*., 2010). The initial phase of the disease is considered as the best time for quick and effective

pharmacological intervention and may change the course of the disease over the long term, especially in its first 12 months (Mota *et al*., 2012). In Brazil, we have limited data on disease incidence, clinical course and outcomes of RA, besides few studies in the Brazilian Northeast. To meet these needs, the present study aims to evaluate the periodontal and dental condition and its associations with sociodemographic, behavioral and clinical characteristics in individuals diagnosed with RA. The patients were treated at the Specialized Pharmaceutical Care Component and at the pharmacy of a Southwestern regional health center.

MATERIALS AND METHODS

The research was approved by the ethics committee in research with the number of opinion 2.234.767 and CAAE 72679117.5.0000.5578 according to Resolution 466/12 and 519/18 of the National Health Council. The present work is descriptive/observational, following a cross-sectional study design. The study was conducted with RA patients at NRS-Sudoeste, located in Vitória da Conquista-Brazil, where 289 RA patients were registered. All of these patients were approached and invited to participate in the research at the time of appointment at NRS-Sudoeste or by telephone. However, 67 participated in the research.

The inclusion criteria were:

- individuals of both sexes;
- individuals diagnosed with RA, confirmed by The International Classification of Diseases (ICD) M05.0, M05.3, M05.8, M06.0, M06.8, M05.1, M05.2 and M08.0;
- people over 18 years old.

The exclusion criteria were:

- have a systemic change that requires prophylactic antibiotic therapy for care in the last three months;
- have received any periodontal treatment (including prophylaxis) within the last three months;
- non-signature of the Informed Consent Form (ICF).

The following variables were used: age, race, work-related activity, marital status, level of education, drinking and smoking habits, type of drug treatment, diagnosis time, other associated co-morbidities, periodontal condition, dental condition, salivary flow alteration, tooth brushing frequency, flossing, autonomy in hygiene and number of teeth in oral cavity. Descriptive statistics procedures were used to express the results as mean, median, standard deviation (SD), interquartile range (IQR) and frequencies (relative and absolute). A normalidade dos dados foi testada por meio do teste Shapiro-Wilk e a homocedasticidade pelo teste de Levene. Data normality was tested by the Shapiro-Wilk test and homoscedasticity by the Levene test. Quantitative variables (age, time since diagnosis and number of teeth) were compared between groups by one-way analysis of variance (ANOVA) by the Mann-Whitneyou test and the Kruskal-Wallis test.Frequencies were compared by chi-square or Fisher's exact test (in cases where expected frequencies lower than 5). The adopted significance level was 5% (α= 0,05) and analyzes were performed on IBM SPSS Statistics for Windows (IBM SPSS. 21.0, 2012, Armonk, NY: IBM Corp.).

RESULTS

We evaluated 67 individuals (19 to 84 years old) diagnosed with RA. The sociodemographic, behavioral and clinical characteristics of the study participants are described in Table 1.

Table 1. Sociodemographic, behavioral and clinical characteristics of the study participants

Variable	% answer	Mean± SD / n (%)
Age (years)	100,0	51,30 ± 11,46
Sex	100,0	
Female		57 (85,1%)
Male		10 (14,9%)
Race	98,5	
White		26 (39,4%)
Non-white		40 (60,6%)
Levelofeducation	98,5	
≤ Elementaryschool		34 (51,5%)
>Elementaryschool		32 (48,5%)
Marital status	100,0	
Married		38 (56,7%)
Single		17 (25,4%)
Widowed/divorced		12 (17,9%)
Work-relatedactivity	100,0	
Workingpeople		18 (26,9%)
Non-workingpeople		49 (73,1%)
Drinking	100,0	
Yes		11 (16,4%)
No		56 (83,6%)
Smoking	100,0	
Yes		6 (9,0%)
No		61 (91,0%)
Toothbrushingfrequency	100,0	
1 time per day		6 (9,0%)
2 times per day		18 (26,9%)
3 times per day		43 (64,2%)
Flossing	100,0	
Yes		27 (40,3%)
No		40 (59,7%)
Comorbidities	100,0	
Yes		43 (64,2%)
No		24 (35,8%)
Typeofdrug	100,0	
Biological		22 (32,8%)
Synthetic		45 (67,2%)
Diagnosis time (months)	100,0	10,66 ± 8,80
NumberofTeeth	100,0	14,94 ± 10,50
Salivaryflow	100,0	
Low		20 (29,9%)
Normal		8 (11,9%)
High		39 (58,2%)

SD, standard deviation

Figure 1 shows the distribution of study participants according to periodontal and dental conditions. Periodontal disease was observed in about one-third of the sample (Figure 1A).The presence of dental caries was diagnosed in more than half of the individuals included in the study (Figure 1B). The prevalence of edentulism is 16.4% (Figures 1A and 1B). No significant difference was observed in age, number of teeth and time since RA diagnosis according to periodontal and dental conditions (Table 2). Table 3 shows the distribution of study participants according to periodontal condition, sociodemographic, behavioral and clinical characteristics. No association was found between periodontal condition and the sociodemographic, behavioral and clinical characteristics evaluated.

Table 2. Age, number of teeth and time since diagnosis of rheumatoid arthritis according to periodontal and dental conditions

Variable	Age (years)	Number of Teeth	RA diagnosis (months)
Periodontal Condition			
Edentulus	57,09 ± 10,62	—	10,00 ± 8,00
Healthy	51,39 ± 12,65	13,00 ± 19,00	10,00 ± 11,00
Periodontal disease	48,39 ± 9,20	17,00 ± 15,00	8,00 ± 6,00
*p-value	0,116	0,515	0,590
Dental condition			
Presence of dental caries	48,90 ± 9,73	17,00 ± 17,00	7,00± 11,00
Absence of dental caries	53,06 ± 14,38	12,00 ± 19,00	10,00 ± 9,00
Edentulus	57,09 ± 10,62	—	10,00 ± 8,00
p-value	0,084	0,221	0,292

RA, rheumatoid arthritis; —, group excluded from analysis. Values are expressed as mean ± standard deviation (age) and median ± interquartile range (number of teeth and RA diagnosis). * ANOVA *one-way*(age) test Mann-Whitney (number of teeth) and test Kruskal-Wallis (diagnosis of RA).

Table 3. Periodontal condition of study participants, according to sociodemographic, behavioral and clinical characteristics

Variable	Periodontal Condition			*p-value
	Edentulus	Healthy	SD	
Sex				
Female	9 (15,8%)	28 (49,1%)	20 (35,1%)	1,000
Male	2 (20,0%)	5 (50,0%)	3 (30,0%)	
Race				
White	8 (30,8%)	11 (42,3%)	7 (26,9%)	0,059
Non-white	3 (7,5%)	22 (55,0%)	15 (37,5%)	
Levelofeducation				
≤ Elementaryschool	5 (14,7%)	17 (50,0%)	12 (35,3%)	0,905
>Elementaryschool	6 (18,8%)	15 (46,9%)	11 (34,4%)	
Marital status				
Married	7 (18,4%)	18 (47,4%)	13 (34,2%)	0,480
Single	1 (5,9%)	11 (64,7%)	5 (29,4%)	
Widowed/divorced	3 (25,0%)	4 (33,3%)	5 (41,7%)	
Work-relatedactivity				
Workingpeople	1 (5,6%)	12 (66,7%)	5 (27,8%)	0,193
Non-workingpeople	10 (20,4%)	21 (42,9%)	18 (36,7%)	
Drinking				
Yes	2 (18,2%)	3 (27,3%)	6 (54,5%)	0,243
No	9 (16,1%)	30 (53,6%)	17 (30,4%)	
Smoking				
Yes	1 (16,7%)	4 (66,7%)	1 (16,7%)	0,848
No	10 (16,4%)	29 (47,5%)	22 (36,1%)	
Toothbrushingfrequency				
1 time per day	1 (16,7%)	3 (50,0%)	2 (33,3%)	0,704
2 times per day	4 (22,2%)	10 (55,6%)	4 (22,2%)	
3 times per day	6 (14,0%)	20 (46,5%)	17 (39,5%)	
Flossing				
Yes	1 (37,4%)	16 (59,3%)	10 (37,0%)	0,064
No	10 (25,0%)	17 (42,5%)	13 (32,5%)	
Comorbidities				
Yes	7 (16,3%)	20 (46,5%)	16 (37,2%)	0,838
No	4 (16,7%)	13 (54,2%)	7 (29,2%)	
Typeofdrug				
Biological	2 (9,1%)	9 (40,9%)	11 (50,0%)	0,160
Synthetic	9 (20,0%)	24 (53,3%)	12 (26,7%)	
Salivaryflow				
Low	7 (35,0%)	7 (35,0%)	6 (30,0%)	0,111
Normal	1 (12,5%)	5 (62,5%)	2 (25,0%)	
High	3 (7,7%)	21 (53,8%)	15 (38,5%)	

SD, periodontal disease. * Fisher's exact test, except for education, in which the chi-square test was used.

Table 4 shows the distribution of study participants according to dental condition, sociodemographic, behavioral and clinical characteristics. The dental condition was associated with the salivary flow, and the prevalence of caries was higher in individuals with high salivary flow. The absence of caries was higher in patients with normal salivary flow and edentulism was higher in individuals with the low salivary flow. No association was found between dental condition and the other sociodemographic, behavioral and clinical variables evaluated.

DISCUSSION

Most epidemiological studies on RA are conducted in developed countries, making the incidence of this disease unknown in developing countries. (Almeida *et al*., 2014). RA is a chronic, inflammatory autoimmune disease characterized by joint synovial membrane involvement, causing hyperplasia and destruction of joint tissues (Mota *et al*., 2012; Malliari *et al*., 2015; Oliveira *et al*., 2017). In the study by Almeida *et al*. (2014), the prevalence of RA was higher in female patients with a mean age of 47.5 years and a level of education equal to or lower than elementary school. In the present research, similar results were evidenced, with a mean age of 51.30 years. Carvalho *et al*., 2018, in their study, observed a higher prevalence of white individuals, disagreeing with the present study, which verified a population of 60.6% where they declared to be a non-white race.

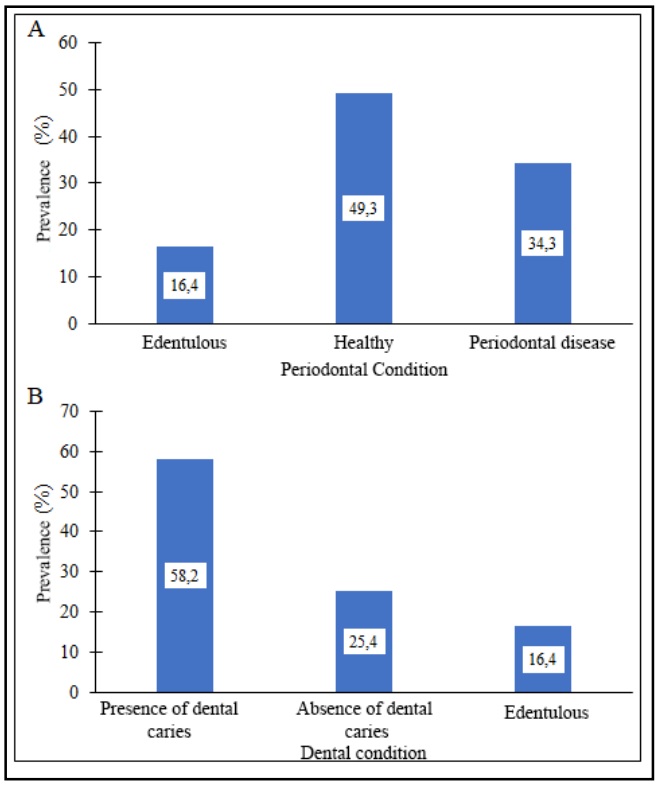

Figure 1. Distribution of study participants according to periodontal condition (A) and dental condition (B)

Table 4. Dental condition of study participants, according to sociodemographic, behavioral and clinical characteristics

Variable	Dental condition			*p-value
	PC	AC	Edentulus	
Sex				
Female	33 (57,9%)	15 (26,3%)	9 (15,8%)	1,000
Male	6 (60,0%)	2 (20,0%)	2 (20,0%)	
Race				
White	12 (46,2%)	6 (23,1%)	8 (30,8%)	0,060
Non-white	26 (65,0%)	11 (27,5%)	3 (7,5%)	
Levelofeducation				
≤ Elementaryschool	20 (58,8%)	9 (26,5%)	5 (14,7%)	0,907
>Elementaryschool	18 (56,3%)	8 (25,0%)	6 (18,8%)	
Marital status				
Married	22 (57,9%)	9 (23,7%)	7 (18,4%)	0,705
Single	11 (64,7%)	5 (29,4%)	1 (5,9%)	
Widowed/divorced	6 (50,0%)	3 (25,0%)	3 (25,0%)	
Work-relatedactivity				
Workingpeople	11 (61,1%)	6 (33,3%)	1 (5,6%)	0,353
Non-workingpeople	28 (57,1%)	11 (22,4%)	10 (20,4%)	
Drinking				
Yes	6 (54,5%)	3 (27,3%)	2 (18,2%)	1,000
o	33 (58,9%)	14 (25,5%)	9 (16,1%)	
Smoking				
Yes	2 (33,3%)	3 (50,0%)	1 (16,7%)	0,287
No	37 (60,7%)	14 (23,0%)	10 (16,4%)	
Toothbrushingfrequency				
1 time per day	4 (66,7%)	1 (16,7%)	1 (16,7%)	0,360
2 times per day	7 (38,9%)	7 (38,9%)	4 (22,2%)	
3 times per day	28 (65,1%)	9 (20,9%)	6 (14,0%)	
Flossing				
Yes	19 (70,4%)	7 (25,9%)	1 (3,7%)	0,053
No	20 (50,0%)	10 (25,0%)	10 (25,0%)	
Comorbidities				
Yes	26 (60,5%)	10 (23,3%)	7 (16,3%)	0,937
No	13 (54,2%)	7 (29,2%)	4 (16,7%)	
Typeofdrug				
Biological	14 (63,6%)	6 (27,3%)	2 (9,1%)	0,591
Synthetic	25 (55,6%)	11 (24,4%)	9 (20,0%)	
Salivaryflow				
Low	7 (35,0%)	6 (30,0%)	7 (35,0%)	0,008
Normal	3 (37,5%)	4 (50,0%)	1 (12,5%)	
High	29 (74,4%)	7 (17,9%)	3 (7,7%)	

PC, presence of dental caries; AC, absence of dental caries. * Fisher's exact test, except for education, in which the chi-square test was used.

This difference can be justified because of the population from Bahia, where the research was conducted, 81.1% self-declared black and brown IBGE (2018). We observed a higher prevalence of married individuals, corroborating with Lapčević *et al*., (2017). However, the same study presents differences in work-related activities Lapčević *et al*., (2017), and we have found a higher prevalence of individuals who are not currently performing their activities. In an epidemiological study conducted by Almeida *et al*., (2014), they observed that the time of diagnosis of RA was 7.7 years, with a higher prevalence of people using biological drugs and non-smokers. This data corroborated our research on this last item only. Regarding the drinking habit, Almeida *et al*. (2012) described a lower rate of patients with this habit, following what was presented in this study (Bretas *et al*., 2008; Laine *et al*., 2000; Gabris *et al*.,1999; Tenuovo 1997) did not show in their research the relationship between increased salivary flow and the incidence of dental caries in individuals, justified by being a multifactorial disease, and increased salivary flow is not enough to reduce the cariogenic index, as found in the present research. Bretas *et al*., 2008 also report that several authors do not describe the relationship between salivary flow and carious lesions, but the salivary flow is defined as a variable associated with the risk of dental caries disease. Panezai *et al*., 2018 suggest the hypothesis that RA and SD are bidirectional, in the sense that the appearance of one may influence the progression of the other. Mercado *et al*., 2000, reported that 62.5% of patients with RA presented advanced forms of periodontal destruction, differing from the present study. Obtaining information from the population diagnosed with RA, both sociodemographically and clinically, is extremely important to establish public policies and to evaluate the influence of RA on the oral cavity and social life of these patients. Most of the time, this is not observed by dental professionals.

Conclusion

Based on the results presented, it can be concluded that patients with RA had a high prevalence of SD (34%) and caries (58%). The periodontal condition was independent of sociodemographic, behavioral and clinical characteristics. The presence of dental caries was associated with high salivary flow and edentulism was related to low salivary flow; On the other hand, the normal salivary flow was associated with the absence of dental caries.

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