Prevalence of inflammatory periodontal disease in patients attended in a university dental clinic – a retrospective analysis

Prevalência da doença periodontal inflamatória em pacientes atendidos em uma clínica odontológica universitária – uma análise retrospectiva

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ABSTRACT

OBJECTIVE: To estimate the prevalence of inflammatory periodontal disease (IPD) in individuals treated in a university dental clinic located in the Center-West of Brazil. METHODS: We performed a retrospective cross-sectional study with census sample. Previously collected data from dental records were tabulated and analyzed descriptively. RESULTS: 151 patients were included on the research. Approximately 60% presented gingivitis and 32.4% periodontitis. 85.4% showed high plaque index (>10%) and 31.7% declared not to use dental floss. 12% of the participants reported being diabetic and 17.2% were smokers. The prevalence of deep pockets was the worst periodontal condition found (15.2%). CONCLUSION: The prevalence of ILD found in this population was higher than the Brazilian

national average. The results can be useful to support buccal and general health promotion strategies on public policies.

Keywords: periodontal diseases, gingivitis, periodontitis, cross-sectional studies.

RESUMO
OBJETIVO: Estimar a prevalência de Doença Periodontal Inflamatória (DPI) em indivíduos atendidos em uma clínica odontológica universitária localizada no Centro-Oeste do Brasil. MÉTODOS: Foi realizado um estudo transversal retrospectivo com amostra censitária. Dados previamente coletados de prontuários odontológicos foram tabulados e analisados descritivamente. RESULTADOS: 151 pacientes foram incluídos na pesquisa. Aproximadamente 60% apresentaram gengivite e 32,4% periodontite. 85,4% apresentaram alto índice de placa (>10%) e 31,7% declararam não usar fio dental. 12% dos participantes relataram ser diabéticos e 17,2% eram fumantes. A prevalência de bolsas profundas foi a pior condição periodontal encontrada (15,2%). CONCLUSÃO: A prevalência da DPI encontrada nesta população foi maior que a média nacional brasileira. Os resultados podem ser úteis para subsidiar estratégias de promoção da saúde bucal e geral em políticas públicas.

Palavras-chave: doenças periodontais, gengivite, periodontite, estudos transversais.

1 INTRODUCTION

Periodontal disease is an inflammatory and infectious process that affects gingival and supporting teeth tissues. It begins with the presence of a complex bacterial biofilm that interacts with the human host, causing the release of inflammatory cells that affect the protective (gums) and support (root cementum, periodontal ligament and alveolar bone) tissues. When not controlled, the disease can evolve to tooth loss and several systemic disorders[1]. The prevalence of periodontal health condition in Brazilian adults is approximately 17.8%[1-2].

In addition to the dental biofilm, local and systemic factors and can be modifiers for the development of the inflammatory periodontal disease[3]. Its progress can also be influenced by individual characteristics as genetic conditions, dental anatomy, specific microbiological composition of the biofilm, besides social and behavioral factors [4]. Diabetic people and smokers are considered the highest risk groups[5, 6-7-8-9.]

The aim of our study was to investigate the prevalence of Inflammatory Periodontal Disease (IPD) among patients visiting a university dental clinic located in a municipality from the Center-West of Brazil.

2 METHODS

We performed a retrospective cross-sectional study of clinical files from outpatients of a university dental clinic. The project was approved by internal Research Ethics Committee,

under the protocol CAAE 56699322.6.0000.9067. Due to the pandemic scenario, and in order to preserve the participants health, the Committee dispensed the use of free and informed consent term. Access to the data was granted to the researchers only.

The study setting was a dental clinic from a private university located in the city of Trindade, metropolitan region of Goiânia, capital of the state of Goiás, Brazil. The institution performs clinical care and diagnosis, ranging from prevention and guidance in oral hygiene, to resolution of more complex cases, such as advanced cases of IPD.

We included a census sample, examining all records of patients who underwent any kind of treatment at the dental clinic during the period of January 2020 to May 2022. To be eligible, the clinical form should belong to an adult patient (≥ 18 years) at the time of consultation and should be attached to the periodontics form utilized at the institution. Charts with incomplete or illegible data were excluded.

Data collection was performed by two researchers (JCRSC & JKO) during the period of April to June 2022. A specific extraction form was designed for the study containing two sections: sociodemographic characteristics and periodontal condition. Outcomes such date of birth, gender, pregnancy, diabetes, smoking habits, flossing and brushing frequency were recorded. Moreover, we collected data on percentage of plaque and bleeding indexes, and scores of the Periodontal Screening and Recording (PSR). A pre-test with 10 clinical files not included in the final sample were performed previously the investigation's beginning, to standardized data extraction. A third researcher (TGOM), specialist in periodontics, followed the whole process.

We described the frequency and percentages of all study variables. Based on the clinical examination data, the study subjects were categorized either into gingivitis or periodontitis. Frequency distribution and percentage were calculated for data summarization and presentation.

3 RESULTS

A total of 1,475 records were analyzed, and 151 fulfilled our eligibility criteria. 1,171 charts were excluded due to lack of periodontics form, 100 charts due to illegible data, 25 due to patients age (< 18 years), and 28 were excluded due to incompleteness data.

The age ranged from 18 to 30 years in 23.8% (n=36) of our population. Around 68% (n=103) of the sample presented an age group from 31 to 59 years, and 7.9% (n=12) an age group of 60 years or more. More than 60.0% (n=91) of the participants were female. Regarding habits and/or systemic conditions that can affect the periodontal profile, we observed in 17.2%

(n=26) of the analyzed clinical files habits of smoking, and in 11.9% (n=18) a diagnosis of diabetes. Moreover, 1.32% (n=02) of the patients were pregnant.

Data on prevalence of IPD are presented in Table 1. Among the clinical conditions, gingivitis was the most prevalent, with 41.7% (n=63) of cases, followed by periodontitis, with 32.5% (n=49) of cases.

Table 2 presents the characteristics of the periodontal condition. Oral hygiene level was assessed by the Plaque Index (PI), while inflammation of the gingiva was assessed by Gingival Bleeding Index (GBI). In addition to this data, self-declared oral hygiene habits analyses showed that 68.2% (n=103) of the participants declared daily use of dental floss. Moreover, 43.0% (n=65) of the individuals attended at the university dental clinic stated a good brushing frequency (two or more times per day).

4 ILLUSTRATIONS

Table 1. Prevalence of inflammatory periodontal disease in a census of patients who underwent periodontal treatment at a university dental clinic. Trindade, Goiás, Brazil. January 2020 to May 2022.

Periodontal condition	**n***	**Percentage (%)**
Periodontal health	39	25.8
Periodontal disease		
Generalized gingivitis	38	25.1
Localized gingivitis	25	16.6
Periodontitis	49	32.5

Source: Authors (2022)

Table 2. Frequency of periodontal conditions in a census of patients who underwent periodontal treatment at a university dental clinic. Trindade, Goiás, Brazil. January 2020 to May 2022.

Periodontal condition	**n***	**Percentage (%)**
Plaque Index		
0% to 10%	22	14.6
> 10%	129	85.4
Gingival Bleeding Index		
0% to 9.9%	57	37.7
10% to 29%	60	39.7
30% to 100%	34	22.5
Periodontal pockets		
Shallow	26	17.2

Deep	23	15.2
Absent	102	67.5

*n=151.

Source: Authors (2022)

5 DISCUSSION

In our sample, we observed a higher prevalence of women (57.4%) and adults from 31 to 59 years (68.2%) searching for treatment. A similar study has also found a predominance of women being treated in teaching clinics, according to the authors, that happens because greater importance is given by females to aesthetics and preventive health behaviors than males[7].

Also, 82.1% of the participants reported toothbrushing at least twice a day. However, the effectiveness for removing dental biofilm is more related to the time spent in each brushing and the technique used than the frequency[8-9-10]. That lack of knowledge can discourage the individual, who continues to show disorders in oral health. That is why more education actions in periodontal health are necessary.

As consequences of the permanence of the etiological factor, more than 50% of the sample was diagnosed with gingivitis and 32.4% had already evolved to periodontitis. Comparing to the mean of Brazilian adults, our sample presented more critical periodontal conditions[2-9]. Those showed only 4.2% of deep periodontal pockets prevalence while ours 15.2%. This may indicate a greater difficulty in accessing dental treatment for the population in this region or an overestimated rate due to greater care in filling out the forms that were eligible on our research.

Regarding systemic diseases that have an effect on the progression of periodontal disease, the average on Brazilian adult population was also inferior (7.5% and 15.1%) [5,6] compared to the study sample (11.9% and 17.2%), diabetes and tobacco smoking, respectively.

Because of the retrospective nature of this study, there was a significant quantity of missing files. We therefore had to exclude patients from analysis and that could have introduced selection bias. Despite our limitations, we believe our study has many strong points. We analyzed many individuals, our sample size was large, and we had very few exclusion criteria, making our results more generalizable.

6 CONCLUSION

Therefore, we can conclude that the prevalence of IPD among patients treated at a university dental clinic located in a municipality from the Center-West of Brazil was high with

a predominance of gingivitis. These results can be useful to support buccal and general health promotion strategies on public policies directed to the population sample as well as provide information to the university students, professors and directors who can plan and execute new approaches to preventing and treating periodontal diseases.

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