

Medication-Related Osteonecrosis of the Jaws in Oncologic Patients at a Teaching Hospital in Southern Brazil: Retrospective Observational Study

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Osteonecrose dos Maxilares Relacionada a Medicamentos em Pacientes Oncológicos em um Hospital Escola no Sul do Brasil: Estudo Observacional Retrospectivo

Osteonecrosis de los Maxilares Relacionada con Medicamentos en Pacientes Oncológicos en un Hospital Escuela del Sur del Brasil: Estudio Observacional Retrospectivo

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ABSTRACT

Introduction: Medication-related osteonecrosis of the jaw is a serious adverse side effect associated with therapy with antiresorptive and antiangiogenic drugs. **Objective:** To describe the clinical and epidemiological profile of oncologic patients with medication-related osteonecrosis at the “Hospital Escola da Universidade Federal de Pelotas/HU BRASIL”. **Method:** Observational, retrospective, cross sectional study, utilizing a convenience sample, with data collected from electronic medical charts. **Results:** A total of 112 patients treated between 2017 and 2024 were evaluated, 56.25% (n=63) were women and 43.75% (n=49) were men. The mean age of the patients was 64.04 (SD: ± 12.19 years). The most frequent primary tumors sites were breast and prostate. Zoledronic acid (Zometa® 4mg) was the drug used by 94.64% (n=106) of the patients. The prevalence of osteonecrosis was 19.63% (n=22) and stage II was observed in 45.45% (n=10) of the sample. The most common triggering factor was tooth extraction, accounting for 50% (n=11) of the cases. **Conclusion:** Among patients with medication-related osteonecrosis, there was a predominance of individuals over 60 years of age, with men being the most affected. Advanced stages of the disease were the most frequent, zoledronic acid was the most commonly administered drug, and the evaluated risk factors did not show statistically significance associations.

Key words: Bisphosphonate-Associated Osteonecrosis of the Jaw/drug therapy; Health Profile; Bone Density Conservation Agents; Zoledronic Acid.

RESUMO

Introdução: A osteonecrose dos maxilares associada a medicamentos apresenta-se como efeito colateral adverso importante relacionado à terapia com medicamentos antirresorptivos e antiangiogênicos. **Objetivo:** Descrever o perfil clínico e epidemiológico dos pacientes oncológicos com osteonecrose associada a medicamentos no Hospital Escola da Universidade Federal de Pelotas/HU BRASIL. **Método:** Pesquisa do tipo observacional, retrospectiva, transversal, sendo utilizada uma amostra de conveniência e realizada a coleta de dados em prontuários eletrônicos. **Resultados:** Foram avaliados 112 pacientes atendidos durante os anos de 2017 a 2024, dos quais 56,25% (n=63) eram do sexo feminino e 43,75% (n=49) eram do sexo masculino. A idade média dos pacientes foi de 64,04 (DP: ± 12,19 anos). Os sítios primários tumorais mais frequentes foram mama e próstata. O ácido zoledrônico (Zometa® 4mg) foi a droga utilizada por 94,64% (n=106) dos pacientes. A prevalência da osteonecrose foi de 19,63% (n=22), o estágio 2 foi observado em 45,45% (n=10) da amostra, a causa mais comum foi a extração dentária em 50% (n=11) dos casos. **Conclusão:** Dessa forma, entre os pacientes com osteonecrose medicamentosa, observou-se predomínio de indivíduos com idade superior a 60 anos, sendo os homens os mais acometidos, estádios avançados da doença foram os mais frequentes, o ácido zoledrônico foi a droga mais utilizada, os fatores de risco avaliados não apresentaram significância estatística.

Palavras-chave: Osteonecrose da Arcada Osseodentária Associada a Difosfonatos/tratamento farmacológico; Perfil de Saúde; Conservadores da Densidade Óssea; Ácido Zoledrônico.

RESUMEN

Introducción: La osteonecrosis de los maxilares asociada a medicamentos se presenta como un efecto adverso importante relacionado con la terapia con fármacos antirresorptivos y antiangiogénicos. **Objetivo:** Describir el perfil clínico y epidemiológico de pacientes oncológicos con osteonecrosis asociada a medicamentos en el Hospital Escuela de la Universidad Federal de Pelotas/HU BRASIL. **Método:** Estudio observacional, retrospectivo y transversal, con una muestra de conveniencia, en el que la recolección de datos se realizó a partir de historias clínicas electrónicas. **Resultados:** Se evaluaron 112 pacientes atendidos entre los años 2017 y 2024, de los cuales el 56,25% (n=63) era de sexo femenino y el 43,75% (n=49) de sexo masculino. El promedio de edad de los pacientes fue 64,04 años (DE: ± 12,19). Los sitios tumorales primarios más frecuentes fueron mama y próstata. El ácido zoledrónico (Zometa® 4 mg) fue el fármaco utilizado por el 94,64% (n=106) de los pacientes. La prevalencia de osteonecrosis fue del 19,63% (n=22); se observó el estadio 2 en el 45,45% (n=10) de la muestra, y la causa más común fue la extracción dental en el 50% (n=11) de los casos. **Conclusión:** De esta manera, entre los pacientes con osteonecrosis relacionada con medicamentos, se observó un predominio de individuos mayores de 60 años, siendo los hombres los más afectados. Los estadios avanzados de la enfermedad fueron los más frecuentes, el ácido zoledrónico fue el fármaco más utilizado y los factores de riesgo evaluados no mostraron significación estadística.

Palabras clave: Osteonecrosis de la Arcada Oseodental Asociada a bifosfonatos/tratamiento farmacológico; Perfil de Salud; Conservadores de la Densidad Ósea; Ácido Zoledrónico.

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INTRODUCTION

Medication-related osteonecrosis of the jaws (MRONJ) is an important adverse side effect related to the therapy with antiresorptive medications, being described since 2003 by Marx¹, initially named bisphosphonates-related osteonecrosis of the jaws. Since 2014, the American Association of Oral and Maxillofacial Surgeons (AAOMS) modified the name to “medication-related osteonecrosis of the jaws”, due to the increase of the number of cases associated with other drugs as denosumab and other biologic agents¹⁻⁴. It is defined by AAOMS as a severe complication characterized as exposed bone or fistula that has persisted for more than eight weeks in patients who used antiresorptive, immunomodulators or antiangiogenics without previous history of radiotherapy⁵.

Breast cancer, prostate and lung are the main solid tumors associated with bone metastases⁵. According to the National Cancer Institute (INCA)⁶, 3,790 cases of breast cancer are estimated for each year of the triennium 2026-2028 in Rio Grande do Sul, corresponding to an estimated risk of 65.57 new cases for each 100 thousand women. For prostate cancer, 3,350 cases are estimated, corresponding to a risk of 61.50 new cases for each 100 thousand men and for lung cancer, 3,570 cases in men and women will occur, corresponding to an estimated risk of 31.84 new cases for each 100 thousand inhabitants⁶.

Antiresorptive agents have been widely utilized to manage osteoporosis, malignant hypercalcemia and skeletal related events associated with bone metastasis of solid tumors⁵. Bisphosphonates are the class of choice to treat such diseases, being able to induce the increase of bone density, resistance, reduction of bone pain and incidence of pathological fractures, improving the quality of life of these patients^{3,7}. Denosumab – an antiresorptive agent – is a monoclonal antibody for the activator of the receptor nuclear- κ B ligand (RANKL). It reduces bone reabsorption, inhibiting the ligation RANKL/RANK, thus dysregulating the formation, differentiation and survival rate of osteoclasts, and is frequently seen as a modern alternative to bisphosphonates^{8,9}.

The physiopathology of MRONJ remains unclear, hampering the establishment of prophylactic and management guidelines. The theme is still debated in the medical and scientific community, many hypotheses have been proposed, including ineffective bone remodeling, prolonged healing of the wounds, decreased immune response, deficient angiogenesis, local infection and inflammation^{8,10,11}.

With varied clinical characteristics, MRONJ presents initially with pain, swelling, purulent secretion, tooth mobility, regional alteration of the nerves, local

inflammation, persistent bone exposure and intraoral fistula. MRONJ management is challenging, the main objective is to eliminate pain, control infections and minimize the disease progression. In initial phases, control measures as local hygiene, antibiotics and mouthwash are adequate. For patients in advanced stage, surgical resections such as debridement and resection are the best choices^{5,7,10}.

In this context, the AAOMS emphasizes the importance of a multidisciplinary approach to treat patients receiving antiresorptive therapies⁵. To reach better results with patients with MRONJ, a multidisciplinary approach involving dentists, nurses, primary attention physicians, oncologists, maxillofacial oral surgeons and the patient¹² is required.

The present study aims to describe the clinical and epidemiological profile of oncologic patients who developed osteonecrosis associated with medications in an oncology teaching hospital in Brazil's Southern region.

METHOD

Observational, retrospective, cross-sectional study developed in a dentistry outpatient unit of “Hospital Escola da Universidade Federal de Pelotas (UFPEL/HU BRASIL)”¹³.

A convenience sample consisted of 112 patients who utilized medications associated with osteonecrosis of the jaws and treated at the dentistry outpatient unit from January 2017 to December 2024 formed the study sample.

Patients older than 18 years of age of both sexes who utilized bisphosphonates or other medications associated with osteonecrosis of the jaw were enrolled. Those in use of medications associated with osteonecrosis of the jaws who submitted to radiotherapy of head and neck and patients with incomplete data in medical charts were excluded.

The demographic and clinical characteristics were extracted retrospectively from hospital charts. The following data were registered: sex, race/ethnicity, age, site of the primary tumor, clinical staging, histopathological diagnosis, oncologic treatment proposed, alcohol and tobacco use, status of oral health (periodontal disease, caries, oral hygiene and dental prosthetics). The following variables to evaluate medication-related osteonecrosis were collected: type of medication, dose and route of administration, frequency, number of cycles, period the medication was taken, main cause of MRONJ, location (jaws or maxilla), staging, types of treatment (surgical/conservative).

Descriptive statistics was performed to summarize the demographic and clinical data. Categorical data were presented as absolute and relative frequency and continuous variables were presented as mean and standard-deviation (SD) or median and interquartile range

(IQR). The Shapiro-Wilk test was applied to evaluate the normality of the variables (duration and number of cycles). The chi-square test was utilized to analyze the association between qualitative variables (diagnosis of MRONJ, smoking, alcohol use, periodontal disease, caries, dental prosthetics). Statistical significance was defined as $p < 0.05$. The software STATA (Statistics/Data Analysis) 12.0 was utilized to analyze the data.

The Ethics Committee of “*Faculdade de Medicina da UFPEl*” approved the study, report number 7,486,891 (CAAE (submission for ethical review): 87442225.2.0000.5317), in compliance with Directive number 466/2012¹⁴ of the National Health Council (NHC). The study followed the guidelines of STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) for observational studies.

RESULTS

The sample consisted of 112 patients treated from 2017 to 2024, 56.25% (n=63) women and 43.75% (n=49) men. The mean age of the patients was 64.04 (SD: ± 12.19 years), ranging from 28 to 91 years of age and the most prevalent age-range was of patients ≥ 60 years (65.18%). 77.68% (n=87) of the patients were Whites (Table 1).

21.43% (n=24) had no history of tobacco use and 31.25% (n=35) claimed they are or were smokers. 22.32% (n=25) had no history of alcohol use, 12.50% (n=14) were regular alcohol users or used in the past (Table 1).

The most frequent sites were breast, 41.96% (n=47), prostate in 27.68% (n=31), hematologic in 17.85% (n=20) and lung in 7.14% (n=8) of the cases. Periodontal disease was identified in 35.71% (n=40) of the patients evaluated, caries in 61.61% (n=69) and 49.11% (n=55) had dental prosthetics (Table 1).

29.46% (n=33) attended the first dental visit for evaluation, 23.21% (n=26) complained of pain, 9.82% (n=11) complained of prosthetics related problems, 9.82% (n=11) for pre-adjustments in the beginning of the use of antiresorptive.

Zoledronic acid (Zometa® 4 mg) was utilized by 94.64% (n=106) of the patients and the median duration was 20 months (IQR: 27). Pamidronate disodium 90 mg was utilized by 7.14% (n=7) of the patients and the median duration was seven months (IQR: 10); denosumab was utilized by 4.46% (n=5) of the patients (Table 2).

A median of 16 cycles (IQR: 19) was obtained for zoledronic acid (Zometa®), and a median of 13 cycles for pamidronate disodium (IQR: 12) (Table 3).

Medications-related osteonecrosis of the jaws was diagnosed in 19.63% (n=22) of the cases. The other patients, 80.36% (n=90) were classified according to

Table 1. Epidemiologic characteristics, chronic habits, primary site, oral health

	n = 112	%
Sex		56.25
Female	63	43.75
Male	49	
Age		
Mean	64.04 (SD: ± 12.19 years)	34.82
<60 years	39	65.18
≥ 60 years	73	
Ethnicity/Race		
White	87	77.68
Black	16	14.29
Brown	5	4.46
Unknown	4	3.57
Smoking		
No	24	21.43
Yes (current or former)	35	31.25
Unknown	53	47.32
Alcohol use		
No	25	22.32
Yes (current or former)	14	12.50
Unknown	73	65.18
Primary site		
Breast	47	41.96
Prostate	31	27.68
Hematologic	20	17.85
Lung	8	7.14
Colon	1	0.89
Bladder	1	0.89
Skin	1	0.89
Stomach	1	0.89
Ovary	1	0.89
Kidneys	1	0.89
Periodontal disease		
Yes	40	35.71
No	-	-
Unknown	72	64.29
Caries		
Yes	69	61.61
No	24	21.43
Unknown	19	16.96
Dental prosthetics		
Yes	55	49.11
No	29	25.89
Unknown	28	25.00

Caption: SD = standard-deviation.



Table 2. Duration of the use of antiresorptive medications associated with medication-related osteonecrosis

Medication	Total	%	Duration Median and interval (months)	Q1 (Percentile 25%)	Q3 (Percentile 75%)	IQR
Zoledronic Acid (Zometa®)	106	94.64	20 (1-96)	10	37	27
Pamidronate disodium	7	7.14	7 (5-15)	5	15	10
Denosumab	5	4.46	---	---	---	---
Alendronate sodium	1	0.89	---	---	---	---

Caption: IQR = interquartile range.

Table 3. Number of cycles of antiresorptive drugs associated with medication-related osteonecrosis

Medication	Total	%	Median and interval (cycles)	Q1 (Percentile 25%)	Q3 (Percentile 75%)	IQR
Zoledronic acid (Zometa®)	106	94.64	16 (1-82)	7	26	19
Pamidronate disodium	7	7.14	13 (3-15)	3	15	12
Denosumab	5	4.46	---	---	---	---
Alendronate sodium	1	0.89	---	---	---	---

Caption: IQR = interquartile range.

AAOMS as patients at risk of developing MRONJ due to the use of antiresorptive drugs (Figure 1). Considering only 22 patients diagnosed with MRONJ, 22.72% (n=5) were classified with MRONJ stage I, 45.45% (n=10), stage II and 22.72% (n=5), stage III. The most frequent location was in the jaws with 59.09% (n=13) and the most frequent cause was dental extraction in 50% (n=11) of the cases (Table 4).

To manage medications-related osteonecrosis, 100% (n=22) of the patients utilized chlorhexidine digluconate 0.12% as oral antiseptic, 90.90% (n=20) utilized antibiotics, 68.63% (n=15) were submitted to aPDT, 63.63% (n=14) were submitted to surgical treatment and 9.09% followed the protocol PENTO (n=2) (Table 4).

The association between risk factors and diagnosis of MRONJ was evaluated through Pearson's chi-square test that did not demonstrate statistically significant association between smoking and osteonecrosis ($p=0.246$). Similarly, significant associations were not observed between osteonecrosis and alcohol use ($p=0.551$), periodontal disease ($p=0.287$), caries ($p=0.215$) or use of dental prosthetics ($p=0.49$). None of the variables analyzed presented statistically significant association with osteonecrosis in the sample investigated.

DISCUSSION

Due to global population ageing, the use of medications such as bisphosphonates and antiangiogenic will increase

significantly in patients with cancer and osteoporosis¹⁵. Associated with significant morbidity that negatively affects the quality of life, MRONJ is still challenging in regard to its definition, etiology, diagnosis, staging and management¹⁶. The clinical and epidemiological profile of the patients in use of antiresorptive medications diagnosed with medications-related osteonecrosis was investigated and the main findings have been described in the present study. Women predominated (56.25%) with mean age of 64.04 years. In a study with 1,925 patients with breast and prostate cancer, Carlos et al.¹⁷ evaluated the risk factors for MRONJ and observed that the majority were women (73.1%) with mean age of 61.0 years. These findings corroborate the literature.

The same authors noticed that osteonecrosis was more prevalent in patients younger than 50 years of age ($p=0.009$) and correlated high frequency of edentulism in individuals aged 50 years or older. The findings of the present study, on the other hand, revealed that only 27.27% (n=6) of the patients with MRONJ are in the age range of <60 years and older patients were more affected by the disease. The results corroborate the findings of Ferreira et al.¹⁸ who identified a mean age of 70 ± 11 years (variation: 44 to 85 years) for the development of MRONJ where advanced age reflects the long course of the disease, increasing the exposure to bisphosphonates as well as to other risk factors.

A prevalence of MRONJ of 19.63% (n=22) was observed in the present study sample. The literature presents important variations in the rate of prevalence

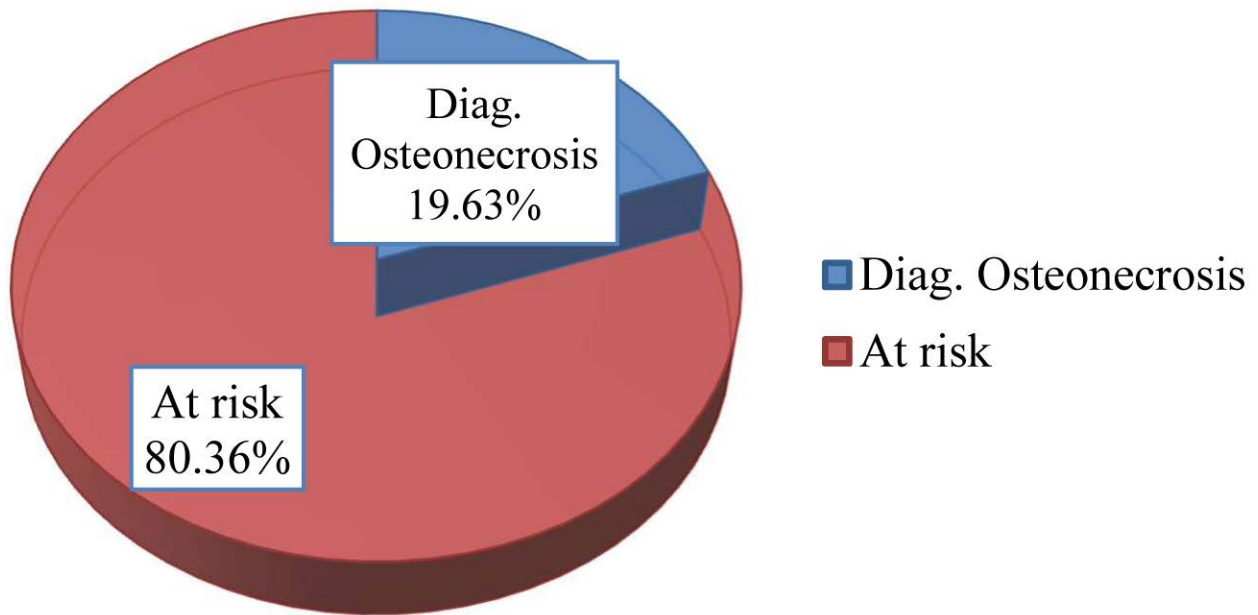


Figure 1. Prevalence of medication-related osteonecrosis
Caption: Diag. = diagnosis.

of osteonecrosis depending on the type of study and characteristics of the sample. Carlos et al.¹⁷ observed that a prevalence of MRONJ in patients in treatment of breast cancer and prostate was lower than 7% in a sample of 1,925 patients. On the other hand, for patients with multiple myeloma, the study of Ferreira et al.¹⁸ demonstrated a prevalence of 15.2% of osteonecrosis in a sample with 112 patients who were in use of intravenous bisphosphonates. In addition, in a literature review, Rugani et al.¹⁹ reported that the prevalence of MRONJ in patients with breast cancer ranged from 0% to 26.7% (median of 2.6%), from 0% to 20.9% (median of 4.8%) in patients with prostate cancer and from 0% to 20.5% (median of 5.1%) in patients with multiple myeloma.

Boffano et al.²⁰ concluded that the average short duration of the use of antiresorptive medications was observed before the development of MRONJ in all the patients with metastatic bone cancer. They have also found that the administration of intravenous zoledronic acid was statistically associated with early onset of MRONJ (after mean of 34.9 months of treatment $p < 0.005$). Of the 106 patients who used zoledronic acid in the aforementioned study, it was observed a median of 20 months (IQR: 27). Considering the reduced sample size and great variation of time of use of the sample, it has been demonstrated that the study participants presented risk of developing MRONJ. Therefore, the literature describes that as great the cumulative exposure of antiresorptive therapy is, high is the risk of developing MRONJ⁴.

The most frequently reported risk factor in the literature continues to be dental extraction^{18,20}. The

main cause of MRONJ was associated with dental extraction in 50% ($n=11$) of the study patients. Other studies reported dental extraction as local risk factor from 69.6% to 71.74%^{21,22}. In addition, the literature discusses the sequence of events of MRONJ and remains unclear whether necrosis precedes or succeeds infection. The presence of previous infection can confound the relation between dental extraction, common treatment for inflammatory diseases and risk of MRONJ¹⁸. In this context, periodontal infection can increase 4.5-fold the risk of MRONJ while surgery can increase 40-fold²³.

Boffano et al.²⁰ highlighted that periodontal disease is associated with early onset of MRONJ with mean of 31 months ($p < 0.05$) of use of antiresorptive medication, reinforcing the necessity of intervention in teeth with periodontal compromise as prevention of MRONJ. The results of the present study did not demonstrate statistically significant difference for risk factors like periodontal disease ($p=0.287$). In despite of this fact, a meta-analysis by Lorenzo-Pouso et al.²⁴ concluded that individuals affected by MRONJ have more than the double of likelihood of having periodontal disease than patients not affected by MRONJ, but they are at risk (2.75 [95% CI: 1.67-4.52]).

Boffano et al.²⁰ observed that for MRONJ associated with ill-fitting prosthetics, the individuals used medications longer before the diagnosis (59.1 months, $p < 0.05$). In the present study, trauma by prosthesis was the cause of MRONJ in 27.27% ($n=6$) of the patients. Ill-fitting prosthetics, therefore, can cause damages to the oral mucosa, allowing that micro-organisms of the oral flora to infect the exposed bone tissue¹⁸.

Table 4. Clinical characterization of patients diagnosed with medications-associated osteonecrosis

Characterization of MRONJ	n = 22	%
Age		
Mean 69.59; SD: ± 13.13 years		
<60 years	6	27.27
>60 years	16	72.73
Sex		
Male	14	63.64
Female	8	36.36
Staging		
0	0	0
I	5	22.72
II	10	45.45
III	5	22.72
Unknown	2	9.09
Location		
Jaws	13	59.09
Maxilla	8	36.36
Maxilla and jaws	1	4.54
Cause		
Dental extraction	11	50
Trauma by prosthetics	6	27.27
Unknown	3	13.63
Periodontal disease	1	4.54
Odontogenic infection	1	4.54
Type of treatment		
Chlorhexidine 0.12%		
Yes	22	100
No	0	0
Antibiotic		
Yes	20	90.90
No	2	9.10
aPDT		
Yes	15	68.63
No	7	31.81
Surgery		
Yes	14	63.63
No	8	36.36
Protocol PENTO²		
Yes	2	9.10
No	20	90.90

Captions: SD = standard-deviation; aPDT = antimicrobial photodynamic therapy; PENTO = pentoxifylline and tocopherols.

The maxilla and mandible demonstrate typical osseous architecture. The maxilla shows thin cortical outlines and sparse trabeculation whereas the mandible demonstrates thick cortical outlines, and dense trabeculation. Under baseline conditions, these bones undergo modeling and remodeling processes, however, in the presence of antiresorptive, the inhibition of osteoclastic activity compromises bone resorption, leaving the alveolar bone exposed to an inflammatory and infectious environment²⁵. In the present study, 59.09% (n=13) of the cases of MRONJ occurred in the mandible, 36.36% (n=8) in the maxilla and only 4.54% (n=1) in both. The results concur with Fusco et al.²⁶ who evaluated 459 cases of MRONJ and concluded that the mandible was the most affected site with 296 cases (64.5%), followed by maxilla with 125 cases (27.2%), and by simultaneous compromise of the maxilla and mandible in 38 cases (8.3%). Similar results were described by Bracchi et al.²⁷ in patients who used denosumab where it was observed that, of the 56 patients with MRONJ, 64% were in the mandible, 32% in the maxilla and only 4% in both sites. The rate of differentiated remodeling of gnathic bones in relation to other bones of the axial and appendicular system can explain the predisposition for the development of MRONJ¹⁸.

According to AAOMS 2022, stage II was the most prevalent, corresponding to 45.45% (n=10) of the patients followed by stage III with 22.72% (n=5) and stage I, also with 22.72% (n=5). These results corroborate the results found by Bracchi et al.²⁷ in a sample with 56 patients with MRONJ where they identified stage II as the most frequent (45%). Similarly, Boffano et al.²⁰ observed high prevalence of stage II representing 52% of the cases.

There is no standard treatment for MRONJ, the ultimate goal is mucosal closure to optimize the quality of life of the patients²⁸. MRONJ management includes a variety of strategies such as non-surgical treatment and surgical approach²⁹. The types of treatment most utilized at “Hospital Escola da UFPEL/HU BRASIL” were conservative, involving the use of chlorhexidine-digluconate-based 0.12% in 100% of the sample, followed by antibiotic therapy in 90.0% of the cases and antimicrobial photodynamic therapy – aPDT in 68.63% of the sample with low-level laser therapy. Surgery was performed in 68.63% of the patients. The objective of the conservative management is the formation of the bone sequestration, allowing its removal and favoring healing. Chlorhexidine is an effective bactericide and bacteriostatic agent, however, antibiotic therapy is the most important agent, since infections are polymicrobial¹⁵.

The study of Watanabe et al.²⁹ evaluated the efficacy of surgery and it has been observed that in stage II of

MRONJ, extensive surgery showed stronger association with healing than conservative surgery. Therefore, surgical therapy is being increasingly reported with high rates of success, reducing the progression of the disease and favoring better outcomes for the patient⁵.

Only seven patients (6.25%) of the sample were referred specifically for oral adjustment prior to the use of bisphosphonates. In this context, Bacci et al.³⁰ identified that most of the patients who developed MRONJ (36.62%) have not been submitted to previous dental evaluation before initiating the therapy with medications associated with MRONJ. Similarly, Otto et al.³¹ observed that only seven of the 66 patients with osteonecrosis (10.6%) were referred by a dentist before beginning the treatment with these medications. The majority of the patients were unaware of preventive measures to reduce the risk of MRONJ. In high-risk patients, most of the guidelines recommends previous dental evaluation before antiresorptive therapy as well as periodic dental follow-up^{2,5,32}.

The results reinforce the importance of the evaluation of patients in use of antiresorptive medications by the dental-surgeon during oncologic treatment. Although statistically significant associations have not been observed among MRONJ and the risk factors investigated, the results help to understand the clinical-epidemiologic profile of these patients in the hospital environment, supporting the planning of multiprofessional actions, early diagnosis and safer management.

The retrospective design with evaluation of the charts poses limitations since the charts have been filled up by different professionals in a long time span. An additional limitation is related to the lack of information and heterogeneity of the variables registered, which hindered the analysis.

The sample utilized, characterized as a convenience sample of patients treated at “Hospital Escola da UFPel”, an oncologic reference for 27 municipalities of the Southern region of Rio Grande do Sul with an estimated population of one million individuals, can be considered a limitation. However, the study population reflects the profile of patients treated at the hospital whose majority is formed by older individuals and in the perspective of oncology, are patients with metastatic malignant neoplasms. The medical visits in “Hospital Escola da UFPel” are fully within the scope of the National Health System (SUS) where zoledronic acid is the main medication offered for bone metastasis, malignant hypercalcemia and skeletal-related events in compliance with Directive number 85 of December 20, 2018³³ of the Ministry of Health that for the first time incorporated the medication in SUS. In this context, the predominance of this medication is justified in the present study.

CONCLUSION

The profile of patients who utilized antiresorptive medications in “Hospital Escola da UFPel/HU BRASIL” and were treated at the dentistry unit from 2017 to 2024 is characterized by the predominance of women, older than 60 years, treating breast cancer and using predominantly zoledronic acid. In addition, the prevalence of MRONJ was 19.63% and more than 80% of the patients evaluated were at risk of developing the disease.

Among the patients who developed MRONJ, there was predominance of individuals older than 60 years, men were more affected and stage II was the most frequent. Conservative treatments were the most adopted at the service. There were inconsistencies in filling out electronic charts. There was no statistical relevance for the risk factors evaluated, in great part because of lack of data in some variables and small sample. Larger, prospective and clinical studies are necessary for better comprehension of the clinical and epidemiological profile of patients treated in the service.

CONTRIBUTIONS

Denyson Reinaldo Xisto da Silva contributed to the study design, acquisition and analysis of the data and critical review. Mônica Cristina Bogoni Savian, Cleusa Marfiza Guimarães Jaccottet and Beatriz Farias Vogt contributed to the study design, analysis of the data, writing and critical review. All the authors approved the final version for publication.

DECLARATION OF CONFLICT OF INTEREST

There is no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

All the content underlying the text is contained in the manuscript.

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