Experience Report

Providing care for patients with breast cancer and mandible ostheonecrosis induced by bisphosphonates: an experience report*

Cuidando de paciente com câncer de mama e osteonecrose mandibular induzida por bisfostonato: relato de experiência

Cuidando de pacientes con cáncer de mama y osteonecrosis mandibular inducida por bisfosfonatos: relato de experiencia

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ABSTRACT

Objective: To describe a nurse experience in providing care for a patient with cancer of the breast and bone metastasis who presented mandibular ostheonecrosis induced by the use of bisphosphonates. **Results:** Nursing interventions included the re-enforcement of the guidelines for oral hygiene, highlighting the appropriate teeth-brushing technique, gargling with antiseptic solution without alcohol, as approach to pain management. **Conclusion:** There is a need for multidisciplinary and nursing consultations for early detection and control of potential complications.

Keywords: Osteonecrosis/chemically induced; Jaw/pathology; Breast neoplasm/diagnosis; Neoplasm metastasis; Diphosphonates/adverse effects**;** Nursing care

RESUMO

Objetivo: Descrever as ações desenvolvidas pela enfermeira junto a uma paciente com câncer de mama e metástase óssea que apresentou necrose mandibular induzida pelo uso de bisfosfonato. **Resultados:** As intervenções de enfermagem incluíram o ensino e reforço das orientações sobre higiene oral, destacando a escovação adequada, bochechos com solução antisséptica sem álcool, bem como sobre o controle da dor. **Conclusão:** Destaca-se a importância da atuação multiprofissional e da consulta de enfermagem no seguimento dessas pacientes para detecção precoce e controle dessa complicação.

Descritores: Osteonecrose/induzida quimicamente; Arcada ósseo-dentária/patologia; Neoplasias da mama/diagnóstico; Metástase neoplásica; Difosfonatos/efeitos adversos; Cuidados de enfermagem

RESUMEN

Objetivo: Describir las acciones de enfermería implementadas por la enfermera a una paciente con cáncer con metástasis ósea que presentó necrosis mandibular inducida por el uso de bisfosfonatos. **Resultados:** Las intervenciones de enfermería incluyeron la enseñanza y el refuerzo de las orientaciones sobre la higiene oral, dando destaque al adecuado cepillado de los dientes, gárgaras con solución antiséptica sin alcohol y al control del dolor. **Conclusión:** Es destacada el importancia de la actuación multiprofesional y de la consulta de enfermería en el seguimiento de esas pacientes, visando la detección temprana y el control de esa complicación.

Descriptores: Osteonecrosis/inducido químicamente ; Maxilares/patología; Neoplasias de la mama/diagnóstico; Metástasis de la neoplasia; Difosfonatos /efectos adversos; Atención de enfermería

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Received article **29/04/2008** and accepted **25/11/2008**

INTRODUCTION

Breast cancer is the second most common type of cancer among women. Data from the the Instituto Nacional de Câncer (National Cancer Institute) show that, in 2008, the estimated number of new cases in Brazil was 49,400, with an estimated risk of 51 cases for every 100,000 women[1].

Despite it being considered a neoplasm with a relatively good prognosis if diagnosed and treated in time, death rates remain high in Brazil. Late diagnosis is among the probable factors for high death rates among Brazilian women. The mean survival rate after five years is 61%, which results in a number of consequences, including metastasis[1-2].

In this experience report, the focus was on the action related to the treatment of bone metastases, considering their prevalence, morbidity and repercussion for the patients' quality of life. Studies report that up to 90% of patients with advanced breast carcinoma have an associated skeletal metastasis, which implies in a multiprofessional team implementing integrated actions, so as to diminish the harms caused by this problem.

Today, the types of systemic treatments for breast cancer involve using classical methods (chemotherapy with cytostatic drugs and hormone manipulations) and applying, in specific cases, biologic response modifiers, particularly monoclonal antibodies and drugs that have other targets than those classically described[2-3].

Bisphosphonates represent a new class of target-specific drugs used to manage breast and prostate cancer metastatic bone lesions, multiple myeloma and to treat osteoporosis. These drugs are structurally analogous to endogenous pyrophosphate and inhibit bone resorption by osteoclasts[4].

A recent literature review study about the antitumoral effect of bisphosphonates showed that these drugs have several mechanisms over neoplastic cells, including the inhibition of cell proliferation, apoptosis induction, inhibition of adhesion and cell invasion ability, inhibition of angiogenesis and effects on the secretion of growing factors and cytokines in the tumoral micro-environment[4].

In terms of the effects on breast cancer bone metastases, bisphosphonates reduce pain, diminish the incidence of additional metastases, the occurrence of pathological fractures and the risk of hypercalcemia[4-5]. Among the drugs belonging to this class, special highlight is given to pamidronate and zoledronic acid. The latter is the drug of choice due to its faster infusion and better results compared to undesired skeletal events[2-5].

Zoledronic acid is administered in a single 4mg dose, by intravenous infusion for 15 minutes, with an interval of three to four weeks. The serum dosages of calcium, magnesium, phosphate and creatinine should be monitored in every administration[2].

Bisphosphonates are usually well-tolerated drugs and have minimum side effects, which include mild to severe gastrointestinal disturbances, such as peptic ulcer and, occasionally, bone pain[5]. However, cases of osteonecrosis of the jaw have been reported in the literature as a severe adverse event that is difficult to manage[5-6].

Among the associated risk factors of oncology patients to developing osteonecrosis of the jaw are the diversity and aggressiveness of antineoplastic drugs, the existence of comorbidities (high blood pressure), previous dental extractions, secondary traumas associated to using dental prostheses, periodontal infections and poor oral hygiene[5-7].

The occurrence of bone necrosis on the dental arch is related to the fact that these structures are in direct contact with the flora in the oral cavity and, thus, favor the incidence of infections. After established, infection is difficult to control due to the changes to bone metabolism, as well as those caused by bisphosphonates and the patients' poor immunity[5].

The association between the treatment with bisphosphonate and the occurrence of osteonecrosis of the jaw is a relatively new event and there is no evidence-based treatment protocol for its management[5-8]. Therefore, the nursing care delivered to these patients requires more specificity, since it is still directed to meeting universal care demands.

Considering the referred information, the purpose of this article is to describe the actions that a nurse developed with a patient with breast cancer and bone metastasis who presented bisphosphonate-associated necrosis of the jaw.

CASE REPORT

The patient is a 50-year-old housewife, married, with a history of three pregnancies, non-drinker, non-smoker, whose mother and two maternal aunts had died of breast cancer. Four years ago, the patient was diagnosed with cancer in the left breast, metastatic to the bone. She initially received six chemotherapy cycles with antracyclic and taxane, along with zoledronic acid infusions at the dose of 4mg/month. She was later submitted to conservative mastectomy and radiotherapy. The monthly bisphosphonate therapy was kept along with tamoxiphen. Twenty-seven days after beginning the treatment with bisphosphonate, the patient complained about intense tooth ache and reported they were feeling loose, in addition to a change in her palate. The nursing consultation found gingival tissue edema and hyperemia, strong halitosis and purulent secretion surrounding the inferior right molars. The nursing interventions included teaching and encouraging the instructions regarding the following needs: oral hygiene, emphasizing the importance of appropriately brushing her teeth after eating and rinsing

the mouth with an alcohol-free antiseptic mouthwash; nutrition and hydration; and pain management, highlighting information about the appropriate way of using the analgesics prescribed by the oncologist, and managing the possible undesirable effects they can have. She was also referred to medical evaluation.

After discussing the case with the oncologist, the therapy with bisphosphonate was suspended and the patient was referred to a specialized dental service, where she was evaluated and submitted to complete tooth extractions, hyperbaric oxygenation and antibiotic therapy.

Today, the patient continues under oncologic follow-up and has not received bisphosphonate therapy for one year. Metastatic bone lesions, as well as the serum doses of specific tumor markers remain stable, but the patient still complains about diffuse bone pain. Nursing instructions have mainly focused on the adequacy of food due to the patient's complete tooth extraction and her difficulty to adapt to the denture, as well as on maintaining good oral hygiene and regular physical activity, avoiding impact exercises due to the bone metastasis.

DISCUSSION

The case presented herein is in agreement with literature reports about the physiopathology of bisphosphonate-associated osteonecrosis. The time of exposure to the drug and the beginning of the first signs and symptoms occurred after two years of use. Several studies demonstrate that the risk of developing this complication increases according to the time using this drug, i.e., the greater the time of exposure to bisphosphonate, the higher the chances of osteonecrosis[5-9].

Patients exposed to therapy with large-scale antineoplastic agents or corticosteroids who receive bisphosphonates have an increased risk of developing osteonecrosis during treatment. The diversity of drugs used with these patients increases the difficulty to make a real evaluation of the factors associated to the onset of this serious complication[7,10-11].

According to the criteria established by the American Society of Clinical Oncology in 2003, the time span using bisphosphonates should be undetermined until a decline in the patient's general conditions is evidenced. However, recent studies suggest using this therapy for two years at the most[12].

The symptoms described in the several reviewed cases also agree with those reported by the studied patient, which include gingival tissue pain, edema and hyperemia, loose teeth, purulent secretion in the oral cavity and strong halitosis. It is important to emphasize that pain was the major symptom reported by most patients[5-11].

The performed treatment was similar in all analyzed cases and it was based on prolonged antibiotic therapy, using strong drugs, surgical debridement of the lesions, tooth extractions, and hyperbaric oxygenation, in addition to the immediate suspension of therapy with bisphosphonate. The therapeutic conducts were established by teams composed of buccomaxillofacial surgeons, dentists and otolaryngologists[5-11].

It is important to emphasize the need to perform biopsy of gingival tissue to eliminate the hypothesis of bone metastasis. In histology, in general, it was observed that there were areas with bacterial infestation and osteomyelitis[5,8,11].

As for the prevention of this adverse event, the authors unanimously agreed in recommending that, before initiating therapy with bisphosphonate, patients should undergo a rigorous evaluation of their oral integrity and every invasive intervention, such as dental extractions or restorations, should be performed before their exposure to bisphosphonates[5-11].

Some nursing studies have focused on the instructions for adequate oral hygiene and the need to immediately report any abnormality in the oral cavity before and during the treatment with bisphosphonate. They also highlight the importance of a good anamnesis during the nursing consultation[8-11].

In the reported case, there were no nursing records about the physical examination of the patient's oral cavity before being exposed to the drug, whish shows that the lack of precise and early identification of the risks faced by patients using bisphosphonates did not allow the multiprofessional team to implement proactive actions before the events.

From the moment that this patient reported the first symptoms, the following nursing consultations valued the physical examination of the oral cavity and the evolution of the lesions. The patient followed the nurse's instructions, but lesion regression only occurred after specific dental treatment and suspension of the drug, when there was also a reduction in halitosis and periodontal pain.

The implementation of integrated actions by the multiprofessional team is essential in order to achieve better results, with a view to minimizing the suffering of these women, who are already severely punished by the aggressiveness of the diagnosis and treatment.

CONCLUSIONS

The experience of care delivery to the studied patient showed that it is essential for the health team to work together in order to develop practice that is in line with the Integrated Health Care Model for people with cancer, established by the Brazilian National Policy of Oncology Care.

It was also observed that every follow-up consultation should include a careful anamnesis. In addition to

considering the different dimensions implied in care for people with cancer, this should focus on the specificities resulting from the treatment, so as to identify the initial signs and symptoms of the complications associated to the toxicities generated by the drugs used in the treatment, searching scientific literature to find support for a safe and effective practice. Investments in further research are needed, with a view to scientific foundations for the specificity of nursing care to this population and to guarantee service quality.

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