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Mini Review

Relationship Between MRONJ (Medication Related Osteonecrosis of the Jaw) and Endodontic Theraphy

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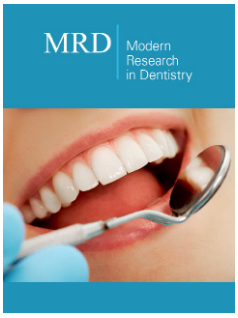

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Abstract

The American Surgery of Bone Mineral Research (ASBMR) in 2007 defined MRONJ as "necrotic bone area exposed to the oral environment with more than eight weeks of permanence, in the presence of chronic treatment with BPs, in the absence of radiation therapy to the head and neck". In 2014 the American Association of Oral and Maxillofacial Surgeons (AAOMS) divided the MRONJ into 4 stages from 0 to 3, according to the clinical and radiological aspect of the osteonecrotic lesion:

A. stage 0: Osteonecrotic lesion without sign-pathognomonic evidence of osteonecrosis.

B. stage 1: osteonecrotic lesion with clinical signs and absence of clinical symptoms.

C. Stage 2: Osteonecrotic lesion with sign and evident clinical symptoms.

D. Stage 3: Osteonecrotic lesion with signs and evident symptoms that involve noble structures: pathological fractures, anesthesia of the lower dental nerve, oral-nasal communication, oral-sinus communication, skin fistulas. This article proposes explain relationship between MRONJ and endodontic therapy [1].

Keywords: Osteonecrotic lesion; Dental nerve; Oral-nasal; Endodontic; Bone accumulation; Pathology

Abbreviations: AR: Antiresorptive; BPs: Bisphosphonates; DS: Denosumab; AD: Antiangiogenic Drugs, MRONJ: Medication Related Osteonecrosis of the Jaw; ET: Endodontic Therapy

Introduction

Antiresorptives (AR): Bisphosphonates (BP), Denosumab (DS) and Antiangiogenic drugs are physician indication in low in cases of Osteoporosis, Paget's Disease, Imperfect Osteogenesis and Fibrous Dysplasia and high concentration to treat Hypercalcemia associated with oncology patients [2].

It is clear from the suggested treatments that before the diagnosis of MRONJ the therapeutic attitude is consolidated in non-invasive maneuvers as endodontic therapy regarding the manipulation of bone tissue, performing the pertinent clinical controls in order to avoid systemic spread to deep planes, due to its pharmacokinetics of bone accumulation that could condition a septicemia picture in affected patients, interacting with the attending physician in the event of a certain event of exacerbation of injuries that affect the patient's general health [3].

Endodontic therapy requires adequate knowledge of the anatomy of the root canal system and its multiple variations [4-7], of the biology and pathology of the dental pulp and periradicular tissues [8]. In turn, the operative procedures require proper disinfection and chemical-mechanical preparation of the root canal, its cleaning and shaping [9-12], and its obturation by means of biocompatible materials that have the ability to stimulate the reparative process [13-15] Tissue repair is an essential process that restores tissue integrity and regular function. However, different therapeutic factors and clinical conditions can interfere in this periapical healing process [16]. This procedure pretends minimize bone injuries in incipient stages MRONJ. It is known respective surgeries are required in case MRONJ stage 3 are consolidated and non-invasive maneuvers could not be effective [1].

Conclusion

At present, a large part of the endodontic treatments performed in the clinic are due to pathologies that refer to the pulp and the periapic. The pulp is a richly vascularized and innervated tissue, delimited by an inextensible environment such as dentin, with terminal blood circulation and a small caliber periapic circulatory access zone. All this means that the defensive capacity of the pulp tissue is very limited against the various aggressions that it may suffer. The pulp tissue can also be affected by a retrograde infection [17], from the periodontal ligament or from the apex during a periodontitis process. Because periapical pathology almost always precedes pulp involvement.

Due to the various causes that produce pulp and periapical pathology, the basic pathogenic process that develops is that of the inflammatory response. The pulp will react causing pulpitis, an inflammation that occurs in response to direct and immune mechanisms. The direct mechanisms are microorganisms, the results reach the pulp through the exposed dentin tubules, either by caries, trauma or irritating factors (bacterial products, bacterias, endotoxins, etc.), which when penetrating through the tubules dentinals, destroy the odontoblast and underlying cells [18]. Complement factors and immunoglobulins act on immune mechanisms.

Endodontic therapy would be providing greater dental therapeutic benefit to compensate for the morbidity of the pathology MRONJ. There is a need not to suspend antiresorptive medication necessary according to medical criteria both in osteoporotic and oncological patients, since in that sense, according to the pharmacokinetics and pharmacodynamics of AR drugs [19,20].

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