

ONJ UPDATE 2024

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TITLE: EVALUATION OF DIFFERENT THERAPEUTIC APPROACHES FOR THE MANAGEMENT OF MRONJ: A RETROSPECTIVE STUDY

SECTION: 4B

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Background. The optimal treatment approach of MRONJ remains a challenge. Recent studies are focused on upgrading the conventional treatment approaches with adjunctive methods; such as photobiomodulation (PBM) and autologous platelet concentrations (APC). This study aims to compare the effectiveness of four different protocols for the management of MRONJ. In addition, the correlation of different variables with the healing outcome is analysed; including smoking habit, drug therapy, concomitant systemic diseases, MRONJ localization and stage, type and duration of ONJ-related drugs.

Patients and methods. A retrospective study was conducted at the MoMax (Oral Medicine and Maxillofacial) unit of the Department of Oral and Maxillofacial Sciences, Policlinico Umberto I of Rome, Sapienza University of Rome. The department's database and medical records were searched, and a total of 59 MRONJ patients were divided according to the management protocols into four groups: Group 1 (G1): patients (n=26) treated with antibiotic therapy + surgery + PBM + L-PRF; Group 2 (G2): patients (n=7) treated with antibiotic therapy + surgery; the Group 3 (G3): patients (n=16) treated with antibiotic therapy + PBM, and Group 4 (G4): patients (n=10) treated with antibiotic therapy + surgery + PBM.

Systemic antibiotics (1g Amoxicillin/Clavulanic Acid and 250mg Metronidazole) were prescribed 2 times daily starting 3 days before the surgery in G1, G2, and G4 and continued till the 7th day after. In G3, antibiotics were prescribed in case an infection occurred. In addition, antiseptic mouthwash of 0.2% chlorhexidine was prescribed 3 times daily for 15 days in all the groups.

A multidiodic laser (Lumix C.P.S. Dental, FISIOLINE, Verduno, Cuneo, Italy) emitting simultaneously 650nm, 810nm, and 910nm wavelengths was used for the PBM application, with the following parameters (per session): total power of 0.6W, time of 15min, frequency of 30kHz, and total energy of 577.4J. In G1 and G4, two PBM sessions were performed before the surgery and four PBM sessions were performed postoperatively. In G3, two PBM sessions a week for four weeks (total eight sessions) were performed.

The surgical approach in G1, G2, and G4 was conducted through the elevation of a full-thickness mucoperiosteal flap to expose the surgical area; necrotic bone and granulation tissue were removed using surgical curettes and rotary instruments were used for osteotomy and smoothing out all sharp bone margins. In G1, the L-PRF membranes were placed above the bone surface and primary closure of the mucoperiosteal flap was performed using resorbable sutures.

Follow-ups were performed at 7 and 15 days and at 1, 3, 6, and 12 months. The healing outcome was evaluated at 6 months and 1 year follow-ups.

Results. A marginal correlation was found between the treatment protocols and the outcomes at 6 months ($p=0.062$), while a statistical significance was found at 1 year follow-up ($p=0.039$). The highest healing outcome at 6 months was observed in G1, while at 1 year was observed in G4. No significant correlation was found between the treatment outcome and the following variables; smoking habits, drug therapy, concomitant systemic diseases, MRONJ localization and stage, and duration of ONJ-related drugs. A significant correlation was observed between the type of the MRONJ-related drug and treatment outcomes in G2, G3, and G4, while the treatment outcomes in the patients of G1 did not show any influence with the type of MRONJ-related drug.

Conclusions. This study demonstrates that the treatment protocol combined with L-PRF membrane shows more favourable outcomes compared to single protocols at the 6 months follow-up; while, at 1 year follow-up, the better outcome was observed with the combined protocol of antibiotic therapy + surgery + PBM. However, it should be underlined that the effectiveness of the L-PRF seems to be independent of the type of MRONJ-related drug compared to other protocols. Further research is needed with a larger sample size to confirm these promising results.

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