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Low-level laser biostimulation in patients affected by mucous membrane pemphigoid gingivitis

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Aim. Mucous membrane pemphigoid in an immune mediated subepithelial blistering disease consisting of heterogeneous subgroups.

Previous studies showed that gingival localized lesions can improve with periodontal treatment.

The present study was designed to evaluate the efficacy of a low level laser biostimulation (LLL-B) associated with periodontal therapy versus periodontal therapy alone in patients affected by mucous membrane pemphigoid gingivitis.

Methods. 8 patients (7 female, 1 male), attending the Oral Medicine Section of the Lingotto Dental School, Turin Molinette Hospital, with a histological diagnosis of mucous membrane pemphigoid were enrolled in this study. None of these patients had pharmacological therapy for pemphigoid in the last six months.

In each patient gingival lesions were randomized in two groups; the first group of lesions were treated with non surgical periodontal therapy (scaling and root planning, SRP) and biostimulation with a low-level laser (Diode Laser 980nm, DMT SrL), 10 applications, the second one with nonsurgical periodontal therapy.

Each laser session was performed delivering a fluence of 4J/cm².

Sign and symptoms were evaluated at each visit. Visual analogue scale (VAS) was used for symptoms: the VAS consisted of a 10 cm horizontal line marked 0 (=no pain) to 10 (=most severe pain ever experienced).

For signs an Activity score were used, as reported in other studies (site score x severity score).

Results. At the end of the protocol, both groups improved signs and symptoms. SRP+laser had better results compared with SRP alone. The difference was statistically significant (Wilcoxon test, P<0.05).

Conclusion. It is unclear how LLL-B works: it has been suggested to reduce inflammation by lowering, in a dose-dependent manner, levels of prostaglandin E2, prostaglandin-endoperoxide synthase 2, interleukin 1 beta, tumor necrosis factor alpha, the cellular influx of neutrophil granulocytes, oxidative stress, edema.

Other mechanism may be related to stimulation of mitochondrion to increase the production of adenosine triphosphate.

Laser biostimulation can obtain different biological reactions, without undesired adverse effects, reducing the pharmacological support.

Low level laser biostimulation and periodontal therapy can help clinicians in the management of mucous membrane pemphigoid gingivitis. We showed a statistical significance in the different clinical scores after treatment.

Larger studies are necessary to confirm these conclusions.

Spontaneous healing of osteonecrosis of the jaw after interruption of target therapy in a patient with lung cancer

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Aim. Pamidronate or pamidronic acid is an amino-bisphosphonates, used in the prevention and treatment of osteoporosis, in the therapy of Paget's disease, of osteogenesis imperfecta and of bone metastasis associated to breast or lung cancer, and of multiple myeloma. This drug exerts a strong inhibition of osteoclast activity slowing down tumor osteolysis. One of the most rare and severe adverse event of pamidronic acid is osteonecrosis of the jaw (ONJ). Another cancer cure is the target therapy that identifies and attacks cancer cells more precisely, causing usually little damage to normal cells. FDA summary has reported 13 cases of osteonecrosis of jaw after topotecan (one of the cancer target therapies) administration, with a rate equal to 0,7813% (<http://factmed.com/studyTOPOTECAN-causing-OSTEONECROSIS%20OF%20JAW.php>).

Case report. In May 2014, a 59 years old man was evaluated for pain of right posterior lingual mandibular region. Extraorally, swelling of right midface was present; furthermore, intraoral examination, and in particular of mentioned site, showed bone exposure, and erythematous soft surrounding tissues with purulent discharge with a clinical-radiologic diagnosis of ONJ associated to medications.

He made mention that in January 2014 a small cell lung cancer diagnosis with bone metastases was made and intravenous infusions of pamidronate were administered from January to April 2014. In April 2014, also antineoplastic chemotherapy with topotecan (two monthly cycles) was managed due to the worsening of the neoplastic disease. In the area of osteonecrosis, orthopantomography showed a bone trabecular radiopacity by osteosclerosis; TC scans showed a diffuse hyperdensity of trabeculae of the jaw, and in site of missing 4.8, a millimetric solution of continuous of lingual cortical, with detachment of a bone fragment (6 mm), was attributed to the areola of osteonecrosis with small sequestration.

In agreement with the oncologist, pamidronate and topotecan were suspended and systemic antibiotic (ampicillina/sulbactam intramuscularly twice daily for 8 days and metronidazole 250 mg per os twice daily for 8 days) and local antiseptic (chlorhexidine 0.2% mouth rinses and 0.5% chlorhexidine gel) therapies were administered.

After one month, a complete healing of the buccal mucosa, after spontaneous elimination of a necrotic bone fragment, was observed.

Conclusion. As known from literature, the toxic action of amino bisphosphonate associated with anti-angiogenic drugs, used in target therapy of cancer, could increase the risk of osteonecrosis of the jaw. Pamidronate, one of most powerful of aminobisphosphonates following zoledronic acid- could be responsible of ONJ. Together with topotecan, an antiangiogenic

drug, could be associated with an increased risk. The discontinuation of both drugs was found to be associated to the spontaneous healing.

The surgical treatment of mandibular peripheral calcifying epithelial odontogenic tumour (pindborg tumor) with Er,Cr:YSGG laser: a case report

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Aim. Calcifying epithelial odontogenic tumor (CEOT) is a rare, benign, locally aggressive odontogenic epithelial tumor that affects the jaws. It is also referred as Pindborg tumor.

Topographically two entities have been distinguished: intraosseous (central) and extraosseous (peripheral). Numerous surgical treatment modalities have been suggested, and the treatment plan is dependent on multiple factors such as size and location of neoplasm, general condition of patient and operator skill. Small lesions with not bone involvement and well-defined borders could be treated by conservative surgical approach. The aim of this case report was to propose a new treatment modality of peripheral CEOT using Er, Cr: YSGG laser.

Methods. A 55-year-old male was referred to our oral medicine surgery for a single, slowgrowing, painless, fibrous, gingival swelling. Past and medical history did not reveal any relevant information. He was taking no medication and had no history of known drug allergy. The intra-oral examination revealed a sessile mass of approximately 1,2 x 0,7 x 0,3 cm in size involving the left lingual mandibular alveolar process. The overlying mucosa showed an ulcer due to chronic trauma by chewing. On palpation, growth was no tender, no fluctuant, hard and fibrous in consistency. CT-scans did not indicate any bone involvement. Treatment plan comprising of excisional biopsy of the lesion using an Er, Cr: YSGG laser was planned. An incision was made including the overall mass, the lesion was lifted along with the underlying perosteum from the bone surface and removed. Haemostasis was achieved by laser and healing was obtained for second intention. The specimen was sent for histological examination.

Results. Histopathological assessment showed sheets of polyhedral epithelial cells with well-defined borders, arranged in a pseudoglandular pattern. The cells were separated by thin bands of connective tissue in areas showing deposits of amorphous eosinophilic material. Small foci of calcifications were also noted. Diagnosis of CEOT was formulated. The postoperative course of the patient was uneventful, and there was no evidence of disease at the 2-year follow-up.

Conclusion. A new conservative surgical treatment with Er, Cr: YSGG laser was proposed for the treatment of a peripheral CEOT. This approach was possible since the lesion was small without characteristics of malignancy. It appeared to be efficient being minimally invasive and offering many clinical advantages (minimal intra-operative bleeding, haemostasis, reduced times of healing).

Medication-related osteonecrosis of the jaw: a 4-year experience

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Aim. Bisphosphonates, antiresorptive (mainly Denosumab) and antiangiogenic therapies are widely used in the management of metastatic disease involving the bone and in the treatment of osteoporosis. Patients are referred to our clinic aiming to: 1) evaluate the oral conditions of the oncologic and osteoporotic patients before the beginning of the therapy with bisphosphonate in order to reduce as less as possible the oral risk factors, 2) follow up patients during all the period of treatment in order to intercept as soon as possible the onset of the disease and 3) plan the treatment in case of bone necrosis.

Methods. Data on patients observed in a 4 years period have been collected with particular attention for indications to treatment, medication type, incidence, treatment and prognosis of medication-related osteonecrosis of the jaw (MRONJ).

Results. From May 2011 until December 2014, 199 patients (84 males, 115 females) taking bisphosphonates or antiresorptive or antiangiogenic drugs were referred to our Department. Patients with oncologic diseases represents the 90% of subjects: 20% were affected from breast cancer, 32,6% prostate cancer, 15,5% lung cancer, 28,2% other malignant tumors with bone metastases. Osteoporotic patients represented only 10% of the sample and treated with oral bisphosphonates (alendronate). MRONJ occurred in 28/199 patients (14%), after a mean latency time of 36 months after the first assumption of medication. 68% of patients with MRONJ (19/28) were oncologic patients. 42% were affect of breast cancer, 15% prostate cancer, 15% multiple myeloma and 28% other tumors. The most relevant complication was pain, observed in 80% of cases. 60% of the MRONJ was localized in the mandible, 35% in the maxilla, and 5% in both mandible and maxilla. 57% of the MRONJ occurred after extractive procedures, 18% in patients with removable prosthesis, 20% were considered spontaneous and only 5% occurred on a site of periodontal disease. Surgical treatment was performed in case of exposed and necrotic bone or fistulas that probes to bone associated with infection as evidenced by pain and erythema in the region of exposed bone with or without purulent drainage (stage 2). On the base of such indications, 16 patients were treated, with 2 patients presenting relapse in less than 6 months, corresponding to a success rate of 88%. Patients were mainly treated under local anaesthesia, only with performing debridement of necrotic bone. In six cases (stage 3) the extension of bone necrosis required a segmental ostectomy under general anaesthesia. These surgical approaches had similar success rate.

Conclusion. Since the discovery of bisphosphonates-related osteonecrosis of the jaw, there has been increasing evidence in recent years of osteonecrosis induced by drugs other than bisphosphonates, mainly agents with antiangiogenic and antiosteoclastic activity. Patients assuming antiresorptive medications for osteoporosis are less often referred for prevention of MRONJ and usually come to specialized clinics when MRONJ is already underway.