Photobiomodulation and orthodontic movement of molar verticalization: a randomized double-blind study

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Abstract

With the loss of a teeth, the adjacent tooth moves towards the space left, causes aesthetic and functional problems. Skeletal anchoring system, as mini-implant (MI), has been increasingly used to replace the adjacent tooth to the correct place. Some photobiomodulation (PBM) protocols have been shown to accelerate orthodontic movements, with analgesia and inflammatory modulation. This study will evaluate how PBM interferes with molars verticalization movement, pain and periodontium´s inflammation. A selection of 34 patients with an inclined molar were randomly divided into 2 groups: G1 - verticalization with MI + PBM simulation; G2 - verticalization with MI + PBM. The PBM protocol will be: power of 100mW, λ 808 nm, 1J per point, 10 points, for 10s, radiant exposure of 25 J / cm². Each 30 days, an orthodontic force will be applied and PBM will be done at 0, 3 and 7 days, every month, for 3 months. By ELISA, the cytokines IL1β, IL-6, IL-8, IL-10 and TNF-α from crevicular gingival fluid will be analyzed. We will use an initial and final panoramic radiography to measure the tilt speed. A Visual Analogue Scale and a count of painkillers will be used to assess the laser´s analog effect. OHIP-14 questionnaire will be applied to identify the impact of oral health on the participant's quality of life. The ANOVA-one way test will be applied, with mean ± SD and p-value <0.05. We expected an increase at inclination speed, a decrease in the amount of inflammatory cytokines and an increase in anti-inflammatory.

Biography

Graduated in Dentistry from the University of Dentistry, University of São Paulo (FOUSP). Specialist in Orthodontics, Ortogeo - Faculdade Sete Lagoas / São José dos Campos, SP - Brazil. Master and PhD student in Biophotonics Applied to Health Sciences - University Nove de Julho. Presented works at congresses, including at WALT-2018 (Nice, France). His line of research focuses on the use of lasers and their cellular repercussions. In his free time, he likes to take care of his body and mind, practicing physical activity and staying with the family.