

## Poster Session

and other diseases that contraindicate high doses of corticosteroids.

PBM is a therapeutic modality non invasive, capable of controlling inflammation and stimulating neurosensory regeneration and functional recovery.

**Conclusion:** The association of conventional therapy with PBM promoted the recovery in all patients (average of 26.6 days,  $\pm$  25 to 30 days). Observation of the evolution of these cases suggests that further clinical studies should be performed to validate PBM protocols to achieve optimized results in BP

### P-043

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**Category:** Case report

**Title:** LASER PHOTOBIMODULATION IN THE TREATMENT OF BELL'S PALSYP: A CASE REPORT

**Aim:** The following paper intends to report a case of PFP treated in Centro de Biofotônica (UFBA), using LLLT on infrared wavelength (808 nm).

**Case description:** Male patient A. L. S., 44 years old, relating "locked eye and crooked mouth" on the left side, was diagnosed with PFP after clinical exam.

**Discussion:** Proposed protocol for LLLT used Laser Duo device (MMOptics) on infrared wavelength, 100mW power, initially with 23 points surrounding frontal muscle, orbicularis oculi, orbicularis oris and mouth lifting muscles irradiating 2J/cm<sup>2</sup> (20 seconds each point). Supraorbital, infraorbital and mental foramen were also photobiomodulated for 60 seconds each (6J/cm<sup>2</sup>), in a total of 58J for 12 sessions. After this first cycle, a new protocol was proposed, reducing points to 21 but increasing dose to 3J/cm<sup>2</sup> (30 seconds) each, with exception of foramen ones, that haven't changed, totalizing 72J for other 36 sessions. The patient had a significative evolution after these last cycles, leading it to a protocol with 22J only. Infraorbital and mental foramen points were removed, just like inferior orbicularis oculi and mouth lifting ones, with orbicularis oris and superior orbicularis oculi (2J/cm<sup>2</sup> - 20 seconds - each point) and supraorbital foramen (4J/cm<sup>2</sup> - 40 seconds) left.

**Conclusion:** The treatment with low-power lasers, using the protocol applied, proved to be effective in treating Bell's Palsy due to its ability to modulate inflammation in the affected nerve, resulting in the recovery of facial mimicry and restoring the patient's self-esteem.

### P-044

**Danielle Santos Rodrigues, Celso de Araújo Duarte, Luciane Hiramatsu Azevedo** (Brazil)

**Category:** Original research: Preclinical

**Title:** PROPOSAL OF AN ALTERNATIVE METHODOLOGY FOR MEASURING PHOTONIC PARAMETERS IN THERAPEUTIC AMBER LED (601 nm)

**Aim:** Characterize an alternative method to traditional radiometry for measuring irradiation photonic parameters in research involving therapeutic amber LEDs.

**Material and methods:** It was determined the range and peak of the electromagnetic spectrum in which the therapeutic amber LED operated, for which a spectrometer (model Shamrock 303iSR, Andor Technology) was used. The spectrometer was connected to a computer that used the software (OriginLab, Massachusetts, USA) for data analysis. The measurement for the LED was performed with an exposure of 0.0001 seconds. The following analysis focused on calculating the power density (irradiance) using an alternative photometry method that measures the electrical current generated by a diode photodetector developed in-house at the university laboratory. This device captures light and produces an electrical signal, transferring it to a picoammeter (Keithley 6487, Beaverton, OR, United States), which automatically adjusts the measurement scale to the corresponding unit of measurement. Each wavelength will produce a specific responsivity value measured in Amperes per Watt. The method for measuring electrical current involved conducting measurements at various distances between the photodetector and the light source. The readings were recorded and tabulated along with the corresponding electrical current values measured by the picoammeter. With the definition of the distance at which the electrical current demonstrated the most stability, the calculation of the other variables became possible by knowing the responsivity at 601 nm.

**Results:** The peak of the spectral band was

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reached at 601 nm, with its lower limit at 579 nm and the upper limit at 623 nm (+/- 3.5%). The responsivity value of the photodetector was established at 0.357 A/W for the amber LED. The calculations of the other quantities were based on the measurement taken at a distance of 30 cm between the photodetector and the LED, which, in turn, generated an electrical current of 1.95  $\mu$ A. The power was defined at 5.46  $\mu$ W, the power density at 36  $\mu$ W/cm<sup>2</sup>, and the power density adjustment at the distance specified by the manufacturer at 11 mW/cm<sup>2</sup>.

**Conclusion:** In the absence of specific devices for radiometry, this study demonstrated that it is possible to measure photometric parameters using alternative methods, such as employing a photodetector coupled with a picoammeter.

### P-045

**Stefany Barbosa, Valentim Adelino Ricardo Barão, Leticia Helena Theodoro, Edilson Ervolino, Valdir Gouveia Garcia, Leonardo Perez Faverani** (Brazil)

**Category:** Original research: Preclinical

**Title:** EFFECTS OF DIFFERENT LOCAL ANTIMICROBIAL THERAPIES ON THE PREVENTION OF MEDICATION-RELATED OSTEONECROSIS OF THE JAW OF SENESCENT RATS - PRELIMINARY RESULTS

**Aim:** This study aimed to compare the effects of antimicrobial photodynamic therapy (aPDT), 2% chlorhexidine gel, and poly(N-vinylcaprolactam; PNVL) hydrogel with tetracycline in preventing and managing medication-related osteonecrosis of the jaws (MRONJ) after tooth extraction in aged rats treated with zoledronic acid.

**Material and methods:** Thirty 12-month-old Wistar rats underwent bilateral ovariectomy and, two months later, received cotton ligatures around the left lower first molar while starting zoledronic acid injections every three days. After three weeks, the molar was extracted, and treatments were applied based on assigned groups: BC: Socket filled only with blood clot; CHX: 2% chlorhexidine gel applied immediately post-extraction; aPDT: Antimicrobial photodynamic therapy performed immediately after surgery and on days 2 and 4, using methylene blue (100  $\mu$ g/mL) for 60 seconds, followed by irradiation with a low-power laser (Thera lase DMC; GaAIP; 660 nm; 35 mW; 2.1 J/point; 60 seconds; 74.2 J/cm<sup>2</sup>;

1.23 W/cm<sup>2</sup>); PNVL: PNVL hydrogel without tetracycline applied immediately post-surgery; PNVL+TC: PNVL hydrogel with tetracycline (25 mg) applied immediately post-surgery. After 28 days, the animals were anesthetized, and photographs of the extraction sites were taken before euthanasia. The hemimandibles were analyzed using micro-computed tomography and histology.

**Results:** Results indicated that the aPDT and PNVL+TC groups showed better gingival healing, with both groups exhibiting no bone sequestration and more organized tissue, including vital bone formation. The BC group fared the worst, with necrotic tissue and cellular debris due to bacterial contamination. CHX and PNVL yielded similar results, showing no sequestration but empty alveoli.

**Conclusion:** In conclusion, aPDT and PNVL+TC therapies appear promising for preventing MRONJ after tooth extraction, warranting further investigation.

### P-046

**Adriana Cátia Mazzoni, Lara J Motta, Aldo Brugnera Jr, Ricardo Navarro, Raquel Agnelli Mesquita Ferrari, Anna Carolina Ratto Tempestini Horliana, Sandra Kalil Bussadori** (Brazil)

**Category:** Original research: Clinical

**Title:** EVALUATION OF THE EFFECTS OF HIGH-POWER DIODE LASER AND ELECTROCAUTERY FOR LINGUAL SURGERY IN INFANTS: A BLINDED RANDOMIZED CONTROLLED CLINICAL TRIAL

**Aim:** The objective was to evaluate lingual frenulum release surgery, performed using 2 types of thermal surgical instruments, Electrocautery and high-power Diode Laser, in newborns aged 0 to 3 months, that presented ankyloglossia, with an indication for surgery

**Material and methods:** The study was a randomized, controlled and blind clinical trial involving 57 participants aged 0-3 months that had difficulty breastfeeding, with a transdisciplinary diagnosis of ankyloglossia and indication of surgical release of the lingual frenulum, approved by the research committee. ethics, 4,387,769. The surgical procedure was performed using 2 types of thermal instruments, and they were randomly divided into 2 groups: G1.