**Use of photobiomodulation on pre-dental anesthesia and its effects on anesthetic efficacy**

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**Abstract:**

Phobias and the general fear of dental procedures are both prevalent throughout the world, with local anesthesia being one of the procedures most feared by patients. For this reason, several complementary therapies have emerged with the aim of reducing the pain caused by the insertion of the needle and the need for repetition, but so far there is no defined protocol. Recent studies have shown that Photobiomodulation (PBM) is effective in controlling pain and increasing local microcirculation; these effects can help local anesthetic absorption, both enhancing its effect and decreasing the pain of the puncture. However, due to the scarcity of well-designed studies on this topic, further evidence of this is needed. This study’s aim will be to evaluate the ability of PBM to reduce puncture pain and increase local anesthetic effectiveness when used as a pre-anesthetic therapy. Accordingly, 50 subjects will participate in this double-blind, randomized controlled trial. The control group will be submitted to the standard anesthetic technique. The experimental group will have an infrared laser (100mW at 808nm, 9J at a single point) applied to the place where the puncture will be performed, immediately before anesthesia. The pterygomandibular technique will be conducted the same way in both groups by the same operator. The outcome assessor and the patient will be blinded to the application of PBM. The primary outcome of the study will be pain at the time of puncture, assessed using the visual analogue scale (VAS) at the time of needle insertion. Secondary outcomes which will be evaluated: anxiety through the Beck questionnaire and anesthetic latency through electric pulp test (timed until the onset of anesthetic action). Additionally, the amount of anesthetics needed to perform the procedure and the need for complementation will also be computed.

**Biography:**

Giovanna Fontgalland Ferreira started her Bachelor's degree in Dentistry at University Nove de Julho (UNINOVE) in 2017. She started her career as a researcher in 2019, when she joined, as an undergrade, the area of ​​Biophotonics. She also participated in academic leagues and assisted as a teacher's assistant in several disciplines as an undergraduate. In 2021 she completed a postgraduate degree in Biophotonics and Digital Dentistry. She is currently a researcher for the master's program at UNINOVE, in addition to working in the clinical area as a general practitioner, mainly performing minor oral surgery. In her spare time, she enjoys cooking and watching tv/streaming series. She is also particularly interested in music and art exhibitions.