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Effects of laser therapy in nociceptive behavior and neuronal activity in trigeminal nucleus after unilateral lesion in the disc of temporomandibular joint in rats.

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Objective: To analyze the effects of low-level laser therapy (LLLT) on nociceptive behavior and trigeminal nucleus neuronal activity after unilateral temporomandibular joint (TMJ) disc injury in rats.

Methods: Surgical access to TMJ under general anesthesia was performed. 40 rats were divided into 4 groups (n = 10 each): Group 1: Surgical lesion of the articular disc and LLLT; Group 2: sham-operated submitted to LLLT; Group 3: surgical lesion of the articular disc; Group 4, naïve: control without joint injury or LLLT. Ten sessions of LLLT were performed with GaAs laser with wavelength of 904 nm and energy density 6J / cm². The development of neuropathic symptoms was evaluated by the von Frey test. The trigeminal ganglion samples were prepared for determination of the protein content by spectrophotometry of substance P (SP), vanilloid transient potential receptor of subtype-1 (TRPV-1) and peptide related to the calcitonin gene (CGRP). Statistical analysis was performed (p <0.050).

Results: There was a total reversal of the nociceptive threshold, from the first session in group1, and from the second session in group 2, and remained until the tenth session. There was an increase in the expression of SP, TRPV-1 and CGRP in the trigeminal ganglion in group 3 and a significant decrease after LLLT in group 1.

Conclusion: The use of low-level laser therapy is effective in reducing nociceptive behavior, and that the use of this experimental model of lesion proved to be feasible for the experimental study of temporomandibular disorders.

Biography

Alex de Freitas Rodrigues is a research assistant position in area, experimental surgery in Temporomandibular Disfunctions, Traumatology or Reconstructive procedures in Maxilofacial Surgery, has undegraduated in Faculty of Dentistry of University of São Paulo in 2005, and completed his MSc at University of Sao Paulo in 2016 and initiated the PhD studies in Department of Oral & Maxilofacial Surgery. He is a founder of Oral & Maxilofacial Surgery League in 2004 and worked as dentist, performed in Oral & Maxilofacial surgery treatment.

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