

PROTOCOLOS DE INVESTIGACIÓN - MEDICINA

COMPARATIVE EFFECT OF TRANSCRANIAL AND LOCAL PHOTOBIMODULATION ON PERIPHERAL INFLAMMATION CONTROL IN A COLLAGENASE-INDUCED TENDINITIS EXPERIMENTAL MODEL

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Introduction: Transcranial photobiomodulation (TcPBM) is a relatively recent therapeutic approach used in the treatment of various central and peripheral disorders; however, the mechanisms underlying its effects on peripheral inflammatory processes remain poorly understood. The experimental model of collagenase-induced tendinitis in the calcaneal tendon is widely used and considered an excellent model for studying acute inflammatory responses. Objective: This study aims to evaluate the effects of TcPBM on the inflammatory process in a collagenase-induced calcaneal tendinitis model in mice. Methods: Twenty-one female C57BL/6 mice will be randomly assigned into three experimental groups (n = 7): Group 1 – tendinitis without treatment (NT); Group 2 – tendinitis treated with transcranial photobiomodulation (TcPBM); and Group 3 – tendinitis treated with local photobiomodulation (LPBM) applied directly to

the calcaneal tendon. Tendinitis will be induced by transcutaneous injection of type I collagenase into the calcaneal tendon. Transcranial or local irradiation will be performed 30 minutes after tendinitis induction, using the following parameters: (Laser; 808 nm; 3J; 100mW; 60s). Twelve hours after induction, the animals will be euthanized, and the tendons collected for histological analysis (inflammatory cell infiltration and tissue organization) and evaluation of inflammatory markers (gene expression of COX-2, IL-1 β , IL-6, IL-10, and neurokinin-1). Expected results: TcPBM is expected to modulate the inflammatory process, promoting resolution of tendinitis.

Palavras-chave: tendinitis; transcranial photobiomodulation; inflammatory mediators; neurokinin-1; interleukin.