**PHOTOBIOMODULATION THERAPY INCREASES REGULATORY T CELLS BY IL-10-DEPENDENT MECHANISM IN ALLERGIC LUNG INFLAMMATION**

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**Abstract:**

It is widely known that photobiomodulation (PBM) has beneficial effects on allergic lung inflammation. Our previous study showed an anti-inflammatory effect of PBM therapy in an experimental model of asthma, and we observed that this mechanism is partially dependent on the secretion of IL-10 in the lung. In this sense, the objective of this study was to verify the anti-inflammatory role of the PBM therapy in the pulmonary inflammatory response in chronic experimental asthma model. The protocol used for asthma induction was the administration of OVA subcutaneously (days 0 and 14) and intranasally (3 times/week, for 5 weeks). On day 50, the animals were sacrificed to assess inflammation and lung remodeling, as well as the percentage of Treg cells (CD4+CD25+Foxp3+) and their secretion of IL-10 in the lung. The laser used was the diode, with a wavelength of 660 nm, power of 100 mW and 1J for 10 s/point, in three different application points. Our data showed that PBM therapy decreased the macrophages, neutrophils and lymphocytes counts in the bronchoalveolar lavage. Morethere, there was also a decrease in the release of cytokines in the lung, mucus and collagen in the airways, as well as pulmonary mechanics reduced. In addition, it is worth highlighting, the increased of Treg cells with a consequent increase in the release of the IL-10 in the lung, contributing thus to the reduction of pulmonary inflammation. Therefore, we conclude that the use of PBM therapy in chronic airway inflammation attenuated the inflammatory process, as well as the pulmonary functional and structural parameters, probably via regulatory T cells. In this sense, this therapy can be used as an immunotherapeutic strategy in the treatment of asthma.

**Biography:**

Graduated in Biological Sciences from Universidade Nove de Julho - UNINOVE (2015-2018) with specialization in molecular biology from institute research and education in health of São Paulo - IPESSP (2020-2021), she did scientific initiation in Biophotonics applied to Health Sciences also from UNINOVE (2016-2018), about effects of photobiomodulation therapy on lung inflammation in an experimental model of asthma, with a scholarship from the São Paulo institution for research promotion (FAPESP). She is currently pursuing a master's degree at UNINOVE, where she will study the effect of photobiomodulation therapy on asthmatic patients (2021). She works in the field of Photobiomodulation and Pulmonary Immunology, mainly with experimental models of asthma, pulmonary fibrosis and chronic obstructive pulmonary disease (COPD), in addition, to the involvement of structural cells in the lung diseases.