**PHOTOBIOMODULATION REDUCES LUNG FUNCTION IN XPERIMENTAL MODEL OF ASTHMA BY ALTERS NITRIC OXIDE/EICOSANOIDS RELATIONSHIP**

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Asthma is a chronic inflammatory disease characterized by lung cell recruitment and airway hyperresponsiveness. Treatment consists of bronchodilator antagonists, corticosteroids, or leukotrienes. Photobiomodulation (PBM) appears as a possibility in the treatment of lung diseases, and we focus on evaluating the effects of PBM on lung function in the experimental model of asthma. Male wistar rats were sensitized or challenged with ovalbumin (OVA) and treated or not with PBM (1h and 4h after each challenge with OVA). After 24 h of the last challenge with OVA, lung function and levels and gene expression of nitrites and eicosanoids were evaluated. Wavelength: 660 nm; Power: 160 mW; Power density: 38.5 mW/cm2; Energy density: 5.8 J/cm2; Exposure time: 150 s; 24 J energy; The irradiation was performed at a single point, reaching the trachea and lungs. The data showed that PBM in allergic rats caused reduced respiratory resistance (Rrs), respiratory elastance (Ers) to cholinergic stimuli. The effects appear to be dependent on the balance of nitric oxide and eicosanoids since we have demonstrated high levels of nitrites concomitantly with reduced levels of eicosanoids in lung explants. We have also shown increased nitric oxide synthase (NOS) gene expression and decreased gene expression of cyclooxygenase enzymes (COX1 and COX2) in lung tissue after treatment with PBM. The data presented show that treatment with PBM reduced respiratory mechanics during the allergic response, altering the nitric oxide/eicosanoids ratio and opening the possibilities of treating episodes of bronchoconstriction.

**Biography:**

Robson Alexandre Brochetti has a degree in Pharmacy and Biochemistry from Universidade Nove de Julho, with an emphasis on Clinical and Toxicological Analysis. Specialization in Clinical and Hospital Pharmacy; Master in Biophotonics applied to Health Sciences area of concentration: Phototherapy and Dosimetry and PhD in Biophotonics applied to Health Sciences area of concentration: Phototherapy and Dosimetry. He is currently a Professor in the Pharmacy undergraduate course at Universidade Nove de Julho - UNINOVE in the areas of Clinical Pharmacy and University Pharmacy (Pharmacy School) and with a research project in the doctorate of asthma resistant to corticosteroids.