



Mediators of Inflammation

Special Issue on

Low-Level Laser Therapy on Chronic Inflammation

CALL FOR PAPERS

In the last years laser therapy has gained prominence because of the number of laser light interaction possibilities with different cellular systems and in different inflammatory conditions and immune disorder. In fact, the low-level laser therapy (LLLT) is capable of alleviating the symptoms of inflammation and tissue remodeling, and this may justify its beneficial effect in clinical therapy demonstrated in treatment of various chronic inflammatory diseases. Furthermore, LLLT can modulate the immune response and oxidative stress in chronic inflammatory diseases. The anti-inflammatory and immunomodulatory mechanism of action of LLLT is the key to choosing the proper dosimetry for the treatment of inflammation. Studies in experimental models of chronic inflammation indicate that the anti-inflammatory action of LLLT is due to the reduction of proinflammatory cytokines and to the increase of anti-inflammatory cytokines (i.e., a dual effect). In addition, laser therapy can restore the vascular permeability reducing the migration of inflammatory cells to the site of inflammation. Mechanisms involving the inhibition of adhesion molecules expression as part of LLLT strategy to not allow the exacerbation of the inflammatory process have an important role. To that end, studies show that laser therapy restores the equilibrium between lymphocyte responses Th1/Th2 in allergic inflammation. The oxidative stress metabolism and their enzymes are also the target of LLLT. The laser reduces the secretion of ROS as well as the lipid peroxidation in an experimental model of chronic disease. In addition, the LLLT restores the balance between catalase, SOD, and glutathione. The intracellular mechanism of action that enables the laser to induce a reequilibrium of cellular homeostasis occurs by interference with transcription factors such as NF- κ B, STAT6, Sp1, and PPAR γ .

For this reason, the investigation of the mechanism of action responsible for the beneficial effect of laser has received special attention of some research groups. These authors have reported that LLLT may be associated with conventional drug therapy in order to reduce the side effects of corticosteroid therapy. However, the study of the laser anti-inflammatory mechanism of action is extremely important in order to establish the appropriate dosimetry and the possibility of laser association with conventional anti-inflammatory therapies.

We invite investigators to contribute original research articles as well as review articles that seek to address the mechanism and significance of anti-inflammatory and immunomodulatory effect of low-level laser therapy in treatment of chronic inflammation. Therefore, a particular interest will be given to papers exploring or discussing the action mechanism that makes laser a promisor toll in the treatment of chronic inflammatory disorders.

Potential topics include, but are not limited to:

- ▶ Low-level laser therapy for chronic obstructive pulmonary disease
- ▶ Low-level laser therapy for arthritis rheumatoid
- ▶ Low-level laser therapy for neuroinflammation and cognitive dysfunction
- ▶ Low-level laser therapy for spinal cord injuries

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/mi/lll/>.

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