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***In vivo* experimental models of wound healing under the influence of photobiomodulation therapy**

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Photobiomodulation therapy (PBMT) is the most recent term for the Low-Level Light Therapy in the MeSH data. As stated by Anders et al. photobiomodulation is defined as “A form of light therapy that utilizes non-ionizing forms of light sources, including lasers, LEDs and broadband light, in the visible and infrared spectrum. It is a nonthermal process involving endogenous chromophores eliciting photophysical (i.e. linear and nonlinear) and photochemical events at various biological scales. This process results in beneficial therapeutic outcomes including but not limited to the alleviation of pain or inflammation, immunomodulation and promotion of wound healing and tissue regeneration”. The use of PBMT in wound healing lacks mechanistic *in vivo* assays to determine the pathways activated during the different phases of repair. We will present new data regarding the expression of fibroblast growth factors (FGF) under skin and bone wounds treated with various sources of PBMT. It was demonstrated that PBMT modulates the levels of basic FGF, particularly and consequently, acts activating important pathways of angiogenesis, cell survival and proliferation in models of skin and bone wound healing. In addition, PBMT improves bone repair in female rats with osteoporosis by decreasing the number of neutrophils, monocytes and osteoclast. In summary, the modulation of FGF2 seems to be an important step in the PBMT-based repair and also PBMT improves wound healing by enhancing neocollagenesis, increasing the number of new vessels formed in the tissue (neovascularization) and modulating matrix metalloproteinase-2 expression and as expected, PBMT stimulated bone repair in female rats with osteoporosis and slightly decreased the inflammatory response.

Biography

Ciro Dantas Soares has completed his MSc in the year 2015 at the age of 22 years from University of Campinas, Brazil. Currently, he is PhD training in progress in Oral Pathology of University of Campinas and LA Biomedical Research Institute. He has published more than 20 papers in reputed journals and has been serving as an editorial board member of repute.

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