

EFFECT OF PHOTOBIMODULATION ON ANGIOGENESIS AND ARTERIOGENESIS IN AN EXPERIMENTAL MODEL OF LOWER MEMBER ISCHEMIA

Names:

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Abstract:

Peripheral arterial occlusive disease (PAOD) is a late manifestation of atherosclerosis in the lower limbs, due to a progressive decrease in blood supplying the tissues. Current treatments for PAOD are not so effective in the long term and many patients progress to severe ischemia, running the risk of amputation. Photobiomodulation (PBM) has a proven effect on angiogenesis when using red and infrared sources. This project aims to evaluate the effect of PBM on angiogenesis (growth and proliferation of new blood vessels from existing vascular structures) and on arteriogenesis (proliferation of pre-existing collateral arteries) using a lower limb ischemia model in rats. Visualization and measurement of the vessels will be performed via microscopy. 30 adult Wistar rats, under general anesthesia, will be submitted to thermography and oximetry of the hind legs, followed by surgical interruption of the femoral artery, causing ischemia. The animals will be divided into 2 groups (control and PBM). The control group will not receive any treatment. Irradiation with red (660 nm) and infrared (850 nm) laser, total energy of 4 J / point every cm, will be applied 5x / week to the PBM group; application will be along the femoral artery path, from the immediate postoperative period until the end of the experiment (30 days). Capillary density will be analyzed based on histological sections of the gastrocnemius muscle and measurement of collateral vessel density at 7, 14 and 30 days. The results will be treated statistically.

Biography:

SILVANA TORRES PEREZ is PhD student in the Biophotonics Applied to Health Sciences Postgraduate Program, Nove de Julho University - UNINOVE, São Paulo, Brazil, Graduated in Medicine, did Medical Residency in General Surgery and Specialization in Angiology and Vascular Surgery and has a master's degree in Biophotonics Applied to Health Sciences. **RAQUEL AGNELLI MESQUITA-FERRARI, SANDRA KALIL BUSSADORI, ANNA CAROLINA RATTO TEMPESTINI HORLIANA AND KRISTIANNE PORTA SANTOS FERNANDES** are professors in the Biophotonics Applied to Health Sciences Postgraduate Program, Nove de Julho University - UNINOVE, São Paulo, Brazil