PROTOCOLOS DE INVESTIGACIÓN - FISIOTERAPIA

PHOTOBIOMODULATION FOR PREVENTING SURGICAL-SITE INFECTION IN CORONARY ARTERY BYPASS GRAFTING: A RANDOMIZED, DOUBLE-BLIND CLINICAL TRIAL WITH 30-DAY FOLLOW-UP. CAEE: 40197020.5.0000.5483

Lara Cristina Porta Molino (laracporta@gmail.com)

Fernando Faglioni Ribas (fernando.f.ribas@gmail.com)

Janete Akemi Kashiabara (janete.kashiabara@bp.org.br)

Kristianne Porta Santos Fernandes (kristianneporta@gmail.com)

Lara Jansiski Motta (ljm.laramotta@gmail.com)

Introduction: Surgical-site infection (SSI) after cardiac surgery is a serious complication; when it progresses to deep organ-space infections like mediastinitis, it carries a high mortality rate. The SSI rate for coronary artery bypass grafting (CABG) in São Paulo, Brazil, in 2024 was 7.93%, accounting for 51% of all SSIs in clean cardiac surgeries. The impact of SSIs on quality of life and the high costs to healthcare systems are becoming increasingly evident as cardiac surgeries rise worldwide, justifying the search for new technologies and treatments to reduce SSI rates—shortening hospital stays by directly preventing serious postoperative complications and supporting the sustainability of

healthcare centers. Studies suggest that photobiomodulation (PBM) may accelerate wound healing, creating a less favorable environment for bacterial colonization. Objectives: To assess the effects of PBM on the following outcomes: (1) Incidence of SSI in CABG; (2) Incidence of wound dehiscence; (3) Pain intensity; (4) Analgesic use; (5) Treatment cost; and (6) Length of hospital stay. Methodology: A randomized, double-blind, placebo-controlled clinical trial will be conducted with a 30-day follow-up, involving 194 patients undergoing CABG, divided into two groups: Placebo and PBM. Both groups will receive transcutaneous applications parallel to the surgical incisions from postoperative days 1 to 5 using the Ecco Reability Cluster Dual Laser device (150mW power, 3 diodes at 660nm, 3 diodes at 808nm, delivering 3J per diode simultaneously). Patients will be followed for 30 days to detect the presence or absence of late-onset surgical-site infections.

Palavras-chave: photobiomodulation; coronary artery bypass grafting; surgical-site infection.