RESUMO EXPANDIDO - IV. PESQUISA CIENTÍFICA RELACIONADA À AVALIAÇÃO DAS PRÁTICAS E GESTÃO DO CUIDADO EM ENFERMAGEM

THREE-ARM RANDOMIZED CLINICAL TRIAL ON THE EFFECT OF NON-PHARMACOLOGICAL THERAPIES DURING CHEST DRAIN REMOVAL IN POST-CARDIAC SURGERY PATIENTS, PRELIMINARY RESULTS

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Introduction: Cardiac surgery is one of the most effective treatments for patients with complex coronary and valvular diseases, resulting in improved survival and a progressive reduction in postoperative complications. Despite these advances, pain associated with chest tube removal remains one of the most distressing experiences during the immediate postoperative period and represents a significant challenge for healthcare teams. Inadequate pain management during chest tube removal may contribute to impaired respiratory function, atelectasis, pneumonia, delayed rehabilitation, prolonged hospital stays, and increased healthcare costs. Non-pharmacological interventions such as local cold therapy,

aromatherapy, and relaxation techniques have demonstrated effectiveness as adjunctive strategies for pain control in several studies, particularly in Asian countries. However, postoperative pain management in Chile continues to rely primarily on pharmacological approaches. This study presents preliminary findings from a randomized controlled trial evaluating the effectiveness of local cold therapy and aromatherapy compared with standard care in reducing pain during chest tube removal among adult patients undergoing cardiac surgery at a high-complexity hospital in southern Chile.

Objetive: compare the effectiveness of two non-pharmacological therapies with conventional treatment in managing pain during chest drain removal in patients undergoing cardiac surgery at a high-complexityhospital in southern Chile

Methods: A single-blind, three-arm randomized controlled trial was conducted in the cardiac intensive care unit of a high-complexity hospital in southern Chile. Adult patients undergoing cardiac surgery and requiring chest tube removal were randomly assigned (1:1:1) to local cold therapy plus standard care, aromatherapy plus standard care, or standard care alone (n=30/group). Eligible participants provided written informed consent. In the cold therapy group, a cooling device (6–8°C) was applied over a sterile dressing covering the chest tube insertion site for 5–10 minutes before removal, with skin temperature reaching 13°C before the procedure. In the aromatherapy group, five drops of lavender essential oil were applied to a cotton ball positioned 30 cm from the patient's head for 15 minutes before chest tube removal. The control group received standard pharmacological management. Pain intensity was assessed immediately and 10 minutes after chest tube removal using a standardized pain scale. Treatment allocation was concealed through coded intervention groups (A, B, and C), and group identities remained blinded to the statistical analysis team until study completion. Data were analyzed using StataNow 19 BE.

Results Data: Between July 2025 and April 2026, 90 patients were enrolled and randomized equally to local cold therapy (n=30), aromatherapy (n=30), or standard care (n=30). Participants had a mean age of 63.6±10.9 years, 72.2% were male, and 65.6% presented with three or more chronic comorbidities. Coronary artery bypass grafting was the most frequent procedure (62%), followed by valve surgery (30%). Immediate pain intensity differed significantly across treatment groups. Patients receiving local cold therapy reported the lowest pain scores (mean 1.9±1.2), followed by aromatherapy (3.5±1.8) and standard care (4.5±1.7). In unadjusted linear regression analyses, local cold therapy was associated with a 1.60-point reduction in immediate pain compared with aromatherapy (95% CI, -2.42 to -0.78; p<0.001). In contrast, standard care was associated with a 1.03-point increase in pain compared with aromatherapy (95% CI, 0.21 to 1.86; p=0.014). Age was inversely associated with pain intensity, with a mean reduction of 0.043 points per additional year of age (95% CI, -0.079 to -0.007; p=0.019). No other demographic or clinical variables were significantly associated with immediate pain.

Implications for nursing: The implementation of evidence-based non-pharmacological interventions, particularly local cold therapy, represents an opportunity to enhance postoperative pain management during chest tube removal in cardiac surgery patients. Given its low cost, ease of application, and demonstrated effectiveness, local cold therapy may be incorporated into institutional nursing protocols and standardized postoperative care pathways. These findings support the integration of evidence-based nursing practices into routine cardiovascular postoperative care, strengthening the role of nurses in symptom management and patient-centered care. The adoption of these interventions may contribute to improved quality of care, greater patient comfort, enhanced recovery, and reduced variability in pain management practices across clinical settings.

Conclusion: Adjunctive non-pharmacological interventions were associated with lower pain intensity during chest tube removal compared with standard

pharmacological management alone in patients undergoing cardiac surgery. Local cold therapy demonstrated greater effectiveness than aromatherapy, achieving the lowest immediate pain scores. These findings support the incorporation of evidence-based non-pharmacological strategies, particularly local cold therapy, into routine postoperative cardiac surgical care to improve pain management, facilitate recovery, and enhance patient-centered outcomes.

Trial registration: ClinicalTrials.gov Identifier: NCT06974071.Protocol version 1.0, May 15, 2025. Modified Mar 15, 2026.

Palavras-chave: cardiac surgery; chest drain removal; nursing care; pain.