

INPLASY PROTOCOL

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**Review Stage at time of this
submission:** Preliminary
searches.

Conflicts of interest:
None declared.

Cold application in pain and anxiety reduction following chest tube removal: A systematic review and meta-analysis

Chen, CT¹.

Review question / Objective: Cold application in pain and anxiety reduction following chest tube removal: A systematic review and meta-analysis

Condition being studied: Chest tube insertion is commonly performed after heart and lung surgery. The chest tube can be removed 24–48 hours after surgery once the patient has less than 100–150 cc fluid drained and exhibits lung expansion and stable vital signs. The act of removing the chest tube often causes pulling of the endothelial tissue adhered to the chest tube and stimulates intercostal nerves and the inflamed pleura, all of which can cause pain. A study conducted by Al-Otaibi et al. found that the procedure of removing a chest tube not only causes moderate to severe pain but also increases anxiety. Cold applications are common to relieve pain caused by chest tube removal(CTR); however, there is no consistent conclusion among several randomized trials.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 April 2021 and was last updated on 08 April 2021 (registration number INPLASY202140042).

INTRODUCTION

Review question / Objective: Cold application in pain and anxiety reduction

following chest tube removal: A systematic review and meta-analysis

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heart and lung surgery. The chest tube can be removed 24–48 hours after surgery once the patient has less than 100–150 cc fluid drained and exhibits lung expansion and stable vital signs. The act of removing the chest tube often causes pulling of the endothelial tissue adhered to the chest tube and stimulates intercostal nerves and the inflamed pleura, all of which can cause pain. A study conducted by Al-Otaibi et al. found that the procedure of removing a chest tube not only causes moderate to severe pain but also increases anxiety. Cold applications are common to relieve pain caused by chest tube removal(CTR); however, there is no consistent conclusion among several randomized trials.

METHODS

Participant or population: Adults (aged 18 years and over) who has at least one chest tube from the pleural or mediastinal spaces.

Intervention: Cold application and usual care.

Comparator: Usual care (or no treatment).

Study designs to be included: Randomized controlled trial.

Eligibility criteria: (1) publications in either the Chinese or English language, (2) randomized controlled trial, (3) adults (aged 18 years and over) who has at least one chest tube from the pleural or mediastinal spaces, (4) the experimental group that received cold application and usual care, (5) control group that received usual care (or no treatment) and (6) the study outcome included measuring pain or anxiety.

Information sources: Six databases including Embase, Ovid Medline, Cochrane Library, Scopus, the Index to Taiwan Periodical Literature System and Airiti Library.

Main outcome(s): Cold application and immediate pain.

Quality assessment / Risk of bias analysis: Two reviewers independently extracted and assessed the quality of eligible articles using the Cochrane Collaboration's tool.

Strategy of data synthesis: We used Review Manager 5.4 to analyze cold application on pain intensity and anxiety level in adult after CTR.

Subgroup analysis: The effect of the different cold application period of time.

Sensitivity analysis: Nil.

Country(ies) involved: Only Taiwan.

Keywords: chest tube removal, cold application, pain, anxiety, systematic review, meta-analysis.

Contributions of each author:

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