INPLASY PROTOCOL

Corresponding author:
Natthida Owattanapanich

natthida.owa@gmail.com

Author Affiliation:
Faculty of Medicine Siriraj Hospital, Mahidol University.

Support: None.

Review Stage at time of this submission: Completed but not published.

Conflicts of interest: None declared.

Hypocalcemia Predicts Mortality in Trauma Patients: A Meta-Analysis

Palitnonkiat, V[1]; Thampongsa, T[2]; Sirikun, J[3]; Owattanapanich, N[4].

Review question / Objective: To perform a meta-analysis of hypocalcemia in trauma patients relative to mortality as the primary outcome.

Condition being studied: This meta-analysis was performed to evaluate the correlation between hypocalcemia and mortality in trauma patients.

Eligibility criteria: randomized-controlled trials or cohort studies (either prospective or retrospective) that reported our primary outcome of interest, which is the correlation between hypocalcemia and mortality in trauma patients.

INTRODUCTION

Review question / Objective: To perform a meta-analysis of hypocalcemia in trauma patients relative to mortality as the primary outcome.

Rationale: The trauma triad of death - hypothermia, acidosis, and coagulopathy - has been recognized as a significant cause of death in trauma patients. This triad resulted in worsening hemorrhage and eventual death. Recent data have introduced a fourth component, hypocalcemia, plays a key role in the outcome of trauma patients.

Condition being studied: This meta-analysis was performed to evaluate the

correlation between hypocalcemia and mortality in trauma patients.

METHODS

Search strategy: Two investigators (V.P. and N.O.) independently searched published studies in the Ovid, Embase, and Cochrane databases before August, 2022.

Participant or population: Trauma patients.

Intervention: With hypocalcemia.

Comparator: Normocalcemia.

Study designs to be included: Cohort studies or randomized controlled trial.

Eligibility criteria: Randomized-controlled trials or cohort studies (either prospective or retrospective) that reported our primary outcome of interest, which is the correlation between hypocalcemia and mortality in trauma patients.

Information sources: Ovid, Embase, and Cochrane databases.

Main outcome(s): Mortality.

Data management: Data management regarding PRISMA guideline.

Quality assessment / Risk of bias analysis: Using the Cochrane risk-of bias tool for randomized trials (RoB 2) and the Risk Of Bias In Non-randomized Studies of Interventions (ROBINS-I) for non-randomised studies.

Strategy of data synthesis: All statistical analyses were performed using Review Manager 5.4.1 software from the Cochrane Collaboration (London, United Kingdom). We extracted the proportions and 95% confidence intervals (CIs) from each study and pooled them using the random effect model. Cochran's Q test was performed and quantified using the I2 statistic to determine the statistical heterogeneity among the included studies.

Subgroup analysis: Subgroup analysis between pre and post transfusion.

Sensitivity analysis: None.

Language restriction: Only English.

Country(ies) involved: Thailand.
Keywords: trauma, hypocalcemia.

Dissemination plans: Publish international journal.

Contributions of each author:
Author 1 - Visarat Palitnonkiat.
Author 2 - Tharin Thampongsa.
Author 3 - Jatuporn Sirikun.
Author 4 - Natthida Owattanapanich.