

INPLASY PROTOCOL

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None declared.

A systematic review and meta-analysis to the efficacy of high-flow nasal cannula oxygen therapy vs. conventional oxygen therapy in obese patients after surgery

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Review question / Objective: What's the efficacy of high-flow nasal cannula oxygen therapy vs. Conventional oxygen therapy in obese patients after surgery?

Condition being studied: Obese patients have a higher risk of circulatory and respiratory dysfunction after surgery, due to the reduction of functional residual capacity (FRC) and higher oxygen consumption. High-flow nasal cannula (HFNC) oxygen therapy can provide a heated and humidity high-flow gas (8-80l/min) with adjustable and constant oxygen concentration (21%~100%) through the nose. In addition, the HFNC can decrease the ventilation dead space by the continuous positive airway pressure (CPAP), ameliorate oxygenation and improve comfort for the obese patients. However, it remains controversial for the efficacy of HFNC vs. conventional oxygen therapy (COT) in obese patients. We need to conduct a systematic review and meta-analysis about the efficacy of HFNC vs. COT in obese patients after surgery.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 November 2021 and was last updated on 29 November 2021 (registration number INPLASY2021110106).

INTRODUCTION

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METHODS

Participant or population: Obese people who receive the operation therapy.

Intervention: Received the high-flow nasal cannula (HFNC).

Comparator: Received the conventional oxygen therapy (COT).

Study designs to be included: RCT.

Eligibility criteria: RCT.

Information sources: We will search, with no restrictions, the following databases for relevant study published from inception to 20 11, 2021 : PubMed (MEDLINE), the Cochrane Library, EMBASE, and Google Scholar. The search string will be built as follows: Search (("nasal"[Title/Abstract]) AND ("obese"[Title/Abstract] OR "obesity"[Title/Abstract] OR "bariatric"[Title/Abstract] OR "overweight"[Title/Abstract] OR "fat"[Title/Abstract] OR "corpulent"[Title/Abstract])). The electronic database search will be supplemented by a manual search of the reference lists of included articles. Reference list of all selected articles will independently screened to identify additional studies left out in the initial search. PubMed (MEDLINE), the Cochrane Library, EMBASE, and GoogleScholar.

Main outcome(s): The atelectasis score (RAS).

Additional outcome(s): The incidence of post-operative hypoxemia (PaO₂/FiO₂ rate, PaCO₂, minimum recorded SpO₂), respiratory rate, additional respiratory support, dyspnea score, comfort score, ICU LOS, hospital LOS, postoperative pulmonary complications.

Quality assessment / Risk of bias analysis: The assessment of RCTs were based on the Risk of Bias (RoB) Cochrane tool for Systematic Reviews of interventions, which includes 7 methodological items: sequence generation, allocation sequence concealment, blinding of participants and personnel, blinding of outcome assessors, incomplete outcome.

Strategy of data synthesis: Statistical heterogeneity was assessed by the Cochran Q test (with p < 0.1 indicating significance) and quantified by the I² statistic¹², and the I² value exceeding 50% was considered to represent significant heterogeneity. We used the random effects model to calculate the results of both the binary and continuous data, regardless of statistical heterogeneity.

Subgroup analysis: Receive HFNC (high flow nasal cannula) grou vs. COT (conventional oxygen therapy).

Sensitivity analysis: None.

Country(ies) involved: China.

Keywords: High-flow nasal cannula therapy, Conventional oxygen therapy, Obese, Atelectasis, Meta-analysis.

Contributions of each author:

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Author 3 - Wan-Jie Gu.

Author 4 - Wei Gu.