INPLASY PROTOCOL

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Conflicts of interest: None.

Does propofol ameliorate occurrence of postoperative cognitive dysfunction after general anaesthesia? A protocol of systematic review and meta-analysis

Zhao, X[1]; Huang, ZQ[2].

Review question / Objective: Does propofol ameliorate occurrence of postoperative cognitive dysfunction (PPCD) after general anaesthesia(GA)?

Condition being studied: Propofol; postoperative cognitive dysfunction; general anaesthesia.

Information sources: Electronic database sources The electronic databases of Cochrane Library, MEDLINE, EMBASE, PsycINFO, Web of Science, Scopus, Allied and Complementary Medicine Database, Chinese Biomedical Literature Database, and China National Knowledge Infrastructure will be retrieved. Related RCTs on assessing the administration of propofol for management of PPCD after GA will be searched and selected from their inceptions to the present with no restrictions of language and publication status. A specific search strategy example for Cochrane Library is presented. We will also create similar search strategy for other electronic databases. Other literature sources Other literature sources will be retrieved through conference abstracts, dissertations, and reference lists of relevant reviews.

INTRODUCTION

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METHODS

Participant or population: Adult patients (18 years old or over) undergoing surgery and receiving propofol as ameliorate occurrence of PPCD after GA will be included regardless their country, race, sex and gender.

Intervention: Any propofol before, during or after surgery will be eligible in the experimental group.

Comparator: Any other interventions will be eligible in the control group, except patients who received any forms of propofol.

Study designs to be included: Only randomized controlled trials (RCTs) will be included in this systematic review.

Eligibility criteria: Only RCTs will be included in this systematic review. In addition, cluster randomised and crossover trials will also be considered for inclusion. No limitations of language and publications status will be placed. However, we will exclude within patient crossover trials.

Information sources: Electronic database sources The electronic databases of Cochrane Library, MEDLINE, EMBASE, PsycINFO, Web of Science, Scopus, Allied and Complementary Medicine Database, Chinese Biomedical Literature Database, and China National Knowledge Infrastructure will be retrieved. Related RCTs on assessing the administration of propofol for management of PPCD after GA will be searched and selected from their inceptions to the present with no restrictions of language and publication status. A specific search strategy example for Cochrane Library is presented. We will also create similar search strategy for other electronic databases. Other literature sources Other literature sources will be retrieved through conference abstracts, dissertations, and reference lists of relevant reviews.

Main outcome(s): Primary outcome includes changes of cognitive disorder from baseline (as measured by any validated scales, such as Modified Mental State Examination scale). Secondary outcomes consist of short-term memory (as measured by any validated tools, including Short-term Memory Summary score); pain intensity (as checked by any validated pain scales); quality of life (as assessed by validated tools); and adverse events.

Data management: Two authors will be extracted data according to the predefined standard data extraction form. Any differences between two authors will be discussed and solved with another author. The extracted information will consist of study information (e.g. first author, year of publication), patient characteristics (e.g. age, sex, and eligibility criteria), risk of bias (e.g. random sequence generation, allocation details, blind), details of interventions and controls, outcome indicators of all included trials, and any other relevant information.

Quality assessment / Risk of bias analysis: Two authors will independently evaluate and cross check the risk of bias for each included trial using Cochrane risk of bias tool through selection bias, performance bias, detection bias, attrition bias, reporting bias and other bias. Any discrepancies between two authors will be settled down through discussion with another experienced author.

Strategy of data synthesis: RevMan 5.3 software will be performed for statistical analysis. Continuous data will be pooled as mean difference or standard mean difference and 95% confidence intervals (CIs), and dichotomous data will be expressed as risk ratio and 95% CIs. We will apply I^2 statistic test to check heterogeneity among included trials. The values of $I^2 \leq 50\%$ are homogeneity, and a fixed-effects model will be utilized, while the values of $I^2 > 50\%$ are obvious heterogeneity, and a random-effects model will be employed. If sufficient data are collected from the eligible trials, we will conduct a meta-analysis when $I^2 \leq 50\%$. If substantial heterogeneity is identified, we

will undertake subgroup analysis to explore the possible causes for obvious heterogeneity. If it is not possible to pool the data and carry out meta-analysis, we will report outcome results as a narrative summary.

Subgroup analysis: If the data is sufficient and there is obvious heterogeneity, we will carry out subgroup analysis based on the different study information, patient characteristics, details of intervention and controls, and outcome indicators.

Sensibility analysis: We will accomplish sensitivity analysis to identify the robustness and stability of results by eliminating trials with high risk of bias.

Country(ies) involved: China.

Keywords: Propofol; postoperative cognitive dysfunction; general anaesthesia; efficacy; safety.