INPLASY PROTOCOL

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None declared.

Effects of sevoflurane inhalation anesthesia versus propofoen intravenous anesthesia on postoperative cognitive function in patients with malignant tumors：Meta-analysis

Zhang, MX[1]; Quan, YH[2].

Review question / Objective: **General anesthesia is required during the operation, and different anesthesia drugs and anesthesia methods have different degrees of influence on the central nervous system of patients. Both sevoflurane and propofol can affect neurological function. Some studies have found that inhalation anesthesia of sevoflurane has less effect on postoperative neurological function of patients than intravenous anesthesia of propofol, while some studies are contrary. Therefore, it is necessary to conduct high-quality systematic evaluation of these studies to further confirm the accuracy of conclusions. At present, there is no relevant high quality systematic evaluation.**
Eligibility criteria: **Inclusion criteria:Type of study: Clinical randomized controlled study. Subjects: Cancer patients, regardless of type of cancer. Intervention measures: sevofluraner in the observation group and propofol in the control group. Outcome indicators: Mini-mental State Examination (MMSE) score and incidence of Postoperative cognitive dysfunction (PCD). Exclusion Criteria:Those who meet one of the following conditions are excluded: ① those who are not clear about the research object; (2) Unable to extract data; (3) No research index; (4) Literature with repeated data; (5) Repeated publication of literature; ⑥ Summary, case report; ⑦ non-randomized controlled literature; ⑧ the literature that intervention measures do not meet; ⑨ Basic experimental research.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 May 2023 and was last updated on 28 May 2023 (registration number INPLASY202350107).

INTRODUCTION

Review question / Objective: **General anesthesia is required during the operation, and different anesthesia drugs and anesthesia methods have different degrees of influence on the central nervous system of patients. Both sevoflurane and propofol can affect neurological function. Some studies have found that inhalation anesthesia of sevoflurane has less effect on postoperative neurological function of**

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patients than intravenous anesthesia of propofol, while some studies are contrary. Therefore, it is necessary to conduct high-quality systematic evaluation of these studies to further confirm the accuracy of conclusions. At present, there is no relevant high quality systematic evaluation.

Condition being studied: Sevoflurane is a new type of inhalation anesthetic with few side effects and a broad market prospect. According to statistics, the total global sales of sevoflurane in 2003 reached 500 million US dollars. Due to its mask-induced conve nience and reliable cardiovascular safety, it has been widely used abroad. China has long relied on importing sevoflurane from abroad for clinical use. Many experiments have shown that sevoflurane has a very low blood gas partition coefficient (only a few percent of that of halothane and isoflurane),rapid induction, and stable hemodynamics. Its respiratory depressant and cardiovascular system effects are smaller than isoflurane. Other than that, sevoflurane does not cause allergic reactions and is mildly irritating to the mucous membranes of the eyes. *e depth of anesthesia of sevoflurane can be easily adjusted, which is an ideal characteristic of contemporary inhalation anesthetics and is a very good new type of inhalation anesthetics.

METHODS

Participant or population: There hasn't Patient.

Intervention: Sevoflurane inhalation anesthesia was used in the observation group.

Comparator: propofol intravenous anesthesia was used in the control group.

Study designs to be included: Randomized controlled trials (RCTs) or prospective cohort studies.

Eligibility criteria: Inclusion criteria:Type of study: Clinical randomized controlled study. Subjects: Cancer patients, regardless of type of cancer. Intervention measures: sevofluraner in the observation group and propofol in the control group. Outcome indicators: Mini-mental State Examination (MMSE) score and incidence of Postoperative cognitive dysfunction (PCD). Exclusion Criteria:Those who meet one of the following conditions are excluded: ① those who are not clear about the research object; (2) Unable to extract data; (3) No research index; (4) Literature with repeated data; (5) Repeated publication of literature; ⑥ Summary, case report; ⑦ non-randomized controlled literature; ⑧ the literature that intervention measures do not meet; ⑨ Basic experimental research.

Information sources: Databases including PubMed、EMbase、the Cochrane Library、CBM、CNKI、Wanfang Medical Network、VIP, 、Chinese Biomedical Literature network database were searched to randomized controlled trials (RCTs) or prospective cohort studies were collected to compare the effect of sevoflurane inhalation anesthesia versus propofoen intravenous anesthesia on postoperative cognitive function in patients with malignant tumors including Anaesthesia、Anesthetic Agents、Anesthetic Drugs、Anesthetic、Neoplasm、Tumor、Neoplasia、Cancer、Malignant Neoplasm、Malignancy、Malignancies、Malignant Neoplasms、Malignant tumor、Cognition、Cognitive Function from January 10, 2023.

Main outcome(s): Mini-mental State Examination, MMSE; Postoperative cognitive dysfunction, PCD.

Quality assessment / Risk of bias analysis: The Jadad scale was used to evaluate the literature quality of the included randomized controlled trials, which were classified as high quality studies from 4 to 7.

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Strategy of data synthesis: Reviewed the literature, extracted the data, and evaluated the quality using the Cochrane systematic review method. The statistical analysis was performed using Stata17.0. Continuous variables were calculated by the mean differences (MD) with 95% confidence interval (CI), whereas dichotomous variables were calculated by odds ratio (OR) with 95%CI.

Subgroup analysis: There has 15 Subgroup analysis.

Sensitivity analysis: When there was great heterogeneity among the included studies, sensitivity analysis was carried out by one-by-one elimination method.

Country(ies) involved: China.

Keywords: Anesthesia; Sevoflurane; Propofol; Malignant tumor; Meta-analysis.

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