Systematic Review and Meta-Analysis

Efficacy and safety of ciprofol versus propofol for induction of general anaesthesia or sedation: A systematic review and meta-analysis of randomised controlled trials

Address for correspondence:

Dr. Abdallah Saeed, Faculty of Medicine, Tanta University, Tanta, Gharbia, El Bahr Street, Egypt. E-mail: abdallah98.saeed@ gmail.com

Submitted: 30-Jan-2024 Revised: 28-Jun-2024 Accepted: 07-Jul-2024 Published: 16-Aug-2024

Access t	his article online
Website:	https://journals.lww. com/ijaweb

DOI: 10.4103/ija.ija_104_24

Quick response code



Abdallah Saeed^{*,1}, Mariam Elewidi^{*,1}, Ahmad Nawlo², Amr Elzahaby¹, Asmaa Khaled¹, Abdalla Othman¹, Mohamed Abuelazm¹, Basel Abdelazeem³ ¹Faculty of Medicine, Tanta University, Tanta, Gharbia, Egypt, ²Department of Infectious Diseases, Brigham

and Women's Hospital, Harvard Medical School, Boston, ³Department of Cardiology, West Virginia University, Morgantown, West Virginia, USA

*Both authors have equal contributions and are co-first authors.

ABSTRACT

Background and Aims: Propofol has been used in medical practice as an anaesthetic drug for producing and sustaining general anaesthesia due to its advantages. However, it also has drawbacks, including injection-related discomfort. Recently, ciprofol has emerged as a promising anaesthetic drug that may overcome many drawbacks associated with propofol. In this systematic review and meta-analysis, we assess the efficacy and safety of ciprofol compared to propofol in different anaesthesia procedures. Methods: The study protocol was registered in the International Prospective Register of Systematic Reviews (ID: CRD42023458170). Central, PubMed, EMBASE, Scopus and WOS were searched for English literature until 26 February 2024. Meta-analysis was performed using RevMan. The risk of bias was assessed using the RoB 2.0 tool. Results were reported as risk ratios (RRs), mean differences (MDs) and 95% confidence intervals (CIs). Results: Nineteen randomised controlled trials were included in our analysis, with 2841 participants. There was no difference between ciprofol and propofol in the success rate of endoscopy (RR: 1.01, 95% CI: 0.99, 1.02; P = 0.44), while ciprofol showed a significant increase in the success rate of general anaesthesia/sedation (RR: 1.01, 95% CI: 1.00, 1.02; P = 0.04). Ciprofol showed significantly lower pain on injection (RR: 0.14, 95% CI: 0.09, 0.22; P < 0.001), lower adverse events (RR: 0.80, 95% CI: 0.69, 0.92; P = 0.002) and higher patient satisfaction (standardised mean difference (SMD): 0.36, 95% CI: 0.24, 0.48; P < 0.001). Conclusion: Ciprofol exhibited a comparable efficacy to propofol in inducing general anaesthesia and sedation with fewer adverse events, less pain on injection and higher patient satisfaction. These collective findings may suggest that ciprofol can be used as an alternative drug to ensure effective general anaesthesia/sedation induction in the future.

Keywords: Ciprofol, general anaesthesia, meta-analysis, pain, propofol, sedation, systematic review

INTRODUCTION

With the increasing complexity of diagnostic and therapeutic interventions involving many procedures, it is essential to carefully manage sedation and anaesthesia to ensure the procedure's smooth execution.^[1] For decades, propofol has been used in medical practice as an anaesthetic agent to induce and maintain general anaesthesia (GA).^[2] It This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Saeed A, Elewidi M, Nawlo A, Elzahaby A, Khaled A, Othman A, *et al.* Efficacy and safety of ciprofol versus propofol for induction of general anaesthesia or sedation: A systematic review and meta-analysis of randomised controlled trials. Indian J Anaesth 2024;68:776-94.

likely functions as a potentiator for the inhibitory effects of the gamma-aminobutyric acid (GABA) neurotransmitter on GABA receptors, thereby maintaining the openness of chloride channels for an extended period, allowing hyperpolarisation to occur.^[3] Propofol boasts several advantages, including rapid onset, antiemetic properties, and upper airway and bronchodilatory effects.^[4,5] Nevertheless, it also carry drawbacks and limitations, such as injection-related pain, dose-dependent respiratory depression, haemodynamic instability and the absence of a counteractive agent.^[6,7]

Ciprofol, a 2,6-disubstituted phenol analogue, shares several chemical and pharmacokinetic similarities with propofol, such as its rapid onset of action and excellent hepatic metabolism.^[8] However, numerous studies have highlighted the advantages of ciprofol over propofol in various clinical aspects. These benefits include, but are not limited to, reducing the incidence of hypertriglyceridemia and alleviating injection-related pain.^[8,9]

Multiple clinical trials were conducted to investigate the properties, safety and efficacy of ciprofol and compare its profile to that of propofol.^[10–15] Many recent systematic reviews (SRs) have investigated ciprofol compared to propofol. However, our SR stands out for its comprehensive inclusion of the most published randomised controlled trials (RCTs), offering a robust comparative analysis against recent studies. In addition, our findings challenge prevailing notions by revealing a significant association between ciprofol and increased systolic blood pressure (SBP) and diastolic blood pressure (DBP), in contrast to the prevailing belief that it does not affect these vital measures.^[16]

The objective of this SR of published RCTs was to evaluate the anaesthetic and sedative efficacy and safety of ciprofol compared to propofol in adult patients undergoing elective surgery, endoscopy and bronchoscopy. We investigated the effectiveness of sedation during endoscopy, the success rate of GA induction, and the impact of both drugs on various vital signs and patient and provider satisfaction.

METHODOLOGY

Protocol registration

We established this SR and meta-analysis with the standards of the Cochrane Handbook for Systematic

Reviews of Interventions 2019^[17] and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020.^[18] The protocol was registered on the International Prospective Register of Systematic Reviews (ID: CRD42023458170).

Search strategy

A comprehensive literature search was initiated through online libraries (Central, Web of Science, Scopus, Embase and PubMed) until June 2023, with no timeline restrictions. Then, we updated the search results until 26 February 2024. Ciprofol was additionally marketed as 'Cipepofol' and 'HSK3486', while '2,6-Diisopropylphenol', '2,6-Bis (1-methylethyl) phenol', 'Disoprofol', 'Diprivan', 'Disoprivan', 'Fresofol', 'ICI-35868', 'Ivofol', 'Recofol' and 'Aquafol' were all synonyms for propofol. An extensive search strategy was forged using these terms to include all available English-written articles from online libraries [Table S1].

Eligibility criteria

We adopted the PICOS framework (population, interventions, comparators, outcomes, and study design) to determine eligible studies, as follows: population (P): adult patients undergoing endoscopy or elective surgery under GA or sedation; intervention (I): ciprofol (HSK3486); control (C): propofol; outcome (O): 1) primary end points: success rate of GA induction [the proportion of patients with successful GA induction, which was defined according to the following criteria: (i) Modified Observer's Assessment of Alertness and Sedation (MOAA/S) scale ≤ 1 after administration of a study drug (up to two top-up doses given) and (ii) did not require an alternative sedative] and success rate of endoscopy (the proportion of patients requiring ≤ 5 top-up doses of ciprofol or propofol within any 15-min time period to completion of the surgical procedure. 2) Secondary end points: patient and anaesthesiologist satisfaction, adverse events, pain on injection (referred to the pain reported verbally by patients after the first injection), time for induction (time from the start of study drug administration to MOAA/S ≤ 1), eyelash reflex disappearance (time until complete loss of the evelash reflex), insertion (for endoscope such as the gastroscope or colonoscope), awakening (time from the last drug administration to an MOAA/S score of 5 for three consecutive measurements), and discharge (time from the last drug administration to reach modified Aldrete score ≥ 9), and vitals [bispectral index (BIS), mean arterial pressure (MAP), SBP, DBP, heart rate (HR), peripheral capillary oxygen saturation (SpO₂)]; study design (S): RCTs.

We excluded non-randomised and uncontrolled trials, protocols, conference abstracts, reviews, animal studies, observational studies, and case reports.

Study selection

Independently, four reviewers screened titles and abstracts of the included studies; after removing duplicates using Covidence online software (Covidence systematic review software, Veritas Health Innovation, Melbourne, Australia), they proceeded with full-text screening, depending on the inclusion and exclusion criteria, to reach the final included studies. After reviewing the full text, any conflicts were resolved by discussing them with supervisors.

Data extraction

The four reviewers independently used a predefined spreadsheet to extract the following data: summary characteristics (study design, country, total participants, type of procedure/endoscopy, population, dose of ciprofol and propofol, other drugs added during the procedure, main inclusion criteria and primary outcome); baseline characteristics [number of participants in each group, duration of procedure, age, gender (male), height, weight, body mass index, American Society of Anesthesiologists (ASA) physical status, and vitals (SBP, DBP, MAP, HR and SpO₂)]; efficacy data [success rate of endoscopy, success rate of GA induction, time for induction (min), eyelash reflex disappearance (sec), insertion (min), awakening (min) and discharge (min)]; patient and anaesthesiologist satisfaction; number of patients who required top-up doses; pain on injection, adverse events and serious adverse events (SAEs); vitals at 2 min after drug administration and T3 (time point 3, when the endoscope passes through the mouth) - BIS score, SBP, DBP, MAP, HR and SpO₂.

Quality assessment

The Cochrane RoB 2.0 tool (Cochrane tool for assessing the risk of bias in randomised trials; Cochrane Collaboration, London, UK)^[19] was used to assess the risk of bias in the included RCTs. The four independent reviewers used the full text to assess the quality of the included trials in five domains: randomisation process, deviation of intended interventions, missing outcome data, measurement of the outcome, and selection of the reported result. After reviewing the full text, conflicts were solved by discussing them with supervisors.

Data analysis

This meta-analysis was handled using Review Manager software (RevMan v5.4; Cochrane Collaboration,

London, UK).^[20] A fixed-effects model was applied through pool analysis, as the risk ratio (RR) was delivered for dichotomous outcomes with a 95% confidence interval (CI). Continuous outcomes were represented with a mean difference (MD) of 95% CI. A random-effects model was applied in cases of significant heterogeneity, detected by the Chi-square test with an alpha level below 0.1. An I² test surpassing 50% indicated significant heterogeneity; in that case, sensitivity analysis was applied repetitively by excluding one study at a time until heterogeneity's origin was identified.

Certainty assessment

GRADEpro GDT software [GRADEpro Guideline Development Tool (Software); McMaster University and Evidence Prime, Hamilton, Canada] was used to assess the certainty of evidence of specific outcomes under five domains: risk of bias, inconsistency, indirectness, imprecision and publication bias. Finally, JASP (version 0.16.3)^[21] was used to assess the publication bias by performing Egger's test^[22] and visual inspection of the funnel plot.

RESULTS

Search results and study selection

A total of 220 studies were imported while searching databases. After removing 100 duplicates, 120 studies underwent title and abstract screening. The resulting 96 full-text articles were screened for eligibility, leaving 14 included RCTs after excluding 82 irrelevant articles. Finally, five RCTs were included manually by updating search results, leaving 19 included RCTs for qualitative and quantitative analyses [Figure 1].

Characteristics of included studies

We included 19 RCTs that met our inclusion criteria with 2841 patients (1517 in the ciprofol group and 1324 in the propofol group). Nine RCTs^[2,9,13,23-28] were multi-centre studies, and $10^{[10-12,14,15,29-33]}$ were single-centre studies. All trials were conducted in China except for the study of Gan *et al.*,^[23] which was conducted in the USA. Five RCTs focused on elective surgery, seven on endoscopy, three on bronchoscopy, two on gynaecology and three on other aspects. The summary and baseline characteristics are presented in Tables 1 and 2, respectively.

Risk of bias and quality of evidence

Twelve $RCTs^{[2,9-15,23,24,26,31]}$ showed an overall low risk of bias, while five $RCTs^{[25,28,29,32,33]}$ showed an overall



Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart

high risk of bias. Furthermore, only two RCTs^[27,30] showed some concerns overall. Detailed risk of bias is illustrated in Figure S1. The quality of evidence is detailed in a Grading of Recommendations, Assessment, Development and Evaluation evidence profile [Table 3].

Efficacy outcomes

Primary outcomes

Success rate of endoscopy and GA/sedation induction success rate: There was no significant difference between ciprofol and propofol in the success rate of endoscopy (RR: 1.01, 95% CI: 0.99, 1.02; P = 0.44) (high-quality evidence) [Figure 2a, Table 3], while ciprofol showed a significant increase in the success rate of GA/sedation induction compared to propofol (RR: 1.01, 95% CI: 1.00, 1.02; P = 0.04) (high-quality evidence) [Figure 2b, Table 3]. Pooled studies were homogenous in endoscopy success rate of GA/sedation induction $(P = 0.08, I^2 = 37\%)$.

Subgroup analysis was conducted for GA/sedation induction success rate based on the type of anaesthesia, and a test for subgroup differences was not significant (P = 0.57) [Figure 2c].

Secondary outcomes

Induction. evelash reflex disappearance, insertion, awakening and discharge times: There was no significant difference between ciprofol and propofol in induction time (min) (MD: 0.10, 95% CI: -0.04, 0.23; P = 0.16) (low-quality evidence) [Figure 2d, Table 3], time to eyelash reflex disappearance (sec) (MD: -1.87, 95% CI: -9.26, 5.52; P = 0.62 [Figure 3a], insertion time (min) (MD: 0.44, 95% CI: -0.07, 0.96; P = 0.09 [Figure 3b] and discharge time (min) (MD: 1.08, 95% CI: -0.08, 2.25; P = 0.07 [Figure 3c]. However, ciprofol showed a significant increase in awakening time (min) versus propofol (MD: 1.04, 95% CI: 0.45, 1.62; P < 0.001) (very-low-quality evidence) [Figure 3d, Table 3]. Pooled studies were heterogenous in induction time (P < 0.001, $I^2 = 97\%$), time to eyelash reflex disappearance (P < 0.001, $I^2 = 99\%$), insertion time (P < 0.001, $I^2 = 98\%$), awakening time (P < 0.001, $I^2 = 84\%$) and discharge time (P < 0.001, $I^2 = 93\%$).

Subgroup analysis was conducted for induction time, awakening time and eyelash reflex disappearance time based on the type of anaesthesia, and a test for subgroup differences was not significant (P = 0.58, P = 0.25 and P = 0.66, respectively) [Figures 3e, 4a, b].

	Tab	le 1: Sun	mary of cha	aracteristics of the includ	led RCTs	
Study ID	Study design	Country	Total participants	Type of procedure/ endoscopy	Type of anaesthesia	Population
Zhen <i>et al.</i> 2022 ^[11]	Prospective, double-blind, single-centre, randomised clinical trial	China	120	Elective gynaecological surgery	Induction of GA	Females undergoing gynaecological surgery
Chen <i>et al</i> . 2022 ^[29]	Randomised clinical trial	China	96	Gastroenteroscopy	Sedation	Males and females undergoing gastroenteroscopy
Chen <i>et al.</i> 2023 ^[30]	Prospective, single-blind RCT	China	75	Gastrointestinal endoscopy	Sedation	Males and females who underwent elective painless gastrointestinal endoscopy
Gan <i>et al</i> . 2023 ^[23]	Multi-centre, double-blind, Phase 3 RCT	USA	255	Elective surgery with endotracheal intubation	Induction of GA	Males and females undergoing elective surgery with endotracheal intubation
Lan <i>et al.</i> 2023 ^[10]	Prospective randomised clinical trial	China	149	Hysteroscopy	Sedation	Females undergoing hysteroscopic examination
Li <i>et al</i> . 2022 ^[9]	A multi-centre, non-inferiority, randomised controlled, Phase 3 clinical trial	China	289	Gastroscopy and colonoscopy	Sedation	Males and females undergoing gastroscopy and colonoscopy
Liang <i>et al</i> . 2023 ^[24]	A multi-centre, single-blind, randomised, parallel-group, Phase 3 clinical trial	China	128	Elective surgery	Induction of GA	Males and females undergoing elective surgery
Liao <i>et al.</i> 2023 ^[31]	Double-blind, single-centre, parallel RCT	China	368	Gastrointestinal endoscopy	Sedation	Patients who were scheduled for painless gastrointestinal endoscopy
Liu <i>et al.</i> 2022 ^[25]	Multi-centre, open-label, randomised, Phase 2 trial conducted	China	39	ICU patients undergoing intubation and MV	Sedation	ICU patients
Liu <i>et al</i> . 2023 ^[26]	A multi-centre, single-blind, Phase 3 RCT	China	135	MV	Sedation	ICU patients undergoing MV
Luo <i>et al.</i> 2022 ^[27]	Multi-centre, double-blind, randomised, propofol-controlled, non-inferiority, prospective Phase 3 trial	China	267	FB	Sedation	Male and female patients receive diagnostic and/or therapeutic FB LMA-assisted
Man <i>et al</i> . 2023 ^[12]	Randomised, double-blind, controlled study	China	128	Gynaecological ambulatory surgery (uteroscope, conisation of cervix)	Induction of GA	Patients who were about to undergo gynaecological ambulatory surgery
Qin <i>et al.</i> 2022 ^[32]	Prospective, randomised, single-blind study	China	105	Kidney transplant	Induction of GA	Patients who had a kidney transplant under GA with tracheal intubation
Teng <i>et al</i> . 2021 (II b) ^[2]	A multi-centre, randomised, double-blind and propofol-controlled study	China	62	Colonoscopy	Sedation	Patients scheduled to undergo routine colonoscopy procedures
Wang <i>et al.</i> 2022 ^[13]	A multi-centre, randomised, propofol-controlled, double-blind trial	China	176	Elective surgery	Induction of GA	Patients scheduled for elective surgery require tracheal intubation
Wu <i>et al.</i> 2022 ^[14]	Prospective, randomised, double-blind, non-inferiority trial	China	92	FB	Sedation	Patients who underwent FB with sedation and without endotracheal intubation or MV
Zeng <i>et al.</i> 2022 ^[28]	Multi-centre, randomised, open-label, propofol-controlled Phase 2 trial	China	40	Elective surgery	Induction of GA	Patients undergoing elective surgery, excluding emergency, cardiothoracic, cerebral or endoscopic sinus cases
Zhang <i>et al.</i> 2023 ^[33]	Single-centre, prospective, double-blind RCT	China	202	Bidirectional endoscopy (oesophago gastroduodenoscopy followed by colonoscopy), including polypectomy	Sedation	Patients scheduled to undergo diagnostic endoscopy (oesophago gastroduodenoscopy followed by colonoscopy), including polypectomy
Zhong <i>et al.</i> 2023 ^[15]	A prospective, randomised, double-blind, parallel-group clinical trial	China	138	ESD, ERCP or FB	Sedation	Patients scheduled for ESD, ERCP or FB

Contd...

			Table 1: Contd		
Study ID	Do Ciprofol	Propofol	Other drugs added during the procedure	Main inclusion criteria	Primary outcome
Zhen <i>et al.</i> 2022 ^[11]	0.4 mg/kg	2 mg/kg	Midazolam (0.03 mg/kg), sufentanil (0.3 μg/kg), rocuronium (0.6 mg/kg), sevoflurane in oxygen 50%	Adult females between the ages of 18 and 60 (ASA physical status: I or II) who were scheduled to undergo elective gynaecological surgery under general anaesthesia	Success rate of induction of general anaesthesia
Chen <i>et al.</i> 2022 ^[29]	0.4 mg/kg	1.5-2.0 mg/kg	2% lidocaine 2– 3 ml was added to propofol, dopamine 1–2 mg was injected IV when the blood pressure dropped by more than 30% and atropine 0.5 mg was injected IV when the HR was <60 beats/min	The vital signs were stable, and the patients were between 18 and 80. For various reasons, gastroenteroscopy or treatment was performed for ASA physical status: I–III. The patients included in the study were not allergic to anaesthetics, and there were no contraindications to anaesthesia	Comparison of vitals and satisfaction between two arms
Chen <i>et al.</i> 2023 ^[30]	0.4 mg/kg	1.5 mg/kg	All groups received an IV injection of fentanyl at a dose of 2 µg/kg. If the HR was <50 beats/min, IV atropine 0.5 mg was administered. If the SBP decreased more than 30% compared to the baseline value, IV ephedrine 5 mg was administered.	Patients who underwent elective painless gastrointestinal endoscopy and were aged 18–80 years, with a BMI of 18–28 kg/m ² and an ASA physical status: I–III	Time for disappearance of the eyelash reflex
Gan <i>et al.</i> 2023 ^[23]	0.4 mg/kg	2 mg/kg	All participants received IV fentanyl 1 μg/kg; IV rocuronium bromide 0.6 mg/kg was administered as a neuromuscular blockade.	Participants were included if they were ≥18 years of age, had an ASA physical status of I–IV and had a BMI ≥18 kg/m ² with no upper limit. Female participants were eligible if they had a negative serum pregnancy test at screening and a negative urine pregnancy test at baseline (Day 1)	Successful anaesthesia induction
Lan <i>et al.</i> 2023 ^[10]	0.4 mg/kg	2 mg/kg	Sufentanil citrate 0.1 µg/kg, ephedrine or atropine if hypotension or bradycardia	Patients aged 18–70 years, ASA physical status I or II and body mass index of 18–30 kg/m ²	Success rate of hysteroscopy
Li <i>et al</i> . 2022 ^[9]	0.4 mg/kg	1.5 mg/kg	300–500 ml of sterile 0.9% sodium chloride solution, 50 µg fentanyl, atropine for bradycardia, ephedrine to treat hypotension	Adult patients (18–65 years) with an ASA physical status: I–II who were due to undergo elective gastroscopy or colonoscopy were eligible.	Success rate of colonoscopy
Liang <i>et al</i> . 2023 ^[24]	0.4 mg/kg	2 mg/kg	Midazolam 0.04 mg/kg, sufentanil 0.3 mg/kg, rocuronium bromide 0.6 mg/kg, remifentanil 0.1–0.3 mg/ kg/min, and sugammadex sodium injection (2 mg/kg) were administered over 10 sec	Patients who underwent general anaesthesia, ASA physical status: I–II; aged >18 and <65 years; scheduled for more than 1-h nonemergency, no cardiothoracic, and nonbrain elective surgery; and who required tracheal intubation	Success rate of anaesthetic maintenance, the incidence of intraoperative awareness
Liao <i>et al.</i> 2023 ^[31]	0.4 mg/kg	2 mg/kg	Sufentanil	ASA physical status: I or II patients aged between 18 and 65 were scheduled for painless gastroscopy.	Swallowing function and occurrence of vocal cord adduction reflex
Liu <i>et al</i> . 2022 ^[25]	0.1–0.2 mg/kg	0.5–1.0 mg/kg	Remifentanil loading dose of 0.5–1.0 g/kg (if required)	ICU patients aged 18–80 years, who were expected to require sedation (RASS scores range from -2 to+1) for 6–24 h due to endotracheal intubation and MV, were enroled	Average time to reach sedation compliance
Liu <i>et al.</i> 2023 ^[26]	0.1 mg/kg	0.5 mg/kg	Remifentanil	ICU patients 18–80 years old with endotracheal intubation and undergoing MV, who were expected to require sedation for 6–24 h	Sedation success rate

			Table 1: Contd		
Study ID	Do Ciprofol	ese Propofol	Other drugs added during the procedure	Main inclusion criteria	Primary outcome
Luo <i>et al.</i> 2022 ^[27]	0.4 mg/kg	2.0 mg/kg	Inhaled 2% lidocaine (10 ml) delivered by atomisation within 1 h before the bolus dose. If sedation was still insufficient, sufentanil (0.05–0.1 µg/kg) was given up to a maximum dose of 0.4 µg/kg. Patients aged <65 years were given 0.2 µg/kg sufentanil IV before procedures	Patients aged between 18 and 80, male or female, with ASA physical status: I–III, were to receive diagnostic and/or therapeutic FB LMA-assisted	Success rate of FB
Man <i>et al.</i> 2023 ^[12]	0.5 mg/kg	2 mg/kg	Flurbiprofen axetil (50 mg), dexamethasone (5 mg) (pre), 0.2 mg/kg mivacurium chloride, 20 µg/kg alfentanil, ephedrine (6 mg)	Patients (18–64 years) with an ASA physical status: I or II, BMI between 18 and 28 kg/ m ² , who were about to undergo gynaecological ambulatory surgery	Overall incidence of adverse events
Qin <i>et al.</i> 2022 ^[32]	0.4 mg/kg	2.0 mg/kg	Sufentanil 0.4–0.5 µg/kg, cisatracurium 0.2 mg/kg, diuretics (furosemide and mannitol), hormones and immunosuppressants were given routinely; dopamine (1–10 µg/kg/min)	Patients who had a kidney transplant under general anaesthesia with tracheal intubation, aged 18–65 years, with a BMI of 18–30 kg/m ² and an ASA physical status: of III–IV	Success rate of sedation
Teng <i>et al</i> . 2021 (II b) ^[2]	0.4 mg/kg	2.0 mg/kg	Fentanyl before	Aged 18–70 years, ASA classification I, II or III, with a BMI of 18–30 kg/m ² , respiratory rate of 10–24 breaths/min, HR 50–100 bpm, SBP \geq 90 mmHg, DBP \geq 60 mmHg and a SpO ₂ value \geq 95% when inhaling with room air. Patients were scheduled for colonoscopy	Success rate of colonoscopy
Wang <i>et al</i> . 2022 ^[13]	0.4 mg/kg	2 mg/kg	0.04 mg/kg midazolam, 0.3 μg/kg sufentanil, 0.6 mg/kg rocuronium	Patients aged 18–64 years with a BMI between 18 and 30 kg/m ² , ASA physical status of I or II and scheduled to undergo elective surgery under general anaesthesia	Percentage of patients with successful general anaesthesia induction
Wu <i>et al.</i> 2022 ^[14]	0.3 mg/kg	1.2 mg/kg	50 µg of fentanyl 2 min before, during maintenance: 0.05–0.2 µg/ kg/min of remifentanil, midazolam was the only permitted alternative sedative in this trial, 25 µg of fentanyl was permitted once (maximum, 150 µg) until adequate analgesia could be achieved	FB with sedation and without endotracheal intubation or MV, patient age 45–65 years, ASA physical status: I–II, and SpO ₂ >93% under air conditions	Success rate of FB
Zeng <i>et al.</i> 2022 ^[28]	0.4 mg/kg	2.0 mg/kg	Pre-anaesthesia drugs midazolam (0.04 mg/kg, 15 s), sufentanil (0.3 μg/kg, 30 s), remifentanil	Patients aged 18–65 years with an ASA rating of Class I–III, who required endotracheal intubation under general anaesthesia, with an expected operation duration of 1–6 h and a blood loss of ≤1000 ml were included	Successful anaesthesia maintenance
Zhang <i>et al.</i> 2023 ^[33]	0.3 mg/kg	1.2 mg/kg	Alfentanil	Inpatients aged 18–65 were enroled and were scheduled to undergo diagnostic endoscopy (oesophagogastroduodenoscopy followed by colonoscopy), including polypectomy	Rate of cardiopulmonary adverse events
Zhong <i>et al.</i> 2023 ^[15]	0.4 mg/kg	2.0 mg/kg	For ERCP 0.2 mg/kg esketamine before induction, for the FB remifentanil 0.5–1.0 ng/ml., for the FB 1% lidocaine (5–7 mg/kg)	Patients 18 years old or older and scheduled for ESD, ERCP or FB were eligible for the study	Success rate of sedation or anaesthesia for the procedures in non-operating room settings

ASA=American Society of Anesthesiologists, BMI=body mass index, DBP=diastolic blood pressure, ERCP=endoscopic retrograde cholangiopancreatography, ESD=endoscopic submucosal dissection, FB=fibreoptic bronchoscopy, HR=heart rate, ICU=intensive care unit, LMA=laryngeal mask airway, MV=mechanical ventilation, RASS=Richmond Agitation and Sedation Scale, RCT=randomised controlled trial, SBP=systolic blood pressure, SpO₂=saturation of peripheral oxygen, IV= intravenous

Indian Journal of Anaesthesia | Volume 68 | Issue 9 | September 2024

Page	no.	49

						I IO SOIISIJAIS	ine parincip					
Study ID	Numt	ber of	Duration of	procedure	Age (years),	Mean (SD)	Gender	(male),	Height (cm),	Mean (SD)	Weight (kg),	Mean (SD)
	each	group						10/				
	Ciprofol	Propofol	Ciprofol	Propofol	Ciprofol	Propofol	Ciprofol	Propofol	Ciprofol	Propofol	Ciprofol	Propofol
Zhen <i>et al</i> . 2022 ^[11]	60	60	55.2 (20.5)	51.4 (23.1)	33.9 (9.1)	33.8 (9.6)	0	0	159.3 (3.8)	158.5 (5.2)	56.9 (7.9)	54.0 (9.1)
Chen <i>et al</i> . 2022 ^[29]	47	49	6.11 (2.52)	4.71 (2.09)	41.22 (11.63)	43.20 (12.29)	22 (46.8)	17 (34.69)	165.33 (7.75)	160.26 (8.47)	60.25 (11.22)	30.74 (12.46)
Chen <i>et al.</i> 2023 ^[30]	31	44	19.77 (9.28)	15.98 (6.63)	47.45 (11.90)	43.55 (16.19)	11 (35.4)	18 (40.9)	NA	NA	NA	AN
Gan <i>et al.</i> 2023 ^[23]	168	83	NA	NA	48.9 (13.89)	50.9 (14.30)	49 (29.2)	26 (31.3)	NA	NA	83.85 (19.72)	31.87 (20.16)
Lan <i>et al</i> . 2023 ^[10]	75	74	20.8 (8.1)	21.4 (10.9)	41.7 (11.5)	43.7 (11.1)	0	0	158.3 (4.0)	159.3 (4.3)	57.6 (6.9)	59.8 (7.6)
Li <i>et al.</i> 2022 ^[9]	144	145	N/A	N/A	43.8 (11.8)	44.1 (11.3)	55 (38.2)	63 (43.4)	161.5 (8.2)	163.1 (8.4)	60.0 (9.6)	61.5 (9.7)
Liang <i>et al</i> . 2023 ^[24]	86	42	94.6 (39.2)	93.6 (35.8)	38.5 (10.1)	40.5 (10.1)	23 (26.7)	10 (23.8)	161.6 (8.0)	161.4 (8.5)	60.0 (11.1)	59.3 (8.8)
Liao <i>et al.</i> 2023 ^[31]	185	183	10.62 (5.95)	10.21 (5.77)	44.98 (11.74)	45.35 (11.12)	87 (47)	77 (42.1)	N/A	N/A	N/A	N/A
Liu <i>et al.</i> 2022 ^[25]	26	13	N/A	N/A	50.5 (13.38)	52.5 (13.15)	11 (42.3)	8 (61.5)	161.5 (8.84)	164.75 (7.47)	61 (9.84)	64.5 (10.76)
Liu <i>et al.</i> 2023 ^[26]	88	45	NA	NA	56.7 (12.7)	52.2 (12.9)	58 (65.9)	26 (57.8)	N/A	N/A	N/A	N/A
Luo <i>et al.</i> 2022 ^[27]	134	133	19 (11.6)	19.2 (11.9)	46.60 (15.31)	46.90 (13.98)	62 (46.3)	73 (54.9)	161 (8)	163 (8)	60.60 (9.47)	61.13 (9.18)
Man <i>et al.</i> 2023 ^[12]	64	64	N/A	N/A	42.2 (9.46)	44.1 (9.4)	0	0	160.6 (4.4)	160.2 (4.9)	58.7 (6.1)	59.8 (6.9)
Qin <i>et al.</i> 2022 ^[32]	52	53	175.88 (42.22)	165.49 (34.27)	39.00 (10.10)	41.25 (10.63)	18 (34.6)	18 (34.0)	N/A	N/A	N/A	N/A
Teng <i>et al.</i> 2021 (II b) ^[2]	31	31	9.6 (6.3)	7.1 (2.4)	46.2 (13.0)	48.4 (13.7)	12 (38.7)	16 (51.6)	160 (10)	160 (10)	59.7 (10.2)	62.5 (13.6)
Wang et al. 2022 ^[13]	88	88	N/A	N/A	38.5 (12.1)	41.1 (11.1)	32 (36.36)	31 (35.23)	163.0 (8.5)	162.1 (8.1)	62.2 (11.1)	61.4 (10.6)
Wu <i>et al</i> . 2022 ^[14]	46	46	17.98 (5.57)	18.09 (6.20)	58.02 (5.47)	57.48 (5.28)	26 (56.52)	24 (52.17)	167.15 (5.75)	165.89 (5.53)	67.87 (6.91)	67.39 (6.71)
Zeng <i>et al.</i> 2022 ^[28]	30	10	105.3 (62.6)	76.7 (36.1)	42.5 (10.3)	46.4 (11.2)	11 (36.7)	3 (30.0)	163.3 (9.1)	161.7 (7.7)	63.3 (11.5)	62.2 (13.4)
Zhang <i>et al.</i> 2023 ^[33]	93	92	13.96 (3.0)	14.06 (2.5)	54.0 (11.1)	51.6 (11.1)	52 (56)	52 (57)	167 (7.5)	167 (8.4)	66 (12)	65 (11)
Zhong et al. 2023 ^[15]	69	69	32.8 (17.2)	31.1 (20.1)	57.6 (13.3)	56.9 (13.1)	33 (47.8)	41 (59.4)	160 (10)	170 (10)	61.5 (9.8)	61.5 (10.5)
Study ID	BMI	(in ka/m ²).	. Mean (SD)	-			A	SA status.	n (%)			
)	•	A	SA 1		ASA 2		ASA 3		ASA	4
	Cipi	rofol	Propofol	Ciprofol	Propofol	Ciprofol	Prop	ofol	Ciprofol	Propofol	Ciprofol	Propofol
Zhen et al. 2022 ^[11]	22.2	(3.2)	21.4 (2.8)	32 (53.3)	34 (56.7)	28 (46.7)	26 (4	(3.3)	N/A	N/A	N/A	N/A
Chen <i>et al</i> . 2022 ^[29]	25.22	(10.12)	23.46 (3.43)	45 (95.7)	43 (87.8)	4 (8.5)	6 (1)	2.2)	N/A	N/A	N/A	N/A
Chen <i>et al.</i> 2023 ^[30]	22.99	(3.01)	22.16 (3.06)	14 (45 16)	19 (43.18)	12 (38.7)	19 (4	3.18) 5	(16.13)	6 (13.63)	С	С
Gan <i>et al</i> . 2023 ^[23]	29.89	(5.81)	29.25 (6.23)	70 (41.7)	34 (41.0)	86 (51.2) 44 ((53.0)	12 (7.1)	5 (6.0)	0	0
Lan <i>et al.</i> 2023 ^[10]	23.0	(2.6)	23.6 (2.8)	43 (57.3)	36 (48.6)	32 (42.7)	38 (5	51.4)	N/A	N/A	N/A	N/A
Li <i>et al</i> . 2022 ^[9]	23.2	(2.5)	23.4 (2.6)	115 (79.9)	118 (81.4)	29 (20.1)	27 (1	8.6)	N/A	N/A	N/A	N/A
Liang <i>et al</i> . 2023 ^[24]	23.3	(2.8)	23.3 (3.0)	48 (55.8)	22 (52.4)	38 (44.2)	20 (4	(2.6)	N/A	N/A	N/A	N/A
Liao <i>et al.</i> 2023 ^[31]	23.07	(2.28)	23.13 (2.23)	79 (42.7)	62 (33.9)	106 (57.3) 121 (66.1)	0	0	0	0
Liu <i>et al.</i> 2022 ^[25]	23.4	(2.35)	23 (3.23)	N/A	N/A	N/A	Ż	A	N/A	N/A	N/A	N/A
Liu <i>et al.</i> 2023 ^[26]	23.6	(3.2)	23.8 (3.3)	N/A	N/A	N/A	Z	A	N/A	N/A	N/A	N/A
Luo <i>et al.</i> 2022 ^[27]	23.20	(2.64)	22.92 (2.60)	63 (47.0)	50 (37.6)	68 (50.7)	82 (6	(1.7)	3 (2.2)	1 (0.8)	N/A	N/A
Man <i>et al</i> . 2023 ^[12]	22.8	(2.2)	23.3 (2.6)	18 (28.1)	14 (21.9)	46 (71.9)	20 (2	8.1)	N/A	N/A	N/A	N/A
Qin et al. 2022 ^[32]	23.38	(3.33)	22.63 (2.38)	N/A	N/A	N/A	Z	A 4	.2 (80.8)	44 (83.0)	10 (19.2)	9 (17.0)
Teng <i>et al.</i> 2021 (II b) ^[2]	Z	A/I	N/A	25 (80.6)	25 (80.6)	6 (19.4)	6 (1	9.4)	N/A	N/A	N/A	N/A
Wang <i>et al.</i> 2022 ^[13]	23.3	(2.9)	23.3 (3.1)	51 (57.95)	48 (54.55)	37 (42.05) 40 (4	5.45)	N/A	N/A	N/A	N/A
Wu <i>et al</i> . 2022 ^[14]	24.26	(1.75)	24.49 (2.09)	10 (21.74)	8 (17.39)	36 (78.26) 38 (8)	2.61)	N/A	N/A	N/A	N/A
Zeng <i>et al.</i> 2022 ^[28]	23.7	(3.0)	23.6 (3.6)	16 (53.3)	4 (40.0)	14 (46.7)	9 (6	0.0)	N/A	N/A	N/A	N/A
Zhang <i>et al</i> . 2023 ^[33]	23.4	(3.3)	23.3 (3.2)	75 (81)	69 (75)	18 (19)	23 (25)	0	0	0	0
Zhong et al. 2023 ^[15]	22.6	(2.5)	22.2 (3.2)	10 (14.5)	14 (20.3)	53 (76.8)	49 (7	1.0)	6 (8.7)	6 (8.7)	N/A	N/A
												Contd

				Table 2	: Contd					
Study ID					Vitals, Mea	n (SD)				
	S	BP	D	P	W	AP	I	æ	SPC	Ő
	Ciprofol	Propofol	Ciprofol	Propofol	Ciprofol	Propofol	Ciprofol	Propofol	Ciprofol	Propofol
Zhen <i>et al</i> . 2022 ^[11]	121 (13.2)	119.7 (13.9)	76.7 (9.2)	75.8 (8.7)	90.2 (11)	89.2 (11.1)	77.2 (12.9)	79.4 (14.6)	N/A	N/A
Chen <i>et al</i> . 2022 ^[29]	127.3 (29.33)	135.17 (17.3)	87.32 (10.22)	87.16 (11.18)	99.22 (10.25)	100.53 (11.92)	81.33 (11.25)	82.69 (15.56)	97.63 (3.34)	99.53 (0.84)
Chen <i>et al</i> . 2023 ^[30]	128.9 (18.48)	132 (17.88)	73.87 (10.81)	74.84 (10.44)	NA	NA	77.84 (11.06)	75.86 (9.81)	0.99 (0.01)	0.99 (0.01)
Gan <i>et al.</i> 2023 ^[23]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lan <i>et al</i> . 2023 ^[10]	127.0 (17.7)	128.5 (21.5)	78.3 (9.1)	77.7 (12.7)	94.5 (11.1)	94.6 (14.8)	77.2 (10.5)	76.8 (13.4)	N/A	N/A
Li <i>et al</i> . 2022 ^[9]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Liang <i>et al.</i> 2023 ^[24]	119.9 (14.8)	116.66 (12.77)	75.2 (8.68)	73.5 (8.18)	87.5 (10.5)	84.7 (9.8)	75.90 (11.9)	74.4 (12.1)	99.8 (0.45)	99.8 (0.5)
Liao <i>et al.</i> 2023 ^[31]	125.8 (15.3)	127.62 (16.32)	80.23 (8.52)	77.95 (12.78)	N/A	N/A	79.9 (8.06)	80.93 (9.92)	98.98 (0.99)	98.98 (0.99)
Liu <i>et al</i> . 2022 ^[25]	129.8 (16.35)	135.25 (22)	69.66 (10.9)	70.6 (12.3)	88.6 (11.3)	93.13 (16.9)	81.95 (16.6)	77.89 (19.9)	99.5 (1.1)	99.62 (0.65)
Liu <i>et al</i> . 2023 ^[26]	128.55 (20.93)	126.68 (19.9)	70.11 (13.19)	70.27 (12.87)	89.13 (13.7)	89.35 (12.61)	83.35 (16.6)	82.39 (18.83)	98.98 (1.71)	99.27 (1.31)
Luo <i>et al</i> . 2022 ^[27]	116 (14)	115.6 (12.7)	74.7 (9.9)	75.3 (7.9)	86.4 (11.6)	86 (10.8)	69.7 (1.3)	68.9 (8.8)	97.7 (1.42)	97.9 (1.53)
Man <i>et al</i> . 2023 ^[12]	129.0 (14.6)	132.2 (17.8)	N/A	N/A	N/A	N/A	81.4 (15.1)	77.2 (11.8)	N/A	N/A
Qin <i>et al</i> . 2022 ^[32]	N/A	N/A	N/A	N/A	122 (18.19)	123 (15.29)	97 (16.57)	96 (16.57)	N/A	N/A
Teng <i>et al.</i> 2021 (II b) ^[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wang <i>et al.</i> 2022 ^[13]	121.8 (17.5)	122.2 (16.2)	75.3 (10.7)	75.6 (10.2)	88.4 (12.5)	89.3 (12.3)	72.1 (10.2)	70.8 (10.1)	N/A	N/A
Wu <i>et al</i> . 2022 ^[14]	141 (8.81)	142 (10.06)	81 (4.84)	80 (3.06)	100.62 (3.84)	100.62 (5.14)	78 (4.66)	79 (4.91)	95.66 (1.09)	95.56 (1.27)
Zeng <i>et al</i> . 2022 ^[28]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zhang <i>et al.</i> 2023 ^[33]	127.7 (16.4)	131.0 (19.9)	79.26 (11.65)	80.54 (11.65)	95.5 (12.0)	97.4 (12.9)	66.6 (10.9)	66.3 (12.9)	97.4 (2.4)	97.6 (2.0)
Zhong <i>et al.</i> 2023 ^[15]	137.73 (7.72)	136.98 (7.78)	N/A	N/A	N/A	N/A	81.47 (4.6)	78.71 (4.47)	99.46 (5.59)	99.74 (5.59)
ASA=American Society of Aideviation, SpO ₂ =saturation c	nesthesiologists, BM f peripheral oxygen.	I=body mass index, SBP, DBP and MAF	DBP=diastolic bloo in mmHg; HR in be	d pressure, HR=he	art rate, MAP=mea d SpO ₂ in %	n arterial pressure, ľ	l/A=not available, ∜	SBP=systolic blooc	d pressure, SD=sta	Indard

Indian Journal of Anaesthesia | Volume 68 | Issue 9 | September 2024

		Ta	able 3: Gradin	ig of Recom	mendations, A	ssessment, l	Developmen	t and Evalu	ation eviden	ce profile	
		ŭ	ertainty asses.	sment					Summa	ary of findings	
Participants	Risk of	¹ Inconsistency	Indirectness	Imprecision	Publication	Overall	Study event	trates (%)	Relative	Anticipated	absolute effects
(studies) follow-up	bias				bias	certainty of evidence	With placebo	With efficacy	effect (95% CI)	Risk with placebo	Risk difference with efficacy
					Succ	ess rate of er	Idoscopy				
997 (six RCTs)	Not serious	Not serious	Not serious	Not serious	None	⊕⊕⊕⊕ High	491/498 (98.6%)	495/499 (99.2%)	RR 1.01 (0.99–1.02)	986 per 1000	10 more per 1000 (from 10 fewer to 20 more)
					Success ra	ate of sedation	n/GA inductic	u.			
2109 (13 RCTs)	Not serious	Not serious	Not serious	Not serious	None	⊕⊕⊕⊕ High	938/958 (97.9%)	1140/1151 (99.0%)	RR 1.01 (1.00–1.02)	979 per 1000	10 more per 1000 (from $\overline{0}$ fewer to 20 more)
						Induction tir	me				
1664 (11 RCTs)	Not serious	Very serious ^a	Not serious	Not serious	None	⊕⊕⊖⊖ Low	779	885	1	The mean induction time was 0	MD 0.1 higher (0.04 lower to 0.23 higher)
						Awakening ti	ime				
1899 (14 RCTs)	Not serious	Very seriousa	Not serious	Not serious	Publication bias strongly suspected ^b	⊕⊖⊖⊖ Very low	896	1003	1	The mean awakening time was 0	MD 1.04 higher (0.45 higher to 1.62 higher)
						^D atient satisfa	ction				
1037 (six RCTs)	Not serious	Not serious	Not serious	Not serious	None	⊕⊕⊕⊕ High	519	518		1	SMD 0.36 higher (0.24 higher)
						Pain on injec	tion				
2629 (16 RCTs)	Not serious	Serious	Not serious	Not serious	Publication bias strongly suspected ^d	⊕⊕⊖⊖ Low	549/1255 (43.7%)	71/1374 (5.2%)	RR 0.14 (0.09–0.22)	437 per 1000	376 fewer per 1000 (from 398 fewer to 341 fewer)
						Adverse eve	ints				
2073 (14 RCTs)	Not serious	Very serious ^a	Not serious	Serious	None	⊕⊖⊖⊖ Very low	652/933 (69.9%)	621/1140 (54.5%)	RR 0.80 (0.69–0.92)	699 per 1000	140 fewer per 1000 (from 217 fewer to 56 fewer)
Cl=confidence >50%. dEgger's	interval, M. test revea	D=mean difference, led significant publi	, RCT=randomise cation bias (z=3.0	ed controlled trial 007, P=0.003). e∿	, RR=risk ratio, SN Nide confidence in	1D=standardised terval that does r	mean difference	, ª/² >75%. ^b Eg eciable harm/b	ger's test reveal enefit	ed significant publication	ı bias (z=2.859, <i>P</i> =0.004). ∘ <i>P</i>

Page no.51

Saeed, et al.: Ciprofol versus propofol for general anaesthesia or sedation



Figure 2: Forest plot of the efficacy outcomes: (a) success rate of endoscopy; (b) success rate of sedation/GA induction; (c) success rate of sedation/GA induction, subgrouped based on the type of anaesthesia; (d) induction time (min). Cl=confidence interval, GA=general anaesthesia, SD=standard deviation



Figure 3: Forest plot of the efficacy outcomes: (a) time to eyelash reflex disappearance (s); (b) insertion time (min); (c) discharge time; (d) awakening time (min); (e) induction time (min), subgrouped based on the type of anaesthesia. CI=confidence interval, SD=standard deviation

Patients' and anaesthesiologist's satisfaction

Ciprofol showed significantly higher patient satisfaction versus propofol [standardised mean

difference (SMD): 0.36, 95% CI: 0.24, 0.48; P < 0.001] (high-quality evidence) [Figure 4c, Table 3]. However, there was no difference between the two groups

2						
а	Ciprofol	Drog	ofol		Mean Difference	Mean Difference
Study or Subgroup	Mean SD	Total Mean	SD Total	Weight	IV. Random, 95% CI	IV. Random, 95% CI
4.3.1 General anesthesia	1					
Liang et al. 2023	10.3 4.2	86 9.5	4.5 42	6.1%	0.80 [-0.82, 2.42]	
Qin et al. 2022	44.85 18.78	52 28.11 1	8.2 53	0.6%	16.74 [9.66, 23.82]	,
Zeng et al. 2022	11.4 4.9	30 11.8	3.4 10	3.3%	-0.40 [-3.14, 2.34]	
Subtotal (95% CI)		168	105	10.0%	4.28 [-1.36, 9.91]	
Test for overall effect: Z = 1	61; Chi= 20.05, di 1.49 (P = 0.14)	= 2 (P < 0.000	1); I* = 90%			
4.3.2 Sedation						
Chen Xinggu et al 2022	619 236	47 369 3	16 49	8 9%	2 50 [1 59 3 41]	
Chen et al. 2023	1.1 0.4	31 1.45 1	.25 44	10.8%	-0.35 (-0.75, 0.05)	
Lan et al. 2023	5.4 2.7	75 4.6	1.9 74	9.6%	0.80 (0.05, 1.55)	
Liao et al. 2023	10.33 3.28	185 9.02 2	.88 183	10.0%	1.31 [0.68, 1.94]	
Li et al. 2022	3.3 3.1	144 2	2.1 145	10.1%	1.30 [0.69, 1.91]	
Liu et al. 2022	9.35 7.42	26 9.2	6.4 13	1.5%	0.15 [-4.35, 4.65]	
Liu et al. 2023	4.8 9.8	88 1.6	2.8 45	4.3%	3.20 [1.00, 5.40]	
Teng et al. 2021 (II b)	12.9 3.8	31 10.9	2.7 31	6.0%	2.00 [0.36, 3.64]	
Wu et al. 2022	11.43 2.94	46 11.22 2	2.79 46	7.8%	0.21 [-0.96, 1.38]	
Zhang et al. 2023	2.53 2.2	93 2.52	2.1 92	10.1%	0.01 (-0.61, 0.63)	Τ_
Subtotal (95% CI)	13.0 1.1	835	791	90.0%	0.97 [0.42, 1.53]	•
Heterogeneity: Tau ² = 0.61	1 · Chi ² = 62.95 df =	= 10 (P < 0.000	01): IF = 849	6		•
Test for overall effect: Z = 3	3.42 (P = 0.0006)					
Total (95% CI)		1003	896	100.0%	1.04 [0.45, 1.62]	•
Heterogeneity: Tau ² = 0.79	9; Chi ² = 83.39, df =	= 13 (P < 0.000	01); I ² = 849	16		-4 -2 0 2 4
Test for overall effect: Z = 3	3.47 (P = 0.0005)					Favors [Ciprofol] Favors [Propofol]
Test for subgroup differen	nces: Chi² = 1.31, d	f = 1 (P = 0.25)	, l ² = 23.6%			
b	_	_				
Study or Subaroup	Ciprofol Mean SD	Pro Total Mean	SD Tota	l Weight	Mean Difference	Mean Difference IV, Random, 95% CI
4.4.1 General anesthesia						
Chen_Ben-zhen et al. 2023	2 33.7 10.6	60 34	6.5 60	24.7%	-0.30 [-3.45, 2.85]	+
Qin et al. 2022	33.65 2.54	52 39.09	3.19 53	3 25.7%	-5.44 [-6.54, -4.34]	•
Wang et al. 2022	48 1.8	88 42.6	1.8 88	25.8%	5.40 [4.87, 5.93]	1
Subtotal (95% CI)	5: Ohiz - 200 50	200	201	76.3%	-0.10 [-8.40, 8.19]	-
Test for overall effect: 7 = 0	02 (P = 0.98)	= 2 (1° < 0.0000)	1), 1" = 99%			1
L = 0.						1
4.4.2 Sedation						
Chen et al. 2023	52.58 18.61	31 85.45	55.98 44	10.3%	-32.87 [-50.66, -15.08]	
Lan et al. 2023 Subtotal (05% CI)	84 54	75 72	30 74	13.4%	12.00 [-2.00, 26.00]	
Heterogeneity Tau ² = 939 (94: Chi ² = 15.09 df	= 1 (P = 0.0001)	· I2 = 0.3%	20.17	-10.03 [-54.05, 55.00]	
Test for overall effect: Z = 0.	.45 (P = 0.65)	- 1 (0 - 0.0001)				
Total (95% CI)		306	319	100.0%	-1.87 [-9.26, 5.52]	+
Heterogeneity: Tau ² = 54.90	0; Chi ² = 323.92, df	= 4 (P < 0.0000)	1); l² = 99%			-50 -25 0 25 50
Test for overall effect: Z = 0.	.50 (P = 0.62)	1 10 0 00 12	001			Favors [Ciprofol] Favors [Propofol]
l est for subgroup differenc	es: Chi* = 0.19, df =	1 (P = 0.66), P	= 0%			
С	Ciprofol	Prone	IOI		td Mean Difference	Std. Mean Difference
C Study or Subgroup	Ciprofol Mean SD To	Propo otal Mean S	D Total	S Weight	td. Mean Difference IV, Fixed, 95% CI	Std. Mean Difference IV, Fixed, 95% CI
C Study or Subgroup Chen_Xinggu et al. 2022	Ciprofol Mean SD To 4.23 0.59	Propo otal Mean 5 47 3.9 0.5	57 49	Weight 9.1%	td. Mean Difference IV, Fixed, 95% CI 0.56 (0.16, 0.97)	Std. Mean Difference IV, Fixed, 95% Cl
C Study or Subgroup Chen_Xingqu et al. 2022 Li et al. 2022	Ciprofol <u>Mean</u> <u>SD</u> To 4.23 0.59 9.9 0.4 1	Propo otal Mean \$ 47 3.9 0.9 129 9.7 0	57 49 7 130	S Weight 9.1% 25.1%	td. Mean Difference IV, Fixed, 95% CI 0.56 (0.16, 0.97) 0.35 (0.10, 0.59)	Std. Mean Difference IV, Fixed, 95% Cl
Study or Subgroup Chen_Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022	Ciprofol Mean SD To 4.23 0.59 9.9 0.4 1 9 0.77 1	Propo otal Mean 9 47 3.9 0.6 129 9.7 0 134 8.5 1.1	57 49 7 130 57 130 57 133	8 9.1% 25.1% 25.4%	td. Mean Difference IV, Fixed, 95% CI 0.56 (0.16, 0.97) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75)	Std. Mean Difference IV, Fixed, 95% Cl
Chen_Xingqu et al. 2022 Liu et al. 2022 Luo et al. 2022 Wu et al. 2022	Ciprofol <u>Mean</u> SD To 4.23 0.59 9.9 0.4 1 9 0.77 1 4.67 0.77	Propo tal Mean \$ 47 3.9 0.5 129 9.7 0 134 8.5 1.1 46 4.33 0.5	57 49 57 130 15 133 15 133 77 46	8 8.1% 25.1% 25.4% 8.8%	td. Mean Difference IV, Fixed, 95% CI 0.56 (0.16, 0.97) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85)	Std. Mean Difference IV, Fixed, 95% CI
Chen_Xingqu et al. 2022 Lie et al. 2022 Luo et al. 2022 Wu et al. 2022 Zhang et al. 2023	Ciprofol Mean SD To 4.23 0.59 9.9 0.4 1 9 0.77 1 4.67 0.77 8.98 1.2 1.2 1 1	Propo tal Mean 5 47 3.9 0.5 129 9.7 0 134 8.5 1.1 46 4.33 0.1 93 8.59 1	Total 1 57 49 57 130 15 133 77 46 .4 92	8.8% 18.0%	td. Mean Difference IV, Fixed, 95% Cl 0.56 (0.16, 0.97) 0.55 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59)	Std. Mean Difference IV, Fixed, 95% CI
C Study or Subgroup Chen_Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022 Wu et al. 2022 Zhang et al. 2023 Zhong et al. 2023	Ciprofol Mean SD To 4.23 0.59 9 9.9 0.4 1 9 0.77 1 4.67 0.77 1 8.98 1.2 9.99 0.56	Propo tal Mean \$ 47 3.9 0.9 129 9.7 0 134 8.5 1.7 46 4.33 0.7 93 8.59 1 69 9.99 0.9	SD Total 1 57 49 1 1 57 130 1 1 1 15 133 7 46 .4 92 56 69 69 69 69 69	8.8% 18.0% 13.6%	td. Mean Difference IV, Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33]	Std. Mean Difference IV, Fixed, 95% Cl
Study or Subgroup Chen_Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% CI)	Ciprofol Mean SD To 4.23 0.59 9.0.4 1 9 0.77 1 4.67 0.77 8.98 1.2 9.99 0.56 1	Propo ptal Mean \$ 47 3.9 0.9 129 9.7 0 134 8.5 1.7 46 4.33 0.7 93 8.59 1 69 9.99 0.9 518	SD Total 1 57 49 57 49 1.7 130 15 133 77 46 92 56 69	Weight 9.1% 25.1% 25.4% 8.8% 18.0% 13.6%	td. Mean Difference IV, Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.30 [0.21, 0.55] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48]	Std. Mean Difference IV, Fixed, 95% Cl
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022 Zhang et al. 2023 Zhang et al. 2023 Zhong et al. 2023 Total (95% CI) Heterogeneity: ChP = 7.20	Ciprofol <u>Mean</u> <u>SD</u> T(4.23 0.59 9.9 0.4 1 9 0.77 1 4.67 0.77 8.98 1.2 9.99 0.56 9.9 0.56 9.9 0.56 9.9 0.56	Propo ptal Mean 9 47 3.9 0.4 129 9.7 0 134 8.5 1.4 46 4.33 0.3 93 8.59 1 69 9.99 0.5 518 F = 31%	57 49 57 49 57 130 15 133 77 46 .4 92 56 69 519	8 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0%	td. Mean Difference IV, Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Total (95% Cl) Heterogeneity: Chi ² = 7.20 Test for overall effect Z = 1	Ciprofol <u>Mean</u> <u>SD</u> To 4.23 0.59 9.9 0.4 9 0.77 1 4.67 0.77 8.98 1.2 9.99 0.56 9.9 0.66 9.9 0.66 9.9 0.55 (P = 0.21); 5.75 (P < 0.00001)	Propo ptal Mean 2 47 3.9 0.7 129 9.7 0 134 8.5 1.7 46 4.33 0.7 93 8.59 1 69 9.99 0.5 518 P= 31%	Itol Total I 57 49 49 49 1.7 130 15 133 15 133 46 492 56 69 519 519	Weight 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0%	td. Mean Difference IV, Fixed, 95% C1 0.56 [0.16, 0.87] 0.55 [0.10, 0.59] 0.51 [0.27, 0.55] 0.40 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.36 [0.24, 0.48]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022 Wu et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Total (95% CI) Heterogeneity: Chiller 7.20 Test for overall effect. Z = 5	Ciprofol <u>Mean SD T4</u> 4.23 0.59 9.9 0.4 1 9 0.77 1 4.67 0.77 8.98 1.2 9.99 0.56 9.9 0.56 9.9 0.56 9.9 0.57 (P = 0.21); 5.75 (P < 0.00001)	Propo ptal Mean 3 47 3.9 0.4 129 9.7 0 134 8.5 1.4 46 4.33 0.7 93 8.59 1 93 8.59 0.4 518 P= 31%	57 49 57 49 57 49 15 133 77 46 .4 92 56 69 519	S 9.1% 25.1% 25.4% 8.8% 18.0% 13.6%	td. Mean Difference IV, Fixed, 95% C1 0.56 (0.16, 0.97) 0.53 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.00 (+0.33, 0.33) 0.36 (0.24, 0.48)	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022 Wu et al. 2022 Zhong et al. 2023 Zhong et al. 2023 Total (95% Cl) Heterogeneity: Chi [#] = 7.20 Test for overall effect. Z = 4	Ciprofol Mean SD T 4.23 0.59 9.9 0.4 1 9 0.77 8.98 1.2 9.99 0.56 4.67 0.77 8.98 1.2 9.99 0.56 4.67 0.77 8.98 1.2 9.99 0.575 (P < 0.00001) Ciprofol	Propo ptal Mean 35 47 3.9 0.9 129 9.7 0 134 8.5 1.1 46 4.33 0.1 93 8.59 1 69 9.99 0.9 518 P= 31% Propofo	100 50 Total 1 57 49 15 133 77 46 .4 92 56 69 519 519	Weight 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0% Std	 Mean Difference IV, Fixed, 95% C1 0.56 (0.16, 0.87) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.36 (0.24, 0.48) Mean Difference 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Lip et al. 2022 Lup et al. 2022 Wu et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Total (95% CI) Heterogeneity: Chi ^a = 7.20 Test for overall effect Z = 4 Study or Subgroup	Ciprofol Mean SD Tc 4.23 0.59 9.9 0.4 1 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 9.99 0.56 0. df = 5 (P = 0.21); 5.75 (P < 0.00001) Ciprofol Mean SD Tota	Propo tal Mean S 47 3.9 0.3 129 9.7 0 134 8.5 1.7 93 8.59 1 69 9.99 0.5 518 P= 31% Propofo I Mean SD	100 <u>50</u> Total 1 57 49 57 49 15 133 77 46 19 519 519 519 1 Total W	S Weight 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0% Store eight	td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.67] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.36 [0.24, 0.48]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Luo et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ^a = 7.20 Test for overall effect. Z = 4 Study or Subgroup Luo et al. 2022	Ciprofol Mean SD 4.23 0.59 9.9 0.4 9 0.77 4.67 0.77 4.67 0.77 9.99 0.56 9 0.56 9 0.57 (P < 0.00001)	Propo tal Mean 5 47 3.9 0.1 129 9.7 0 134 8.5 1.1 46 4.33 0.1 93 8.59 1 69 9.99 0.5 518 P= 31% Propolo 1 4 7.75 1.73	100 <u>50</u> Total 1 <u>57</u> 49 <u>17</u> 130 <u>15</u> 133 <u>15</u> 133 <u>15</u> 133 <u>15</u> 133 <u>16</u> 133 <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>513</u> <u>513</u> <u>513</u> <u>513</u> <u>513</u> <u>513</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>519</u> <u>5133</u> <u>519</u> <u>5133</u> <u>519</u> <u>5133</u> <u>519</u> <u>519</u> <u>5133</u> <u>519</u> <u>5133</u> <u>5133</u> <u>519</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5135</u> <u>5133</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5135</u> <u>5155</u> <u>5155555555555555555555555555555555555</u>	S Weight 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0% Std eight	td. Mean Difference IV. Fixed, 95% CI 0.56 (0.16, 0.97) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Lu et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: ChiF = 7.20 Test for overall effect. Z = 5 Study or Subgroup I Luo et al. 2022 Teng et al. 2023	Ciprofol Mean SD 4.23 0.59 9.9 0.4 9 0.7 4.67 0.77 8.98 1.2 9.99 0.56 9.04 5.75 (P = 0.21); 6.75 (P = 0.21); 6.75 (P = 0.21); Ciprofol Mean Mean SD 7.5 1.92 9.2 1 9.2 1 9.0 1	Propo tal Mean 5 47 3.9 0.1 129 9.7 0 134 8.5 1.7 93 8.59 1 69 9.99 0.3 518 Propofo I Mean SD 4 7.75 1.73 9 3.2 0.9 10.0 1.7 10.0 1.7	100 <u>50</u> Total 1 <u>57</u> 49 <u>17</u> 130 <u>15</u> 133 <u>15</u> 133 <u>17</u> 46 <u>4</u> 92 <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>513</u> <u>513</u> <u>513</u> <u>513</u> <u>513</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>5133</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>5133</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>519</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u>5113</u> <u></u>	S Weight 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0% Std eight 8.5% 1.4%	Id. Mean Difference IV, Fixed, 95% CI 0.56 (0.16, 0.87) 0.53 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0.10, 0.59) 0.36 (0.24, 0.48) 0.36 (0.24, 0.48) I. Mean Difference V, Random, 95% CI 0.14 (0.38, 0.10) 0.00 (0.50, 0.50)	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ^a = 7.20 Test for overall effect: Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 (b) Wang et al. 2022 Wu et al. 2022	Ciprofol Mean SD 4.23 0.59 9.9 0.4 9 0.77 4.67 0.77 4.87 0.77 9.99 0.56 9.99 0.56 9.04 5.75 (P < 0.00001)	Propo 141 Mean S 47 3.9 0.5 129 9.7 0 134 8.5 1.7 46 4.33 0.3 93 8.59 1 69 9.99 0.5 518 Propofo Image: Mean 1 Mean SD 4 7.75 1.73 9.2 0.9 3 4 4.5	100 <u>50</u> Total 1 <u>57</u> 49 <u>17</u> 130 <u>15</u> 133 <u>15</u> 133 <u>17</u> 46 <u>69</u> <u>519</u> <u>133</u> 1 <u>131</u> 1 <u>88</u> 1 <u>46</u> 4	Store 8.5% 14% 5.5% 8.8% 13.6% 100.0% Store 8.5% 1.4% 6.9% 3.5%	td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.55 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.36 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [0.38, 0.10] 0.00 [-0.50, 0.50] 0.07 [-0.22, 0.37]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhong et al. 2023 Total (95% Cl) Heterogeneity: ChP = 7.20 Test for overall effect. Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Yang et al. 2022 Zeng et al. 2022 Yang et al. 2022 Zeng et al. 2022 Yeng et al. 2022	Ciprofol Mean SD 9.0.4 1 9.0.7 1 9.0.7 1 9.0.7 1 9.0.7 1 9.0.7 1 9.99 0.56 9.99 0.56 9.016 5.75 (P < 0.00001)	Propp tal Mean 2 4 47 3.9 0: 29 9.7 0 314 8.5 1: 46 4.33 0: 93 8.59 1 69 9.99 0: 518 Praj1% Praj1% Propofo 1 Mean SD 4 7.75 1.73 1 0.8 1.4 5 1.4 1.53 1 0.8 1.4 5 1.0 10.8 2.4	100 507 048 1 57 49 17 130 15 133 15 133 10 15 10 15 1	Store 8.5% 11.4% 8.5% 1.4% 8.5% 1.4% 6.9% 3.5% 1.0%	 Idean Difference IV. Fixed, 95% CI 0.56 (0.16, 0.97) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0.01, 0.59) 0.36 (0.24, 0.48) 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhong et al. 2023 Total (95% Cl) Heterogeneity: ChiF = 7.20 Test for overall effect. Z = 5 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Teng et al. 2022 Wu et al. 2022 Yu et al. 2022 Zeng et al. 2022 Yu et al. 2022 Zheng et al. 2022	Ciprofol Mean SD 4.23 0.59 9.9 0.4 9 9.77 4.87 0.77 4.87 0.77 4.89 0.77 4.81 1.2 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.57 9.99 0.56 9.99 0.56 9.99 0.56 9.90 1.2 9.91 1.31 9.92 1.31 10.9 1.4 4.33 0.77 41.18 0.8 8.81 1.8	Prop: Prop: Prop: 47 3.9 0: 29 9.7 0: 29 9.7 0: 343 8.5 1: 46 4.33 0: 93 8.59 1: 69 9.99 0: 518 Propotof Partial Ar75 10 7.75 10 7.75 10.8 1.08 10 1.43 10 2.03 3 10.8 10.8 1.53 10.8 1.53 10.6 2.43 10.6 2.43 10.8 7.68 10.8 7.68	Not 50 Total 1 57 49 57 49 57 49 130 15 133 15 133 15 133 519 519 519 519 519 519 519 519	S Weight 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0% 13.6% 100.0% Store eight 8.5% 6.9% 3.5% 6.9%	Id. Mean Difference IV, Fixed, 95% CI 0.56 (0.16, 0.97) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0.33, 0.33) 0.36 (0.24, 0.48) I. Mean Difference V, Random, 95% CI 0.14 (0.38, 0.10) 0.00 (-0.50, 0.50) 0.37 (-0.14, 0.68) 0.86 (0.12, 1.61) 0.56 (0.26, 0.85)	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi" = 7.20 Test for overall et al. 2021 C Study or Subgroup Luo et al. 2021 Teng et al. 2021 (II) Ver et al. 2022 Yang et al. 2021 (II) Viang et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Zhong et al. 2023	Ciprofol Mean SD 4.23 0.59 9.9 0.4 9 0.77 4.67 0.77 4.87 0.77 9.99 0.56 9.99 0.56 9.04 5.75 (P < 0.00001)	Prop Nean 3 1 14 1 129 9.7 134 8.5 145 3.3 146 4.33 9 9.9 1518 1 1 1	Noi 50 Total 1 57 49 77 130 15 133 77 46 492 56 69 519 519 519 519 519 519 519 133 1 31 1 88 1 46 1 10 92 1 69 1	S Weight 9.1% 25.1% 25.4% 8.8% 13.6% 100.0% 13.6% 100.0% Std eight 8.5% 1.4% 6.9% 3.5% 5.7%	td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.36 [0.24, 0.48] I. Mean Difference V. Random, 95% CI -0.14 [0.38, 0.10] 0.00 [0.63, 0.50] 0.07 [-0.22, 0.37] 0.27 [0.14, 0.68] 0.86 [0.12, 1.61] 0.56 [0.26, 0.85]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ^a = 7.20 Test for overall effect. Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Teg et al. 2022 Teng et al. 2022 Zeng et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Zhang et al. 2023	Ciprofol Mean SD 4.23 0.59 9.9 0.4 9 0.7 4.67 0.77 4.87 0.77 9.99 0.56 9 0.4f 9.99 0.56 9 0.75 (P < 0.00001)	Prop Prop Ara 30 0.3 47 39 0.4 21 9.7 0 129 9.7 0 31 8.5 1 46 4.33 0.9 9.99 0.5 1 68 9.99 0.5 1 6 9.99 0.5 168 9.29 0.9 1 7.75 1.73 9 0.9 0.5 1 Mean SD 20 0.9 3 1.8 1.4 1.53 0.10 1.4 1.53 0.10 1.4 3 7.88 1.5 3 12 0.67 3 12 0.67 3 3 12 0.67 3 3 12 0.67 3	100 507 Total 1 57 49 77 130 15 133 77 46 6 69 519 519 519 519 519 519 519 51	Store St	 td. Mean Difference IV. Fixed, 95% C1 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.36 [0.24, 0.48] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chill = 7.20 Test for overall effect. Z = 3 Study or Subgroup Luo et al. 2022 Teng et al. 2022 Yang et al. 2022 Yeng et al. 2022 Yung et al. 2022 Yung et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% Cl)	Ciprofol Mean SD 4.23 0.59 9.9 0.4 9 9.77 4.87 0.77 4.88 1.2 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.57 9.99 0.56 9.99 0.56 9.90 1.2 9.91 1.31 9.92 1.31 10.9 1.4 4.33 0.77 44 1.1.8 12 0.67 62 49	Prop: P	Nol 50 Total 1 57 49 17 130 15 133 77 46 4 92 56 69 519 519 519 519 1 131 1 88 1 46 1 10 92 1 69 10	Store 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0% Store eight 1.4% 6.9% 5.7% 0.0%	 Id. Mean Difference IV. Fixed, 95% C1 0.56 (0.16, 0.97) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0.01, 0.59) 0.30 (0.01, 0.59) 0.36 (0.24, 0.48) I. Mean Difference IV. Random, 95% C1 -0.14 [-0.38, 0.10] 0.07 [-0.22, 0.37] 0.27 [-0.14, 0.68] 0.86 (0.12, 1.61) 0.56 (0.26, 0.85) 0.00 [-0.33, 0.33] 0.18 [-0.06, 0.41] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi" = 7.20 Test for overall effect Z = 1 C Study or Subgroup Luo et al. 2022 Teng et al. 2021 (II) Vang et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi" = 7.01 Total (95% Cl) Heterogeneity: Chi" = 7.021 Total (95% Cl) Heterogeneity: Tou" = 0.01 Total (95% Cl) Heterogeneity: Tou" = 0.01	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 4.87 0.77 9.99 0.56 9 0.47 9.99 0.56 9 0.77 1.2 5.75 (P < 0.00001)	Prop Prop Ara 3.9 0.1 1.29 9.7 0 3.4 8.5 1.4 1.41 4.6 4.33 0.9 9.9 0.5 1.6 9.99 0.5 1.6 9.99 0.5 1.6 9.99 0.5 1.6 <td>Nol SD Total 1 57 49 17 130 15 133 77 46 4 92 56 69 519 1 Total W Total W 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>S 5 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td> Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] </td> <td>Std. Mean Difference IV, Fixed, 95% CI</td>	Nol SD Total 1 57 49 17 130 15 133 77 46 4 92 56 69 519 1 Total W Total W 1 1 1 1 1 1 1 1 1 1 1 1 1	S 5 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ^a = 7.20 Test for overall effect. Z = 1 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Wang et al. 2022 Zeng et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau ^a = 0.0 Test for overall effect. Z =	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 4.87 0.77 9.99 0.56 9.99 0.56 9.99 0.56 9.016 5.75 (P < 0.00001)	Prop: yal Mean 3 47 3.9 0.2 29 9.7 0 314 8.5 1.7 46 4.33 0.3 9.99 0.5 518 Propolo 1 Mean 50 4 7.75 1.73 4 1.53 1 0.8 1.4 5 4 1.53 1 0.8 1.4 5 4 1.53 1 0.10 1.6 5 4 1.53 1 0.67 1 = 6 (P = 0.006)	Noi SD Total 1 57 49 17 130 15 133 77 46 4 92 56 69 519 Total W 133 1 88 1 46 1 10 92 1 669 10 ; I [*] = 67%	Store 9.1% 25.1% 25.4% 8.8% 18.0% 13.6% 100.0% Store 8.5% 1.4% 8.9% 3.5% 5.7% 0.0%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.36 [0.24, 0.48] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Total (95% CI) Heterogeneity: ChF = 7.20 Test for overall effect: Z = 1 Study or Subgroup Luo et al. 2022 Teng et al. 2022 Teng et al. 2022 Yung et al. 2022 Yung et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% CI) Heterogeneity: ChaP = 7.20 Total (95% CI) Heterogeneity: TauP = 0.0 Test for overall effect: Z = 4	Ciprofol Mean SD Mean SD 4.23 0.59 9.9 0.4 9.9 0.77 4.87 0.77 4.87 0.77 4.89 0.27 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 9.99 0.56 10.9 1.4 9.2 1.3 10.9 1.4 8.81 1.8 12 0.67 6; ChiP = 18.10, di 6; ChiP = 18.10, di Ciprofol	Prop: Val Mean 3 Val Mean 3 Val Mean 5 Val Mean 5	Noi S0 Total 1 57 49 17 130 15 133 77 46 4 92 56 69 519 1 Total W 133 1 31 1 36 1 133 1 31 1 46 1 10 92 1 69 1 469 10 ; I ² = 67%	weight 9.1% 9.1% 25.1% 25.1% 8.8% 18.0% 18.0% 110.0% 13.6% 6.9% 3.5% 7.0% 6.9% 3.5% 7.0% 6.9% 3.5% 7.0% 5.7% Stdt 5.5%	 Id. Mean Difference IV. Fixed 95% C1 O.56 (0.16, 0.97) O.35 (0.10, 0.59) O.51 (0.27, 0.75) O.44 (0.02, 0.85) O.30 (0.10, 0.59) O.30 (0.10, 0.59) O.30 (0.10, 0.59) O.36 (0.24, 0.48) Mean Difference V. Random, 95% C1 O.14 [-0.38, 0.10] O.07 [-0.22, 0.37] O.27 [-0.14, 0.68] O.86 (0.12, 1.61] O.56 (0.26, 0.85] O.00 [-0.33, 0.33] O.18 [-0.06, 0.41] Hean Difference 	Std. Mean Difference IV, Fixed, 95% CI -0.5 0 0.5 1 Favors [Propofol] Favors [Ciprofol] Std. Mean Difference IV, Random, 95% CI -1 -0.5 0 0.5 1 Favors [Propofol] Favors [Ciprofol] Std. Mean Difference
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ^a = 7.20 Test for overall effect: Z = 1 C Study or Subgroup Luo et al. 2022 Ymag et al. 2022 Zheng et al. 2021 Wu et al. 2022 Zheng et al. 2022 Zheng et al. 2023 Total (95% Cl) Heterogeneity: Tau ^a = 0.0 Test for overall effect: Z = 5 Study or Subgroup	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 9 0.4 9 0.77 6.7 0.77 9.99 0.56 9.04 1.2 0.47 0.2 10.9 1.4 9.9 1.4 11.8 0.8 12 0.67 6; ChiP = 18.10, df 1.48 (P = 0.14) Ciprofol Ciprofol Mean SD	Propo Val Mean 3 Val Mean 3 Val Mean 4 Val Mean 4 Propofo Mean 5D Val Val Val Val Val Val Val Val Val Val	Addition Addition 57 49 .7 130 15 133 77 46 .4 92 56 69 519 .4 92 .5 .4 92 .4 .4 92 .1 .3 1 .3 1 .3 1 .4 .2 .5 .5 .9 .7 .4 .2 .2 .5 .5 .9 .7 .4 .2 .2 .5 .5 .9 .7 .4 .2 .2 .2 .5 .5 .9 .7 .4 .2	weight 9.1% 9.1% 25.1% 25.1% 8.8% 8.8% 13.8% 13.8% 13.8% 100.0% 5.7% 6.9% 5.7% 0.0% Std 6.9% 5.7% 0.0% Std eight 6.9% 5.7% 0.0%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] 	Std. Mean Difference IV, Fixed, 95% CI -0.5 0 0.5 1 Favors [Propofol] Favors [Ciprofol] Std. Mean Difference IV, Random, 95% CI Favors [Propofol] Favors [Ciprofol] Std. Mean Difference IV, Random, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ^a = 7.20 Test for overall defect Z = 1 C Study or Subgroup Luo et al. 2022 Teng et al. 2021 (II b) Wang et al. 2022 Zeng et al. 2022 Zhang et al. 2022 Zhong et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau ^a = 0.0 Test for overall effect: Z = 4 C Study or Subgroup 4.5.1 General anesthesia	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.7 4.67 0.77 4.87 0.77 8.98 1.2 9.99 0.56 9 0.77 9.99 0.56 9.0 (d=5 (P=0.21)); 5.75 (P < 0.00001)	Prop Prop 247 3.9 0.2 29 9.7 0 34 8.5 1.7 46 4.33 0. 9.99 0.5 518 Propolo 1 Mean SD 1 0.6 2.4 1 0.67 1 0.6	Not S0 Total 1 S7 49 S7 49 S7 130 S 133 S7 46 4 92 S6 69 S19 Total W 133 1 31 1 88 1 46 1 10 92 1 69 1 469 10 () () F = 67% N Total W	weight 9.1% 9.1% 25.1% 25.1% 25.1% 25.1% 10.0% 8.8% 13.6% 100.0% 5.1% 6.9% 3.5% 0.0% 5.7% 0.0% State State 5.7%	td. Mean Difference IV. Fixed, 95% C1 0.56 [0.16, 0.97] 0.55 [0.16, 0.97] 0.55 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Chen, Xingqu et al. 2022 Li et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: ChP = 7.20 Test for overall effect. Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Test for overall effect. Z = 4 Study or Subgroup Luo et al. 2022 Yeng et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Zhong et al. 2023 Zhong et al. 2023 Total (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect: Z = E E Study or Subgroup 4.5.1 General anesthesit Wang et al. 2022 Zhong et al. 2023 Total (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect: Z = E E Study or Subgroup	Ciprofol Mean SD 9.9 0.4 9 0.7 9.9 0.4 9.9 0.4 9.0 0.7 9.0 0.7 9.0 0.7 9.0 0.77 4.67 0.77 9.99 0.56 9.99 0.56 9.0 (fe = 0.21); 5.75 (P < 0.00001)	Prop: tal Mean 3 47 39 0: 47 39 0: 47 39 0: 47 39 0: 47 39 0: 47 39 0: 48 51 1 69 9:99 0: 518 Propofo 1 Mean 50 Propofo 1 Mean SD Propofo 1 0: 0: 24 6 (P = 0.006) Propofo 1 Mean SD Propofo 1 Mean SD Propofo 1 Mean SD 1 0: 14 1 0:	Total Total <th< td=""><td>weight 9.1% 9.1% 25.1% 25.1% 8.8% 8.8% 8.8% 13.6% 100.0% 100.0% 5.0% 6.9% 5.7% 6.9% 5.7% 6.9% 5.7% 6.9% 5.7% 6.9% 5.7%</td><td> Idean Difference IV., Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.24, 0.48] </td><td>Std. Mean Difference IV, Fixed, 95% CI</td></th<>	weight 9.1% 9.1% 25.1% 25.1% 8.8% 8.8% 8.8% 13.6% 100.0% 100.0% 5.0% 6.9% 5.7% 6.9% 5.7% 6.9% 5.7% 6.9% 5.7% 6.9% 5.7%	 Idean Difference IV., Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.24, 0.48] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ² = 7.20 Test for overall effect: Z = 1 C Study or Subgroup Luo et al. 2022 Yang et al. 2021 Teng et al. 2021 Wang et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect: Z = 6 Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Zeng et al. 2022 Zhong file (56% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect: Z = 6 Study or Subgroup 4.5.1 General anesthesis Wang et al. 2022 Zeng et al. 2022 Subdy of Sec. (n)	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 9 0.77 6.7 0.77 6.7 0.70 Mean SD 7.5 1.92 9.2 1 10.9 1.4 8.81 1.8 12 0.67 6; Chi² = 18.10, df 1.48 (P = 0.14) Ciprofol Mean SD 0.6; Chi² = 18.10, df 1.48 (P = 0.14) 1.48 (P = 0.14) Ciprofol Mean SD 1.1.8 0.8	Prop: Val Mean 3 Val Mean 3 Val Mean 4 Propofot Mean 5D Val Val 4 Propofot Mean 5D Val 2 Propofot Nean 5D Val 2 Val	Mol Strate Mol 57 49 57 49 15 133 15 133 77 46 58 69 519 4 70 133 1 311 1 46 10 92 1 469 10 59 469 10 50 88 1 100	State 9.1% 9.1% 25.1% 25.1% 25.1% 25.1% 25.1% 8.8% 13.6% 100.0% State 8.5% 1.4% 8.5% 6.9% 5.7% 0.0% State 6.9% 7.0% 6.9% 7.0% 6.9% 7.0% 6.9% 7.0% 6.9% 7.0% 6.9% 7.0%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [0.38, 0.10] 0.36 [0.12, 1.81] 0.56 [0.26, 0.85] 0.38 [0.12, 1.81] 0.56 [0.26, 0.85] 0.31 [0.37 4 + 55] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Chi ² = 7.20 Test for overall effect Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Luo et al. 2022 Teng et al. 2021 Wang et al. 2022 Zeng et al. 2021 Wang et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = E Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = E Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau ² = 0.0 Subtotal (95% Cl) Heterogeneity: Tau ² = 0.0 Subtotal (95% Cl)	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.7 4.67 0.77 4.87 0.77 8.98 1.2 9.99 0.56 20, df = 5 (P = 0.21); 5.75 (P < 0.00001)	Prop tal Mean 3 47 3.9 0.2 129 9.7 0 134 8.5 1.2 46 4.33 0.3 9.859 1.5 1669 9.99 0.5 518 Propolo 1 Mean 30 10.8 1.4 3 7.88 1.5 3 10.8 1.4 9 10.6 2.4 8 10.8 1.4 10 0.06.2 10 0.0 1.6 2.4 8 1.0 1.6 2.4 8	Itol Total I 57 49 157 130 15 133 15 133 15 133 51 133 51 133 51 51 133 519 Total W 131 1 9 469 1 10 88 1 10 98 98	Std Std 9.1% 25.4% 25.4% 25.4% 25.4% 13.8% 100.0% 13.8% 100.0% 5.7% 6.9% 6.9% 6.9% 5.7% 6.9% 6.9% 6.9% 5.7% 6.9% 5.7% 1.4% 6.9% 6.9% 5.7% 5.7% 5.7% 9.1% 5.7% 9.3% 5.7% 9.3% 5.7%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.02, 0.85] 0.00 [-0.33, 0.33] 0.36 [0.22, 0.37] 0.36 [0.22, 0.37] 0.36 [0.22, 0.33] 0.18 [-0.06, 0.41] IMean Difference IMean Difference IMean Difference 0.07 [-0.22, 0.37] 0.36 [0.21, 1.61] 0.39 [-0.37, 1.15] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Total (95% CI) Heterogeneity: ChF = 7.20 Test for overall effect: Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Test for overall effect: Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% CI) Heterogeneity: Tau ² = 0.0 Test for overall effect: Z = € Study or Subgroup 4.5.1 General anesthesis Wang et al. 2022 Zhang et al. 2023 Total (95% CI) Heterogeneity: Tau ² = 0.2 Test for overall anesthesis Wang et al. 2022 Zeng et al. 2022<	Ciprofol Mean SD Tr 4.23 0.59 9 0.4 1 9 0.77 1 8.07 0.77 1 4.67 0.77 1 8.98 1.2 9.99 0.56 9.99 0.56 9 9.07 1 3 1.7 5 9.99 0.56 9 9.09 0.56 9 9.09 0.56 9 9.07 1 3 1.7 5 75 6 0.00001) 1 5 5 75 6 0.00001) 1 4 3 1.3 1 1.9 1 3 8.1 1.8 9 1	Prop: Prop: Prop: 141 Mean 32 129 9.7 0.134 129 9.7 0.134 134 8.5 1.1 146 4.33 0.1 9.9 9.9 0.1 518 Propofot I Mean SD 1 7.75 1.73 9.2 0.9 1.0 2.4 1 9.2 0.6 1.2 3 1.08 1.4 5.3 1 0.67 1.2 0.67 1 1 0.6 2.4 3 1.08 1.4 0.6 1 1 0.67 1.2 0 1.0 2.4 1.3 0 1.6 2.4 1.3 0 1.0 2.4 1.3 1 0.6 1.4 1.4 0 1.0 2.4 1.4 </td <td>Item Total 1 57 49 .7 130 15 133 77 46 15 133 77 46 56 69 519 51 133 1 133 1 133 1 133 1 133 1 92 1 46 10 92 1 469 10 98 1 10 98 1 10 98 10 98 </td> <td>Stdt 9.1% 9.1% 25.1% 25.4% 8.8% 8.8% 13.6% 100.0% Stdt 0.0% 5.7% 0.0% 5.7% 0.0% Stdt 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.3%</td> <td> Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.67] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI 0.00 [0.33, 0.33] 0.36 [0.12, 0.61] 0.56 [0.26, 0.85] 0.30 [0.06, 0.41] 0.56 [0.26, 0.85] 0.00 [0.33, 0.33] 0.18 [-0.06, 0.41] I. Mean Difference IV. Random, 95% CI 0.07 [-0.22, 0.37] 0.86 [0.12, 1.61] 0.39 [-0.37, 1.15] </td> <td>Std. Mean Difference IV, Fixed, 95% CI</td>	Item Total 1 57 49 .7 130 15 133 77 46 15 133 77 46 56 69 519 51 133 1 133 1 133 1 133 1 133 1 92 1 46 10 92 1 469 10 98 1 10 98 1 10 98 10 98	Stdt 9.1% 9.1% 25.1% 25.4% 8.8% 8.8% 13.6% 100.0% Stdt 0.0% 5.7% 0.0% 5.7% 0.0% Stdt 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.5% 6.9% 3.3%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.67] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI 0.00 [0.33, 0.33] 0.36 [0.12, 0.61] 0.56 [0.26, 0.85] 0.30 [0.06, 0.41] 0.56 [0.26, 0.85] 0.00 [0.33, 0.33] 0.18 [-0.06, 0.41] I. Mean Difference IV. Random, 95% CI 0.07 [-0.22, 0.37] 0.86 [0.12, 1.61] 0.39 [-0.37, 1.15] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 We et al. 2022 Where al. 2023 Total (95% CI) Heterogeneity: Chi [®] = 7.20 Test for overall effect Z = 4 C Study or Subgroup If Luo et al. 2021 C Study or Subgroup If Luo et al. 2022 Zhang et al. 2021 C Study or Subgroup If Luo et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% CI) Heterogeneity: Tau [®] = 0.0 Test for overall effect Z = C S Study or Subgroup 4.5.1 General anesthesia Wang et al. 2022 Subotal (95% CI) Heterogeneity: Tau [®] = 0.2 Total (95% CI) Heterogeneity: Tau [®] = 0.2 Study or Subgroup 4.5.1 General anesthesia Wang et al. 2022 Subotal (95% CI) Heterogeneity: Tau [®] = 0.2 Test for overall effect: Z =	Ciprofol Mean SD Tr 4.23 0.59 9.9 0.4 9 0.77 1 4.67 0.77 4.67 0.77 4 8.98 1.2 9.99 0.56 9 9.9 0.56 9.0 1.2 5.75 (P < 0.00001)	Prop Prop Prop 141 Mean 30 129 9.7 0 134 8.51 1 169 9.99 0.5 168 9.99 0.5 518 Propotof 1 Mean SD 1 7.75 1.73 1 9.2 0.9 3 10.8 1.4 3 7.82 1.2 3 10.8 1.4 3 7.82 1.5 3 10.6 2.4 3 10.8 1.4 4 1.53 1.2 2 1.0 6.7 4 1.53 1.2 5 4 1.53 6 1.5 1.2 9 10.6 2.4 8 10.8 1.0 9 1.7 2.4 1.6 1.6 2.4	Addition Total Y 57 49 .7 130 15 133 77 46 15 133 77 46 58 69 519	State 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 25.4% 8.8% 8.8% 8.8% 13.8% 100.0% Std 6.9% 7.0% 3.3.9%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI 0.36 [0.24, 0.48] 0.36 [0.22, 0.37] 0.37 [0.37, 1.55] 0.48 [0.03, 7, 1.15] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Chen, Xingqu et al. 2022 Li et al. 2022 Wu et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: ChI" = 7.20 Test for overall effect. Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Teg et al. 2022 Zeng et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect. Z = E Study or Subgroup 4.5.1 General anesthesit Wang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect. Z = Subtotal (95% Cl) Heterogeneity: Tau" = 0.2 Subtotal (95% Cl) Heterogeneity: Tau" = 0.2 Subtotal (95% Cl) Heterogeneity: Tau" = 0.2 Test for overall effect. Z = 4.5.2 Sedation <td>Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 20, df = 5 (P = 0.21); 5.75 (P < 0.00001)</td> Ciprofol Mean SD 7.5 1.92 10.9 1.4 8.81 1.8 9.2 1.31 10.9 1.4 8.81 1.8 12 0.67 6; ChiP = 18.10, df 1.48 (P = 0.14) Ciprofol Mean SD 1.4 (P = 0.14) Ciprofol Mean SD 1.8 0.8 1.1.8 0.8 1.30 1.4 8.1 1.8 1.30 1.4	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 20, df = 5 (P = 0.21); 5.75 (P < 0.00001)	Propo tal Mean 3 47 3.9 0.2 29 9.7 0 314 8.5 1.7 46 4.33 0. 9 8.59 1. 669 9.99 0.5 518 Propofo 1 Mean SD 3 10.8 1.4 0 10.6 2.4 8 10.8 1.4 10.6 2.4 8 10.8 1.4 10.6 2.4 8 10.8 1.4 10.6 2.4 8 10.6 10.6 10.6 10.6 10.6 10.6 10.6 10.6	Item Total Item 57 49 157 130 15 133 15 133 15 133 15 133 56 69 519 Total W 131 1 133 1 92 1 92 1 469 1 131 1 469 1 98 98 98 98 91	State 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 25.1% 225.1% 8.8% 13.8% 100.0% Std 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 5.7% 9.1% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% <td>td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.07 [-0.22, 0.37] 0.27 [-0.14, 0.68] 0.00 [-0.33, 0.33] 0.18 [-0.06, 0.41] I. Mean Difference IV. Random, 95% CI 0.07 [-0.22, 0.37] 0.38 [0.12, 1.61] 0.38 [0.12, 1.61] 0.39 [-0.37, 1.15]</td> <td>Std. Mean Difference IV, Fixed, 95% CI</td>	td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.07 [-0.22, 0.37] 0.27 [-0.14, 0.68] 0.00 [-0.33, 0.33] 0.18 [-0.06, 0.41] I. Mean Difference IV. Random, 95% CI 0.07 [-0.22, 0.37] 0.38 [0.12, 1.61] 0.38 [0.12, 1.61] 0.39 [-0.37, 1.15]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Li et al. 2023 Total (95% CI) Heterogeneity: Chi ² = 7.20 Test for overall effect: Z = 4 Study or Subgroup I Luo et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Teng et al. 2022 Zhang et al. 2024 Zhang et al. 2024 Zhang et al. 2024 Zhang et al. 2024	Ciprofol Mean SD Ti 4.23 0.59 9 0.4 1 9 0.77 1 8.08 1.2 9.99 0.56 9.99 0.56 9 9 9.056 9 9 0.4 1.2 1.2 1.67 0.77 14 8.1 2.1 31 1.0.9 1.4 8.4 3.2 1 31 1.9.9 1.4 8.4 33 0.77 44 1.1.8 0.8 31 8.2 1 32 1.2 0.67 65 4.33 0.77 1.4 8.8 33 8.81 1.8 32 12 0.67 65 4.2 1.2 0.76 65 493 1.4 88 31 1.4 (P = 0.14) 114 14 12 0.67 65 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.4 18 1.4	Prop: Val Mean 3 Val Mean 3 Val Mean 4 Propofe Mean 5D Val Mean 5D Val Mean 5D Val Mean 5D Val Mean 1 Val Mean 1 Va	Item Total 1 57 49 57 49 57 133 15 133 77 46 4 92 56 69 519 519 131 11 31 1 33 1 34 92 10 92 92 1 69 10 (; F = 67% 10 98 98 2 74% 88 133 1	Star Star 9.1% 2.5.1% 2.5.1% 2.6.4% 8.8% 10.0% 13.8% 100.0% Star 3.5% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7% 0.0% 5.7%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 (0.16, 0.97) 0.35 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0.10, 0.59) 0.30 (0.10, 0.59) 0.30 (0.24, 0.48) I. Mean Difference IV. Random, 95% CI 0.00 (0.50, 0.50) 0.07 (0.22, 0.37) 0.36 (0.12, 1.61) 0.39 (0.037, 1.15) -0.14 (0.38, 0.10) 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Ch ² = 7.20 Test for overall effect Z = 4 C Study or Subgroup Luo et al. 2022 Tog et al. 2021 Uo et al. 2022 Teng et al. 2021 Wang et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneily: Tau ² = 0.0 Test for overall effect: Z = 4 Study or Subgroup 4.5.1 General anesthesis Wang et al. 2022 Subtotal (95% Cl) Heterogeneily: Tau ² = 0.0 Test for overall effect: Z = 4.52 Study or Subgroup 4.5.1 General anesthesis Wang et al. 2022 Subtotal (95% Cl) Heterogeneily: Tau ² = 0.0 Test for overall effect: Z = 4.52 Subtotal (95% Cl)	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 9.99 0.56 9.99 0.56 9.07 1 0.16 5 (P = 0.21); 5.75 (P < 0.00001)	Prop Prop Val Mean 3 Val Mean 3 Val Mean 3 Val Mean 3 Propolo Mean 5D Val Mean 1 Propolo Near 1 Propolo Near 1 Propolo Near 1 Propolo Near 1 Propolo Near 1 Propolo Near 1 Propolo Near 1 Near	Itol Total Itol 57 49 .7 130 15 133 133 137 15 133 56 69 519 519 519 519 1 11 11 11 188 1 10 92 1 69 10 .92 1 69 10 92 1 669 10 .98 2 10 .98 1 10 .98 2 98 .2 .77% .469 10 .98 .2 98 .2 .77% .469 .10 .98 .2 98 .2 .74% .31 .1 .31 </td <td>Store Store 9.1% 25.4% 25.4% 25.4% 25.4% 13.8% 100.0% Store 6.9% 7.0% 6.9% 5.7% 6.9% 5.7% 8.5% 1.4%</td> <td>td. Mean Difference IV. Fixed, 95% C1 0.56 [0.16, 0.97] 0.55 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] 0.30 [0.05, 0.30] 0.30 [0.05, 0.50] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] .0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.00 [-0.33, 0.33] 0.36 [0.26, 0.85] 0.00 [-0.33, 0.33] 0.38 [0.12, 1.61] 0.38 [0.12, 1.61] 0.38 [0.12, 1.61] 0.39 [-0.37, 1.15] -0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.01 [-0.50, 0.50] .0.</td> <td>Std. Mean Difference IV, Fixed, 95% CI</td>	Store Store 9.1% 25.4% 25.4% 25.4% 25.4% 13.8% 100.0% Store 6.9% 7.0% 6.9% 5.7% 6.9% 5.7% 8.5% 1.4%	td. Mean Difference IV. Fixed, 95% C1 0.56 [0.16, 0.97] 0.55 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] 0.30 [0.05, 0.30] 0.30 [0.05, 0.50] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] .0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.00 [-0.33, 0.33] 0.36 [0.26, 0.85] 0.00 [-0.33, 0.33] 0.38 [0.12, 1.61] 0.38 [0.12, 1.61] 0.38 [0.12, 1.61] 0.39 [-0.37, 1.15] -0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.01 [-0.50, 0.50] .0.	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Zhang et al. 2023 Zhang et al. 2023 Total (95% Cl) Heterogeneity: ChI [™] = 7.20 Test for overall effect: Z = 4 Study or Subgroup Luo et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: ChI [™] = 0.0 Test for overall effect: Z = Study or Subgroup 4.5.1 General anesthesis Wang et al. 2022 Zhang et al. 2023 Zhang et al. 2023 Zhang et al. 2022 Zhang et al. 2023 Zhang et al. 2023 Zhang et al. 2023 Zhang et al. 2023 Zhang et al. 2022 Zhang et al. 2023 Zhang et al. 2024 Est for overall effect: Z = Study or Subgroup 4.5.1 General anesthesis Wang et al. 2022 Zeng et al. 2022 Test for overall effect: Z = 4.5.2 Sedation Luo et al. 2021 Test for 2022 Test for 2021 Test	Ciprofol Mean SD Tr 4.33 0.59 9 0.4 1 9 9.7 1 8.08 1.2 9.99 0.77 1 8.08 1.2 9.99 0.56 9.99 0.56 9.99 0.475 (P=0.21); 5.75 (P < 0.00001)	Prop: Prop: Prop: 141 Mean 32 129 9.7 0.134 129 9.7 0.134 134 4.5 1.1 146 4.33 0.1 9.9 0.5518 1.1 Propofot 1.75 1.73 1 Nean SD 1 7.75 1.73 1 9.2 0.93 3 1.08 1.4 3 1.2 0.67 1 2.0 0.67 1 1.62 2.4 3 1.2 0.67 1 1 0.67 1 1.2 0.67 1 1.2 0.67 1 1.2 0.67 1 1.2 0.67 1 1.2 0.2 1 1.2 0.2 1 1.2 0.2 1 2.75	Not Total 1 57 49 57 49 57 136 15 133 77 4 50 50 51 133 56 69 519 519 1 31 88 1 10 92 92 1 69 1 69 1 469 10 10 92 98 2 74% 88 100 98 100 98 100 98 100 98 100 98 2*= 74% 133 133 1 31 1 31 46	Weight	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.87] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.41 [0.38, 0.10] 0.00 [0.33, 0.33] 0.18 [-0.66, 0.41] 0.48 [0.12, 1.61] 0.36 [0.22, 0.37] 0.86 [0.12, 1.61] 0.37 [-0.34, 1.68] 0.48 [0.037, 1.15] -0.14 [-0.38, 0.10] 0.00 [-0.30, 0.50] 0.714 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.27 [0.14, 0.68] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2023 Total (95% Cl) Heterogeneity: Chi" = 7.20 Test for overall effect: Z = 4 C Study or Subgroup I Luo et al. 2023 Total (95% Cl) Heterogeneity: Chi" = 7.20 Test for overall effect: Z = 4 C Study or Subgroup Hu et al. 2022 Zheng et al. 2021 Teng et al. 2021 Zheng et al. 2022 Zheng et al. 2023 Zhong et al. 2021 Zhong et al. 2022 Zhang et al. 2023 Zhong et al. 2023 Zhong et al. 2023 Total (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect: Z = 6 Study or Subgroup 4.5.1 General anesthesit Wang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect: Z = 4.5.2 Sedation Luo et al. 2022 <tr< td=""><td>Ciprofol Mean SD Tr 4.23 0.59 9.9 0.4 1 9 0.77 1 4.67 0.77 1 4.67 0.77 1 8.98 1.2 9.99 0.56 9 0.4 5 7 6 0.77 1 5.75 (P < 0.00001)</td> Ciprofol Mean SD Tota 3 9.2 1 31 10.9 1.4 84 33 0.77 44 11.8 0.8 31 12 0.67 64 12 0.67 65 497 66 ChiP = 18.10, df 1.48 (P = 0.14) 148 148 92 1 34 111 132 132 148 111 132 132 143 143 111 112 132 111 112 133 111 111 112 132 111 113 113 113 113 111</tr<>	Ciprofol Mean SD Tr 4.23 0.59 9.9 0.4 1 9 0.77 1 4.67 0.77 1 4.67 0.77 1 8.98 1.2 9.99 0.56 9 0.4 5 7 6 0.77 1 5.75 (P < 0.00001)	Prop: Val Mean 3 Val Mean 3 Val Mean 3 Val Mean 3 Propofot Propofot Propofot Mean SD Val Val Val Val Val Val Val Val Val Val	All Total 1 57 49 57 49 15 133 15 133 77 46 58 69 519 519 4 22 56 69 519 31 31 1 48 1 40 22 69 10 92 1 69 10 92 1 69 10 92 1 469 10 92 1 93 2* 704 10 92 1 469 10 92 2 10 92 10 92 10 92 11 10 98 2* 131 1 131 1 46	State 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 25.4% 8.8% 8.8% 13.8% 100.0% Std eight 6.9% 7.0% 3.5% 0.0% Std 6.9% 7.0% 3.5% 1.4% 8.5% 1.4% 6.9% 6.9% 7.0% 8.5% 1.4% 6.9%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [0.38, 0.10] 0.39 [0.37, 1.15] -0.14 [0.38, 0.10] 0.39 [0.37, 1.51] -0.14 [0.38, 0.10] 0.36 [0.27, 0.48] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Chen, Xingqu et al. 2022 Li et al. 2022 Wa et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: ChI" = 7.20 Test for overall effect Z = 1 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Us et al. 2022 Teng et al. 2021 Wang et al. 2022 Zeng et al. 2021 Wang et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect: Z = 2 Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect: Z = 4.5.2 Sedation Luo et al. 2021 Teng et al. 2021 Teng et al. 2021 Test for overall effect: Z = 4.5.2 Sedation Luo et al. 2021	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 4.87 0.77 8.98 1.2 9.99 0.56 9.99 0.56 9.0 1.2 0.df=5 (P = 0.21); 5.75 (P < 0.00001)	Propcy tal Mean 3 147 3.9 0.2 129 9.7 0 134 8.5 1.7 1669 9.99 0.5 1669 9.99 0.5 1669 9.99 0.5 1669 9.99 0.5 173 16 1745 1.73 175 0.73 10.62 1.73 10.62 1.73 10.10 2.4 10.10	Total Total <th< td=""><td>Std Std 9.1% 9.1% 9.1% 25.4% 9.1% 25.4% 12.5% 13.0% 13.6% 100.0% Std 6.9% 3.5% 5.7% 8.5% 8.5% 8.5% 3.5% 8.5% 3.5% 8.5% 3.5% 8.5% 3.5% 8.5% 5.7%</td><td>td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.00 [-0.30, 0.50] 0.07 [-0.22, 0.37] 0.27 [-0.14, 0.68] 0.00 [-0.33, 0.33] 0.18 [-0.06, 0.41] 0.38 [0.12, 1.61] 0.39 [-0.37, 1.15] -0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.27 [-0.14, 0.68] 0.56 [0.26, 0.85] 0.00 [-0.50, 0.50] 0.27 [-0.14, 0.68] 0.56 [0.26, 0.85] 0.50 [0.26, 0.85]</td><td>Std. Mean Difference IV, Fixed, 95% CI</td></th<>	Std Std 9.1% 9.1% 9.1% 25.4% 9.1% 25.4% 12.5% 13.0% 13.6% 100.0% Std 6.9% 3.5% 5.7% 8.5% 8.5% 8.5% 3.5% 8.5% 3.5% 8.5% 3.5% 8.5% 3.5% 8.5% 5.7%	td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.00 [-0.30, 0.50] 0.07 [-0.22, 0.37] 0.27 [-0.14, 0.68] 0.00 [-0.33, 0.33] 0.18 [-0.06, 0.41] 0.38 [0.12, 1.61] 0.39 [-0.37, 1.15] -0.14 [-0.38, 0.10] 0.00 [-0.50, 0.50] 0.27 [-0.14, 0.68] 0.56 [0.26, 0.85] 0.00 [-0.50, 0.50] 0.27 [-0.14, 0.68] 0.56 [0.26, 0.85] 0.50 [0.26, 0.85]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2023 Total (95% Cl) Heterogeneity: Chi ² = 7.20 Test for overall effect: Z = 4 C Study or Subgroup I Luo et al. 2023 Total (95% Cl) Heterogeneity: Chi ² = 7.20 Test for overall effect: Z = 4 C Study or Subgroup Luo et al. 2022 Ymag et al. 2022 Zeng et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect: Z = C Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Zeng et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau ² = 0.2 Test for overall effect: Z = 4.5.2 Sedation Luo et al. 2022 Teng et al. 2021 Teng et al. 2022 Zhang et al. 2023 Torong et al. 2023 Zhong et al. 20	Ciprofol Mean SD Ti 4.23 0.59 9 0.4 9 9 0.4 9 0.77 1 4.67 0.77 4.67 0.77 4.67 0.77 5.98 1.2 9.99 0.56 9 9 9.6 6 9 9.9 0.56 9 9 9.0 56 9 9.9 0.56 9 9 9.0 56 9 9.9 0.56 9 9 9.0 56 9 9 9.57 5 75 6 0.211 5 75 1.92 13 10.9 1.4 88 18 8.81 18 9 12 0.67 65 12 0.67 65 12 0.67 65 13 1.14 14 14 14 18 9 1 1.14 14 14 13 14 13 14 13 13 11 13 13	Prop: Pr	Itol Total 1 57 49 .7 130 15 133 77 49 15 133 77 49 55 133 77 49 51 133 1 31 4 92 56 69 519 519	Store 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 8.8% 13.8% 100.0% Stor 8.5% 1.4% 6.9% 7.0% 3.5% 0.0% Star 6.9% 7.0% 8.5% 1.4% 6.9% 8.5% 8.5% 1.4% 6.9% 8.5% 8.5% 8.5% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.1%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 (0.16, 0.67) 0.55 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0.02, 0.85) 0.36 (0.24, 0.48) 0.48 (0.12, 1.61) 0.56 (0.26, 0.85) 0.00 (1.63, 0.33) 0.14 (0.03, 0.10) 0.027 (0.14, 0.68) 0.36 (0.12, 1.61) 0.39 (0.37, 1.15) -0.14 (0.38, 0.10) 0.00 (1.63, 0.33) 0.41 (0.15, 0.42) 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2023 Total (95% CI) Heterogeneity: Ch ² = 7.20 Test for overall effect Z = 4 C Study or Subgroup I Luo et al. 2023 Total (95% CI) Heterogeneity: Ch ² = 7.20 Test for overall effect Z = 4 C Study or Subgroup Luo et al. 2022 Teng et al. 2021 (II b) Wang et al. 2022 Zhang et al. 2023 Total (95% CI) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = 4 Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Subtotal (95% CI) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = 4 Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Subtotal (95% CI) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = 4 4.5.2 Sedation </td <td>Ciprofol Mean SD Mean SD 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 9.99 0.56 9.99 0.56 9.04 1.2 9.99 0.56 9.04 1.2 0.07 1.0 Ciprofol Mean Mean SD 9.2 1.3 10.9 1.4 4.33 0.77 11.8 0.8 12 0.67 66 ChiP = 18.10, df 1.48 (P = 0.14) Ciprofol Mean Mean SD 1.48 (P = 0.31) 7.5 1.92 1.3 1.01 (P = 0.31) 7.5 1.92 1.3 9.2 1 3 9.2 1 3 9.2<td>Prop: Prop: Prop: 141 Mean 30 129 9.7 0 134 85.1 1 169 9.99 0: 168 9.99 0: 168 9.99 0: 17.75 1.73 1.33 19.2 0.93 1.08 1.4 3 7.85 1.75 1.73 19.2 0.93 10.8 1.4 3 7.88 1.53 1.10.6 2.4 3 7.88 1.53 10.6 2.4 3 7.88 4 7.75 1.73 10.6 2.4 3 10.6 2.4 8 11.06 2.4 8 11.06 2.4 8 11.6 2.4 1.53 17.8 1.92 0.96 4 1.53 7.88 12 0.67</td><td>All Total Y 57 49 57 49 15 133 15 133 56 69 519 133 1 133 1 4 Total W 133 1 4 Total W 92 1 469 10 92 1 10 92 93 469 10 10 92 110 10</td><td>State 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 25.4% 25.4% 8.8% 13.8% 100.0% Std 6.9% 7.0% 23.9% 8.5% 1.4% 6.9% 7.0% 23.9% 8.5% 1.4% 6.9% 7.0% 8.5% 1.4% 6.9% 7.0% 8.5% 1.4% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9%<td> Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [-0.38, 0.10] 0.36 [0.22, 0.37] 0.36 [0.23, 0.33] 0.14 [-0.38, 0.10] 0.00 [-0.30, 0.33] 0.14 [-0.15, 0.42] </td><td>Std. Mean Difference IV, Fixed, 95% CI</td></td></td>	Ciprofol Mean SD Mean SD 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 9.99 0.56 9.99 0.56 9.04 1.2 9.99 0.56 9.04 1.2 0.07 1.0 Ciprofol Mean Mean SD 9.2 1.3 10.9 1.4 4.33 0.77 11.8 0.8 12 0.67 66 ChiP = 18.10, df 1.48 (P = 0.14) Ciprofol Mean Mean SD 1.48 (P = 0.31) 7.5 1.92 1.3 1.01 (P = 0.31) 7.5 1.92 1.3 9.2 1 3 9.2 1 3 9.2 <td>Prop: Prop: Prop: 141 Mean 30 129 9.7 0 134 85.1 1 169 9.99 0: 168 9.99 0: 168 9.99 0: 17.75 1.73 1.33 19.2 0.93 1.08 1.4 3 7.85 1.75 1.73 19.2 0.93 10.8 1.4 3 7.88 1.53 1.10.6 2.4 3 7.88 1.53 10.6 2.4 3 7.88 4 7.75 1.73 10.6 2.4 3 10.6 2.4 8 11.06 2.4 8 11.06 2.4 8 11.6 2.4 1.53 17.8 1.92 0.96 4 1.53 7.88 12 0.67</td> <td>All Total Y 57 49 57 49 15 133 15 133 56 69 519 133 1 133 1 4 Total W 133 1 4 Total W 92 1 469 10 92 1 10 92 93 469 10 10 92 110 10</td> <td>State 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 25.4% 25.4% 8.8% 13.8% 100.0% Std 6.9% 7.0% 23.9% 8.5% 1.4% 6.9% 7.0% 23.9% 8.5% 1.4% 6.9% 7.0% 8.5% 1.4% 6.9% 7.0% 8.5% 1.4% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9%<td> Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [-0.38, 0.10] 0.36 [0.22, 0.37] 0.36 [0.23, 0.33] 0.14 [-0.38, 0.10] 0.00 [-0.30, 0.33] 0.14 [-0.15, 0.42] </td><td>Std. Mean Difference IV, Fixed, 95% CI</td></td>	Prop: Prop: Prop: 141 Mean 30 129 9.7 0 134 85.1 1 169 9.99 0: 168 9.99 0: 168 9.99 0: 17.75 1.73 1.33 19.2 0.93 1.08 1.4 3 7.85 1.75 1.73 19.2 0.93 10.8 1.4 3 7.88 1.53 1.10.6 2.4 3 7.88 1.53 10.6 2.4 3 7.88 4 7.75 1.73 10.6 2.4 3 10.6 2.4 8 11.06 2.4 8 11.06 2.4 8 11.6 2.4 1.53 17.8 1.92 0.96 4 1.53 7.88 12 0.67	All Total Y 57 49 57 49 15 133 15 133 56 69 519 133 1 133 1 4 Total W 133 1 4 Total W 92 1 469 10 92 1 10 92 93 469 10 10 92 110 10	State 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 25.4% 25.4% 8.8% 13.8% 100.0% Std 6.9% 7.0% 23.9% 8.5% 1.4% 6.9% 7.0% 23.9% 8.5% 1.4% 6.9% 7.0% 8.5% 1.4% 6.9% 7.0% 8.5% 1.4% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% <td> Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [-0.38, 0.10] 0.36 [0.22, 0.37] 0.36 [0.23, 0.33] 0.14 [-0.38, 0.10] 0.00 [-0.30, 0.33] 0.14 [-0.15, 0.42] </td> <td>Std. Mean Difference IV, Fixed, 95% CI</td>	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.10, 0.59] 0.30 [0.24, 0.48] I. Mean Difference IV. Random, 95% CI -0.14 [-0.38, 0.10] 0.36 [0.22, 0.37] 0.36 [0.23, 0.33] 0.14 [-0.38, 0.10] 0.00 [-0.30, 0.33] 0.14 [-0.15, 0.42] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 What et al. 2022 What et al. 2023 Total (95% Cl) Heterogeneity: ChI" = 7.20 Test for overall effect Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Us et al. 2022 Teng et al. 2021 Us et al. 2022 Zeng et al. 2021 Wang et al. 2022 Zhang et al. 2022 Zeng et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = € Study or Subgroup 4.5.1 General anesthesit Vang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = € Study or Subgroup 4.5.1 General anesthesit Vang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau ² = 0.0 Test for overall effect Z = € 4.5.2 Sedation Lu	Ciprofol Mean SD 4.23 0.59 9 0.4 9 0.77 4.67 0.77 8.98 1.2 9.99 0.56 9.99 0.56 9.99 0.56 9.0 1.2 9.99 0.56 9.0 1.2 9.0 5.75 (P < 0.0001)	Propcy tal Mean 3 147 3.9 0.2 129 9.7 0 134 8.5 1.2 1669 9.99 0.5 1669 9.99 0.5 1669 9.99 0.5 173 1669 9.99 0.5 173 1669 9.99 0.5 18 Propolo 1 Mean 50 10.6 2.4 1.7.8 1.5 10.10.6 2.4 10.10.6 2.4 10.10.7 1.7 10.10.7 1.7 10.	Total Y 57 49 57 49 57 49 57 136 15 133 56 69 519 519 4 92 56 69 519 519 4 133 133 1 461 10 92 1 69 1 469 10 (; I*= 67%) 98 2 133 1 469 10 98 2 133 1 469 133 31 1 46 1 98 2 133 1 46 1 31 1 46 1 92 1 69 1 371 7 371 7	Step 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 8.5%	td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.01, 0.59] 0.30 [0.02, 0.48] IV. Random, 95% CI 0.01 [4.0.38, 0.10] 0.00 [-0.30, 0.33] 0.18 [-0.06, 0.41] 0.39 [-0.37, 1.15] IV. Random, 95% CI 0.07 [4.22, 0.37] 0.39 [-0.37, 1.15] IV. Random, 95% CI 0.39 [-0.37, 1.15] IV. Random, 95% CI 0.39 [-0.37, 1.15] IV. Random, 95% CI 0.39 [-0.37, 1.15] IV. Random, 0.50] 0.30 [-0.50, 0.50] 0.27 [-0.14, 0.88] 0.56 [0.26, 0.85] 0.00 [-0.30, 0.33] 0.14 [-0.15, 0.42]	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2023 Total (95% CI) Heterogeneity: Chi ^a = 7.20 Test for overall effect: Z = 4 C Study or Subgroup I Luo et al. 2023 Total (95% CI) Heterogeneity: Chi ^a = 7.20 Test for overall effect: Z = 4 C Study or Subgroup Luo et al. 2022 Preg et al. 2021 Thong et al. 2022 Zeng et al. 2022 Zhang et al. 2023 Total (95% CI) Heterogeneity: Tau ^a = 0.0 Test for overall effect: Z = € Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Zeng et al. 2022 Subtotal (95% CI) Heterogeneity: Tau ^a = 0.2 Test for overall effect: Z = 4.5.2 Sedation Luo et al. 2022 Teng et al. 2023 Tong et al. 2023 Zhong et al. 2023 Zhong et al. 2023 Zhong et al. 2023	Ciprofol Mean SD Ti 4.23 0.59 9 0.4 1 9 0.4 1 9 0.77 1 4.67 0.77 1 8.98 1.2 9.99 0.56 9.99 0.56 9 9 9 0.56 9 9 9 0.57 1 3 0.77 1 3 0.77 4 1.33 0.77 4 4.33 0.77 4 4.33 0.77 4 4.33 0.77 4 4.33 0.77 4 4.33 0.77 4 4.33 0.77 4 4.97 1.33 1.4 8.81 1.48 9 12 0.67 65 1.04 1.48 1.48 1.48 1.48 1.48 1.48 1.48 1.48 1.14 1.14 1.07 1.09 1.4 8.81 1.88 1.33 1.71 1.01 1.01 1.01 1.20 1	Prop: Val Mean 3 Val Mean 3 Val Mean 5 Propofo Mean 5D Val Mean 5D Val Mean 5D Val Mean 1 Propofo Mean 5D Val Mean 5D Val M	Itol Total Y 57 49 .7 130 15 133 77 46 51 133 77 49 55 133 77 49 51 133 1 31 4 92 133 1 31 1 46 10 92 1 69 1 469 10 92 1 10 92 1 98 2 133 1 133 1 133 1 133 1 131 1 133 1 131 1 137 1	Stor Stor 9.1% 9.1% 9.1% 25.4% 25.4% 8.8% 13.8% 100.0% Stor 8.5% 1.4% 6.9% 6.9% 7.0% 6.9% 7.0% 5.7% 6.9% 8.5% 1.4% 6.9% 5.7% 8.5% 1.4% 6.9% 5.7% 6.9% 5.7% 6.14 5.5% 1.4% 5.5% 0.0% 5.7% 6.9% 5.7% 6.9% 5.7% 6.1% 5.7%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 (0.16, 0.57) 0.55 (0.10, 0.59) 0.51 (0.27, 0.75) 0.44 (0.02, 0.85) 0.30 (0.01, 0.59) 0.30 (0.02, 0.50) 0.00 (0.50, 0.33) 0.18 (0.06, 0.41) -0.14 (0.38, 0.10) 0.00 (0.50, 0.50) 0.27 (0.14, 0.68) 0.26 (0.26, 0.85) 0.00 (0.33, 0.33) 0.14 (0.15, 0.42) 0.18 (0.06, 0.41) 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Li et al. 2022 Li et al. 2022 Wu et al. 2023 Total (95% Cl) Heterogeneity: Ch ^P = 7.20 Test for overall effect Z = 4 C Study or Subgroup Magnetic Subgroup Lu et al. 2022 Teng et al. 2021 Teg et al. 2022 Zhang et al. 2023 Total (95% Cl) Heterogeneily: Tau ² = 0.0 Test for overall effect: Z = 4 Study or Subgroup 4.5.1 General anesthesi Wang et al. 2022 Subtotal (95% Cl) Heterogeneily: Tau ² = 0.0 Test for overall effect: Z = 4.5.2 Sedation Luo et al. 2022 Teng et al. 2021 Subtotal (95% Cl) Heterogeneily: Tau ² = 0.0 Test for overall effect: Z = 7.203 Subtotal (95% Cl) Heterogeneily: Tau ² = 0.0 Test for overall (95% Cl)	Ciprofol Mean SD Tr 4.23 0.59 9.9 0.4 1 9 0.77 1 8.07 1 4.67 0.77 1 8.98 1.2 9.99 0.56 9 9 9 0.df = 5 (P = 0.21); 5.75 (P < 0.00001)	Prop: Prop: Prop: 141 Mean 30 129 9.7 0 134 85.1 1 68 9.99 0: 168 9.99 0: 168 9.99 0: 177 518 173 188 1.53 1.34 19.2 0.93 10.8 1.4 3 7.88 1.53 1.16 2 0.93 10.8 1.4 3 7.88 1.53 1.10.6 2 0.93 10.8 1.4 3 1.82 0.67 1.2 2 0.63 1.2 0.67 1 1.62 2.4 1.53 1 1.92 0.96 4 4 7.75 1.73 1 2.0.67 1 4 7.75 1.2 0.67 1 12 0.67	All Total 1 Y 57 49 57 49 15 133 15 133 56 69 519 133 1 133 1 133 1 469 10 92 1 469 10 92 1 10 92 92 10 92 10 110 131	State 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 25.4% 12.5% 100.0% Std 6.9% 7.0% 3.5% 0.0% Std 6.9% 7.0% 3.5% 1.4% 8.5% 1.4% 8.9% 6.9% 7.0% 3.5% 1.4% 8.5% 1.4% 8.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9% 6.9%	 Id. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.30 [0.02, 0.85] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] 0.00 [-0.30, 0.50] 0.07 [-0.22, 0.37] 0.28 [0.12, 1.61] 0.39 [0.037, 1.15] -0.14 [-0.38, 0.10] 0.39 [0.37, 1.15] -0.14 [-0.38, 0.10] 0.27 [-0.14, 0.68] 0.39 [0.37, 1.15] -0.14 [-0.38, 0.10] 0.30 [0.33, 0.33] 0.14 [-0.15, 0.42] 0.18 [-0.06, 0.41] 	Std. Mean Difference IV, Fixed, 95% CI
Study or Subgroup Chen, Xingqu et al. 2022 Chen, Xingqu et al. 2022 Li et al. 2022 We et al. 2022 Zhong et al. 2023 Total (95% Cl) Heterogeneity: ChI" = 7.20 Test for overall effect Z = 4 Study or Subgroup Luo et al. 2022 Teng et al. 2021 Ue et al. 2022 Teng et al. 2021 Ueng et al. 2022 Zeng et al. 2022 Zeng et al. 2022 Zhong et al. 2022 Zhong et al. 2023 Total (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect: Z = E Study or Subgroup 4.5.1 General anestthesit Vang et al. 2022 Subtotal (95% Cl) Heterogeneity: Tau" = 0.2 Teng et al. 2021 Subtotal (95% Cl) Heterogeneity: Tau" = 0.2 Zhang et al. 2023 Subtotal (95% Cl) Heterogeneity: Tau" = 0.0 Test for overall effect: Z = Teng et al. 2023 Subtotal (95% Cl)	Ciprofol Mean SD Ti 4.23 0.59 9.9 0.4 1 9.9 0.4 9.07 1 4.67 0.77 1 4.87 0.77 1 8.98 1.2 9.99 0.56 9.99 0.56 9.9 0.77 1 3 1.7 6.07 5.75 (P < 0.00001)	Prop: Prop: Prop: 141 Mean 32 129 9.7 0.134 134 6.85 1: 139 9.7 0.9 134 6.85 1: 69 9.99 0.15 F*= 31% Propofo 1 N.68 1.2 1 7.75 1.73 9.2 0.93 1.08 1.4 1 4 1.53 9.2 0.93 3 1.08 1.4 5.3 1.2 0.67 1 Gen SD 1.2 0.67 1 1.6 2.4 1 Gen SD 8 1.08 1.4 1.5 1.73 1.92 0.9 1.4 1.75 1.73 1.72 0.92 0.9 1.4 1.75 1.73 1.92 0.9 1.4 1.75 1.73 3 7.88 1.5 9 12 0.67 3 1.8	Not Total 1 57 49 57 49 57 130 15 133 7 4 7 130 57 49 57 133 57 133 7 4 92 56 69 519 133 1 88 1 10 92 69 1 469 10 10 92 60 1 10 98 2*= 74% 133 133 1 98 2 133 1 98 2 133 1 133 1 98 2 133 1 133 1 133 1 133 1 133 1 137	Step 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 9.1% 8.5% 6.9% 3.5% 0.0% Std 6.9% 3.5% 0.0% Str 6.9% 3.5% 0.0% Str 0.3% 5.7% 0.0% 8.5% 0.3% 5.7% 0.0% 8.5% 0.0%	td. Mean Difference IV. Fixed, 95% CI 0.56 [0.16, 0.97] 0.35 [0.10, 0.59] 0.51 [0.27, 0.75] 0.44 [0.02, 0.85] 0.30 [0.01, 0.59] 0.00 [-0.33, 0.33] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.36 [0.24, 0.48] 0.30 [0.050] 0.30 [0.050] 0.30 [0.30, 0.50] 0.30 [0.22, 0.37] 0.27 [0.14, 0.68] 0.00 [-0.33, 0.33] 0.18 [-0.06, 0.41] 0.39 [0.37, 1.15] 0.39 [0.37, 1.15] 0.31 [-0.36, 0.33] 0.18 [-0.06, 0.41] 0.38 [0.12, 1.61] 0.39 [0.37, 1.15] 0.39 [0.37, 1.15]	Std. Mean Difference IV, Fixed, 95% CI

Figure 4: Forest plot of the efficacy outcomes: (a) awakening time (min), subgrouped based on the type of anaesthesia; (b) time to eyelash reflex disappearance (s), subgrouped based on the type of anaesthesia; (c) patient satisfaction; (d) anaesthesiologist satisfaction; (e) anaest

regarding anaesthesiologist satisfaction (SMD: 0.18, 95% CI:-0.06, 0.41; P = 0.14) [Figure 4d]. Pooled studies were homogenous in patient satisfaction (P = 0.21, I² = 31%), but were heterogenous in anaesthesiologist satisfaction (P = 0.006, I² = 67%).

Subgroup analysis was conducted for anaesthesiologist satisfaction based on the type of anaesthesia, and a test for subgroup differences was not significant (P = 0.54) [Figure 4e]. We conducted a sensitivity analysis, and heterogeneity was best resolved in anaesthesiologist satisfaction by excluding Zhang *et al.*^[33] $(P = 0.15, I^2 = 38\%)$ [Table S2].

Number of patients who required top-up doses

There was no difference between ciprofol and propofol in the number of patients who required top-up doses (RR: 0.98, 95% CI: 0.83, 1.16; P = 0.85) [Figure 5a]. Pooled studies were homogenous (P = 0.37, I² = 8%). Subgroup analysis was conducted based on the type of anaesthesia, and a test for subgroup differences was not significant (P = 0.29) [Figure S2].

Vitals (BIS score, MAP, SBP, DBP, HR and SpO₂)

There was no significant difference between ciprofol and propofol in BIS score (MD: 1.53, 95% CI: -2.47, 5.54; P = 0.45) [Figure S3a], MAP (MD: 2.20, 95% CI: -0.15, 4.5; P = 0.07) [Figure S3b], HR (MD: -0.87; 95% CI: -2.58, 0.83; P = 0.31) [Figure S3e] and SpO₂ (MD: 0.22, 95% CI: -0.14, 0.57; P = 0.24) [Figure S3f]. However, ciprofol showed a significant increase versus propofol in SBP (MD: 2.74, 95% CI: 0.17, 5.31; P = 0.04) [Figure S3c] and DBP (MD: 2.32, 95% CI: 0.69, 3.96; P = 0.005) [Figure S3d]. Pooled studies were heterogenous in BIS score (P < 0.001, I² =86%), SBP (P < 0.001, I² =79%), DBP (P = 0.001, I² =66%), MAP (P < 0.001, I² =77%), HR (P < 0.001, I² =82%) and SpO₂ (P < 0.001, I² =89%).

Subgroup analysis was conducted for MAP, SBP, DBP and HR based on the type of anaesthesia, and a test for subgroup differences was not significant (P = 0.18, P = 0.57, P = 0.05 and P = 0.66, respectively) [Figures S4–S7]. We conducted a sensitivity analysis, and heterogeneity was best resolved in SpO₂ by excluding Liao *et al.*^[31] (P = 0.38, I² = 6%) [Table S2].

Safety outcomes

Ciprofol showed significantly lower pain on injection (RR: 0.14, 95% CI: 0.09, 0.22; P < 0.001) (low-quality evidence) [Figure 5b, Table 3] and significantly lower adverse events (RR: 0.80,

95% CI: 0.69, 0.92; P = 0.002) (very-low-quality evidence) compared to propofol [Figure 5c, Table 3]. However, there was no difference between both groups in SAEs (RR: 0.39, 95% CI: 0.13, 1.17; P = 0.09) [Figure 5d]. Pooled studies were heterogenous in pain on injection (P = 0.0003, I² = 64%) and adverse events (P < 0.001, I² = 83%), but were homogenous in SAEs (P = 0.51, I² = 0%).

Subgroup analysis was conducted for pain on injection, adverse events and SAEs based on the type of anaesthesia, and a test for subgroup differences was not significant (P = 0.38, P = 0.58 and P = 0.15, respectively) [Figure 6a–c].

Publication bias

The publication bias was evaluated by visual inspection of the funnel plot. The result of Egger's test revealed significant publication bias in awakening time (z = 2.859, P = 0.004) [Figure S8], pain on injection (z = 3.007, P = 0.003) [Figure S9] and DBP (z = -1.662, P = 0.097) [Figure S10]. However, there was no publication bias in the success rate of GA/ sedation induction (z = 0.95, P = 0.342) [Figure S11], induction time (z = -0.14, P = 0.889) [Figure S12], adverse events (z = 0.189, P = 0.85) [Figure S13], SBP (z = 0.1, P = 0.92) [Figure S14] and HR (z = 0.947, P = 0.344) [Figure S15].

DISCUSSION

The meta-analysis revealed that ciprofol is comparable to propofol in terms of GA induction or sedation during different procedures. In addition, pain with injection was significantly less with ciprofol compared to propofol. Moreover, ciprofol exhibited a lower incidence of adverse events. Furthermore, patient satisfaction was significantly higher in the ciprofol group.

The induction of GA involves maintaining adequate ventilation and a stable haemodynamic condition while guiding the patient into hypnosis, amnesia and other parts of GA.^[34] Our study indicated that ciprofol has a higher success rate versus propofol in terms of GA/sedation; it is worth mentioning that we found the statistical significance resolved by excluding Zhang *et al.*,^[33] which has a high risk of bias. However, the difference was clinically insignificant, consistent with other studies. It is worth mentioning that several SRs conducted on this matter could not reach the same conclusion.^[16,35-37] This discrepancy might be

Saeed, et al.: Ciprofol versus propofol for general anaesthesia or sedation



Figure 5: Forest plot of the efficacy and safety outcomes: (a) number of patients who required top-up doses; (b) pain on injection; (c) adverse events; (d) serious adverse events. Cl=confidence interval, SD=standard deviation

Saeed, et al.: Ciprofol versus propofol for general anaesthesia or sedation

а .			-				
Study or Subgroup	Ciprofe	ol Total	Propot Events	ol Total	Weight	Risk Ratio M-H. Random, 95% Cl	KISK Ratio M-H. Random, 95% CI
4.7.1 General anesthesia	LIGHTS		eronto	10101			
Chen_Ben-zhen et al. 2022	10	60	35	60	9.6%	0.29 (0.16, 0.52)	
Gan et al. 2023	11	168	36	83	9.5%	0.15 [0.08, 0.28]	
Liang et al. 2023 Man et al. 2023	1	80	49	42	7.8%	0.38 [0.15, 0.95]	·
Qin et al. 2022	1	52	32	53	3.6%	0.03 [0.00, 0.22]	←
Wang et al. 2022	6	88	18	88	8.0%	0.33 [0.14, 0.80]	
Subtotal (95% CI)	-	518	470	390	42.0%	0.17 [0.08, 0.36]	-
Total events Heterogeneity: Tau ² = 0.51: Ch	36 ni² = 17.36	df = 5	1/9 (P=0.00	4)· 12 =	71%		
Test for overall effect: Z = 4.74	(P < 0.000	01)	() = 0.00	-// -			
1700-1-1							
4.7.2 Sedation		47	25	40	2 60	0.02/0.00.0.211	
Chen et al. 2023	0	31	5	49	2.0%	0.13 [0.01, 2.23]	·
Lan et al. 2023	Ū.	75	20	74	2.1%	0.02 [0.00, 0.39]	·
Liao et al. 2023	6	185	117	183	8.5%	0.05 [0.02, 0.11]	
Li et al. 2022	7	144	76	145	8.8%	0.09 [0.04, 0.19]	
Teng et al. 2022	4	31	14	31	7 4%	0.29 (0.11, 0.77)	
Wu et al. 2022	3	46	17	46	6.5%	0.18 [0.06, 0.56]	
Zhang et al. 2023	8	93	31	92	8.9%	0.26 [0.12, 0.53]	
Zhong et al. 2023 Subtotal (95% CI)	0	69 856	3	865	1.9%	0.14 [0.01, 2.71]	•
Total events	35	000	370	000	30.070	0.12 [0.01, 0.20]	•
Heterogeneity: Tau ² = 0.28; Ch	ni² = 17.44,	df = 9	(P = 0.04); l ² = 4	8%		
Test for overall effect: Z = 8.21	(P < 0.000	01)					
Total (95% CI)		1374		1255	100.0%	0.14 [0.09, 0.22]	•
Total events	71		549				
Heterogeneity: Tau ² = 0.43; Ch	ni² = 41.35,	df = 15	5 (P = 0.0	1003); F	²= 64%		0.02 0.1 1 10 50
Test for overall effect: Z = 8.78	(P < 0.000	101) 7 df =	1/0 = 0	20) 12-	0.0%		Favors [Ciprofol] Favors [Propofol]
hest for subgroup differences		r. ui =	- (r = 0.	50), I ⁻ =	0.70		
U	Ciprof	ol	Propo	fol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
4.8.1 General anesthesia	10	00	20	00	2.00	0 44 10 22 0 721	
Gan et al 2023	37	168	29	83	5.9%	0.41 [0.23, 0.73]	
Liang et al. 2023	46	86	25	42	6.6%	0.90 [0.65, 1.23]	
Wang et al. 2022	78	88	84	88	9.3%	0.93 [0.85, 1.01]	-
Zeng et al. 2022 Subtotal (95% CI)	30	30	9	10	7.6%	1.14 [0.90, 1.45]	
Total events	203	452	191	200	55.0%	0.72 [0.47, 1.11]	
Heterogeneity: Tau ² = 0.21; C	hi² = 57.11	df = 4	(P < 0.00	0001);1	²= 93%		
Test for overall effect: Z = 1.50) (P = 0.13)						
4.8.2 Sedation							
Chen_Xinggu et al. 2022	25	47	31	49	6.3%	0.84 [0.60, 1.18]	
Lan et al. 2023	25	75	44	74	5.9%	0.56 [0.39, 0.81]	
Li et al. 2022	109	144	100	145	8.8%	1.10 [0.95, 1.27]	
Liu et al. 2022	18	20	34	13	0.2%	0.82 [0.58, 1.16]	
Luo et al. 2022	71	135	101	132	8.3%	0.69 [0.57, 0.83]	
Teng et al. 2021 (II b)	26	31	26	31	7.9%	1.00 [0.80, 1.24]	
Zhang et al. 2023 Zhong et al. 2023	32	93	56	92	6.5%	0.57 [0.41, 0.78]	
Subtotal (95% CI)	55	708	50	650	66.4%	0.82 [0.70, 0.96]	•
Total events	418		461				
Heterogeneity: Tau ² = 0.04; C	$hi^2 = 34.39$, df = 8	(P < 0.00	001); l²	= 77%		
Test for overall effect: Z = 2.42	(P = 0.02)						
Total (95% CI)		1140		933	100.0%	0.80 [0.69, 0.92]	•
Total events	621		652				
Heterogeneity: Tau* = 0.06; C Test for overall effect: 7 = 3.06	hr = 78.37 r = 0.001	, at = 1	3 (P < 0.1	JUUU1)	1= 83%		0.2 0.5 1 2 5
Test for subgroup differences	: Chi ² = 0.3	31. df =	1 (P = 0.	58), l² :	= 0%		Favors [Ciprofol] Favors [Propofol]
0							
C	Ciprot	ol	Propo	ofol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% Cl
4.9.1 General anestnesia	0	60	0	60		Not optimable	
Gan et al. 2023	0	168	3	83	47.6%	0.07 [0.00, 1.36]	
Liang et al. 2023	0	86	0	42		Not estimable	
Wang et al. 2022	0	88	1	88	15.3%	0.33 [0.01, 8.07]	
Zeng et al. 2022 Subtotal (95% CI)	0	30	0	283	62.9%	Not estimable 0.13 (0.02, 1.02)	
Total events	0	102	4	200	021070	one [orer, nor]	
Heterogeneity: Chi ² = 0.49, df	= 1 (P = 0.	48); 12	= 0%				
Test for overall effect: Z = 1.94	(P = 0.05))					
4.9.2 Sedation							
Lan et al. 2023	0	75	0	74		Not estimable	
Li et al. 2022	1	144	1	145	10.1%	1.01 [0.06, 15.94]	
Liu et al. 2022	0	26	0	13		Not estimable	
Liu et al. 2023	3	135	2	45	27.0%	0.77 [0.13, 4.43] Not estimable	
Teng et al. 2021 (II b)	ő	31	0	31		Not estimable	
Wu et al. 2022	Ó	46	0	46		Not estimable	
Zhang et al. 2023	0	93	0	92		Not estimable	
Subtotal (95% CI)	0	69 707	0	647	37.1%	0.83 (0.19, 3.65)	
Total events	4		3			eree [erre, ered]	
Heterogeneity: Chi ² = 0.03, df	= 1 (P = 0.	87); l²	= 0%				
Test for overall effect: Z = 0.24	(P = 0.81)						
Total (95% CI)		1139		930	100.0%	0.39 [0.13, 1.17]	
Total events	4		7	200			
Heterogeneity: Chi ² = 2.30, df	= 3 (P = 0.	51); l²:	= 0%				0.005 0.1 1 10 200
Test for overall effect: Z = 1.67	(P = 0.09)	12	1/0-1	10.0	- 50 00		Favors [Ciprofol] Favors [Propofol]
rescion subdroup dimerences	. onr= 2.0	JZ. 01=	· i (P = 0	.15), 1*	- 50.0%		

Figure 6: Forest plot of the safety outcomes: (a) pain on injection, subgrouped based on the type of anaesthesia; (b) adverse events, subgrouped based on the type of anaesthesia; (c) serious adverse events, subgrouped based on the type of anaesthesia. Cl=confidence interval

attributed to a larger sample size, which could increase the likelihood of a Type I error or indicate a significant difference that requires further investigation. Our research revealed that ciprofol was comparable to propofol in terms of the success rate of endoscopy, induction time and insertion time. These findings mirror the conclusions drawn in other papers and two recent SRs.^[2,9,10,14,15,27,36,37] Moreover, BIS, another marker for the success of anaesthesia, was found to be comparable in ciprofol and propofol. These collective findings may suggest that ciprofol can be used as an alternative drug to ensure effective GA and sedation induction during many interventional procedures. As a secondary outcome, Wang et al.^[13] stated that the eyelash reflex in the ciprofol group took a longer time to disappear, whereas Qin et al.^[32] showed that propofol took longer. Nevertheless, the differences were within a 1-min range, making them clinically insignificant. Our data showed no significant difference in the eyelash reflex disappearance between propofol and the latter drug, which may also suggest that ciprofol is as effective as propofol in reaching an effective sedative state.

Our study indicated that the discharge time is comparable in both groups. However, ciprofol showed a higher awakening time that can be clinically insignificant. Nevertheless, an RCT by Qin *et al.* suggested that the awakening time in the propofol group was significantly shorter, as ciprofol showed a recovery time with MD: 16.74 (95% CI: 9.66, 23.82). This discrepancy in the awakening time may be attributed to the fact that the Qin *et al.*^[32] study focused on patients undergoing renal transplant procedures, and ciprofol is mainly exerted by the kidney, which may explain this result.

Ciprofol enhances the GABA receptor-mediated chloride reflux, making the neurons hyperpolarised. It demonstrated many pharmacokinetic properties similar to those of propofol. However, one of the main drawbacks of propofol is that it can cause significant pain with injection.^[29] Thus, such side effects may result in tension and uncomfortable feelings, and sometimes may result in body movements, leading to a lower patient satisfaction rate. Many RCTs studied this effect deeply; they found that ciprofol was unique in lowering the pain with injection.^[2,9–15,24,27,32] Our SR revealed a significant reduction in pain with injection when ciprofol was used over propofol, which is consistent with previous research.^[2,9–15,24,27,32] Patient satisfaction rate was reported to be higher in the ciprofol group,^[9,14,27,29] which also mirrors the findings of our paper. Chen *et al.*,^[29] Li *et al.*^[9] and Wu *et al.*^[14] attributed this outcome to the less unpleasant experience associated with ciprofol, which may be linked to the lesser pain that the patient may experience with propofol injection. Importantly, none of the studies we reviewed indicated differences between propofol and ciprofol regarding the number of patients who required top-up doses. Nonetheless, our study did not reveal a significant difference in the provider's satisfaction rate between propofol and the tested drug.

Many adverse effects (AEs) of propofol include, but are not limited to, hypotension, hypertension, bradycardia, tachycardia and other intubation reactions during drug administration. Many studies have investigated the safety profile of ciprofol, which unveiled that AEs were less pronounced in the ciprofol group.^[10,11,27] Notably, many other studies did not reach the same conclusion. $^{\left[2,9,13,15,24,25,28,29\right]}$ However, our meta-analysis highlighted that ciprofol has significantly fewer AEs. Thus, further research is necessary to explore this concept in more depth. Nonetheless, our data did not reveal a significant difference in the incidence of SAEs using ciprofol over propofol. This finding aligns with the results reported by Li *et al.*^[9] and Wang *et al.*^[13] In addition, we also included in our data analysis many RCTs that monitor the vitals of patients, such as SBP, DBP, MAP and HR, during the administration of propofol and ciprofol. Among these trials,^[10,27] almost all studies reported that ciprofol resulted in a lesser reduction in MAP, DBP and SBP, with only Luo et al.'s^[27] study showing a significant reduction in HR. In contrast to a recent preprint meta-analysis by Abdelfattah,^[16] DBP and SBP showed no significant differences. However, they have limited patients, which may heighten the false negativity. In a meta-analysis, ciprofol was accompanied by higher values of DBP and SBP. This may suggest that ciprofol has more advantages than propofol in stabilising blood pressure, with no negative impact on other vitals.

Strengths

To our knowledge, this is the most recent SR comparing the two drugs. February 2024 was the endpoint of our literature review, with 2841 being the total number of included cohorts. The study Wen *et al.*^[37] used October 2023 as the endpoint, with 2441 being the sample size. This SR investigated many characteristics and aspects of using ciprofol over

propofol. Our analysis included 19 research papers, all clinical trials focusing on this comparison. Among those RCTs, 10 were double-blinded, adding rigour to this research, whereas the other studies were either open labelled or single-blinded. Many of these studies were multi-centre based, enhancing recruitment and sample size, reducing bias and improving the credibility of the studies. In addition, subgroup analysis was conducted on several outcomes to improve the generalisability and to explore potential biases. Importantly, this paper has the highest number of reviewed RCTs, filling a notable knowledge gap in the existing literature.

Limitations

This study has several limitations. First, there was high heterogeneity among the included studies. This heterogeneity originated from variations in sample size, study populations and the use of different drugs before and during the procedures. Second, the limitation of mentoring vitals at 2 min after drug administration and T3 (time point 3, when the endoscope passes through the mouth) introduced time bias, potentially affecting the assessment of the two drugs' effects on patients' vitals. This bias may lead to either underestimation or overestimation of the drug effects. Lastly, the external validity of our results is questionable, given that all the included RCTs were conducted in China. This raises concerns about the generalisability and applicability of this study. Further research is needed to address these limitations and provide a more comprehensive understanding of the topic.

Implications for future research

All the included studies were conducted in China, except Gan et al.^[23] which was conducted in the USA. As a result, further research is needed in other countries to establish comprehensive guidelines regarding ciprofol over propofol, as many clinical and logistical and geographical factors may vary. In addition, most of the studies were selective in their population. Only patients with ASA I and II classifications were included, while patients with cardiovascular or other comorbidities were excluded from the study. Furthermore, a small number of elderly people were included in the studies. These factors underscore the pressing need for further research trials investigating the effects of the two drugs in the excluded population. In addition, RCTs with further follow-up observations are needed to investigate the long-term safety of the new medication.

CONCLUSION

Ciprofol exhibited a comparable efficacy to propofol in inducing GA/sedation while significantly reducing injection site pain. This reduction in pain may contribute to the heightened patient satisfaction observed. Moreover, the safety profile of ciprofol compared to propofol underscores its promising potential as a medication in the foreseeable future.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

ORCID

Abdallah Saeed: https://orcid.org/0000-0003-4033-1106 Mariam Elewidi: https://orcid.org/0009-0005-8144-9962 Ahmad Nawlo: https://orcid.org/0000-0002-3695-0599 Amr Elzahaby: https://orcid.org/0009-0008-9714-6917 Asmaa Khaled: https://orcid.org/0000-0002-8250-7889 Abdalla Othman: https://orcid.org/0000-0002-1137-0109 Mohamed Abuelazm: https://orcid.org/0000-0002-2514-0689

Basel Abdelazeem: https://orcid.org/0000-0002-2919-6196

REFERENCES

- Caron M, Parrot A, Elabbadi A, Dupeyrat S, Turpin M, Baury T, et al. Pain and dyspnea control during awake fiberoptic bronchoscopy in critically ill patients: Safety and efficacy of remifentanil target-controlled infusion. Ann Intensive Care 2021;11:48. doi: 10.1186/s13613-021-00832-6
- 2. Teng Y, Ou M, Wang X, Zhang W, Liu X, Liang Y, *et al.* Efficacy and safety of ciprofol for the sedation/anesthesia in patients undergoing colonoscopy: Phase IIa and IIb multi-centre clinical trials. Eur J Pharm Sci 2021;164:105904. doi: 10.1016/j. ejps.2021.105904.
- 3. Antkowiak B, Rammes G. GABA (A) receptor-targeted drug development -New perspectives in perioperative anesthesia. Expert Opin Drug Discov 2019;14:683–99.
- 4. Sabourdin N, Meniolle F, Chemam S, Rigouzzo A, Hamza J, Louvet N, *et al.* Effect of different concentrations of propofol used as a sole anesthetic on pupillary diameter: A randomized trial. Anesth Analg 2020;131:510–7.
- Eames WO, Rooke GA, Wu RS, Bishop MJ. Comparison of the effects of etomidate, propofol, and thiopental on respiratory resistance after tracheal intubation. Anesthesiology 1996;84:1307–11.
- Sneyd JR, Absalom AR, Barends CRM, Jones JB. Hypotension during propofol sedation for colonoscopy: A retrospective exploratory analysis and meta-analysis. Br J Anaesth 2022;128:610–22.
- Wang W, Wu L, Zhang C, Sun L. Is propofol injection pain really important to patients? BMC Anesthesiol 2017;17:24. doi: 10.1186/s12871-017-0321-7
- 8. Qin L, Ren L, Wan S, Liu G, Luo X, Liu Z, *et al.* Design, synthesis, and evaluation of novel 2,6-disubstituted

phenol derivatives as general anesthetics. J Med Chem 2017;60:3606-17.

- Li J, Wang X, Liu J, Wang X, Li X, Wang Y, et al. Comparison of ciprofol (HSK3486) versus propofol for the induction of deep sedation during gastroscopy and colonoscopy procedures: A multi-centre, non-inferiority, randomized, controlled phase 3 clinical trial. Basic Clin Pharmacol Toxicol 2022;131:138–48.
- 10. Lan H, Shan W, Wu Y, Xu Q, Dong X, Mei P, *et al.* Efficacy and safety of ciprofol for sedation/anesthesia in patients undergoing hysteroscopy: A randomized, parallel-group, controlled trial. Drug Des Devel Ther 2023;17:1707–17.
- 11. Zhen CB, Yu YX, Hua JL, Hui LJ, Yan SY, Ying YB. The efficacy and safety of ciprofol use for the induction of general anesthesia in patients undergoing gynecological surgery: A prospective randomized controlled study. BMC Anesthesiol 2022;22:245. doi: 10.1186/s12871-022-01782-7.
- 12. Man Y, Xiao H, Zhu T, Ji F. Study on the effectiveness and safety of ciprofol in anesthesia in gynecological day surgery: A randomized double-blind controlled study. BMC Anesthesiol 2023;23:92. doi: 10.1186/s12871-023-02051-x.
- 13. Wang X, Wang X, Liu J, Zuo YX, Zhu QM, Wei XC, *et al*. Effects of ciprofol for the induction of general anesthesia in patients scheduled for elective surgery compared to propofol: A phase 3, multicenter, randomized, double-blind, comparative study. Eur Rev Med Pharmacol Sci 2022;26:1607–17.
- Wu B, Zhu W, Wang Q, Ren C, Wang L, Xie G. Efficacy and safety of ciprofol-remifentanil versus propofol-remifentanil during fiberoptic bronchoscopy: A prospective, randomized, double-blind, non-inferiority trial. Front Pharmacol 2022;13:1091579. doi: 10.3389/fphar. 2022.1091579.
- 15. Zhong J, Zhang J, Fan Y, Zhu M, Zhao X, Zuo Z, *et al.* Efficacy and safety of ciprofol for procedural sedation and anesthesia in non-operating room settings. J Clin Anesth 2023;85:111047. doi: 10.1016/j.jclinane.2022.111047.
- Abdelfattah AM. Efficacy and safety of ciprofol vs propofol for maintenance and induction of general anesthesia: A meta-analysis of 463 patients (preprint]. 2023;1–15.
- Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, et al. Cochrane Handbook for Systematic Reviews of Interventions. Wiley; 2019. p. 1–694.
- Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.
- Sterne JAC, Savović .J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. RoB 2: A revised tool for assessing risk of bias in randomised trials. BMJ 2019;366:l4898. doi: 10.1136/bmj. l4898.
- 20. Review Manager (RevMan) [Computer program]. Version 5.4. The Cochrane Collaboration; 2020.
- 21. JASP Team. JASP (Version 0.16.3) [Computer software]. 2022.
- Egger M, Smith GD, Schneider M, Minder C. Bias in meta-analysis detected by a simple, graphical test. BMJ 1997;315:629–34.
- 23. Gan TJ, Bertoch T, Habib AS, Yan P, Zhou R, Lai YL, *et al.* Comparison of the efficacy of HSK3486 and propolo for induction of general anesthesia in adults: A multicenter, randomized, double-blind, controlled, phase 3 noninferiority trial. Anesthesiology 2024;140:690–700.
- 24. Liang P, Dai M, Wang X, Wang D, Yang M, Lin X, et al. Efficacy and safety of ciprofol vs. propofol for the induction

and maintenance of general anaesthesia: A multicentre, single-blind, randomised, parallel-group, phase 3 clinical trial. Eur J Anaesthesiol 2023;40:399–406.

- Liu Y, Yu X, Zhu D, Zeng J, Lin Q, Zang B, et al. Safety and efficacy of ciprofol vs. propofol for sedation in intensive care unit patients with mechanical ventilation: A multi-center, open label, randomized, phase 2 trial. Chin Med J (Engl) 2022;135:1043–51.
- Liu Y, Peng Z, Liu S, Yu X, Zhu D, Zhang L, et al. Efficacy and safety of ciprofol sedation in ICU patients undergoing mechanical ventilation: A multicenter, single-blind, randomized, noninferiority trial. Crit Care Med 2023;51:1318–27.
- 27. Luo Z, Tu H, Zhang X, Wang X, Ouyang W, Wei X, *et al.* Efficacy and safety of HSK3486 for anesthesia/sedation in patients undergoing fiberoptic bronchoscopy: A multicenter, double-blind, propofol-controlled, randomized, phase 3 study. CNS Drugs 2022;36:301–13.
- 28. Zeng Y, Wang DX, Lin ZM, Liu J, Wei XC, Deng J, *et al.* Efficacy and safety of HSK3486 for the induction and maintenance of general anesthesia in elective surgical patients: A multicenter, randomized, open-label, propofol-controlled phase 2 clinical trial. Eur Rev Med Pharmacol Sci 2022;26:1114–24.
- 29. Chen X, Guo P, Yang L, Liu Z, Yu D. Comparison and clinical value of ciprofol and propofol in intraoperative adverse reactions, operation, resuscitation, and satisfaction of patients under painless gastroenteroscopy anesthesia. Contrast Media Mol Imaging 2022;2022:9541060. doi: 10.1155/2022/9541060.
- 30. Chen L, Xie Y, Du X, Qin W, Huang L, Dai J, et al. The effect of different doses of ciprofol in patients with painless gastrointestinal endoscopy. Drug Des Devel Ther 2023;17:1733-40.
- 31. Liao J, Lv S, Wang X, Ye Y, Zhang Q, Zeng L, *et al.* Effect of ciprofol on swallowing function in patients undergoing painless gastrointestinal endoscopy. Med (United States) 2023;102:E34422. doi: 10.1097/MD.00000000034422.
- Qin K, Qin WY, Ming SP, Ma XF, Du XK. Effect of ciprofol on induction and maintenance of general anesthesia in patients undergoing kidney transplantation. Eur Rev Med Pharmacol Sci 2022;26:5063–71.
- 33. Zhang J, Liu R, Bi R, Li X, Xu M, Li L, *et al.* Comparison of ciprofol–alfentanil and propofol–alfentanil sedation during bidirectional endoscopy: A prospective, double-blind, randomised, controlled trial. Dig Liver Dis 2024;56:663-71.
- Forman SA, Chin VA. General anesthetics and molecular mechanisms of unconsciousness. Int Anesthesiol Clin 2008;46:43–53.
- 35. Akhtar SMM, Fareed A, Ali M, Khan MS, Ali A, Mumtaz M, et al. Efficacy and safety of Ciprofol compared with Propofol during general anesthesia induction: A systematic review and meta-analysis of randomized controlled trials (RCT). J Clin Anesth 2024;94:111425. doi: 10.1016/j.jclinane.2024.111425.
- 36. Hung KC, Chen JY, Wu SC, Huang PY, Wu JY, Liu TH, et al. A systematic review and meta-analysis comparing the efficacy and safety of ciprofol (HSK3486) versus propofol for anesthetic induction and non-ICU sedation. Front Pharmacol 2023;14:1225288. doi: 10.3389/fphar.2023.1225288.
- 37. Wen J, Liu C, Ding X, Tian Z, Jiang W, Wei X, et al. Efficacy and safety of ciprofol (HSK3486) for procedural sedation and anesthesia induction in surgical patients: A systematic review and meta-analysis. Heliyon 2023;9:e22634. doi: 10.1016/j. heliyon.2023.e22634.

	Table S1: Search Strategy		
Database	Search Terms	Search Field	Search Results
PubMed	(Ciprofol OR Cipepofol OR HSK3486 OR HSK-3486) AND (Propofol OR "2,6-Diisopropylphenol" OR "2,6 Diisopropylphenol" OR "2,6-Bis (1-methylethyl) phenol" OR Disoprofol OR Diprivan OR Disoprivan OR Fresofol OR "ICI-35,868" OR "ICI 35,868" OR "ICI35,868" OR "ICI-35868" OR "ICI 35868" OR "ICI35868" OR IVofol OR Propofol Fresenius OR "Propofol MCT" OR "Propofol Rovi" OR "Propofol-Lipuro" OR Recofol OR Aquafol OR Propofol Abbott)	All Field	27
Cochrane	(Ciprofol OR Cipepofol OR HSK3486 OR HSK-3486) AND (Propofol OR "2,6-Diisopropylphenol" OR "2,6 Diisopropylphenol" OR "2,6-Bis (1-methylethyl) phenol" OR Disoprofol OR Diprivan OR Disoprivan OR Fresofol OR "ICI-35,868" OR "ICI 35,868" OR "ICI-35,868" OR "ICI-35868" OR "ICI 35868" OR "ICI-35,868" OR "ICI-35,868" OR "ICI-35868" OR "ICI	Title, Abstract, Keywords	102
WOS	(Ciprofol OR Cipepofol OR HSK3486 OR HSK-3486) AND (Propofol OR "2,6-Diisopropylphenol" OR "2,6 Diisopropylphenol" OR "2,6-Bis (1-methylethyl) phenol" OR Disoprofol OR Diprivan OR Disoprivan OR Fresofol OR "ICI-35,868" OR "ICI 35,868" OR "ICI-35,868" OR "ICI-35868" OR "ICI 35868" OR "ICI-35,868" OR "ICI-35,868" OR "ICI-35868" OR "ICI	All Field	32
SCOPUS	TITLE-ABS-KEY ((ciprofol OR cipepofol OR hsk3486 OR hsk-3486) AND (propofol OR "2,6-Diisopropylphenol" OR "2,6 Diisopropylphenol" OR "2,6-Bis (1-methylethyl) phenol" OR disoprofol OR diprivan OR disoprivan OR fresofol OR "ICI-35,868" OR "ICI 35,868"	Title, Abstract, Keywords	32
EMBASE	 #5. #3 AND #4 #4. propofol: ti, ab, kw OR '2,6-diisopropylphenol':ti, ab, kw OR (('2,6 diisopropylphenol':ti, ab, kw OR '2,6 bis':ti, ab, kw) AND '1 methylethyl':ti, ab, kw AND phenol: ti, ab, kw) OR disoprofol: ti, ab, kw OR diprivan: ti, ab, kw OR disoprivan: ti, ab, kw OR fresofol: ti, ab, kw OR 'ici-35,868':ti, ab, kw OR 'propofol fresenius':ti, ab, kw OR 'propofol mct':ti, ab, kw OR 'propofol rovi':ti, ab, kw OR 'propofol lipuro':ti, ab, kw OR 'propofol mct':ti, ab, kw OR 'propofol abbott':ti, ab, kw W #3. #1 OR #2 #1. cipepofol'/exp #1. cipepofol' ti, ab, kw OR hsk3486:ti, ab, kw OR 'hsk 3486':ti, ab, kw 	All Field	27

	-	Table S2:	Sensitivi	ty Analysis					
Outcome	No. of participants	No. of	Q	uantitative data	synthe	sis	Hete	erogeneity ar	nalysis
	(Ciprofol/Propofol)	trials	RR/MD	95% CI	Ζ	Р	df	Р	ľ² (%)
		Indu	ction Time	e (min)					
All Studies	885/779	11	0.10	[-0.04, 0.23]	1.42	0.16	10	<0.00001	97
Omitting	825/719	10	0.11	[-0.04, 0.26]	1.44	0.15	9	<0.00001	97
Chen_Ben-zhen <i>et al</i> . 2022									
Omitting	838/730	10	-0.03	[-0.13, 0.06]	0.75	0.45	9	<0.00001	93
Chen_Xingqu <i>et al</i> . 2022									
Omitting	799/737	10	0.11	[-0.04, 0.26]	1.44	0.15	9	<0.00001	97
Liang <i>et al</i> . 2023									
Omitting	741/634	10	0.11	[-0.04, 0.26]	1.45	0.15	9	<0.00001	97
Li et al. 2022									
Omitting	797/734	10	0.10	[-0.04, 0.23]	1.43	0.15	9	<0.00001	97
Liu et al. 2023									
Omitting	751/646	10	0.19	[0.07, 0.31]	3.0	0.003	9	<0.00001	96
Luo et al. 2022									
Omitting	797/691	10	0.10	[-0.11, 0.31]	0.91	0.36	9	<0.00001	97
Wang <i>et al</i> . 2022									
Omitting	839/733	10	0.11	[-0.04, 0.25]	1.42	0.15	9	<0.00001	97
Wu et al. 2022									
Omitting	855/769	10	0.10	[-0.04, 0.24]	1.40	0.16	9	<0.00001	97
Zeng et al. 2022									
Omitting	792/687	10	0.12	[-0.02, 0.26]	1.63	0.10	9	<0.00001	97
Zhang <i>et al</i> . 2023									
Omitting	816/710	10	0.09	[-0.09, 0.26]	0.98	0.33	9	<0.00001	97
Zhong <i>et al.</i> 2023				. / .					
0		Inse	rtion Time	(min)					
All Studies	425/427	5	0.44	[-0.07, 0.96]	1.70	0.09	4	< 0.00001	98
Omitting	378/378	4	0.04	[-0.26, 0.33]	0.24	0.81	3	<0.00001	93
Chen Xinggu <i>et al</i> . 2022									
Omitting	281/282	4	0.57	[-0.39, 1.54]	1.16	0.25	3	<0.00001	98
Li et al. 2022									
Omitting	291/294	4	0.51	[-0.07, 1.08]	1.72	0.09	3	<0.00001	98
Luo <i>et al.</i> 2022				[,]					
Omitting	394/396	4	0.46	[-0.14, 1.05]	1.51	0.13	3	<0.00001	98
Teng <i>et al</i> . 2021 (II b)				[, ,]					
Omitting	356/358	4	0.65	[-0.17, 1.47]	1.55	0.12	3	<0.00001	97
Zhong <i>et al.</i> 2023		-		[•••••]		•••-	-		
		Awak	ening Tim	e (min)					
All Studies	1003/896	14	1.04	[0.45, 1.62]	3.47	0.0005	13	< 0.00001	84
Omitting	956/847	13	0.87	[0.30, 1.44]	2.98	0.003	12	<0.00001	82
Chen Xingqu <i>et al</i> . 2022									
Omitting	972/852	13	1.18	[0.62, 1.73]	4.15	< 0.0001	12	<0.00001	76
Chen <i>et al.</i> 2023									
Omitting	928/822	13	1.08	[0.44, 1.72]	3.29	0.0010	12	<0.00001	86
Lan <i>et al.</i> 2023									
Omitting	917/854	13	1.06	[0.45, 1.67]	3.39	0.0007	12	<0.00001	86
Liang <i>et al</i> . 2023									
Omitting	818/713	13	1.02	[0.38, 1.65]	3.14	0.002	12	< 0.00001	85
Liao <i>et al.</i> 2023									
Omitting	859/751	13	1.02	[0.38. 1.66]	3.13	0.002	12	< 0.00001	85
Li et al. 2022							-		
Omitting	977/883	13	1.05	[0.46. 1.65]	3.48	0.0005	12	<0.00001	86
Liu et al. 2022				[,]					50
Omitting	915/851	13	0.94	[0.35. 1.52]	3.12	0.002	12	<0.00001	85
Liu et al. 2023				- · · 4					

		Tab	le S2: Co	ntd							
Outcome	No. of participants	No. of	Q	uantitative data	synthe	sis	Heterogeneity analysis				
	(Ciprofol/Propofol)	trials	RR/MD	95% CI	Ζ	Р	df	Р	I ² (%)		
		Awak	ening Tim	e (min)							
Omitting	951/843	13	0.92	[0.40, 1.44]	3.45	0.0006	12	<0.00001	81		
Qin <i>et al.</i> 2022											
Omitting	972/865	13	0.98	[0.37, 1.58]	3.17	0.002	12	<0.00001	85		
Teng <i>et al</i> . 2021 (II b)											
Omitting	957/850	13	1.11	[0.49, 1.73]	3.52	0.0004	12	<0.00001	86		
Wu et al. 2022	070/000	10	1.00	FO 40 4 001	0 50	0.0004	10				
Omitting	973/886	13	1.09	[0.49, 1.69]	3.56	0.0004	12	<0.00001	86		
Zeng et al. 2022	010/004	10	1 10	[0 52 4 90]	2 50	0 0002	10	-0.00001	05		
Zhang at al. 2022	910/604	15	1.10	[0.55, 1.60]	3.30	0.0003	12	<0.00001	60		
	034/827	12	1 1 2	[0 20 1 84]	3 03	0.002	12	<0.00001	85		
Zhong et al. 2023	934/027	15	1.12	[0.39, 1.04]	5.05	0.002	12	<0.00001	00		
		Disc	hargo Timo	(min)							
All Studies	789/744	8	1.08	[-0.08 2.25]	1 82	0.07	7	<0.00001	93		
Omitting	742/695	7	0.73	[-0.40, 1.85]	1.02	0.20	6	<0.00001	92		
Chen Xinggu et al. 2022	,		011 0	[01.0, 1.00]		0.20	Ũ	0100001			
Omitting	703/702	7	1.18	[-0.08, 2.44]	1.84	0.07	6	<0.00001	94		
Liang <i>et al</i> . 2023				[]							
Omitting	604/561	7	1.47	[0.19, 2.75]	2.25	0.02	6	<0.00001	93		
Liao et al. 2023											
Omitting	645/599	7	1.04	[-0.26, 2.35]	1.56	0.12	6	<0.00001	93		
Li et al. 2022											
Omitting	655/611	7	0.55	[-0.52, 1.62]	1.01	0.31	6	<0.00001	92		
Luo <i>et al.</i> 2022											
Omitting	758/713	7	1.07	[-0.17, 2.32]	1.69	0.09	6	<0.00001	94		
Teng <i>et al</i> . 2021 (II b)											
Omitting	696/652	7	1.27	[-0.14, 2.68]	1.76	0.08	6	<0.00001	94		
Zhang <i>et al</i> . 2023											
Omitting	720/675	7	1.40	[-0.01, 2.81]	1.94	0.05	6	<0.00001	93		
Zhong et al. 2023											
	Time	to Eyelas	h Reflex D	isappearance (5)						
All Studies	306/319	5	-1.87	[-9.26, 5.52]	0.50	0.62	4	< 0.00001	99		
Omitting	246/259	4	-2.52	[-11.41, 6.37]	0.56	0.58	3	<0.00001	99		
Chen_Benzhen <i>et al.</i> 2022	075/075	4	4.00		0.40	0.07	0	-0.00001	00		
Omitting	275/275	4	1.68	[-5.97, 9.32]	0.43	0.67	3	<0.00001	99		
Omitting	001/04E	4	4.00	[11 00 2 02]	0.00	0.22	2	-0.00001	00		
	231/245	4	-4.02	[-11.90, 3.93]	0.99	0.32	3	<0.00001	99		
Omitting	254/266	4	0 12	[-6.05.7.18]	0.03	0.07	З	<0.00001	90		
Oin et al. 2022	234/200	4	0.12	[-0.35, 7.16]	0.05	0.37	5	~0.00001	30		
Omitting	218/231	4	-3 89	[-10 46 2 69]	1 16	0.25	3	<0.0001	88		
Wang et al 2022	210/201		0.00	[10.10, 2.00]	1.10	0.20	Ũ	0.0001	00		
		Anaesthe	siologist S	atisfaction							
All Studies	491/469	7	0.18	[-0.06. 0.41]	1.48	0.14	6	0.006	67		
Omitting	357/336	6	0.25	[0.01, 0.49]	2.01	0.04	5	0.04	56		
Luo <i>et al</i> . 2022											
Omitting	460/438	6	0.21	[-0.06, 0.47]	1.52	0.13	5	0.003	72		
Teng <i>et al</i> . 2021 (II b)				-							
Omitting	403/381	6	0.21	[-0.08, 0.50]	1.41	0.16	5	0.003	72		
Wang <i>et al</i> . 2022											
Omitting	445/423	6	0.17	[-0.10, 0.44]	1.22	0.22	5	0.003	72		
Wu <i>et al</i> . 2022											
Omitting	461/459	6	0.13	[-0.10, 0.35]	1.09	0.28	5	0.01	65		
Zeng et al. 2022											

Contd...

		Tab	le S2: Co	ntd					
Outcome	No. of participants	Hete	Heterogeneity analysis						
	(Ciprofol/Propofol)	trials	RR/MD	95% CI	Ζ	Р	df	Р	<i>I</i> ² (%)
		Anesthes	siologist S	atisfaction					
Omitting	398/377	6	0.07	[-0.12, 0.26]	0.71	0.48	5	0.15	38
Zhang <i>et al</i> . 2023									
Omitting	422/400	6	0.22	[-0.06, 0.50]	1.53	0.13	5	0.004	71
Zhong <i>et al</i> . 2023									
			BIS Score	9					
All Studies	474/347	5	1.53	[-2.47, 5.54]	0.75	0.45	4	<0.0001	86
Omitting	414/287	4	2.71	[-2.20, 7.62]	1.08	0.28	3	<0.00001	89
Chen_Benzhen et al. 2022									
Omitting	309/264	4	0.68	[-3.64, 5.00]	0.31	0.76	3	0.0002	85
Gan <i>et al</i> . 2023									
Omitting	399/273	4	2.78	[-1.33, 6.88]	1.33	0.18	3	0.006	76
Lan <i>et al</i> . 2023									
Omitting	388/305	4	1.08	[-3.51, 5.67]	0.46	0.65	3	<0.0001	88
Liang <i>et al</i> . 2023									
Omitting	386/259	4	0.48	[-3.59, 4.56]	0.23	0.82	3	0.0005	83
Wang <i>et al</i> . 2022									
		Mean Arte	rial Press	ure (mmHg)					
All Studies	717/629	9	2.20	[-0.15, 4.54]	1.83	0.07	8	<0.0001	77
Omitting	657/569	9	2.33	[-0.25, 4.91]	1.77	0.08	7	<0.0001	79
Chen_Benzhen et al. 2022									
Omitting	670/580	9	2.27	[-0.24, 4.79]	1.77	0.08	7	<0.0001	80
Chen_Xingqu <i>et al</i> . 2022									
Omitting	642/555	9	1.43	[-0.90, 3.75]	1.20	0.23	7	0.0004	74
Lan <i>et al</i> . 2023									
Omitting	631/587	9	2.08	[-0.55, 4.70]	1.55	0.12	7	<0.00001	80
Liang <i>et al</i> . 2023									
Omitting	629/584	9	2.63	[0.22, 5.03]	2.14	0.03	7	<0.0001	77
Liu <i>et al</i> . 2023									
Omitting	583/496	9	1.90	[-0.78, 4.58]	1.39	0.17	7	<0.0001	80
Luo <i>et al</i> . 2022									
Omitting	629/541	9	2.99	[0.90, 5.08]	2.8	0.005	7	0.002	68
Wang <i>et al</i> . 2022									
Omitting	671/583	9	1.71	[-0.98, 4.41]	1.25	0.21	7	0.0003	74
Wu et al. 2022									
Omitting	624/537	9	2.43	[-0.11, 4.97]	1.87	0.06	7	<0.0001	78
Zhang <i>et al</i> . 2023									
		Systolic B	lood Press	sure (mmHg)					
All Studies	1002/925	12	2.74	[0.17, 5.31]	2.09	0.04	11	<0.00001	79
Omitting	942/865	11	2.76	[-0.06, 5.57]	1.92	0.05	10	<0.00001	80
Chen_Benzhen et al. 2022									
Omitting	955/876	11	2.75	[0.03, 5.47]	1.98	0.05	10	<0.00001	81
Chen_Xingqu <i>et al</i> . 2022									
Omitting	971/881	11	2.87	[0.16, 5.57]	2.08	0.04	10	<0.00001	80
Chen <i>et al</i> . 2023									
Omitting	927/851	11	2.05	[-0.39, 4.49]	1.65	0.10	10	<0.0001	74
Lan <i>et al</i> . 2023									
Omitting	916/883	11	2.45	[-0.27, 5.17]	1.77	0.08	10	<0.00001	79
Liang <i>et al</i> . 2023									
Omitting	817/742	11	2.73	[-0.21, 5.67]	1.82	0.07	10	<0.00001	80
Liao <i>et al</i> . 2023									
Omitting	914/880	11	2.85	[0.13, 5.56]	2.05	0.04	10	<0.00001	80
Liu <i>et al</i> . 2023									
Omitting	868/792	11	2.34	[-0.33, 5.02]	1.72	0.09	10	<0.00001	78
Luo <i>et al</i> . 2022									

		Tab	le S2: Coi	ntd	•					
Outcome	No. of participants	No. of	Q	uantitative data	synthe	sis	Heterogeneity analysis			
	(Ciprofol/Propofol)	trials	RR/MD	95% CI	Z	P	df	P	P ² (%)	
Omitting	914/837	11	3.43	[0.92, 5.94]	2.68	0.007	10	<0.0001	75	
Wang et al. 2022				[,]						
Omitting	956/879	11	2.34	[-0.34, 5.03]	1.71	0.09	10	<0.00001	77	
Wu et al. 2022				[,]						
Omitting	909/833	11	3.02	[0.25, 5,79]	2.14	0.03	10	<0.00001	80	
Zhang <i>et al</i> . 2023				[]						
Omitting	933/856	11	3.34	[0.89, 5.80]	2.67	0.008	10	0.0002	70	
Zhong <i>et al</i> . 2023				[,]						
	D	iastolic B	lood Press	ure (mmHg)						
All Studies	933/856	11	2.32	[0.69, 3.96]	2.79	0.005	10	0.001	66	
Omitting	873/796	10	2.43	[0.69, 4.17]	2.74	0.006	9	0.001	68	
Chen Benzhen <i>et al.</i> 2022										
Omitting	886/807	10	2.29	[0.56, 4.02]	2.59	0.010	9	0.0006	69	
Chen Xingqu <i>et al.</i> 2022										
Omitting	902/812	10	2.33	[0.58, 4.07]	2.61	0.009	9	0.0007	69	
Chen <i>et al</i> . 2023										
Omitting	858/782	10	1.85	[0.24, 3.45]	2.25	0.02	9	0.007	60	
Lan <i>et al</i> . 2023				. /]						
Omitting	847/814	10	2.34	[0.58, 4.10]	2.61	0.009	9	0.0007	69	
Liang <i>et al</i> . 2023										
Omitting	748/673	10	2.17	[0.30, 4.04]	2.27	0.02	9	0.0006	69	
Liao <i>et al.</i> 2023										
Omitting	845/811	10	2.85	[1.37, 4.33]	3.77	0.0002	9	0.02	55	
Liu et al. 2023										
Omitting	799/723	10	2.14	[0.32, 3.96]	2.31	0.02	9	0.0006	69	
Luo <i>et al.</i> 2022										
Omitting	845/768	10	2.80	[1.28, 4.33]	3.6	0.0003	9	0.01	57	
Wang <i>et al</i> . 2022										
Omitting	887/810	10	1.96	[0.15, 3.77]	2.12	0.03	9	0.007	60	
Wu et al. 2022										
Omitting	840/764	10	2.39	[0.63, 4.14]	2.67	0.008	9	0.0009	68	
Zhang <i>et al</i> . 2023										
		Heart F	Rate (bets	per min)						
All Studies	1002/925	12	-0.87	[-2.58, 0.83]	1.01	0.31	11	<0.00001	82	
Omitting	942/865	11	-0.73	[-2.51, 1.05]	0.80	0.42	10	<0.00001	83	
Chen_Benzhen et al. 2022										
Omitting	955/876	11	-1.06	[-2.82, 0.71]	1.17	0.24	10	<0.00001	83	
Chen_Xingqu <i>et al</i> . 2022										
Omitting	971/881	11	-1.11	[-2.90, 0.68]	1.22	0.22	10	<0.00001	83	
Chen <i>et al.</i> 2023										
Omitting	927/851	11	-0.81	[-2.64, 1.03]	0.86	0.39	10	<0.00001	83	
Lan <i>et al.</i> 2023										
Omitting	916/883	11	-0.81	[-2.60, 0.98]	0.89	0.38	10	<0.00001	83	
Liang <i>et al</i> . 2023										
Omitting	817/742	11	-0.33	[-1.85, 1.19]	0.43	0.67	10	<0.0001	73	
Liao <i>et al.</i> 2023										
Omitting	914/880	11	-0.95	[-2.71, 0.81]	1.06	0.29	10	<0.00001	83	
Liu et al. 2023	000/		a ==			0.55				
Omitting	868/792	11	-0.58	[-2.35, 1.19]	0.65	0.52	10	<0.00001	78	
Luo et al. 2022	o / //oo=		<u> </u>		0.0-	0.00				
Umitting	914/837	11	-0.93	[-2.75, 0.90]	0.99	0.32	10	<0.00001	83	
vvang et al. 2022	050/070		0.00	1004 4 40	0.01	0.00	40	-0.00001	00	
	920/879	11	-0.96	[-3.01, 1.10]	0.91	0.36	10	<0.00001	83	
vvu et al. 2022										

		Tab	le S2: Co	ntd						
Outcome	No. of participants	No. of	Q	uantitative data	synthe	esis	Heterogeneity analysis			
	(Ciprofol/Propofol)	trials	RR/MD	95% CI	Ζ	Р	df	Р	<i>I</i> ² (%)	
			Heart Rate	e						
Omitting	909/833	11	-0.85	[-2.69, 0.99]	0.91	0.37	10	<0.00001	83	
Zhang <i>et al</i> . 2023										
Omitting	933/856	11	-1.39	[-2.93, 0.15]	1.77	0.08	10	0.0002	71	
Zhong <i>et al</i> . 2023										
			Spo ₂ (%)							
All Studies	686/611	8	0.00	[-0.01, 0.01]	0.16	0.87	7	<0.00001	89	
Omitting	639/562	7	0.00	[-0.01, 0.01]	0.16	0.87	6	<0.00001	90	
Chen_Xingqu <i>et al</i> . 2022										
Omitting	655/567	7	0.14	[-0.01, 0.30]	1.78	0.07	6	<0.00001	90	
Chen <i>et al.</i> 2023										
Omitting	600/569	7	0.00	[-0.01, 0.02]	0.19	0.85	6	<0.00001	90	
Liang <i>et al</i> . 2023										
Omitting	501/428	7	-0.00	[-0.01, 0.01]	0.04	0.97	6	0.38	6	
Liao <i>et al</i> . 2023										
Omitting	598/566	7	0.00	[-0.01, 0.02]	0.21	0.83	6	<0.00001	90	
Liu et al. 2023										
Omitting	552/478	7	0.00	[-0.01, 0.01]	0.14	0.89	6	<0.00001	90	
Luo et al. 2022										
Omitting	640/565	7	0.00	[-0.01, 0.01]	0.13	0.90	6	<0.00001	90	
Wu et al. 2022										
Omitting	617/542	7	0.00	[-0.01, 0.01]	0.16	0.87	6	<0.00001	90	
Zhong <i>et al.</i> 2023										
		Pa	in on Injec	tion						
All Studies	1374/1255	16	0.14	[0.09, 0.22]	8.78	< 0.00001	15	0.0003	64	
Omitting	1314/1195	15	0.13	[0.08, 0.20]	8.69	<0.00001	14	0.001	61	
Chen Benzhen et al. 2022										
Omitting	1327/1206	15	0.15	[0.10, 0.23]	8.60	<0.00001	14	0.0006	63	
Chen_Xingqu <i>et al</i> . 2022										
Omitting	1343/1211	15	0.14	[0.09, 0.22]	8.57	<0.00001	14	0.0002	66	
Chen <i>et al.</i> 2023										
Omitting	1206/1172	15	0.13	[0.08, 0.22]	7.90	<0.00001	14	0.0001	66	
Gan <i>et al.</i> 2023										
Omitting	1299/1181	15	0.14	[0.09, 0.22]	8.64	<0.00001	14	0.0004	64	
Lan <i>et al.</i> 2023										
Omitting	1288/1213	15	0.13	[0.08, 0.20]	8.95	<0.00001	14	0.0008	62	
Liang <i>et al</i> . 2023										
Omitting	1189/1072	15	0.16	[0.10, 0.24]	8.69	<0.00001	14	0.005	55	
Liao <i>et al</i> . 2023										
Omitting	1230/1110	15	0.14	[0.09, 0.23]	8.01	<0.00001	14	0.0003	65	
Li et al. 2022										
Omitting	1239/1123	15	0.14	[0.09, 0.23]	8.02	<0.00001	14	0.0002	66	
Luo et al. 2022										
Omitting	1310/1191	15	0.15	[0.10, 0.23]	8.79	<0.00001	14	0.001	60	
Man <i>et al</i> . 2023										
Omitting	1322/1202	15	0.15	[0.09, 0.23]	8.58	<0.00001	14	0.0005	63	
Qin <i>et al.</i> 2022	-	-	-							
Omitting	1343/1224	15	0.13	[0.08, 0.21]	8.59	<0.00001	14	0.0003	65	
Teng <i>et al.</i> 2021 (II b)		-	-							
Omitting	1286/1167	15	0.13	[0.08. 0.20]	8.75	<0.00001	14	0.0005	63	
Wang <i>et al</i> . 2022							-			
Omitting	1328/1209	15	0.13	[0.08. 0.22]	8.34	<0.00001	14	0.0001	66	
Wu et al. 2022										

		Tab	le S2: Coi	ntd					
Outcome	No. of participants	No. of	Q	uantitative data	a synthe	esis	Hete	erogeneity a	nalysis
	(Ciprofol/Propofol)	trials	RR/MD	95% CI	Ζ	Р	df	Р	<i>I</i> ² (%)
		Pai	in on Injec	tion					
Omitting	1281/1163	15	0.13	[0.08, 0.21]	8.42	<0.00001	14	0.0003	64
Zhang <i>et al</i> . 2023									
Omitting	1305/1186	15	0.14	[0.09, 0.22]	8.58	<0.00001	14	0.0002	66
Zhong et al. 2023									
		Ac	lverse Eve	nts					
All Studies	1140/933	14	0.80	[0.69, 0.92]	3.06	0.002	13	<0.00001	83
Omitting	1080/873	13	0.82	[0.71, 0.94]	2.77	0.006	12	<0.00001	82
Chen_Benzhen et al. 2022									
Omitting	1093/884	13	0.79	[0.68, 0.92]	2.96	0.003	12	<0.00001	85
Chen_Xingqu <i>et al</i> . 2022									
Omitting	972/850	13	0.84	[0.74, 0.96]	2.66	0.008	12	<0.00001	77
Gan <i>et al</i> . 2023									
Omitting	1065/859	13	0.82	[0.71, 0.94]	2.75	0.006	12	<0.00001	83
Lan <i>et al</i> . 2023									
Omitting	1054/891	13	0.79	[0.68, 0.92]	3.00	0.003	12	<0.00001	85
Liang <i>et al</i> . 2023									
Omitting	996/788	13	0.77	[0.65, 0.91]	3.15	0.002	12	<0.00001	84
Li <i>et al</i> . 2022									
Omitting	1114/920	13	0.79	[0.68, 0.93]	2.94	0.003	12	<0.00001	85
Liu <i>et al</i> . 2022									
Omitting	1052/888	13	0.79	[0.67, 0.92]	2.93	0.003	12	<0.00001	85
Liu <i>et al</i> . 2023									
Omitting	1005/801	13	0.81	[0.70, 0.94]	2.77	0.006	12	<0.00001	83
Luo <i>et al</i> . 2022									
Omitting	1109/902	13	0.78	[0.67, 0.91]	3.12	0.002	12	<0.00001	84
Teng <i>et al</i> . 2021 (II b)									
Omitting	1052/845	13	0.78	[0.66, 0.92]	2.89	0.004	12	<0.00001	83
Wang <i>et al</i> . 2022									
Omitting	1110/923	13	0.77	[0.67, 0.90]	3.33	0.0009	12	<0.00001	83
Zeng <i>et al</i> . 2022									
Omitting	1047/841	13	0.82	[0.71, 0.95]	2.74	0.006	12	<0.00001	82
Zhang <i>et al</i> . 2023									
Omitting	1071/864	13	0.78	[0.66, 0.92]	2.99	0.003	12	<0.00001	85
Zhong et al. 2023									

Tabl	e S3: Comparison betv	veen our study a	nd the other publi	shed literature	
	Abdelfattah et al. 2023	Hung et al. 2023	Wen et al. 2023	Akhtar et al. 2024	Our study
	Pre-print	Peer-reviewed	Peer-reviewed	Peer-reviewed	Peer-reviewed
Total studies included in meta-analysis	5	12	15	13	19
Study design of included studies	RCTs only	RCTs & 1 non- randomised trial	RCTs & 1 non- randomised trial	RCTs only	RCTs only
Total sample size	463	1793	2441	1998	2841
Language of included studies	English	English	English & Chinese	English	English
Search results until	March 2023	April 2023	October 2023	July 2023	February 2024
Number of outcomes analyzed	10	13	14	8	19
Success rate of anaesthesia induction	No significant difference	No significant difference	No significant difference	No significant difference	Increase with Ciprofol
Induction time		No significant difference	No significant difference	Increase with Ciprofol	No significant difference
Systolic blood pressure	No significant difference				Increase with Ciprofol
DBP	No significant difference				Increase with Ciprofol



Figure S1: Quality assessment of risk of bias in the included trials. The upper panel presents a schematic representation of risks (low = red, unclear = yellow, and high = red) for specific types of biases of each of the studies in the review. The lower panel presents risks (low = red, unclear = yellow, and high = red) for the subtypes of biases of the combination of studies included in this review

	Ciprofo	bl	Propo	fol		Risk Ratio	Risk Ratio
Study or Subgroup	Events 1	Total	Events	Total	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% CI
4.6.1 General anesthes	sia						
Liang et al. 2023	1	86	0	42	0.4%	1.48 [0.06, 35.64]	· · · · · · · · · · · · · · · · · · ·
Man et al. 2023	13	64	14	64	8.5%	0.93 [0.47, 1.82]	
Wang et al. 2022	8	88	2	88	1.2%	4.00 [0.87, 18.31]	
Subtotal (95% CI)		238		194	10.1%	1.32 [0.73, 2.37]	
Total events	22		16				
Heterogeneity: Chi ² = 3	10, df = 2 (P = 0.	21); I ² = 3	36%			
Test for overall effect: Z	= 0.93 (P =	0.35)					
4.6.2 Sedation							
Li et al. 2022	59	144	73	145	43.9%	0.81 [0.63, 1.05]	
Liu et al. 2022	2	26	0	13	0.4%	2.59 [0.13, 50.38]	· · · · · ·
Liu et al. 2023	2	88	1	45	0.8%	1.02 [0.10, 10.98]	· · · · · ·
Luo et al. 2022	63	134	63	133	38.2%	0.99 [0.77, 1.28]	
Teng et al. 2021 (II b)	16	31	11	31	6.6%	1.45 [0.81, 2.61]	
Subtotal (95% CI)		423		367	89.9%	0.95 [0.80, 1.12]	+
Total events	142		148				
Heterogeneity: Chi ² = 4	.02, df = 4 (P = 0.	40); I ² = (0%			
Test for overall effect: Z	= 0.63 (P =	0.53)					
Total (95% CI)		661		561	100.0%	0.98 [0.83, 1.16]	+
Total events	164		164				
Heterogeneity: Chi ² = 7	.64, df = 7 (P = 0.	37); 2 = 8	3%			
Test for overall effect: Z	= 0.19 (P =	0.85)					Eavors [Cinrofol] Eavors [Propofol]
Test for subgroup differ	ences: Chi	² = 1.1	4, df = 1	(P = 0.	29), I ² = 1	2.1%	

Figure S2: Forest plot of the number of patients required top-up doses, subgrouped based on type of anaesthesia. CI = confidence interval, MH = Mantel-Haenszel Method



Figure S3: Forest plot of the vitals (a- BIS score, b- Mean arterial pressure, c- Systolic blood pressure, d- Diastolic blood pressure, e- Heart rate, f- SpO₂). BIS = bispectral index, CI = confidence interval, MD = mean difference, SD = standard deviation, SpO₂ = Oxygen saturation

	Ci	profol		Pr	opofol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
5.1.1 General anesthesia									
Chen_Ben-zhen et al. 2022	79.789	9.4	60	78.778	11.12	60	11.1%	1.01 [-2.67, 4.70]	
Liang et al. 2023	77.245	11.8	86	74.29	9.84	42	10.8%	2.95 [-0.93, 6.84]	
Wang et al. 2022	70.87	12.69	88	74.61	14.13	88	10.7%	-3.74 [-7.71, 0.23]	
Subtotal (95% CI)			234			190	32.6%	0.11 [-3.71, 3.92]	
Heterogeneity: Tau ² = 7.51; Cl	ni² = 5.91,	df = 2 (P = 0.05	5); I ² = 66	%				
Test for overall effect: Z = 0.05	(P = 0.96)							
5.1.2 Sedation									
Chen_Xingqu et al. 2022	87.45	14.28	47	86.22	13.64	49	8.2%	1.23 [-4.36, 6.82]	
Lan et al. 2023	83.86	9.12	75	75.43	12.16	74	11.5%	8.43 [4.98, 11.88]	
Liu et al. 2023	83.26	12.83	88	84.78	11.52	45	10.1%	-1.52 [-5.82, 2.78]	
Luo et al. 2022	84.64	13.84	134	80.46	13.24	133	11.8%	4.18 [0.93, 7.43]	
Wu et al. 2022	90.91	2.65	46	85.95	4.27	46	14.5%	4.96 [3.51, 6.41]	
Zhang et al. 2023	83.97	11.76	93	83.67	13.1	92	11.3%	0.30 [-3.29, 3.89]	
Subtotal (95% CI)			483			439	67.4%	3.26 [0.66, 5.87]	-
Heterogeneity: Tau ² = 7.27; Cl	ni² = 19.22	2, df = 5	(P = 0.1)	002); I ^z =	74%				
Test for overall effect: Z = 2.45	(P = 0.01)							
Total (95% CI)			717			629	100.0%	2.20 [-0.15, 4.54]	•
Heterogeneity: Tau ² = 9.37; Ch	ni² = 35.37	, df = 8	(P < 0.1	0001); I ² :	= 77%				
Test for overall effect: Z = 1.83	(P = 0.07))	a						-10 -5 U 5 10
Test for subaroup differences	Chi ² = 1.	80, df =	1 (P = 1	0.18), I ² =	44.3%				Pavors [Ciprotol] Pavors [Propotol]

Figure S4: Forest plot of mean arterial pressure, subgrouped based on type of anaesthesia. CI = confidence interval, MD = mean difference, SD = standard deviation

	Ci	profol		Pr	opofol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
5.2.1 General anesthesia									
Chen Ben-zhen et al. 2022	108.4	10.5	60	105.8	12.5	60	8.8%	2.60 [-1.53, 6.73]	
Liang et al. 2023	107.5	16.52	86	101.47	10.46	42	8.2%	6.03 [1.32, 10.74]	
Wang et al. 2022	103.33	12.76	88	107.88	15.71	88	8.7%	-4.55 [-8.78, -0.32]	
Subtotal (95% CI)			234			190	25.7%	1.30 [-4.74, 7.34]	
Heterogeneity: Tau ² = 23.56;	Chi ² = 11.5	7, df = :	2(P = 0)).003); I ² :	= 83%				
Test for overall effect: Z = 0.42	2 (P = 0.67)							
5.2.2 Sedation									
Chen_Xingqu et al. 2022	113.62	20.25	47	111	13.04	49	6.3%	2.62 [-4.22, 9.46]	
Chen et al. 2023	99.35	15.7	31	98.55	15.78	44	6.0%	0.80 [-6.43, 8.03]	
Lan et al. 2023	111.48	12.91	75	101.16	15.49	74	8.3%	10.32 [5.74, 14.90]	
Liao et al. 2023	103.8	14.12	185	100.92	12.97	183	10.0%	2.88 [0.11, 5.65]	
Liu et al. 2023	121.92	21.55	88	120.67	17.2	45	6.4%	1.25 [-5.50, 8.00]	
Luo et al. 2022	114.03	18.46	134	107.11	16.44	133	8.7%	6.92 [2.73, 11.11]	
Wu et al. 2022	129.37	5.56	46	122.96	9.12	46	9.7%	6.41 [3.32, 9.50]	
Zhang et al. 2023	108.48	14.75	93	108.69	14.95	92	8.6%	-0.21 [-4.49, 4.07]	
Zhong et al. 2023	126.4	7.24	69	128.69	7.28	69	10.3%	-2.29 [-4.71, 0.13]	
Subtotal (95% CI)			768			735	74.3%	3.25 [0.26, 6.24]	
Heterogeneity: Tau ² = 15.29;	Chi ² = 38.5	8, df = 1	B (P < 0).00001);	² = 799	86			
Test for overall effect: Z = 2.13	3 (P = 0.03)							
Total (95% CI)			1002			925	100.0%	2.74 [0.17, 5.31]	-
Heterogeneity: Tau ² = 15.18;	Chi ² = 51.3	0, df = '	11 (P <	0.00001); I ² = 79	3%		_	
Test for overall effect: Z = 2.09	9 (P = 0.04))							-10 -5 U 5 10
Test for subgroup differences	: Chi ² = 0.	32. df =	1 (P =	0.57), l ² =	0%				Pavors [Ciprotol] Pavors [Propotol]

Figure S5: Forest plot of systolic blood pressure, subgrouped based on type of anaesthesia. CI = confidence interval, MD = mean difference, SD = standard deviation

	Ci	profol		P	ropofol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
5.3.1 General anesthesia									
Chen_Ben-zhen et al. 2022	67.86	9.8	60	66.83	10.8	60	8.6%	1.03 [-2.66, 4.72]	
Liang et al. 2023	63.37	10.1	86	61.47	11.37	42	7.9%	1.90 [-2.15, 5.95]	
Wang et al. 2022	61.99	11.76	88	63.93	12.99	88	8.7%	-1.94 [-5.60, 1.72]	
Subtotal (95% CI)			234			190	25.2%	0.23 [-2.05, 2.52]	-
Heterogeneity: Tau ² = 0.35; 0	chi ² = 2.18,	df = 2 (P = 0.3	4); I ² = 8	%				
Test for overall effect: Z = 0.2	0 (P = 0.84)							
5.3.2 Sedation									
Chen Xinggu et al. 2022	76.35	15.25	47	73.79	10.74	49	5.9%	2.56 [-2.74, 7.86]	
Chen et al. 2023	59.68	9.71	31	57.64	10.28	44	7.0%	2.04 [-2.53, 6.61]	
Lan et al. 2023	69.87	8.2	75	62.67	11.18	74	9.8%	7.20 [4.05, 10.35]	
Liao et al. 2023	65.74	11.08	185	62.61	12.5	183	11.5%	3.13 [0.72, 5.54]	
Liu et al. 2023	64.32	11.26	88	67.21	11.42	45	7.8%	-2.89 [-6.97, 1.19]	
Luo et al. 2022	71.164	12.83	134	67.56	11.99	133	10.2%	3.60 [0.63, 6.58]	
Wu et al. 2022	71.82	2.87	46	67.34	3.31	46	14.1%	4.48 [3.21, 5.75]	
Zhang et al. 2023	72.22	11.84	93	70.77	13.89	92	8.6%	1.45 [-2.27, 5.17]	
Subtotal (95% CI)			699			666	74.8%	3.06 [1.32, 4.81]	•
Heterogeneity: Tau ² = 3.51; 0	chi ² = 18.50), df = 7	(P = 0.)	010); I ² :	= 62%				
Test for overall effect: Z = 3.4	4 (P = 0.00	06)							
Total (95% CI)			933			856	100.0%	2.32 [0.69, 3.96]	-
Heterogeneity: Tau ² = 4.51; 0	chi ² = 29.18	3, df = 1) (P = (0.001); P	² = 66%				
Test for overall effect: Z = 2.7	9 (P = 0.00	5)							-10 -5 U 5 1
Test for subgroup difference	s: Chi ² = 3.	72, df=	1 (P =	0.05), I ²	= 73.19	6			Favors [Ciproiol] Favors [Propotol]

Figure S6: Forest plot of diastolic blood pressure, subgrouped based on type of anaesthesia. CI = confidence interval, MD = mean difference, SD = standard deviation

	Ci	profol		Pr	opofol			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% Cl
5.4.1 General anesthesia									
Chen_Ben-zhen et al. 2022	68.465	11.6	60	71.306	12.5	60	6.7%	-2.84 [-7.16, 1.47]	
Liang et al. 2023	76.62	11.25	86	78.43	13.03	42	6.4%	-1.81 [-6.41, 2.79]	
Wang et al. 2022	76.07	10	88	76.33	12.3	88	8.2%	-0.26 [-3.57, 3.05]	
Subtotal (95% CI)			234			190	21.3%	-1.36 [-3.64, 0.92]	
Heterogeneity: Tau ² = 0.00; C	hi ² = 0.91,	df = 2(P = 0.63	3); I ² = 09	6				
Test for overall effect: Z = 1.17	7 (P = 0.24)							
5.4.2 Sedation									
Chen_Xingqu et al. 2022	79.25	14.85	47	77.22	9.2	49	5.9%	2.03 [-2.94, 7.00]	
Chen et al. 2023	68.81	8.28	31	66.91	6.49	44	7.9%	1.90 [-1.59, 5.39]	
Lan et al. 2023	71.81	9.11	75	73.35	9.29	74	8.7%	-1.54 [-4.49, 1.41]	
Liao et al. 2023	71.01	8.89	185	76.8	12.2	183	9.9%	-5.79 [-7.97, -3.61]	
Liu et al. 2023	81.6	17.23	88	80.8	17.87	45	4.5%	0.80 [-5.54, 7.14]	
Luo et al. 2022	67.88	1.73	134	71.15	8.66	133	10.9%	-3.27 [-4.77, -1.77]	
/Vu et al. 2022	72.52	2.42	46	72.52	3.09	46	11.3%	0.00 [-1.13, 1.13]	
Zhang et al. 2023	65.22	10.54	93	66.29	9.85	92	8.8%	-1.07 [-4.01, 1.87]	
Zhong et al. 2023	80.32	4.56	69	77.51	4.43	69	10.9%	2.81 [1.31, 4.31]	
Subtotal (95% CI)			768			735	78.7%	-0.68 [-2.71, 1.36]	-
Heterogeneity: Tau ² = 7.41; C	hi ² = 58.50), df = 8	(P < 0.0	00001); P	= 86%				
Test for overall effect: Z = 0.65	5 (P = 0.52)							
Total (95% CI)			1002			925	100.0%	-0.87 [-2.58, 0.83]	-
Heterogeneity: Tau ² = 6.35; C	hi ² = 59.78	df = 1	1 (P < 0	.00001);	1 ² = 829	6			<u> </u>
Test for overall effect: Z = 1.01	(P = 0.31)							-4 -2 0 2 4
lest for subgroup differences	: Chi ² = 0.	19. df=	1 (P = 1)	0.66), l ² =	0%				Pavors [Ciproloi] Pavors [Propotol]

Figure S7: Forest plot of heart rate, subgrouped based on type of anaesthesia. CI = confidence interval, MD = mean difference, SD = standard deviation



Figure S8: Funnel plot of publication bias of awakening time



Figure S9: Funnel plot of publication bias of pain on injection



Figure S10: Funnel plot of publication bias of diastolic blood pressure



Figure S12: Funnel plot of publication bias of induction time



Figure S14: Funnel plot of publication bias of systolic blood pressure



Figure S11: Funnel plot of publication bias of success rate of GA/ sedation induction



Figure S13: Funnel plot of publication bias of adverse events

Figure S15: Funnel plot of publication bias of heart rate