Ciprofol versus propofol for sedation in gastrointestinal endoscopy: protocol for a systematic review and meta-analysis

Xiaoyu Qin,1 Xiaoting Lu,2 Lu Tang,2,3 Chunai Wang,3 Jianjun Xue3

ABSTRACT
Introduction Painless gastrointestinal endoscopy is being increasingly practised in the clinical field. The management and choice of sedation are important during the endoscopy procedure to reduce patient discomfort and facilitate high disease detection rates. Ciprofol is principally an agonist of the γ-aminobutyric acid type A receptor; it comprises the active ingredient HSK3486, which is similar to the currently used intravenous anaesthetic propofol in clinical practice. A systematic review and meta-analysis comparing ciprofol and propofol will be conducted to assess their efficacy and safety during endoscopy. Before starting the study, we describe the specific protocol of this systematic review.

Methods and analysis This protocol was prepared in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analyses Protocols 2015. The following databases will be searched: Embase, Cochrane Library, PubMed, Web of Science, Chinese Biomedical Literature Service System, China National Knowledge Infrastructure, Wanfang Database, China Science and Technology Journal Database and a clinical trial registry. The database search strategy will adopt a combination of subject words and free words. Randomised controlled trials related to ciprofol use for sedation during gastrointestinal endoscopy will also be included. Based on the inclusion and exclusion criteria, two researchers will independently screen the articles and extracted data. Following the qualitative evaluation of each study, analysis will be conducted using Review Manager software.

Ethics and dissemination The protocol for this systematic review and meta-analysis involves no individual patient data; thus, ethical approval is not required. This will be the first meta-analysis to assess the sedation efficacy of ciprofol and provide evidence to clinicians for decision-making. The results will be disseminated through conference presentations and publications in peer-review journals related to this field.

STRENGTHS AND LIMITATIONS OF THIS STUDY
⇒ This review will use a rigorous methodology following the Cochrane guidelines and the Preferred Reporting Items for Systematic Review and Meta-Analysis checklist.
⇒ The study will search Chinese and English literature and will be a comprehensive review.
⇒ We will use subgroup analysis to explore the heterogeneity and sensitivity analysis to ensure the stability of the results.
⇒ The main limitation of our study protocol is that some studies may not be of high quality, because all original randomised controlled trials in English and Chinese that fulfil the inclusion criteria will be included.

INTRODUCTION
Gastrointestinal endoscopy is a minimally invasive procedure for the diagnosis and treatment of gastrointestinal pathologies. However, the procedure may be uncomfortable and stressful for most patients. With the continuous development in medical technology, painless gastrointestinal endoscopy is being increasingly practiced in the clinical field. Most low-risk endoscopic procedures are performed under some form of sedation.1 Adequate sedation during endoscopy can improve patient experience, influence the quality of the procedure, and result in high detection rates of gastrointestinal diseases.2

Propofol (2,6-disopropyl phenol), an ultrashort-acting sedative agent with a rapid recovery profile, has been used extensively for gastrointestinal endoscopy.3 Propofol has significant advantages over other sedative agents. It has no active metabolites and is cleared efficiently and quickly by the liver.4 Despite these desirable features, propofol does have some disadvantages, such as weak analgesic effect, hypotension, bradycardia and injection site pain. Administration of propofol alone for adequate sedation may lead to significant haemodynamic instability, unmanageable dosage and increased risk of deep sedation, which directly or indirectly affects the stability of the sedation regimen.5 These adverse effects are significantly associated with the dose and speed of propofol injection6 and can have serious consequences for the patients.

Ciprofol, a novel intravenous general anaesthetic independently developed by Haisco
Pharmaceutical Group, was approved in China in 2020. Ciprofol is principally an agonist of the γ-aminobutyric acid type A (GABA<sub>A</sub>) receptor. Its active ingredient, HSK3486, is a propofol analogue, which is a single diastereomer and contains an R-shaped hand centre. The chemical name of ciprofol is 2-[(1R)-1-cyclopropyl ethyl]-6-isopropylphenol. It has been shown to have a high affinity towards the GABA<sub>A</sub> receptor, and its hypnotic potency is approximately 4–5 fold higher than that of propofol. A phase 1 clinical trial on healthy individuals reported that the safety and tolerability parameters of ciprofol were similar to those of propofol, and all treatment-emergent adverse events were mild. The incidence of injection site pain and respiratory depression was lower in patients administered with ciprofol than in those administered with propofol.

Given the gradual increase in the use of ciprofol, it is essential to evaluate the actual benefits and safety of ciprofol sedation during gastrointestinal endoscopy. Several studies have compared the hypnotic potency and safety of ciprofol with those of propofol in patients undergoing gastrointestinal endoscopy. Their findings revealed improved patient satisfaction, decreased sedation and recovery times, and lower rates of cardiopulmonary adverse events with ciprofol use. However, comparison of the two sedatives in several other studies presented contradictory results and safety profiles. Thus, the advantages of ciprofol as an alternative to the commonly used anaesthetic propofol, remain unclear. An up-to-date summary and analysis of the existing literature will aid clinical decision-making. This systematic review will lay the foundation for future research on this novel intravenous general anaesthetic.

**Objectives**
This systematic review aims to compare the efficacy and safety of the new intravenous anaesthetic ciprofol with the commonly used anaesthetic propofol during gastrointestinal endoscopy. Furthermore, it aims to clarify whether ciprofol is as effective as propofol with fewer adverse effects.

**MATERIALS AND METHODS**

**Protocol and registration**
The Cochrane Handbook for Systematic Reviews of Interventions was used as guidance for the protocol. The protocol was based on the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) checklist guidelines. The completed PRISMA-P checklist can be found in online supplemental file 1. In accordance with the guidelines, our systematic review protocol was registered with the International Prospective Register of Systematic Reviews on 24 December 2022 (Registration number: CRD42022370047). Ethical approval and patient consent are not required, because this study will be based on published studies. We will submit our results to a peer-review journal for publication.

The planned start and end dates of the study are 1 March 2023 and 30 August 2023, respectively.

**Patient and public involvement**
No patient involved.

**Eligibility criteria**

**Study designs**
All published randomised controlled trials (RCTs) comparing the use of ciprofol and propofol for sedation in gastrointestinal endoscopy will be included. Animal studies, meeting notes, literature studies, letters, study protocols, case reports, duplicate literature and non-randomised studies on the effects of interventions will be excluded.

**Participants**
We will include studies that recruited patients of all ages who had undergone gastrointestinal endoscopy. Studies that included patients with severe circulatory disorders (uncontrolled hypertension, severe arrhythmia, chronic heart failure, Adams-Stokes syndrome, unstable angina, cardiac infarction within 6 months, third degree atrioventricular block, or QTcF interval ≥450 ms), respiratory disorders (respiratory dysfunction, chronic obstructive pulmonary disease, bronchospasm requiring treatment within the last 3 months or acute respiratory tract infection with obvious fever, wheeze, rhinobyon and cough within 1 week at baseline), or history of substance abuse or allergy will be excluded. Studies that included patients with difficult airways or respiratory sleep apnoea syndrome will also be excluded.

**Interventions**
Interventions using ciprofol alone or in combination with other drugs to achieve sedative effects are of interest. Regarding the interventions used in the studies, no restrictions have been set with respect to the dose administered, injection speed, additional doses or interval between each additional dose.

**Comparators**
We will include RCTs on propofol sedation as the control for gastrointestinal endoscopy. If propofol is combined with other drugs (eg, opioid analgesics) for sedation in the study, the same combination regimen must be used in the intervention.

**Outcomes**
The primary outcomes in this study will be the success rate of the gastrointestinal endoscopy procedure and safety endpoints (complication events), because these are usually prioritised by researchers. The secondary outcomes will be satisfaction and efficacy measures. Original studies that do not provide relevant data required for this meta-analysis will be excluded.

**Information sources**
To ascertain all relevant studies regardless of the publication status, we will systematically search the following
electronic databases: Embase, Cochrane Library, PubMed, Web of Science, Chinese Biomedical Literature Service System, China National Knowledge Infrastructure, Wanfang Database, China Science and Technology Journal Database, and ClinicalTrials.gov (until May 2023). To ensure completeness of the literature search, we will scan the list of references identified for inclusion in the study or relevant reviews. The literature search will be limited to articles published in English and Chinese.

**Search strategy**

All database searches will be based on a combination of subject words and free words and will be adjusted according to the specific database. Specific search strategies will be created by a Health Sciences librarian with expertise in systematic review searching. The database will be searched periodically prior to the systematic review and meta-analysis, and a final search will be performed to update the results before the full text is completed. The specific search strategy applied to the PubMed database is presented in table 1. The full planned search strategy can be found in online supplemental file 2.

**Study records**

**Data management**

The literature search results will be uploaded to EndNote software, a literature management software. The researchers will screen the literature based on the predetermined inclusion and exclusion criteria. Prior to the formal screening process, all review team members participating in the screening will receive training in using EndNote software. Moreover, a pilot screening will be conducted to avoid any bias and refine the screening questions.

**Selection process**

All retrieved records will be imported into EndNote software, and duplicates will be removed. Two researchers will independently screen the titles and abstracts obtained by the search against the inclusion criteria. Full articles will be obtained if the literature meets the inclusion criteria or if a decision cannot be made from the title/abstract alone. The review authors will resolve disagreements through a consensus-based decision or through discussions within the group if necessary. Additionally, we will record the specific reasons for the exclusion of each study. The flow diagram of the screening of the selected studies is shown in figure 1.

**Data collection process**

Two researchers will use Microsoft Excel data extraction form to extract data independently from each eligible study. To ensure consistency between the reviewers, we will perform a calibration exercise on the forms. All personnel involved in the data extraction should have practised using the form before starting the audit, and the data extractors should be given appropriate training if necessary. All tables will be pretested using representative evaluation studies to identify missing or redundant elements in the data extraction tables. The two reviewers will resolve their differences through discussion, and unresolved differences will be solved by arbitrators. In case of missing data or uncertainties, we will attempt to contact the corresponding author of the original report to obtain the missing data or reasons for exclusion of the data.

**Data items**

The main information that we will collect includes research characteristics (eg, study design, author information, year of publication, number of publications, location and source of funding), population characteristics (eg, sample size, age, sex, body mass index, American Society of Anesthesiologists classification, and history of disease and treatment), intervention details and comparators’ characteristics (eg, drugs used, dose, frequency,

<table>
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<tr>
<th>Table 1</th>
<th>Search strategy for PubMed</th>
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<td><strong>Number</strong></td>
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<td>#3</td>
<td>#1 OR #2</td>
</tr>
<tr>
<td>#4</td>
<td>“ciprofol”[Title/Abstract] OR “hsk3486”[Title/Abstract]</td>
</tr>
<tr>
<td>#5</td>
<td>“propofol”[MeSH]</td>
</tr>
<tr>
<td>#7</td>
<td>#5 OR #6</td>
</tr>
<tr>
<td>#8</td>
<td>#3 AND #4 AND #7</td>
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</table>
Records identified through database searching (n=)
- PubMed (n=)
- Embase (n=)
- Cochrane Library (n=)
- Web of Science (n=)
- CBM (n=)
- CNKI (n=)
- WanFang Data (n=)
- VIP (n=)

Records after duplicates removed (n=)

Records screened (n=)

Records excluded (n=)

Full-text articles assessed for eligibility (n=)

Full-text articles excluded (n=)
- Reason 1 (n=)
- Reason 2 (n=)
- Reason 3 (n=)
- etc.

RCTs were included in qualitative synthesis (n=)

RCTs were included in quantitative synthesis (meta-analysis) (n=)

**Figure 1** Flow diagram of the study selection process. RCTs, randomised controlled trials.

Outcomes and prioritisation

**Primary outcomes**

The primary outcomes will be the success rate of gastrointestinal endoscopy and safety endpoints (complication events).

- The success rate of gastrointestinal endoscopy is defined as the completion of the procedure without the use of alternative anaesthetic drugs or the administration of top-up dosages of the study drugs no more than five times within a 15 min period from the first administration to the completion of gastrointestinal endoscopy.20

- Complication events: These include hypotension (defined as intraprocedural systolic blood pressure <90 mm Hg, mean arterial pressure <60 mm Hg or ≥20% decrease in the systolic blood pressure or mean arterial pressure from baseline values), bradycardia (heart rate <50 beats/min or ≥20% decrease from baseline value), hypoxia (arterial saturation <90%), respiratory depression, apnoea (thoracic motion disappeared for >30 s), body movements, injection pain, and nausea and vomiting. These are the most common adverse events during gastrointestinal endoscopy. In cases where complication events are classified according to severity, we will identify and calculate the total number of patients for all degrees of severity.21

**Secondary outcomes**

Secondary outcomes include the satisfaction and efficacy measures.
Satisfaction includes patient and physician satisfaction. We will follow the criteria established by the authors in each study, even if the content and format of the satisfaction questionnaires differ.

Efficacy measures include the time to induction, time to sedation, total procedure time, time to waking after ceasing sedation and time to discharge.

Risk of bias individual studies
To facilitate the assessment of the possible risk of bias for each study, methodological quality assessment will be performed independently by two calibrated authors using the Cochrane risk of bias tool 2 (RoB2). RoB2 assesses the following seven possible sources of bias: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, completeness of outcome data, selective reporting and other biases (eg, baseline imbalances and conflicts of interest). Each item is scored as low risk, unclear risk or high risk of bias. Disagreements will be resolved by discussion or by consulting a third author for arbitration.

Data synthesis
RevMan software will be used for meta-analysis. We will calculate the mean difference (MD) and 95% CI for continuous data and the risk ratio and 95% CI for dichotomous data. Heterogeneity among the studies will be assessed using the $\chi^2$ test and $I^2$ statistic. Meta-analysis will be performed using a fixed-effects model when there is insignificant heterogeneity ($I^2 <50\%$), else it will be performed using a random-effects model. The standardized MD is used as a summary statistic in meta-analysis when all studies assess the same outcome but measure it in different ways (eg, all studies measure satisfaction but use different satisfaction rating scales). Furthermore, sensitivity analysis will be conducted to detect the sources of heterogeneity and evaluate the robustness of the findings. The endoscopic procedure or colonoscopy may require special procedures or longer operating times.

Therefore, all eligible trials will be divided into the endoscopic therapy group and endoscopic examination group or into the gastroscopy group and colonoscopy group. Subgroup analysis will be performed separately. According to the recommendations of the Cochrane Handbook for Systematic Reviews of Interventions, publication bias will be evaluated using the Stata software for Egger’s test or Begg’s test when more than 10 publications are included. Two-tailed tests with a significance threshold of $p<0.05$ will be used for all analyses.

ETHICS AND DISSEMINATION
The protocol for this systematic review and meta-analysis involves no individual patient data; thus, ethical approval is not required. This will be the first meta-analysis to assess the sedation efficacy of ciprofol and provide evidence to clinicians for decision-making. The results will be disseminated through conference presentations and publications in peer-review journals related to this field.

Contributors XQ contributed substantially to the design and conception of the study, registered in the PROSPERO database and drafted the manuscript. XQ developed the search criteria with input from XL and LT. XQ and XL contributed to the design of the statistical methods. XQ and CW coordinated the whole process. CW and JX supervised the protocol development process. All authors (XQ, XL, LT, CW and JX) revised the manuscript critically for important intellectual content, approved the final submission and agreed to be held accountable for all aspects of the work.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

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REFERENCES

5 Ellett ML. Review of propofol and auxiliary medications used for sedation. Gastroenterol Nurs 2010;33:284–95;
11 Chen X, Guo P, Yang L, et al. 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.


### PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

<table>
<thead>
<tr>
<th>Section and topic</th>
<th>Item No</th>
<th>Checklist item</th>
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<tbody>
<tr>
<td><strong>ADMINISTRATIVE INFORMATION</strong></td>
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<tr>
<td>Title: Identification</td>
<td>Page 1, lines 1-2</td>
<td>Identify the report as a protocol of a systematic review</td>
</tr>
<tr>
<td>Update</td>
<td>-</td>
<td>If the protocol is for an update of a previous systematic review, identify as such</td>
</tr>
<tr>
<td>Registration</td>
<td>Page 5, line 49</td>
<td>If registered, provide the name of the registry (such as PROSPERO) and registration number</td>
</tr>
<tr>
<td>Authors:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td>Page 1, lines 5, 7-12, 14-18</td>
<td>Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author</td>
</tr>
<tr>
<td>Contributions</td>
<td>Pages 14-15, lines 295-301</td>
<td>Describe contributions of protocol authors and identify the guarantor of the review</td>
</tr>
<tr>
<td>Amendments</td>
<td>-</td>
<td>If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments</td>
</tr>
<tr>
<td>Support:</td>
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<tr>
<td>Sources</td>
<td>Page 15, lines 302-304</td>
<td>Indicate sources of financial or other support for the review</td>
</tr>
<tr>
<td>Sponsor</td>
<td>-</td>
<td>Provide name for the review funder and/or sponsor</td>
</tr>
<tr>
<td>Role of sponsor or funder</td>
<td>-</td>
<td>Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol</td>
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<tr>
<td><strong>INTRODUCTION</strong></td>
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<tr>
<td>Rationale</td>
<td>Pages 3-5, lines 63-105</td>
<td>Describe the rationale for the review in the context of what is already known</td>
</tr>
<tr>
<td>Objectives</td>
<td>Page 5, lines 107-111</td>
<td>Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)</td>
</tr>
<tr>
<td><strong>METHODS</strong></td>
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<tr>
<td>Eligibility criteria</td>
<td>Pages 6-8, lines 130-166</td>
<td>Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review</td>
</tr>
<tr>
<td>Information sources</td>
<td>Page 8, lines 168-176</td>
<td>Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage</td>
</tr>
<tr>
<td>Search strategy</td>
<td>Pages 8-9, lines 178-186</td>
<td>Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated</td>
</tr>
<tr>
<td>Study records:</td>
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<tr>
<td>Data management</td>
<td>Pages 9-10, lines 189-195</td>
<td>Describe the mechanism(s) that will be used to manage records and data throughout the review</td>
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<table>
<thead>
<tr>
<th>Selection process</th>
<th>Page 10, lines 197-205</th>
<th>State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)</th>
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<tbody>
<tr>
<td>Data collection process</td>
<td>Pages 10-11, lines 207-217</td>
<td>Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators</td>
</tr>
<tr>
<td>Data items</td>
<td>Pages 11-12, lines 219-236</td>
<td>List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications</td>
</tr>
<tr>
<td>Outcomes and prioritization</td>
<td>Pages 12-13, lines 238-262</td>
<td>List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale</td>
</tr>
<tr>
<td>Risk of bias in individual studies</td>
<td>Page 13, lines 264-273</td>
<td>Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis</td>
</tr>
<tr>
<td>Data synthesis</td>
<td>Pages 13-14, lines 276-278, Page 14, lines 278-281</td>
<td>Describe criteria under which study data will be quantitatively synthesised If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I², Kendall’s τ)</td>
</tr>
<tr>
<td>Meta-bias(es)</td>
<td>Page 14, lines 289-293</td>
<td>Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)</td>
</tr>
<tr>
<td>Confidence in cumulative evidence</td>
<td>-</td>
<td>Describe how the strength of the body of evidence will be assessed (such as GRADE)</td>
</tr>
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</table>

*It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.

Search strategy

PubMed:

#1 Search related to "endoscopes, gastrointestinal":
(((((((((((((((((((((("gastroscopes"[MeSH Terms]) OR ("colonoscopy"[MeSH Terms])) OR
("proctoscopes"[MeSH Terms]) OR ("endoscopes"[MeSH Terms])) OR ("endoscopes,
gastrointestinal"[MeSH Terms])) OR ("endoscopes, gastrointestinal/adverse effects"[MeSH
Terms])) OR ("endoscopy, gastrointestinal"[MeSH Terms])) OR ("gastroscope"[Title/Abstract]))
OR ("gastroscopes"[Title/Abstract])) OR ("colonoscopy"[Title/Abstract])) OR ("proctoscope"[Title/Abstract])) OR
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opy"[Title/Abstract])) OR ("gastrointestinalendoscope"[Title/Abstract])) OR ("gastrointestinal
endoscopes"[Title/Abstract])) OR ("endoscope"[Title/Abstract])) OR ("coloscopy"[Title/Abstract])) OR
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OR ("endoscopy"[Title/Abstract])) OR ("enteroscopy"[Title/Abstract])) OR ("proctoscope"[Title/Abstract])) OR
("gastrointestinal endoscopic surgical procedures"[Title/Abstract])) OR ("gastrointestinal
deroscopic surgical procedures"[Title/Abstract])) OR ("gastrointestinal endoscopic surgery"[Title/Abstract])) OR ("endoscop*"[Title/Abstract]))
OR ("gastroscop*"[Title/Abstract])) OR ("colonoscop*"[Title/Abstract])) OR ("proctoscop*
[Title/Abstract]))

#2 Search related to "ciprofol":
("ciprofol"[Title/Abstract]) OR ("hsk3486"[Title/Abstract])

#3 Search related to "propofol":
(((((("propofol"[MeSH Terms]) OR ("propofol"[Title/Abstract])) OR
("disoprofol"[Title/Abstract])) OR ("diprivan"[Title/Abstract])) OR ("disoprivan"[Title/Abstract]))
OR ("fresofol"[Title/Abstract])) OR ("ivofol"[Title/Abstract])) OR ("recofol"[Title/Abstract])) OR
("aquafol"[Title/Abstract]))

#4  #1 AND #2 AND #3

Web of Science:

#1 Search related to "endoscopes, gastrointestinal":
TS=(colonoscopy OR endoscope OR endoscopes, gastrointestinal OR endoscopes, gastrointestinal/adverse effects OR endoscopy, gastrointestinal OR gastroscope OR enteroscopy
OR proctoscope OR proctoscopes OR gastrointestinal endoscopy OR gastrointestinal
endoscope OR gastrointestinal endoscopies OR coloscopy OR rectoscope OR gastrointestinal
endoscopies OR endoscopic gastrointestinal surgical procedures OR gastrointestinal endoscopic
surgical procedure OR endoscopic gastrointestinal surgery OR endoscop* OR gastroscp* OR
colonoscop* OR proctoscop*)

#2 Search related to "ciprofol":
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#3 Search related to "propofol":
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endoscop*)
EMBASE:

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#3 Search related to "propofol":
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The Cochrane Library:

#1 MeSH descriptor: [gastroscopes] explode all trees
#2 MeSH descriptor: [colonoscopy] explode all trees
#3 MeSH descriptor: [proctoscopes] explode all trees
#4 MeSH descriptor: [endoscope] explode all trees
#5 MeSH descriptor: [endoscopes, gastrointestinal] explode all trees
#6 MeSH descriptor: [endoscopes, gastrointestinal/adverse effects] explode all trees
#7 MeSH descriptor: [endoscopy, gastrointestinal] explode all trees
#8 (gastroscope):ti,ab,kw OR (gastroscopes):ti,ab,kw OR (colonoscopy):ti,ab,kw OR (enteroscopy):ti,ab,kw OR (proctoscope):ti,ab,kw OR (proctoscopes):ti,ab,kw OR (gastrointestinal endoscopy):ti,ab,kw OR (gastrointestinal endoscope):ti,ab,kw OR (gastrointestinal endoscopies):ti,ab,kw OR (gastrointestinal surgical procedures):ti,ab,kw OR (endoscopic gastrointestinal endoscopic surgical procedure):ti,ab,kw OR (endoscopic gastrointestinal surgery):ti,ab,kw OR (endoscopy)*:ti,ab,kw OR (gastroscopy)*:ti,ab,kw OR (colonoscopy)*:ti,ab,kw OR (proctoscopy)*:ti,ab,kw
#9 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8
#10 (ciprofol):ti,ab,kw OR (hsk3486):ti,ab,kw
#11 MeSH descriptor: [propofol] explode all trees
#12 (propofol):ti,ab,kw OR (disopropranolol):ti,ab,kw OR (disopivran):ti,ab,kw OR (fresofol):ti,ab,kw OR (ivofol):ti,ab,kw OR (recofol):ti,ab,kw OR (aquafol):ti,ab,kw

#13 #11 OR #12

#14 #9 AND #10 AND #13

CNKI:

TKA='内窥镜检查，胃肠道'+"胃内窥镜"+"胃肠道内窥镜检查"+"胃镜检查"+"胃镜"+"内窥镜检查，消化系统"+"结肠镜检查"+"结肠镜"+"十二指肠镜"+"十二指肠镜检查"+"食管胃十二指肠镜检查"+"胃镜外科手术"+"外科手术，胃镜"+"胃镜手术"+"手术，胃镜"+"外科，结肠镜"+"结肠镜外科"+"外科手术，结肠镜"+"结肠镜外科手术"+"外科，十二指肠镜"+"十二指肠镜外科"+"消化系统内窥镜外科手术"+"消化系统内窥镜检查"+"内窥镜外科手术"+"外科手术，内窥镜"+"外科内窥镜检查"+"内窥镜检查" AND TKA='环泊酚'+"思舒宁"+"HSK3486' AND TKA='丙泊酚'+"异丙酚"+"二异丙酚"+"2,6-二异丙基苯酚"+"双异丙酚"+"普鲁泊福"+"得普利麻"+"普泊佛"+"普泊福"+"力蒙欣"+"迪施宁"+"普泊酚'

VIP:

(U=(内窥镜检查，胃肠道 or 胃肠内窥镜 or 胃肠内窥镜检查 or 内窥镜检查 or 胃镜 or 内窥镜检查，消化系统 or 结肠镜检查 or 结肠镜 or 十二指肠镜 or 十二指肠镜检查 or 食管胃十二指肠镜检查 or 胃镜外科手术 or 外科手术，胃镜 or 胃镜手术 or 手术，胃镜 or 外科，结肠镜 or 结肠镜外科 or 外科手术，结肠镜 or 结肠镜外科手术 or 外科，十二指肠镜 or 十二指肠镜外科 or 消化系统内窥镜外科手术 or 消化系统内窥镜检查 or 内窥镜外科手术 or 外科手术，内窥镜 or 外科内窥镜检查 or 内窥镜检查)) AND (U=(环泊酚 or 思舒宁 or HSK3486)) AND (U=(丙泊酚 or 异丙酚 or 二异丙酚 or 2,6-二异丙基苯酚 or 双异丙酚 or 普鲁泊福 or 得普利麻 or 普泊佛 or 普泊福 or 普泊福 or 力蒙欣 or 迪施宁 or 普泊酚))

WanFang Data:

主题:("内窥镜检查，胃肠道")or("胃肠道内窥镜")or("胃肠道内窥镜检查")or("胃镜检查")or("胃镜")or("内窥镜检查，消化系统")or("结肠镜检查")or("结肠镜")or("十二指肠镜")or("十二指肠镜检查")or("食管胃十二指肠镜检查")or("胃镜外科手术")or("外科手术，胃镜")or("胃镜手术")or("手术，胃镜")or("外科，结肠镜")or("结肠镜外科")or("外科手术，结肠镜")or("消化系统内窥镜外科手术")or("结肠镜外科手术")or("外科，十二指肠镜")or("十二指肠镜外科")or("消化系统内窥镜外科手术")or("消化系统内窥镜检查")or("内窥镜外科手术")or("外科手术，内窥镜")or("外科内窥镜检查")or("内窥镜检查") and 主题:("环泊酚")or("思舒宁")or("HSK3486") and 主题:("丙泊酚")or("异丙酚")or("二异丙酚")or("2,6-二异丙基苯酚")or("双异丙酚")or("普鲁泊福")or("得普利麻")or("普泊佛")or("普泊福")or("普泊福")or("力蒙欣")or("迪施宁")or("普泊酚")

CBM:

#1 Search related to "endoscopes, gastrointestinal":

#2 Search related to "ciprofol"

"环泊酚"[常用字段:智能] OR "思舒宁"[常用字段:智能] OR "HSK3486"[常用字段:智能]

#3 Search related to "propofol"


#4 #1 AND #2 AND #3

ClinicalTrials.gov

Other terms: cipepofol OR ciprofol OR hsk3486