# INPLASY PROTOCOL

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**Review Stage at time of this submission: Risk of bias assessment.**

**Conflicts of interest:** None declared.

## Efficacy and acceptability of various endoscopic prophylaxis treatments for Postpolypectomy Bleeding occurring in patients with colonic polyps with different characteristics:a systematic review and network meta-analysis

Zhang, ST[1].

**Review question / Objective:** To investigate the difference in the preventive effect of different endoscopic preventive measures, including (No prophylactic therapy, Adrenaline solution injection, Clips on detect, Clips or Endoloop on stalk, Electrocoagulation, Combination therapy) on post-polypectomy bleeding events in colorectal polyps patients.

**Condition being studied:** Endoscopic treatment of colorectal polyps and precancerous lesions can prevent the occurrence of colorectal cancer, and resection of early colorectal cancer can improve the survival rate of patients. With the gradual popularization of endoscopic treatment of colorectal polyps, especially in primary hospitals, surgery-related adverse events frequently occur, including bleeding, perforation, infection, and pain. Among them, bleeding and perforation are the main ones, especially bleeding. In clinical work, endoscopists often judge whether preventive measures need to be taken and which preventive measures to choose according to the patient's condition and polyp characteristics. Typically, preventive measures for postoperative bleeding include: submucosal injection of epinephrine, ligation with nylon loops or clips, vascular coagulation, wound closure, and combination therapy. At present, there is no study that fully compares the effect of the above-mentioned interventions. Therefore, we intend to summarize the results of multiple studies and conduct a network meta-analysis (NMA) to quantitatively evaluate the difference in the effect of various interventions. Its application significance provides evidence-based medicine evidence for its clinical application.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 August 2022 and was last updated on 13 August 2022 (registration number INPLASY202280044).

## INTRODUCTION

**Review question / Objective:** To investigate the difference in the preventive effect of different endoscopic preventive measures, including (No prophylactic therapy, Adrenaline solution injection, Clips on detect, Clips or Endoloop on stalk,

Electrocoagulation, Combination therapy) on post-polypectomy bleeding events in colorectal polyps patients.

Rationale: We searched databases such as Pumed, Embase, Cochrane, ClinicalTrials, CBM, Chictr, CNKI, Wanfang Data, and VIP to collect randomized controlled trials (published between the beginning of the establishment of each database and April 20, 2022) on No prophylactic therapy, Adrenaline solution injection, Clips on detect, Clips or Endoloop on stalk, Electrocoagulation, Combination therapy for preventing polypectomy-related bleeding events. Literature screening, data extraction, and quality and risk of bias assessment were independently performed by 2 investigators according to established criteria. Our primary endpoints included Intraoperative bleeding, early postoperative bleeding and late postoperative bleeding. We used Stata (version 14.0) to draw network structure plots, prediction interval plots, and comparison-corrected funnel plots for publication bias, and applied a more accurate and flexible Bayesian method than frequentist methods for network meta-analysis by ADDIS (version 1.16.6). We searched databases such as Pumed, Embase, Cochrane, ClinicalTrials, CBM, Chictr, CNKI, Wanfang Data, and VIP to collect randomized controlled trials (published between the beginning of the establishment of each database and April 20, 2022) on mechanical, pharmacological and thermal therapies for preventing polypectomy-related bleeding events. Literature screening, data extraction, and quality and risk of bias assessment were independently performed by 2 investigators according to established criteria. Our primary endpoints included Intraoperative bleeding, early postoperative bleeding and late postoperative bleeding. We used Stata (version 17.0) to draw network structure plots, prediction interval plots, and comparison-corrected funnel plots for publication bias, and applied a more accurate and flexible Bayesian method than frequentist methods for network meta-analysis by ADDIS (version 1.16.6).

Condition being studied: Endoscopic treatment of colorectal polyps and precancerous lesions can prevent the occurrence of colorectal cancer, and resection of early colorectal cancer can improve the survival rate of patients. With the gradual popularization of endoscopic treatment of colorectal polyps, especially in primary hospitals, surgery-related adverse events frequently occur, including bleeding, perforation, infection, and pain. Among them, bleeding and perforation are the main ones, especially bleeding. In clinical work, endoscopists often judge whether preventive measures need to be taken and which preventive measures to choose according to the patient's condition and polyp characteristics. Typically, preventive measures for postoperative bleeding include: submucosal injection of epinephrine, ligation with nylon loops or clips, vascular coagulation, wound closure, and combination therapy. At present, there is no study that fully compares the effect of the above-mentioned interventions. Therefore, we intend to summarize the results of multiple studies and conduct a network meta-analysis (NMA) to quantitatively evaluate the difference in the effect of various interventions. Its application significance provides evidence-based medicine evidence for its clinical application.

## METHODS

Search strategy: We searched databases such as Pumed, Embase, Cochrane, ClinicalTrials, CBM, Chictr, CNKI, Wanfang Data, and VIP to collect randomized controlled trials (published between the beginning of the establishment of each database and June 20, 2022) on mechanical, pharmacological and thermal therapies for preventing polypectomy-related bleeding events. There is no language restrictions are set. The search terms we used was briefly listed as follows: "colonic polyps polypectomy" AND "Endoscopic Mucosal Resection" AND ("complications" OR "Hemorrhage") AND ("Prophylactic Surgical Procedures" "Endoscopic hemostasis" OR

"Chemoprevention" OR "injections" OR "epinephrine" OR "mechanical" OR "Surgical instruments" OR "detachable snare") AND ("randomized controlled trial").

**Participant or population:** Patients with colorectal polyps over the age of 18 who underwent traditional polypectomy or endoscopic mucosal resection (EMR).

**Intervention:** The intervention in the intervention group is one or more of Adrenaline solution injection, Clips on detect, Clips or Endoloop on stalk, Electrocoagulation and Combination therapy.

**Comparator:** The intervention in the conrtol group is one or more of Adrenaline solution injection, Clips on detect, Clips or Endoloop on stalk, Electrocoagulation and Combination therapy or no intervention.

**Study designs to be included:** Randomized controlled trial.

**Eligibility criteria:** The type of study is a randomized controlled trial, with no restrictions on randomization, blinding and allocation concealment, and the publication time is from January 2000 to June 2022; The subjects of the study were patients with colorectal polyps over the age of 18 who underwent traditional polypectomy or endoscopic mucosal resection (EMR). There were no restrictions on gender, race and disease course, but the baselines were required to be comparable; The intervention in the group is one or more of Adrenaline solution injection, Clips on detect, Clips or Endoloop on stalk, Electrocoagulation and Combination therapy, and the control group is one or more of the above interventions or no intervention; The outcome measure was any one or more of Immediate postpolypectomy bleeding or Early postpolypectomy bleeding or Delayed postpolypectomybleeding.

**Information sources:** All current literature comes from database searches.

**Main outcome(s):** The outcome measure was any one or more of Immediate postpolypectomy bleeding or Early postpolypectomy bleeding or Delayed postpolypectomy bleeding.

**Data management:** In order to ensure the accuracy of the data and rigor of the research, two researchers independently extracted relevant data according to the previously established standards. After the data is extracted and perfected, it will be integrated and cross-checked. We imported the retrieved literature into NoteExpress to delete duplicate articles after checking for duplicates, and then two researchers deleted the articles that did not meet the requirements, such as reviews and conference papers, by reading the titles and abstracts of the remaining literature. We obtained the original literature from the screened results by downloading from the database or sending emails to the authors. Finally, two researchers read the full text of the obtained literature, and identified inconsistent research designs, inconsistent outcome indicators, and incomplete data. or delete duplicate publications. If there is any disagreement during this process, a third-party expert with years of experience in evidence-based medicine will be invited to make joint judgments.

**Quality assessment / Risk of bias analysis:** For the included literature, we used the risk of bias tool recommended by the Cochrane Official Collaboration Network to conduct a fair and equitable evaluation. The evaluation contents include: ㊐ random allocation method; ㊊ allocation concealment; ㊋ blinding method; ㊌ completeness of outcome data; ㊍ selective reporting of research results; ㊎ other sources of bias. The included literatures were evaluated according to these 6 directions, and each content could be evaluated from three levels of low risk, unclear and high risk. If the risk of bias results of a study contained a high risk, the study was rated as high risk, if all of the results were low risk, the study was rated

as low risk, and the others were rated as unclear.

**Strategy of data synthesis:** This network Meta-analysis was carried out under the Bayesian framework, using stata software: 1) Simulate the Bayesian random effects model. 2) Draw a network evidence map to visually present the research status of pairwise comparisons of various interventions; 3) Compare the results of traditional meta-analysis (direct comparison) and network meta-analysis (integrate direct comparison and indirect comparison); 4 ) Calculate the surface under the cumulative ranking probability curve (SUCRA) of various interventions, and draw a ranking chart to obtain the probability of the intervention with the best outcome prevention effect; 5) Draw a funnel plot to assess whether there is publication bias ; 6) Analyze the situation of heterogeneity by plotting the prediction interval. The prediction interval plot gives the 95% CI under the fixed-effects model and the 95% CI under the random-effects model, respectively. If both are positive or both are negative, there is no significant heterogeneity between the two. The opposite results indicate that there is heterogeneity.

**Subgroup analysis:** Subgroup analysis was performed according to polyp bleeding risk-related characteristics including polyp diameter, morphology, location, etc.

**Sensitivity analysis:** Similarity: The clinical similarity and methodological similarity of the included studies were fully considered. Due to their strong subjectivity, quality assessment was supplemented to explain the similarity status. Consistency: Comparison of results from traditional meta-analyses (direct comparisons) and network meta-analyses (integrating direct and indirect comparisons). Heterogeneity: Analyze the case of heterogeneity by plotting prediction intervals. The prediction interval plot gives the 95% CI under the fixed-effects model and the 95% CI under the random-effects model, respectively. If both are positive or both are negative, there is no significant heterogeneity

between the two. The opposite results indicate that there is heterogeneity

**Language restriction:** No language restrictions exist.

**Country(ies) involved:** China (Yongchuan Hospital Affiliated to Chongqing Medical University).

**Keywords:** Colonic polyps polypectomy, Endoscopic Mucosal Resection, complications, Hemorrhage.

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