INPLASY PROTOCOL

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Review Stage at time of this submission: Data extraction.

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None declared.

Efficacy and safety of cold snare endoscopic mucosal resection for colorectal polyps larger than 5 mm: a systematic review and meta-analysis

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Review question / Objective: The aim of this systemic review and meta-analysis is to clarify the efficacy and safety of using cold snare endoscopic mucosal resection for colorectal polyps larger than 5 mm. To this end, this this systemic review and meta-analysis will address the following question: the complete histologic resection rate, early and delayed bleeding, perforation, retrieval tissue rates, duration of the procedure.

Condition being studied: Cold snare polypectomy (CSP) of small colorectal polyps is widely used. However, the technique is still troubled by insufficient resection depth, which may prevent precise pathologic evaluation. Cold snare endoscopic mucosal resection (CS-EMR) is a feasible method to improve the complete histological resection rate of polyps. This research is to explore whether CS-EMR can improve the safety and effectiveness of polypectomy.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 05 May 2022 and was last updated on 05 May 2022 (registration number INPLASY202250032).

INTRODUCTION

Review question / Objective: The aim of this systemic review and meta-analysis is to clarify the efficacy and safety of using cold snare endoscopic mucosal resection for colorectal polyps larger than 5 mm. To this end, this this systemic review and meta-analysis will address the following question: the complete histologic resection rate, early and delayed bleeding, perforation, retrieval tissue rates, duration of the procedure.

Rationale: Cold snare polypectomy (CSP) is an effective method of polyp removal for small colorectal polyps. However, the effect of submucosal injection in cold snare endoscopic mucosal resection (CS-EMR) for small polyps is unclear. Therefore, this study aimed to evaluate the effect of submucosal injection in CS-EMR for small polyps.

Condition being studied: Cold snare polypectomy (CSP) of small colorectal polyps is widely used. However, the technique is still troubled by insufficient resection depth, which may prevent precise pathologic evaluation. Cold snare endoscopic mucosal resection (CS-EMR) is a feasible method to improve the complete histological resection rate of polyps. This research is to explore whether CS-EMR can improve the safety and effectiveness of polypectomy.

METHODS

Search strategy: A comprehensive electronic literature search was conducted in PubMed/MEDLINE, EMBASE, Google Scholar, Cochrane, and conference proceedings to identify eligible studies, from the beginning of indexing for each database to May 1, 2022. Search: (((((((colorectal polyps[Title/Abstract]) OR (sessile serrated adenomas[Title/Abstract])) OR (SSA[Title/Abstract])) OR (sessile serrated polyps[Title/Abstract])) OR (SSP[Title/Abstract])) OR (SSA/Ps[Title/Abstract])) OR (sessile serrated lesions[Title/Abstract])) AND ((((((((((Cold endoscopic mucosal resection[Title/Abstract]) OR (Cold EMR[Title/Abstract])) OR (CEMR[Title/Abstract])) OR (Cold snare polypectomy with submucosal injection[Title/Abstract])) OR (CSP-SI[Title/Abstract])) OR (CSPI[Title/Abstract])) OR (Cold snare endoscopic mucosal resection[Title/Abstract])) OR (CS-EMR[Title/Abstract])) OR (CSP-EMR[Title/Abstract])).

Participant or population: Inclusion criteria included patients aged 18–75 years who underwent CS-EMR for colorectal polyps larger than 5 mm. Exclusion criteria

included inflammatory bowel disease; familial polyposis; use of anticoagulant therapy or antiplatelet therapy, known coagulopathy; significant infectious disease; pregnancy; chronic kidney disease; history of liver cirrhosis; patients with inadequate bowel preparation.

Intervention: Cold snare submucosal injection (Cold-EMR): the submucosa injective was mixed with normal saline solution or other solutions. After submucosal injection and satisfactory tissue elevation, the open snare was placed around the polyp to ensnare about some of normal mucosa around the base of the polyp, then the polyp was resected.

Comparator: Cold snare polypectomy without submucosal injection(CSP): In CSP, once the polyp was visualized under colonoscope, the snare was opened and positioned around the lesion. Gentle suction was applied to reduce colon distention while the tip of the endoscope was deflected toward the base of the lesion, the procedure was excised without use of electrocautery.

Study designs to be included: This systematic review include RCT, prospective observational cohort study and retrospective cohort.

Eligibility criteria: Inclusion criteria included patients aged 18–75 years who underwent CS-EMR for colorectal polyps larger than 5mm. Exclusion criteria were (1) pregnancy; (2) history of inflammatory bowel disease or familial polyposis; (3) bleeding tendency (platelet count <80000/μl, prothrombin percentage activity 3.0 in patients taking warfarin); (4) multiple antithrombotic therapy; or (5) lesions suspected as advanced neoplasia at colonoscopy before this study.

Information sources: PubMed/MEDLINE, EMBASE, Google Scholar, Cochrane, and conference proceedings to identify eligible studies, from the beginning of indexing for each database to May 1, 2022.

Main outcome(s): The complete histologic resection rate.

Additional outcome(s): Early and delayed bleeding, perforation, retrieval tissue rates, duration of the procedure.

Data management: The Forest plots, funnel plot and Egger test were conducted for data management. Using SPSS 17 software for statically analysis. Graphpad for relavant polts if applicable.

Quality assessment / Risk of bias analysis: Two reviewers (SH T and GX Z) independently assessed the methodologic quality using the Newcastle-Ottawa Scale (NOS) for non-randomized studies, and scores of 0–3, 4–6, and 7–9 corresponded to low, medium, and high quality, respectively.

Strategy of data synthesis: Data analysis was conducted using SPSS 17 software. Odds ratio (OR) was selected for the assessment of the risk of adverse events. Pooled estimates with 95% confidence interval (CI) were calculated using the weighted variance technique. The Higgins I2 statistic was employed to determine the total variation across studies due to heterogeneity. Considering that the studies vary greatly in results, methodology, definition of PPB, and population, the random-effects model was used regardless of heterogeneity. We conducted a meta-regression to test the potential confounders (publication year, lesion size and location, and single center/ multicenter,). A funnel plot, forest plot and Egger linear regression test were used to evaluate publication bias.

Subgroup analysis: Polyp size：＜10mm verse ≥10mm Solutions for submucosal injection：Adrenaline verse Non-adrenaline solution Histology：Adenoma verse SSA Subgroup analysis is also realized by Stata version 17 (StataCorp, College Station, TX).

Sensitivity analysis: The forest plot, funnel plot and Egger test were conducted to display sensitivity change for complete resection rate, technical success rate, adverse events rate and residual rate.

Language: English.

Country(ies) involved: China.

Keywords: cold snare polypectomy, endoscopic mucosal resection, colorectal polyps, delayed bleeding.

Contributions of each author:
Author 1 - Yan Li - The author drafted the manuscript.
Email: liyan.free@163.com
Author 2 - ShanHong Tang - The provided statistical expertise.
Author 3 - XiaoBin Sun - The provided statistical expertise.
Author 4 - Lei Liu - The author contributed to adjust and resolve disagreements and the development of the selection criteria.
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