INPLASY

Endoscopic Approaches for Colorectal Dysplasia Surveillance in Inflammatory Bowel Disease: A Systematic Review and Network Meta-Analysis

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ADMINISTRATIVE INFORMATION

Support - Changhua Christian Hospital.

Review Stage at time of this submission - Data extraction.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 July 2024 and was last updated on 10 July 2024.

INTRODUCTION

Review question / Objective The network meta-analysis was structured around the PICO (population, intervention, comparison, and outcome) framework. The specific PICO criteria were as follows: (1) Population: Adults diagnosed with inflammatory bowel disease, (2) Intervention: Image-enhanced endoscopy, (3) Comparison: A control group without the intervention, and (4) Outcome: the dysplasia lesion detection rate.

Rationale This study used databases such as PubMed, Cochrane Reviews, Web of Science, ClinicalTrials.gov, and Google Scholar to search for RCT studies related to the use of image-enhanced endoscopy (IEE) for surveillance of inflammatory bowel disease. A network meta-analysis was conducted to compare the dysplasia detection rates between different IEE methods and standard definition white light endoscopy.

Condition being studied This study primarily investigates whether using different image-enhanced endoscopy methods for surveillance of inflammatory bowel disease results in different lesion detection rates.

METHODS

Search strategy This study used databases such as PubMed, Cochrane Reviews, Web of Science, ClinicalTrials.gov, and Google Scholar to search for RCT studies related to the use of image-enhanced endoscopy (IEE) for surveillance of inflammatory bowel disease. The following keywords were used: “inflammatory bowel disease” AND “endoscopy” OR “virtual endoscopy” OR “chromoendoscopy” OR “narrow band imaging” OR “high definition endoscopy” OR “flexible spectral imaging color enhancement” OR “dye-chromoendoscopy” OR “i-scan” OR “image enhanced endoscopy” OR “linked color imaging” OR “texture and color enhancement imaging”.

Participant or population Adult patients with inflammatory bowel disease.

Intervention Image-enhanced endoscopy.

Comparator White light endoscopy.

Study designs to be included Randomized controlled trial.

Eligibility criteria The studies included in the analysis must meet the following inclusion criteria: (1) the study population consists of adult patients with inflammatory bowel disease, (2) the study must be randomized control study, (3) the study provides the number of participants and the number of detectable dysplasia or neoplastic lesions, and (4) the study uses image-enhanced endoscopy or white light endoscopy as the endoscopy method for IBD surveillance. Exclusion criteria include: (1) studies that do not provide complete information on the number of participants and the number of dysplasia or neoplastic lesions, (2) studies without confirmed pathological results for dysplasia lesions, (3) studies that do not exclusively involve adult patients, and (4) conference papers or articles that only have abstracts, (5) overlapping study populations.

Information sources Two authors (CWH and HHY) independently searched the following databases: PubMed, Cochrane Reviews, Web of Science, ClinicalTrials.gov, and Google Scholar.

Main outcome(s) The detection rates of dysplasia lesions.

Additional outcome(s) (1) Detection rates of neoplastic lesions, (2) false positive rate, (3)withdrawal time.

Data management Data were extracted independently by two authors (CWH and HHY), including demographic data, study methodology, treatment protocol specifics, and primary and secondary outcomes. The process of data extraction, transformation, and amalgamation was conducted following the guidelines in the Cochrane Handbook for Systematic Reviews of Interventions and pertinent medical literature.

Quality assessment / Risk of bias analysis The methodological quality of RCTs included in the analysis was determined based on the Cochrane risk of bias (RoB) tool (version 2, RoB 2, London, UK).

Strategy of data synthesis A random-effects model was applied in the network meta-analysis because the study included different treatment regimens. The analysis was conducted using MetaInsight (version 4.0.2, Complex Reviews Support Unit, National Institute for Health Research, London, UK), operating within a frequentist framework. MetaInsight is an online platform designed for network meta-analysis, which utilizes the Netmeta package in R software to carry out frequentist statistical analyses.

Subgroup analysis This study may conduct a subgroup analysis on the outcomes of parallel or tandem colonoscopy.

Sensitivity analysis The one-study removal method was used to ensure that the effect estimates from individual studies did not overly influence the overall results. By systematically omitting one study at a time from the analysis of dysplasia detection rates, we assessed the stability of the study's conclusions and rankings. We evaluated the direction and magnitude of the effect, the statistical significance, and the rankings of the results to determine consistency.

Language restriction There are no language restrictions.

Country(ies) involved Taiwan.

Keywords Inflammatory bowel disease; image-enhanced endoscopy; chromoendoscopy; surveillance; dysplasia.

Contributions of each author

Author 1 - Chih-Wen Huang - study design, data analysis, methodology, drafted the manuscript.
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Author 2 - Hsu-Heng Yen - conceptualization, study design, data analysis, funding, drafted the manuscript.
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