INPLASY

Endoscopists' perceptions towards the use of AI in GI endoscopy - A systematic review

Corresponding author:
Nicholas Wan

nicholas.wan@sa.gov.au

Author Affiliation:
Northern Adelaide Local Health Network.

Wan, N[1]; Chan, C[2]; Tan, J[3]; Chinnaratha, A[4]; Singh, R[5].

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Data analysis.

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 15 March 2024 and was last updated on 15 March 2024.

INTRODUCTION

*R*eview question / Objective This paper aims to perform a systematic review to assess the perceptions of and to identify any potential concerns towards the use of AI in endoscopy amongst practicing endoscopists.

Rationale Artificial Intelligence (AI) is rapidly evolving in the field of gastrointestinal (GI) endoscopy. This development is the most prominent in the use of AI-assisted programmes during colonoscopy to detect and diagnose colorectal lesions. Despite its success and proven efficacy, the uptake of AI in GI endoscopy remains low compared to other specialties in medicine. The overall perceptions and acceptance of endoscopists on the integration of AI into GI endoscopy are poorly understood. There has been no review published to date summarizing and categorizing the different concerns and attitudes of endoscopists towards the use of AI in GI endoscopy. It is crucial to identify any potential

barriers in the uptake and adoption of AI in GI endoscopy.

Condition being studied Artificial Intelligence (AI) is rapidly evolving in the field of gastrointestinal (GI) endoscopy. This development is the most prominent in the use of AI-assisted programmes during colonoscopy to detect and diagnose colorectal lesions (CADe / CADx). The use of CADe and CADx has been explored and validated by multiple prospective studies. With increased recognition of the value of AI in endoscopy, some of the recent applications of AI include Barrett's Oesophagus surveillance, gastric cancer screening and the diagnosis of helicobacter pylori infections. A recent systematic review showed that AI is highly accurate at detecting early Barrett's neoplasia. Despite its success and proven efficacy, the uptake of AI in GI endoscopy remains low compared to other specialties in medicine. AI has seen greater success in fields such as radiology, dermatology, ophthalmology, and pathology. The overall perceptions and acceptance of endoscopists on the integration of AI into GI

endoscopy are poorly understood. There have been numerous questionnaires published with aims of understanding the perceptions and attitudes of endoscopists. Some of the proposed concerns include concerns regarding medical liability or the concern of over-reliance on AI. Overall, there has been no review published to date summarizing and categorizing the different concerns and attitudes of endoscopists towards the use of AI in GI endoscopy. It is crucial to ascertain any expectations that endoscopists might have and identify any potential barriers in the uptake and adoption of AI in GI endoscopy.

METHODS

Search strategy A comprehensive search of electronic databases of MEDLINE, Pubmed, and Scopus was conducted from inception to 26th August 2023 for the title and abstracts of all relevant studies using the following keywords: (endoscopist*s OR colonoscopist OR gastroenterologist) AND (perception OR survey OR opinion OR questionnaire OR attitude OR sentiment) AND (AI OR 'artificial intelligence' OR computer*). The retrieved papers' titles and abstracts were reviewed by two separate reviewers (N.W and C.C), who also determined if the studies were appropriate for inclusion. The references of the included studies were searched for any relevant studies. Any discrepancies were resolved by consensus between the 2 reviewers or discussion with a third senior author (J.T).

Participant or population Study populations consist of endoscopists with experience in the use of AI in endoscopy.

Intervention NA.

Comparator NA.

Study designs to be included Studies included needed to be either a questionnaire or survey.

Eligibility criteria (a) study design – studies included needed to be either a questionnaire or survey; (b) study population—endoscopists; (c) survey must include questions surrounding the use of AI in GI endoscopy.

Information sources MEDLINE, Pubmed and Scopus.

Main outcome(s) Responses of endoscopists towards AI were categorized into 5 different domains - 1) Endoscopists' awareness, knowledge and attitudes towards AI, 2) Perceptions on whether AI can improve endoscopic performance, 3) Impacts of AI on Endoscopists, 4) Impacts of AI on patients and 5) Barriers towards implementation of AI. Potential concerns raised and barriers towards the implementation were identified. Data analysis is still ongoing.

Quality assessment / Risk of bias analysis The studies that were incorporated into our study were deemed high-quality using the Joanna Briggs Institute (JBI) critical appraisal checklist. 3 of the studies received a maximum score of 8, while the remaining 4 studies received a score of 6. None of the studies were excluded, demonstrating that there was no significant bias in the studies and all studies were of high quality.

Strategy of data synthesis Qualitative analysis of the questions asked in the shortlisted surveys. A total of 5 domains were categorised in total: 1) Endoscopists' awareness, knowledge and attitudes towards AI, 2) Perceptions on whether AI can improve endoscopic performance, 3) Impacts of AI on Endoscopists, 4) Impacts of AI on patients and 5) Barriers towards implementation of AI.

Subgroup analysis NA.

Sensitivity analysis NA.

Country(ies) involved Australia.

Keywords Artificial Intelligence; Endoscopy; Colonoscopy; Capsule Endoscopy; Endoscopists; Perceptions; Attitudes; Gastroenterology.

Contributions of each author
Author 1 - Nicholas Wan.
Email: nicholas.wan@sa.gov.au
Author 2 - Celine Chan.
Author 3 - Jin Tan.
Author 4 - Asif Chinnaratha.
Author 5 - Rajvinder Singh.