The effectiveness of endoscopy in the management of dyspepsia: a qualitative systematic review

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Authors' objectives
To assess the effectiveness of endoscopy in the management of dyspepsia, as measured by its impact on patient outcomes, resource utilisation, clinical decision-making and cost-effectiveness.

Searching
MEDLINE, HealthSTAR and EMBASE were searched for articles published in English from January 1985 to July 1998. References lists of key articles were reviewed and content experts were consulted.

Study selection
Study designs of evaluations included in the review
Clinical studies of patients with dyspepsia that contained information about the effectiveness of endoscopy, as assessed using the outcomes listed above, were eligible for inclusion. Decision analyses that considered initial endoscopy as one of the management strategies were also eligible for inclusion. Review articles, editorials and letters, paediatric articles, case series and articles in which the methods or outcome measures could not be determined, and decision analyses which did not use endoscopy as an initial management, were excluded. Trials of the following designs were included: randomised controlled trials (RCTs), prospective non-randomised trials, surveys, prospective follow-up with historical controls, pre-test post-test designs, and cost-effectiveness and cost-utility analyses.

Specific interventions included in the review
Studies of endoscopy as a diagnostic or therapeutic procedure were eligible for inclusion. The following regimes were studied, either alone or in combination: endoscopy including both mandatory and selective; histamine-2-receptor antagonist therapy including therapy given empirically; and upper gastrointestinal radiography.

Reference standard test against which the new test was compared
The review did not include any diagnostic accuracy studies that compared the performance of the index test with a reference standard of diagnosis.

Participants included in the review
Clinical studies of patients with dyspepsia (all definitions, including reflux-like dyspepsia) were eligible for inclusion. Patients with variably defined dyspepsia (including reflux-like dyspepsia) were studied. The participants included those who were Helicobacter pylori (H. pylori)-positive and those seen in primary care.

Outcomes assessed in the review
Studies that reported the following outcomes were eligible for inclusion: patient outcomes, specifically dyspepsia symptoms, quality of life, anxiety, and satisfaction with care; resource utilisation, including the number of procedures, consuls, medication use, office visits, diagnostic tests, total direct costs, and hospital referrals; clinical decision-making; and cost-effectiveness.

How were decisions on the relevance of primary studies made?
The two authors independently reviewed abstracts and articles according to the inclusion criteria. Any disagreements were resolved by consensus.

Assessment of study quality
Validity was assessed using the criteria defined by Jadad et al. (see Other Publications of Related Interest no.1). Non-experimental designs were assessed using criteria established by the Cochrane Collaboration (see Other Publications of Related Interest no.2). The two authors independently assessed validity and resolved any disagreements by consensus.
Data extraction
The two authors extracted the following data independently: characteristics of the patients, trial design, comparison interventions, exclusion criteria and outcome measures.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative review.

How were differences between studies investigated?
Differences between the studies were discussed in the text.

Results of the review
A total of 21 articles were included.

Five trials (1,585 patients), including 3 RCTs (617 patients), assessed the effect of endoscopy on patient outcomes.

Six trials (2,487 patients), including 3 RCTs (617 patients), assessed the effect of endoscopy on medical resource use.

Five trials (1,933 patients), including 4 prospective follow-up studies with retrospective analysis of H. pylori screening strategy, were used to determine if a negative endoscopy in H Pylori-positive dyspepsia resulted in reduced medical resource use.

Four trials (2,347 patients) assessed the cost-effectiveness of endoscopy in dyspepsia.

The kappa value for agreement was 0.70 at the abstract stage and 0.88 for application of the inclusion criteria.

Effect of endoscopy on patient outcomes: the definition of dyspepsia was not uniform. None of the included studies used standardised, reliable and valid instruments to assess patients symptoms or health-related quality of life. The 3 RCTs scored either 2 or 3 on the Jadad scale and reported no difference in symptoms in the endoscopy group compared with empiric H2 antagonist therapy, or upper gastrointestinal radiography after 6 months or 1 year. One RCT reported increased satisfaction and fewer sick leave days with prompt endoscopy when compared with ranitidine.

Effect of endoscopy on patient outcomes in H. pylori-positive dyspepsia: 4 studies evaluated alternative management strategies, taking H. pylori status into account. None of the studies used a randomised design to assess the effect of the different strategies on dyspepsia symptoms, anxiety, quality of life, or satisfaction with care.

Effect of endoscopy on medical resource utilisation: the 3 RCTs reported conflicting results. One study reported no advantage of endoscopy over empiric H2 antagonist; one trial reporting fewer office visits and lower total costs for endoscopy compared with radiography; and one study reported fewer physician visits and lower total drug costs for prompt endoscopy compared with ranitidine.

Effect of a negative endoscopy on medical resource utilisation in H. pylori-positive dyspepsia: 5 studies screened patients for H. pylori status, which was followed by endoscopy for those older than 45 years of age who tested H. pylori-positive or had recently used non-steroidal anti-inflammatory drugs. Eleven studies assessed the impact of endoscopy on resource use and reported that empiric therapy reduced the use of endoscopy. Only four of these studies defined dyspepsia. The results as to whether the reduction in endoscopy was offset by increased utilisation of other resources were conflicting.

Effect of endoscopy on clinical decision-making: 2 studies found decision-making to be improved after endoscopy, while two reported only minimal changes as a result of endoscopy.

Effect of endoscopy on cost-effectiveness: 4 of the 5 studies reported empiric H. pylori therapy and the test-and-treat strategy to be of greater cost-effectiveness or cost-utility than initial endoscopy, while one study reported no difference
in costs between strategies. Some models were sensitive to the costs of endoscopy and medical therapy. The probabilities of therapy failure varied across the studies.

Cost information
The cost data from the cost-effectiveness and cost-utility studies were generally not presented, with one exception. One study found that initial anti-H. pylori therapy saved $456 per patient treated compared with initial endoscopy in sero-positive patients with dyspepsia. The outcome measures were cost, complications of endoscopy and antibiotic use.

Authors’ conclusions
With the exception of one randomised clinical trial, the preponderance of available data does not support the effectiveness of endoscopy in the management of dyspepsia.

CRD commentary
The aims and the inclusion criteria were clearly stated. The literature search was limited to English language publications, thus some relevant studies might have been omitted. In addition, full details of the search strategy were not given. Validity was assessed using validated criteria and the results were reported. Details of the methods used to select the primary studies and assess validity were given. A narrative review was appropriate in view of the heterogeneity among studies. Relevant details of the primary studies were clearly tabulated. The authors’ discussion considered the following limitations of the primary studies: suboptimal study design; a lack of comparison groups and blinding; poor-quality studies; a lack of linking changes in decision-making to improved outcomes; and the possibility of expectation bias. There was no mention of any adverse events associated with the interventions studied.

The authors’ conclusions are supported by the evidence presented.

Implications of the review for practice and research
Practice: The authors suggested that until results from RCTs are available, noninvasive strategies (e.g. initial H. pylori serology) appear to be safe and effective alternatives to traditional antisecretory therapy or initial endoscopy.

Research: The authors considered that prospective clinical trials that evaluate patient outcomes and resource utilisation, and take H. pylori status into account, are needed to determine the effectiveness of endoscopy in the management of dyspepsia.

Bibliographic details

PubMedID
10190384

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Anxiety /etiology; Cost-Benefit Analysis; Decision Making; Dyspepsia /microbiology /therapy; Endoscopy, Digestive System /economics; Health Resources /utilization; Helicobacter Infections /complications; Helicobacter pylori; Humans; Patient Satisfaction; Quality of Life; Randomized Controlled Trials as Topic; Treatment Outcome; United States

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.