Systematic review and meta-analysis from Chinese literature: the association between Helicobacter pylori eradication and improvement of functional dyspepsia

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CRD summary
The review concluded that functional dyspepsia symptoms improved among Chinese patients after Helicobacter pylori eradication. The authors' conclusions are supported by the data and are likely to be reliable, although they should be interpreted with some degree of caution given the methodological weaknesses of the included studies.

Authors' objectives
To assess the effect on dyspeptic symptoms of eradicating Helicobacter pylori (H. pylori) in patients with functional dyspepsia (FD) in China.

Searching
CBM Web and a Chinese scientific journal database were searched from 1989 to April 2007 for publications in Chinese; the search terms were reported. The reference lists of retrieved articles were also checked.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion.

Specific interventions included in the review
Studies assessing H. pylori eradication using standard triple or quadruple regimens were eligible for inclusion. The included eradication treatments used three or four of the following: omeprazole, lansoprazole, colloidal bismuth subcitrate, clarithromycin, metronidazole, amoxicillin, furazolidone and famotidine. Details of the comparator treatments were not reported.

Participants included in the review
Studies of adults with FD who had verified H. pylori infection and normal gastric endoscopic presentation were eligible for inclusion. Participants were excluded if they had related organ impairments or were using non-steroidal anti-inflammatory drugs. All patients were from the gastroenterology departments of hospitals in China.

Outcomes assessed in the review
Studies assessing change in FD symptoms between treatment and control groups were eligible for inclusion. Studies that used unreliable symptomatic scoring systems were excluded. Verification of eradication was through histology and/or the urease breath test. The duration of follow-up was 1 month in 6 studies and 12 months in the remaining study.

How were decisions on the relevance of primary studies made?
Two reviewers independently selected the studies and resolved any disagreements through consensus.

Assessment of study quality
Two reviewers independently assessed study quality using the Chalmers and Juni checklists, based on randomisation method, blinding and allocation concealment.

Data extraction
Two reviewers independently extracted the data. Data were extracted on the numbers of patients with and without improvement in dyspeptic symptoms in both groups (i.e. treatment and control).

Methods of synthesis
How were the studies combined?
Pooled odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using the Mantel-Haenszel fixed-effect
Publication bias was assessed using a funnel plot.

How were differences between studies investigated?

Heterogeneity was assessed using the chi-squared test.

**Results of the review**

Seven RCTs (n=761) were included.

Two studies reported the method of randomisation. No studies reported double-blinding or concealment of allocation.

The odds of FD symptom relief was 3.5 times greater amongst those receiving H. pylori eradication treatment than amongst those receiving control treatment (OR 3.61, 95% CI: 2.62, 4.98, p<0.00001). No significant difference was found in the analysis when one study with a 12-month follow-up period was excluded.

There was no evidence of statistical heterogeneity between studies (p=0.14) and no evidence of publication bias.

**Authors’ conclusions**

Dyspeptic symptoms improved among Chinese patients with FD after H. pylori eradication.

**CRD commentary**

The review question was clear and was supported by detailed inclusion and exclusion criteria. Several relevant sources were searched. The restriction to Chinese language studies was reasonable since the review question focused on China, although this might have resulted in the loss of some relevant data. An appropriate assessment revealed no evidence of publication bias. Methods were used to minimise reviewer error and bias in the study selection, validity assessment and data extraction processes. Validity was assessed using established criteria. The review results may only be generalisable to China. The authors’ conclusions are supported by the data presented and are likely to be reliable, although they should be interpreted with some degree of caution given the methodological weaknesses of the included studies.

**Implications of the review for practice and research**

Practice: The authors did not state any implications for practice.

Research: The authors stated that a meta-analysis of Chinese and English language literature, including an evaluation of clinical and economic costs, should be conducted.

**Funding**

Not stated.

**Bibliographic details**


**PubMedID**

17760723

**DOI**

10.1111/j.1523-5378.2007.00520.x

**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Anti-Bacterial Agents /therapeutic use; Anti-Ulcer Agents /therapeutic use; China; Drug Therapy, Combination;
AccessionNumber
12007002998

Date bibliographic record published
07/02/2008

Date abstract record published
03/11/2008

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.