Meta-analysis: helicobacter pylori 'test and treat' compared with empirical acid suppression for managing dyspepsia

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CRD summary
This meta-analysis of individual patient data found little difference in symptom resolution between two different treatment strategies for uncomplicated dyspepsia. The authors' conclusions are likely to be reliable and applicable to the UK National Health Service and similar settings.

Authors' objectives
To conduct an individual patient data (IPD) meta-analysis of randomised controlled trials (RCTs) comparing test and treat with empirical acid suppression in adults with uncomplicated dyspepsia in primary care.

Searching
A prospective trials register maintained by the Dyspepsia Trials Collaborators’ Group was used as a source of studies. The register was supplemented by searches in Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE up to April 2008; search terms were not reported in the paper. Abstract books of conference proceedings between 1996 and 2007 were searched.

Study selection
RCTs that compared Helicobacter pylori test and treat with empirical proton pump inhibitor (PPI) therapy for initial management of dyspepsia without alarm symptoms in adults in primary care were eligible for the meta-analysis. Test and treat involved non-invasive testing for Helicobacter pylori followed by eradication therapy for those who tested positive and PPI therapy for those who tested negative. Dyspepsia was defined as a cluster of upper gastrointestinal tract symptoms that included both epigastric pain and heartburn. Trials had to report outcome data that included symptom status at the end of the trial.

Included trials were conducted in the UK and Denmark and used a variety of eradication and PPI treatment regimens. Mean age of participants ranged from 41.3 to 45.4 years. The percentage of men ranged from 42% to 55%.

The authors did not report in the paper how trials were selected for the meta-analysis.

Assessment of study quality
IPD provided by study investigators were transformed (details not reported) and the original analyses reported by the investigators were replicated to confirm integrity of the data. Any discrepancies were clarified with the investigator involved.

Data extraction
IPD on symptoms were requested from investigators. After checking the integrity of the data, data sets were standardised to allow direct comparisons between trials wherever possible.

Methods of synthesis
Treatment effect was expressed as a pooled relative risk (RR) and associated 95% confidence interval (CI) for presence of dyspepsia at 12 months. As one of the studies used cluster randomisation, the cluster size and intra-cluster correlation coefficient were used to reduce the size of the trial to its effective sample size before data pooling. Data were pooled using a random-effects model. Statistical heterogeneity was assessed using the $I^2$ statistic. Values below 25% were considered to indicate low heterogeneity. Pre-specified subgroup analyses were conducted by gender, age and main symptom at trial entry. Data were analysed on an intention-to-treat basis.

Results of the review
Data from three RCTs (1,547 patients) were included in the meta-analysis.
There was no significant difference in dyspepsia symptom-cure at 12 months between treatment groups (RR 0.99, 95% CI 0.95 to 1.03; $I^2 = 0\%$). None of the subgroup analyses found any statistically significant differences.

**Cost information**
The difference in costs between the two treatment strategies was not statistically significant (weighted mean difference favoured test and treat (-£28.91, 95% CI -£68.48 to £10.65). For more details see the abstract for this paper in the NHS EED database (accession number 22008101619).

**Authors’ conclusions**
There was little difference in symptom resolution between the two strategies.

**CRD commentary**
This IPD meta-analysis addressed a clear question with appropriate and clear inclusion criteria. The authors searched a range of relevant sources and attempted to locate unpublished as well as published trials. Details of the trial selection process were not reported, so the risk of errors or bias at this stage was uncertain. IPD were obtained from trial investigators and measures were taken to validate data and resolve any discrepancies. Data were analysed appropriately, with investigation of statistical heterogeneity and use of pre-specified subgroup analyses.

This was a generally well conducted and reported piece of research. The authors’ conclusions are likely to be reliable and applicable to the UK National Health Service and similar settings.

**Implications of the review for practice and research**
**Practice:** The authors stated that patient and physician preference should determine the choice of initial management strategy for uncomplicated dyspepsia.

**Research:** The authors did not state any implications for further research.

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