Noninvasive Helicobacter pylori testing was as effective as endoscopy for managing dyspepsia


QUESTION: In patients with upper gastrointestinal symptoms presenting for investigation of dyspepsia, is treatment based on a urea breath test for Helicobacter pylori alone as effective as endoscopy and urea breath testing?

Design
Randomised (allocation concealed),† unblinded,* controlled trial with 1 year of follow up.

Setting
A gastroenterology clinic in Glasgow, UK.

Patients
708 patients (mean age 37 y, 53% men) who were referred by their general practitioners for investigation of upper gastrointestinal symptoms. Exclusion criteria were age >55 years, nonsteroidal anti-inflammatory drugs, or sinister symptoms. Follow up was 83%.

Intervention
Patients were allocated to endoscopy plus the noninvasive 14C-urea breath test (n=352) or the breath test alone (n=356) for determination of H pylori status. Patients were informed of their status after the test, and patients with positive results were prescribed a 7 day course of H pylori eradication treatment with omeprazole, 20 mg twice daily; clarithromycin, 250 mg 3 times daily; and amoxicillin, 500 mg (or metronidazole, 400 mg) 3 times daily.

Main outcome measures
Change from baseline on the Glasgow Dyspepsia Severity Score (GDSS). Secondary outcomes were use of medical resources, patient assessment of the procedures, and safety.

Main results
Analysis was by intention to treat. At 1 year, the mean change from baseline on the GDSS was similar between groups (p=0.69) (table). The study had 90% power to detect a difference in mean change on the GDSS of 1.05 and 1.41 between the groups that were positive and negative for H pylori, respectively. The mean reduction in GDSS was 46% in the endoscopy group and 45% in the breath test alone group. Groups did not differ for resolution of dyspepsia (14% v 11%, p=0.25). More patients who received the breath test alone were referred for further endoscopy than were those who received the breath test and endoscopy (8.2% v 1.7%, p<0.001). Groups did not differ for further nonendoscopic investigations.

Conclusion
In patients with upper gastrointestinal symptoms presenting for investigation of dyspepsia, a urea breath test for Helicobacter pylori was as effective as endoscopy plus breath test for managing dyspepsia.

*See glossary.
†Information provided by author.

Noninvasive 14C-area breath test vs endoscopy plus breath test for dyspepsia at 1 year

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Breath test (baseline)</th>
<th>Endoscopy plus breath test (baseline)</th>
<th>Difference in mean change from baseline (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glasgow Dyspepsia Severity Score</td>
<td>5.6 (10.2)</td>
<td>5.4 (10.2)</td>
<td>0.2 (-0.7 to 0.5)</td>
</tr>
</tbody>
</table>

*CI defined in glossary.

COMMENTARY

Patients with dyspeptic symptoms should be managed with 2 goals in mind: early detection of malignant disease and cost-effective relief of symptoms. Patients <55 years of age without “alarm features” (eg, weight loss, dysphagia, and anaemia) are at very low risk of malignancy and do not require endoscopic investigation. The question of management then turns on the relative costs and effectiveness of endoscopy, noninvasive tests, and eradication of H pylori.

The trials by McColl and Chiba and their colleagues provide important information for physicians managing patients presenting with uninvestigated dyspepsia. The study by McColl et al adds to 2 previous studies that confirm the cost effectiveness of a secondary care based H pylori test and treat service compared with endoscopy based management. All 3 trials of test and treat compared with endoscopy based management showed equivalent effectiveness, but costs were reduced because fewer patients had endoscopy: The trial by McColl et al showed a rate of endoscopy in the year of follow up in the test and treat group of only 8%, whereas Heaney and Lassen showed rates nearer 30%. Patients positive for H pylori in both groups of the trial by McColl et al received eradication treatment. Thus, any differences caused by the eradication treatment itself were abolished. The trial can therefore be considered to address the question, “Is the cost of eradication warranted by the effect on symptoms, quality of life, and patient satisfaction of having the investigation?” The answer is “no”.

The trial by Chiba et al (CADETHp) takes the McColl et al trial 2 steps further. Firstly, patient recruitment and the intervention took place in a primary care setting. Secondly, test and treat was compared with acid suppression alone. In contrast to the trial by McColl et al, CADET Hp was designed to examine the effect of eradication treatment on dyspeptic symptoms, and found a substantial improvement in the proportion of patients with dyspeptic symptoms at the end of the trial. However, the difference in costs was small and not statistically significant.

The reason for the difference in effects and costs between CADET Hp and McColl et al lies in the use of eradication treatment for H pylori: In CADET Hp the control group patients did not receive eradication treatment and were therefore at risk of recurrent peptic ulcers that had healed initially with omeprazole.
Helicobacter pylori eradication improved dyspepsia symptoms


**QUESTION:** In patients with dyspepsia and a positive test result for *Helicobacter pylori*, is an *H pylori* eradication strategy more effective than placebo for improving dyspepsia symptoms?

**Design**

Randomised (allocation concealed†,‡, blinded (clinicians, patients, data collectors, outcome assessors, data analysts, and manuscript writers))§, placebo controlled trial with 1 year of follow up.

**Setting**

36 family practices in Canada.

**Patients**

294 patients (mean age 49 y, 50% men) who were ≥18 years of age and had uninvestigated symptoms of dyspepsia for ≥3 months. Dyspepsia was defined as a complex of epigastric pain including heartburn, acid regurgitation, excessive burping or belching, increased abdominal bloating, nausea, abnormal or slow digestion, or early satiety. All patients had to have positive test results for *H pylori* on the Helisal rapid blood test and the 13C-urea breath test. Exclusion criteria included gastrointestinal reflux disease, upper gastrointestinal investigation in the previous 6 months or ≥2 times in the past 10 years, eradication therapy for *H pylori* in the past 6 months, previous gastric surgery, ulcer disease or endoscopic oesophagitis, and irritable bowel syndrome. Follow up was 87%.

**Intervention**

Patients were allocated to omeprazole, 20 mg; metronidazole, 500 mg; and clarithromycin, 250 mg (eradication) (n = 145) or omeprazole, 20 mg, and placebo metronidazole and placebo clarithromycin (placebo) (n = 149) twice daily for 7 days.

**Main outcome measures**

Global overall severity (GOS) of dyspepsia symptoms assessed with a 7 point scale (1 = no problem, 7 = very severe problems). Treatment success was a score of 1 or 2. Secondary outcomes were proportion of asymptomatic patients and treatment success according to *H pylori* status.

**Main results**

Analysis was by intention to treat, and an analysis with all evaluable patients was also done (n = 267). Patients in the eradication group had greater treatment response than did those in the placebo group (table). More patients in the eradication group were completely asymptomatic (table). Treatment was more successful in patients in whom *H pylori* was eradicated than in those it was not (54% v 39%, p = 0.02). Eradication treatment reduced societal costs, but the difference was not statistically significant (Cdn $53, 95% CI – 86 to 180).

**Conclusion**

In patients with dyspepsia and a positive test result for *Helicobacter pylori*, an *H pylori* eradication strategy was more effective than placebo for improving dyspepsia symptoms.

*See glossary.
†Information provided by author.
‡Abbreviations defined in glossary; RBI, NNT, and CI calculated from data in article.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Eradication</th>
<th>Placebo</th>
<th>RBI (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment success</td>
<td>50%</td>
<td>36%</td>
<td>37% (5 to 80)</td>
<td>7 (4 to 63)</td>
</tr>
<tr>
<td>Completely asymptomatic</td>
<td>28%</td>
<td>15%</td>
<td>92% (21 to 205)</td>
<td>8 (5 to 24)</td>
</tr>
</tbody>
</table>

Source of funding: Astra-Zeneca Canada Inc.

For correspondence: Dr N Chiba, Surrey GI Clinic/Research, Guildford, Ontario, Canada. chiban@on.aibn.com

Abstract and commentary also published in ACP Journal Club

COMMENTARY—continued from previous page

Furthermore, patients with nonulcer dyspepsia may also benefit from *H pylori* eradication. A Cochrane review of 9 placebo controlled trials of *H pylori* eradication treatment in patients without peptic ulcers or oesophagitis at endoscopy found a number needed to treat of 15.5

The CADET-Hp trial does not show conclusively that *H pylori* test and treat is more cost effective in primary care than omeprazole alone, because it was only done in *H pylori*-positive patients. The cost effectiveness of this strategy needs to be tested by randomising patients with dyspepsia, both positive and negative for *H pylori*, before noninvasive testing for *H pylori*, to determine the effect of the management strategy on the whole group. It does, however, lend more support to the eradication of *H pylori* in all patients known to be infected.

Brendan Delaney, MD, FRCP, MRCGP
University of Birmingham
Birmingham, UK

Noninvasive *Helicobacter pylori* testing was as effective as endoscopy for managing dyspepsia

*Evid Based Med* 2003 8: 20
doi: 10.1136/ebm.8.1.20

Updated information and services can be found at:
http://ebm.bmj.com/content/8/1/20

These include:

**References**

This article cites 3 articles, 2 of which you can access for free at:
http://ebm.bmj.com/content/8/1/20#BIBL

**Email alerting service**

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Topic Collections**

Articles on similar topics can be found in the following collections

- Neurogastroenterology (105)
- Surgical diagnostic tests (113)
- Clinical trials (epidemiology) (1595)
- Drugs: musculoskeletal and joint diseases (349)
- General practice / family medicine (352)
- Health economics (124)
- Health policy (216)
- Health service research (176)
- Oesophagus (36)

**Notes**

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/