

Risk among gastroenterologists of acquiring *Helicobacter pylori* infection: case-control study

Pius Hildebrand, Beat M Meyer-Wyss, Sandro Mossi, Christoph Beglinger

It has been suggested that endoscopists are at increased risk of *Helicobacter pylori* infection, but the results of the different studies have been contradictory.¹⁻² Part of the explanation for the controversy may be the fact that these were cross sectional epidemiological studies rather than prospective ones with long term follow up. The mode of transmission of *H pylori* infection is gastric/oral to oral or fecal to oral, and the human gastric mucosa serves as the main reservoir for the bacterium. As many patients undergoing endoscopy are positive for *H pylori*, gastroenterologists are likely to be exposed to infected saliva and gastric juice, and this could increase their risk of acquiring *H pylori* infection.

This prospective study aimed to investigate whether gastroenterologists have a higher risk than a matched control group of acquiring *H pylori* infection. In addition, we wished to determine whether wearing surgical gloves protects gastroenterologists from this infection.

Participants, methods, and results

Between 1989 and 1991, 92 gastroenterologists and 168 healthy control subjects matched for age and race were investigated by using a questionnaire and a ¹³C urea breath test. The gastroenterologists were recruited during the annual meeting of the Swiss Society of Gastroenterology and Hepatology, while the control subjects were selected from participants in a large study of *H pylori* prevalence. The cut-off value for the breath test was set at five parts per 1000.³⁻⁴ Subjects who had taken antibiotics or proton pump inhibitor drugs within three months of testing were excluded. Altogether 56 gastroenterologists were negative and 36 were positive for *H pylori*; 104 control subjects were negative and 64 were positive.

All subjects were white, and most were still living in the same area at the end of the observation period of five to eight years. In 1996-8, the ¹³C urea breath test was repeated in 54 of the 56 gastroenterologists who had previously been *H pylori* negative (median age 47 (range 35-77) years) and in 103 of the 104 negative controls (49 (31-77) years) (table).

In 270 person years of follow up, seven gastroenterologists had acquired *H pylori* infection (2.6% per year); all seven wore gloves during endoscopy as a matter of routine. In the control group, only one subject became positive for *H pylori* over 731 person years of observation (0.14% per year). The difference in the per-

centages of positive subjects in the two groups was 12.0% (95% confidence interval 2.8% to 21.2%). In the initial group of *H pylori* positive gastroenterologists, 12 of 25 were negative on follow up testing. Although all newly negative gastroenterologists had completed various courses of treatment to eradicate the infection, only two would have qualified for treatment according to the criteria of the 1994 National Institutes of Health consensus conference. Despite these guidelines, many Swiss gastroenterologists with no symptoms underwent eradication treatment.

Comment

In a prospective, long term follow up study, we found that a group of gastroenterologists had a considerably higher risk of acquiring *H pylori* infection than a matched control group. Although *H pylori* infection seems to occur predominantly during childhood,⁵ it can be transmitted from infected patients to gastroenterologists when they perform endoscopies. Using surgical gloves did not protect against infection. The results suggest that oral infection via microscopic droplets of gastric juice produced by manipulating endoscopic instruments is the mode of transmission, but this remains to be proved. It would be interesting to determine whether wearing a facemask protects against *H pylori* infection.

Contributors: CB and BMM-W had the idea for the study and the design. Data collection was performed by BMM-W, SM, and PH. Analysis of breath tests was performed by PH, SM, and BMM-W. Statistical analysis was done by PH. The paper was written by PH and CB. CB is the guarantor.

Funding: None.

Competing interests: None declared.

- Mitchell HM, Lee A, Carrick J. Increased incidence of Campylobacter pylori infection in gastroenterologists: further evidence to support person-to-person transmission of C. pylori. *Scand J Gastroenterol* 1989;24:396-400.
- Braden B, Duan LP, Caspary WF, Lembcke B. Endoscopy is not a risk factor for Helicobacter pylori infection—but medical practice is. *Gastrointest Endosc* 1997;46:305-10.
- Dill S, Payne-James JJ, Misiewicz JJ, Grimble GK, McSwiggan D, Pathak K, et al. Evaluation of ¹³C-urea breath test in the detection of Helicobacter pylori and in monitoring the effect of tripotassium dicitratobismuthate in non-ulcer dyspepsia. *Gut* 1990;31:1237-41.
- Meyer-Wyss BM, Hildebrand P, Beglinger C. Breath tests: diagnostic studies. In: Browne TR, ed. *Stable isotopes in pharmaceutical research*. Amsterdam: Elsevier Science Publishers, 1997.
- Megraud F. Epidemiology of Helicobacter pylori infection. *Gastroenterol Clin North Am* 1993;22:73-88. (Accepted 25 April 2000)

Seven year follow up of subjects who were negative for *Helicobacter pylori* at first testing

Group	<i>H pylori</i> positive	<i>H pylori</i> negative	Total
Control subjects	1	102	103
Gastroenterologists*	7	47	54

*Pearson χ^2 : P=0.012 (two tailed); Fisher's exact test: P=0.025 (two tailed) compared with controls.

Department of Research, University Hospital, CH-4031 Basel, Switzerland
Pius Hildebrand
head of laboratory

Division of Gastroenterology, University Hospital
Sandro Mossi
consultant
Christoph Beglinger
head

St Clara Hospital, Department of Internal Medicine, CH-4058 Basel, Switzerland
Beat M Meyer-Wyss
associate professor

Correspondence to: P Hildebrand
Pius.Hildebrand@unibas.ch

BMJ 2000;321:149

Endpiece Elixir of life

"The Elixir of Life?"
"Exactly. Think of people who have tried to find it."
"If I were to find such a thing I would throw it away."

T H White, *The Once and Future King*.
London: Voyager, 1996.