

Physicians' practice patterns of treating *Helicobacter pylori*—associated peptic ulceration in public hospitals in Hong Kong: questionnaire survey

KKH Or, JJY Sung, YW Luk, ST Lai, SC Tiu, and the Coordinator Group of the Quality Assurance Subcommittee (Medicine), Hospital Authority, Hong Kong

To survey the practice patterns of physicians in public hospitals in Hong Kong when treating *Helicobacter pylori*—associated peptic ulceration, the records of all patients from 22 medical units who had new peptic ulcers that had been diagnosed endoscopically during August 1996 were examined systematically. Patient data were entered on a one-page questionnaire. Five hundred and twelve patients with peptic ulceration were studied, 173 (34%) of whom had presented with gastro-intestinal bleeding. The *H pylori* status had been determined in 449 (88%) patients, 280 (62%) of whom had subsequently tested positive for *H pylori*. The biopsy urease test or histological examination had been performed for more than 95% of patients. Of 260 patients who had tested positive for *H pylori*, 244 (94%) had received eradication therapy to eliminate this organism; a total of 291 patients, however, were receiving eradication therapy. The most commonly used regimen was proton pump inhibitor triple therapy (151 [52%] of 291 patients). Confirmation of the eradication of *H pylori* had been planned for 152 (52%) of the 291 patients, whereas ulcer-healing drugs—mainly H₂-receptor antagonists—had been prescribed for 116 (40%) patients after eradication. Curing *H pylori* infection is therefore widely accepted in the management of peptic ulcer disease among physicians working in Hong Kong public hospitals.

HKMJ 1999;5:187-90

Key words: Health care surveys, *Helicobacter pylori*, Peptic ulcer/drug therapy; Physician's practice patterns

Introduction

Since the discovery of the presence of *Helicobacter pylori* in the gastric mucosa of patients with active chronic gastritis in 1983,¹ there has been a rapid accu-

mulation of large clinical trials, cost-effective analyses, systematic reviews, and consensus guidelines that relate the bacterium to peptic ulcer disease.²⁻⁸ The recommendations on ulcer management have changed drastically and have shifted emphasis towards *H pylori* eradication. But few studies have investigated physicians' practice patterns of treating *H pylori*—associated peptic ulceration. The few reports in the literature used postal surveys of gastro-enterologists⁹⁻¹² or primary care physicians.^{10,12,13} The rates of failure to prescribe eradication therapy have ranged from 1%¹⁰ to 17%⁹ among gastro-enterologists and to approximately 33% among primary care physicians.¹⁰ In a recent prospective observational study of general practitioners, only 30% of patients with peptic ulceration received *H pylori* eradication therapy.¹⁴

This study surveyed physicians' practice patterns of treating *H pylori*—associated peptic ulceration, in public hospitals of Hong Kong.

Department of Medicine and Geriatrics, Shatin Hospital, A Kung Kok Street, Shatin, Hong Kong

KKH Or, FHKAM (Medicine)

Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong

JJY Sung, MD, PhD

Department of Medicine, Pamela Youde Nethersole Eastern Hospital, Lok Man Road, Chai Wan, Hong Kong

YW Luk, FRCP (Edin), FRCP (Glasg)

Department of Medicine, Princess Margaret Hospital, Princess Margaret Hospital Road, New Territories, Hong Kong

ST Lai, FRCP (Edin), FHKAM (Medicine)

Department of Medicine, Queen Elizabeth Hospital, Gascoigne Road, Kowloon, Hong Kong

SC Tiu, FRCP (Edin), FHKAM (Medicine)

The Coordinator Group of the Quality Assurance Subcommittee (Medicine), Hospital Authority, Hong Kong

Correspondence to: Dr KKH Or

Material and methods

Data of all patients in whom new peptic ulcers had been diagnosed endoscopically in August 1996 were collected from medical units of 22 public hospitals in Hong Kong. Patients' hospital and out-patient records up to 3 months following the date of the index endoscopy were reviewed systematically by using a simple one-page questionnaire (copies are available from the authors). The questionnaire had five main sections. The first part solicited data on the date of endoscopy, type of ulceration, presence of complications, and use of non-steroidal anti-inflammatory drugs. The second documented modes of *H pylori* detection and their results. The third recorded the drugs used in *H pylori* eradication therapy and their dosages, while the fourth recorded what ulcer healing drugs had been used. The fifth section enquired whether confirmation of *H pylori* eradication had been planned.

To ensure satisfactory responses from participating hospitals, one physician from each hospital was chosen to monitor the method of data collection locally. The data were analysed using the Statistical Package for Social Science (Windows version 6.0; SPSS Inc., Chicago, United States) and presented as percentages.

Results

Data from 512 patients with newly diagnosed peptic ulcers were studied. The median age was 62 years (range, 10-94 years) and the male to female ratio was 1.38:1. Although the vast majority (91.4%) of the patients were from 12 regional general hospitals (the balance were from extended care hospitals), the number of patients with new peptic ulcers varied substantially among these acute care institutions (median, 34; range, 8-157). There was full data entry in the first two sections of the questionnaire—that is, basic information about the ulceration and *H pylori* detection. Approximately 10% of the questionnaires, however, had missing data regarding the treatment and follow-up of patients.

Of the study participants, 296 (50%) had duodenal ulcers, 245 (41%) had gastric ulcers, 36 (8%) had concurrent duodenal and gastric ulcers, and 7 (1%) had anastomotic ulcers. One hundred and seventy-three (34%) patients had presented with gastro-intestinal bleeding and nine (2%) with pyloric stenosis. Ninety (18%) patients had given a history of using non-steroidal anti-inflammatory drugs, but answers to this question were missing for 149 (29%) patients.

Testing for the presence of *H pylori* had been performed in 449 (88%) patients, 280 (62%) of whom tested positive for *H pylori*. The diagnostic tests used included biopsy urease testing (315 [70%] of all patients tested), histological examination (211; 47%), bacteriological culture (15; 3%), and the urea C 13 breath test (6; 1%). Serological examination had not been used to determine the *H pylori* status for any of the patients. More than one test to detect the presence of *H pylori* had been used for 92 (20%) patients.

Two hundred and forty-four (94%) of 260 of the patients who had tested positive for *H pylori* had received eradication therapy; this information was missing in 20 of the 280 patients who had tested positive for *H pylori*. At least 18 (4%) of the 512 patients had been given *H pylori* eradication therapy without checking their *H pylori* status. (Reports of 10 patients who had not been tested for the presence of *H pylori* gave no information about eradication therapy.) The most commonly used treatment for *H pylori* infection was proton pump inhibitor (PPI) triple therapy (151 [52%] of the 291 patients who were receiving eradication therapy). Other treatments included bismuth triple therapy (62; 21%), PPI dual therapy (54; 19%), and bismuth quadruple therapy (15; 5%). These regimens had been prescribed for either 1 (157 [54%] patients) or 2 weeks (122; 42%).

Records of 152 (52%) of the 291 patients who were receiving eradication therapy had shown that some form of confirmation of *H pylori* eradication had been planned. Tests included histological examination (115 [76%] of 152 patients), the biopsy urease test (66; 43%), the urea breath test (17; 11%), and bacteriological culture (16; 11%). Acid-suppressing therapy was continued to promote ulcer healing for some of the 291 patients who had been given *H pylori* eradication therapy. This therapy included the use of H₂-receptor antagonists (87 [30%] patients), PPIs (26; 9%), and sucralfate (3; 1%).

Discussion

In most published studies on physicians' practice patterns of treating peptic ulceration, a direct postal survey has been used as the investigative strategy. The response rates have ranged from 65%^{9,11} to 30%.¹⁰ In this study, a one-page structured questionnaire was sent to the coordinating physician in each of the 22 participating medical units. There was substantial variation in the number of completed questionnaires from different acute care institutions. One explanation may be the variation of the size of endoscopic service

and its operational set-up between hospitals. Yet, we consider that other diagnostic modalities, such as giving barium meals, contribute little to the number of new ulcers detected. Another explanation may be the varying degrees of under reporting of new ulcers among the participating hospitals. But the identification of 512 patients with new ulcers during a 1-month period and the participation of 22 medical units in Hong Kong public hospitals indicate that the study sample is likely to be representative of the population of patients with new peptic ulcers who were treated by physicians working in Hong Kong public hospitals in 1996.

Unlike previous direct postal surveys that examined physicians' attitudes^{9,10} and opinions towards different hypothetical clinical situations,⁹⁻¹¹ this study concentrated on a few objective items relevant to ulcer management. This approach helped to ensure the quality of the collected data, as reflected by the fact that nearly 90% of returned questionnaires were completed in full and that there was little internal inconsistency in data entries (unpublished data, 1998).

When extrapolating the results of this study, one should bear in mind the setting under which this study was conducted. New cases of peptic ulceration were identified by searching through the endoscopic records in public hospitals, and study participants were either medical in-patients or patients who were attending hospital medical clinics. The overall rate of complicated new ulcers—mainly gastro-intestinal haemorrhage—was 36%. But this figure may be different in the surgical setting or in the private sector.

The prime objective of this study was to survey how frequently eradication therapy is undertaken in ulcer management. Four hundred and forty-nine (88%) of 512 patients had been tested for the presence of *H pylori*. Ninety-four percent of those who tested positive had been given *H pylori* eradication therapy. However, 18 (4%) of the 512 patients had received eradication therapy without having had their *H pylori* status checked. The practitioners consisted of general internists and various medical subspecialists working in public hospitals in Hong Kong. Thus, in this study, treating *H pylori* infection was widely accepted in the management of peptic ulcer disease. Furthermore, the vast majority of eradication regimens reported in the questionnaires are based on regimens that have been proven to be effective in clinical trials.

Published guidelines on the management of *H pylori* infection in peptic ulcer disease^{2,3} and the expected reduction in ulcer recurrence and treatment cost^{7,8} might

have influenced physicians' decision to give *H pylori* eradication therapy.

Only 18% of patients were documented to have been using non-steroidal anti-inflammatory drugs. The likely underreporting (there was no information for 29% of respondents) may be due to the lack of a current consensus in this area of ulcer management.^{16,17} The diagnosis of *H pylori* infection in this survey had mainly been based on the results of the biopsy urease test and histological examination (more than 95% overall). Serological analysis had not been used for *H pylori* testing and 12% of patients with ulceration had received no *H pylori* testing. Such variations in practice patterns may be related to the availability of testing facilities. In addition, owing to strain variations of *H pylori* in this region of the world, further local validation of serology testing may be required before its widespread use (Sung JJ, unpublished data, 1997).

Confirmatory testing for the eradication of *H pylori* had been planned for 52% of those who had been given eradication therapy. This figure compares favourably with that of 22% reported by gastro-enterologists during a postal survey performed in the United Kingdom in 1993.⁹ However, confirmatory tests would mostly be endoscopy-based histological examination and the biopsy urease test. The urea C13 breath test is non-invasive and has been recommended as a method to confirm *H pylori* eradication.⁵ However, the test is not available in most public hospitals of Hong Kong and consequently, it had been planned for only 11% of patients after eradication therapy.

In conclusion, treating *H pylori* infection in the management of peptic ulcer disease is widely accepted by physicians working in Hong Kong public hospitals. The rapid accumulation of cost-effective studies of ulcer management⁶⁻⁸ should enable each hospital to decide rationally as to what testing facility is most suitable.

Acknowledgements

We would like to thank Mr K Poon (statistician, Hong Kong Hospital Authority), Dr SP Wong (ex-chairman of the Quality Assurance Subcommittee [Medicine] of Hong Kong Hospital Authority), and all coordinating physicians of the 22 participant hospitals.

References

1. Marshall BJ. Unidentified curved bacilli on gastric epithelium in active chronic gastritis [letter]. *Lancet* 1983;1:1273-5.

2. *Helicobacter pylori* in peptic ulcer disease. National Institutes of Health Consensus Statement 1994;12:1-22.
3. Irish *Helicobacter pylori* Study Group. Guidelines for the management of *Helicobacter pylori*-related upper gastro-intestinal disease. Ir J Med Sci 1996;165:1-11.
4. European *Helicobacter pylori* Study Group. Current European concepts in the management of *Helicobacter pylori* infection. The Maastricht Consensus Report. Gut 1997;41:8-13.
5. Proceedings of the American Digestive Health Foundation International Update Conference on *Helicobacter pylori*; 1997 Feb 13-16; McLean (Va), USA. Gastroenterology 1997; 113(6 Suppl):1S-169S.
6. Bodger K, Daly MJ, Heatley RV. Clinical economics review: *Helicobacter pylori*-associated peptic ulcer disease. Aliment Pharmacol Ther 1997;11:273-82.
7. Imperiale TF, Speroff T, Cebul RD, McCullough AJ. A cost analysis of alternative treatments for duodenal ulcer. Ann Int Med 1995;123:665-72.
8. Briggs AH, Sculpher MJ, Logan RP, Aldous J, Ramsay ME, Baron JH. Cost effectiveness of screening for and eradication of *Helicobacter pylori* in management of dyspeptic patients under 45 years of age. BMJ 1996;312:1321-5.
9. Milne R, Logan RP, Harwood D, Misiewicz JJ, Forman D. *Helicobacter pylori* and upper gastrointestinal disease: a survey of gastroenterologists in the United Kingdom. Gut 1995;37:314-8.
10. Fendrick AM, Hirth RA, Chernew ME. Differences between generalist and specialist physicians regarding *Helicobacter pylori* and peptic ulcer disease. Am J Gastroenterol 1996;91: 1544-8.
11. Kubba AK, Whyman MR. Upper gastrointestinal disease in Scotland: a survey of practice amongst Scottish gastroenterologists. J R Coll Surg Edinburgh 1996;41:302-6.
12. Breuer T, Malaty HM, Goodman K, Sudhop T, Graham DY. Treatment regimens used in *Helicobacter pylori* positive ulcer disease; a nationwide comparison of gastroenterologists and family practitioners in the United States of America [abstract]. Gut 1996;39(2 Suppl):A22.
13. Penston JG, Mistry KR. Eradication of *Helicobacter pylori* in general practice. Aliment Pharmacol Ther 1996; 10:139-45.
14. Bodger K, Daly MJ, Heatley RV. Prescribing patterns for dyspepsia in primary care: a prospective study of selected general practitioners. Aliment Pharmacol Ther 1996;10: 889-95.
15. Armstrong D, Reyburn H, Jones R. A study of general practitioner's reasons for changing their prescribing behaviour. BMJ 1996;312:949-52.
16. Lee J, O'Morain C. Consensus or confusion: a review of existing national guidelines on *Helicobacter pylori*-related disease. Eur J Gastroenterol Hepatol 1997;9:527-31.
17. Hawkey CJ. Non-steroidal anti-inflammatory drug gastropathy: causes and treatment. Scand J Gastroenterol Suppl 1996; 220:124-7.