Helicobacter pylori in Immigrants from East Africa

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This study determines the prevalence of *Helicobacter pylori* infection in a group of immigrants from East Africa with dyspepsia symptoms. Costs of treatment (including financial costs, adverse effects of treatment, and complexity of care) are compared for empiric treatment and treatment guided by serologic testing. Of the symptomatic patients, 93% had *H. pylori* antibodies. Empiric treatment of all patients with dyspepsia could reduce the cost of care by approximately half, with minimal risk to uninfected patients.

KEY WORDS: *Helicobacter pylori*; dyspepsia; immigrant; refugee.

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The prevalence of *Helicobacter pylori* infection in developed countries varies widely and is related to the age and socioeconomic status of the population.¹ In developing countries, *H. pylori* infection is much more prevalent and occurs early in life.^{2,3} Because immigration to the United States is occurring at the highest rate since World War II,⁴ many American physicians now see patients from countries where *H. pylori* infection is almost universal.⁵

We asked whether the prevalence of *H. pylori* infection in a group of symptomatic East African immigrants was high enough to recommend a strategy of treating patients without first testing them for infection.

METHODS

All patients from Somalia and Ethiopia seen from August through October 1998 at one hospital-based clinic in Minneapolis were screened for symptoms of dyspepsia (abdominal pain, nausea, vomiting, indigestion, or reflux) using a questionnaire translated into the Somali language or using interpreters. Symptomatic patients were tested for *H. pylori* antibodies by enzyme-linked immunosorbent assay (Quest Diagnostics, Woodale, Ill). Patients seen during this time interval who had been tested for *H. pylori* antibodies within the last year were included. Treatment to eradicate *H. pylori* (10 days of omeprazole, amoxicillin,

and clarithromycin) was recommended to seropositive patients, after which their charts were reviewed for adverse effects of treatment and symptomatic improvement lasting at least 1 month.

We determined the retail costs of *H. pylori* antibody tests, the course of drug treatment, and one follow-up visit (CPT code 99212) with interpreter service to explain the recommended treatment.

RESULTS

Sixty-six patients, 55 from Somalia and 11 from Ethiopia, were seen during the 3-month period; 43 were female and 23 were male, and their median age was 32.5 years (range, 17-92 years). When asked, 45 (68%) of them reported dyspeptic symptoms (35 pain, 27 reflux, 18 nausea or vomiting, and 17 indigestion). Interpreters reported some difficulty distinguishing between "pain" and "reflux." Symptomatic patients were similar in age (median, 33 years; range, 18-75 years) to the entire group and were slightly more likely to be male (39% vs 35%).

Of these 45 symptomatic patients, 42 (93%) had antibodies to *H. pylori* (95% confidence interval [CI] 86%, 100%). Seven declined treatment or did not return. Thirty-five were treated with the three-drug regimen. Follow-up data on response to treatment are lacking for five patients. Of the remaining 30 patients, 22 (73%) reported improvement in symptoms. Four (13%) reported clinically important adverse effects that began with treatment (2 diarrhea, 1 nausea, and 1 abdominal pain).

The retail cost of the *H. pylori* serology test was \$116; the cost of 10 days of treatment with omeprazole, amoxicillin, and clarithromycin was \$163; and the cost of one follow-up visit with interpreter service was \$61. Thus, if all symptomatic patients were tested and only infected patients were treated, the cost of caring for 45 patients would be \$14,628 or \$325 per patient (95% CI \$296, \$340). If all symptomatic patients were treated empirically, the cost would be \$7,335 or \$163 per patient. There would be additional costs, financial and otherwise, of adverse effects of unnecessary treatment for approximately 1% of the patients (13% of the 7% uninfected patients).

DISCUSSION

Helicobacter pylori infection is associated with peptic ulcer disease, erosive gastritis, mucosa-associated lymphoid tissue lymphoma, gastric adenocarcinoma, atrophic gastritis, and possibly nonulcer dyspepsia.⁶ Indications for treatment include peptic ulcer disease, gastric mucosa-associated lymphoid tissue lymphoma or adenocarcinoma, erosive gastritis without other apparent cause, and possibly prolonged therapy with nonsteroidal anti-inflammatory

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drugs or acid secretion suppressants.^{7,8} Treatment of patients with nonulcer dyspepsia is controversial.⁹⁻¹¹ Treatment of asymptomatic infected persons is generally not recommended.⁸

Helicobacter pylori infection is common worldwide, especially in developing countries.^{3,6} In four studies of adults in Africa, the prevalence of *H. pylori* infection was as high as 94%.^{3,12} Within the United States, prevalence varies widely, but it is higher in immigrants and children of immigrants.^{1,13}

This study examines the prevalence of *H. pylori* infection in a group of symptomatic East African refugees living in the United States, most of whom had spent years waiting in crowded refugee camps in Kenya. It asks a practical question: Is the infection rate high enough to treat symptomatic patients empirically? We believe the answer is yes. This strategy conserves dollars, time, and clinic resources. It avoids the problems of patients not returning for appointments, so frequent in this highly mobile group, and of long inconclusive discussions about therapy with patients who are not used to the concept of making choices, have a long list of other concerns, and may not grasp the subtleties of decision making presented by an interpreter. Telephone treatment is not practical for non-English-speaking patients. A recently available rapid serology test could be used for in-clinic screening, and is less expensive than the test we used (\$19 vs \$116, so the total cost per patient would be \$228) but may be insufficiently sensitive.¹⁴

This recommendation should be weighed against potential reasons not to use empiric treatment. Treating uninfected patients will cause some unnecessary adverse effects. Those reported by our patients were minor and not clearly related to treatment; a larger series would be necessary to look for problems such as *Clostridium difficile* colitis. Antibiotic resistance might be encouraged. A plan to treat all patients might delay diagnosis for the few patients with serious pathology. If symptoms persist or recur, treatment could influence potentially useful urease-based tests.¹⁵ Finally, some patients may not benefit from treatment because their symptoms are unrelated to their *H. pylori* infection, or because the usefulness of *H. pylori* eradication for nonulcer dyspepsia is uncertain.

This study does not provide data on prevalence of infection in the general population of African immigrants, those who are not seeking medical care, or those who do not report symptoms.

These results illustrate the principle that the clinical usefulness of a diagnostic test is related to the prevalence of the abnormality in the patients tested. Rates of *H. pylori* infection also are likely to be high in other groups of immigrants, depending on their country of origin and the circumstances that caused them to emigrate. Such groups deserve an individualized approach to evaluation and treatment different from that used for native-born Americans.

REFERENCES

1. Staat MA, Kruszon-Moran D, McQuillan GM, Kraslow RA. A population-based serologic survey of *Helicobacter pylori* infection in children and adolescents in the United States. *J Infect Dis*. 1996;174:1120-3.
2. Rowland M, Drumm B. Clinical significance of *Helicobacter* infection in children. *Br Med Bull*. 1998;54:95-103.
3. Bardhan PK. Epidemiological features of *Helicobacter pylori* infection in developing countries. *Clin Infect Dis*. 1997;25:973-8.
4. Ackerman LK. Health problems of refugees. *J Am Board Fam Pract*. 1997;10:337-48.
5. Verdu EF, Fraser R, Tiberio D, et al. Prevalence of *Helicobacter pylori* infection and chronic dyspeptic symptoms among immigrants from developing countries and people born in industrialized countries. *Digestion*. 1996;57:180-5.
6. Parsonnet J. *Helicobacter pylori*. *Infect Dis Clin North Am*. 1998;12:185-97.
7. Hunt R, Thomson AB. Canadian *Helicobacter pylori* consensus conference. *Can J Gastroenterol*. 1998;12:31-41.
8. Lee J, O'Morain C. Who should be treated for *Helicobacter pylori* infection? A review of consensus conferences and guidelines. *Gastroenterology*. 1997;113:S99-106.
9. McColl K, Murray L, El-Oma E, et al. Symptomatic benefit from eradicating *Helicobacter pylori* infection in patients with nonulcer dyspepsia. *N Engl J Med*. 1998;339:1869-74.
10. Blum AL, Talley NJ, O'Morain C, et al. Lack of effect of treating *Helicobacter pylori* infection in patients with nonulcer dyspepsia. *N Engl J Med*. 1998;339:1875-81.
11. Fisher RS, Parkman HP. Management of nonulcer dyspepsia. *N Engl J Med*. 1998;339:1376-81.
12. Baako BN, Darko R. Incidence of *Helicobacter pylori* infection in Ghanaian patients with dyspeptic symptoms referred for upper gastrointestinal endoscopy. *W Afr J Med*. 1996;15:223-7.
13. Hyams KC, Taylor DN, Gray GC, et al. The risk of *Helicobacter pylori* infection among U.S. military personnel deployed outside the United States. *Am J Trop Med Hyg*. 1995;52:109-12.
14. Sadowski D, Cohen H, Laine L, et al. Evaluation of the FlexSure HP whole blood antibody test for diagnosis of *Helicobacter pylori* infection. *Am J Gastroenterol*. 1998;93:2119-23.
15. Laine L, Estrada R, Trujillo M, et al. Effect of proton-pump inhibitor therapy on diagnostic testing for *Helicobacter pylori*. *Ann Intern Med*. 1998;129:547-50.