



PIC QUESTION OF THE WEEK: 3/13/06

Q: How effective are fluoroquinolones in eradicating *H. pylori*?

A: *Helicobacter pylori* (*H. pylori*) is a Gram-negative, flagellated organism whose presence in the gastrointestinal tract increases the risk of duodenal and gastric ulcer disease as well as gastric adenocarcinoma and lymphoma. It was initially linked to peptic ulcer disease (PUD) in the early 1980s by Marshall and Warren. Discovery of this association radically altered the treatment of PUD and earned the researchers the 2005 Nobel Prize in Physiology and Medicine. In most cases, the organism can be eliminated by a 10-14 day course of a proton pump inhibitor-PPI (e.g. omeprazole, pantoprazole, etc) plus two antimicrobials. The two most frequently used antimicrobials are clarithromycin and amoxicillin. In cases of eradication failure, metronidazole and tetracycline have served as alternatives. Bismuth subsalicylate (Pepto-Bismol®) is occasionally added to enhance efficacy of the regimen. With increasing resistance to clarithromycin, it will be necessary to identify effective alternatives. Tinidazole, furazolidone (currently not available in the United States), and azithromycin have been evaluated as options to existing therapies. Fluoroquinolones have not been commonly used to treat *H. pylori* infection; however, they are active *in vitro* against the organism. An *H. pylori* treatment regimen must attain a cure rate of 90% (per protocol analysis) in order to be acceptable. Studies have shown that various fluoroquinolones combined with another antimicrobial and a PPI can produce eradication rates greater than 90% with low occurrence of adverse effects. Gatifloxacin, levofloxacin, and moxifloxacin have displayed similar ability to suppress *H. Pylori* when used as a component of triple drug regimens. Levofloxacin and moxifloxacin appear to be the most studied of these compounds. The dose of levofloxacin has been 250 mg twice daily or 500 mg as a single daily dose. Moxifloxacin has generally been used in a dose of 400 mg daily. Regimens were usually 7-10 days in length. Despite their apparent effectiveness, most clinicians consider fluoroquinolones as third-line treatment. The increasing frequency of *H. pylori* resistance to clarithromycin and metronidazole is of considerable concern. A variety of new regimens and component antimicrobials continue to be evaluated. The use of sequential regimens (e.g. a PPI plus amoxicillin for five days, then a PPI combined with tinidazole and clarithromycin for the next five days) may be more effective than standard treatment for eradication of *H. pylori*.

References:

- Francois F, Blaser MJ. Improving *Helicobacter pylori* eradication regimens. *Ann Intern Med* 2006;144:140-1.
- Di Caro S, Zocco MA, Cremonini F, et al. Levofloxacin based regimens for the eradication of *Helicobacter pylori*. *Eur J Gastroenterol Hepatol* 2002;14:1309-12.

Jillian A. Thorne, Pharmacy Clerkship Student
Matthew J. Moyer, Pharmacy Clerkship Student

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