



## Pharmacists' Role in *Helicobacter pylori* Eradication

### What is *Helicobacter pylori* (Hp)?<sup>1,2</sup>

*Hp* is a gram negative bacillus which infects an estimated 30% of Canadians. Infection with *Hp* is usually acquired during childhood and appears to be linked to poor living conditions and water supply. The prevalence of infection, in general, is decreasing in developed countries but certain subsections of the population remain at higher risk: immigrants from developing countries, people with lower socioeconomic status backgrounds, and those over 50 years of age.

### Why is *Hp* infection a concern?<sup>1,2</sup>

*Hp* infection is known to contribute to several upper GI disorders: chronic gastritis, duodenal and gastric ulcers, gastric lymphoma and adenocarcinoma of the stomach. It may also be a risk factor for NSAID-induced ulcer, iron-deficiency anemia, idiopathic thrombocytopenic purpura, and possibly pancreatic cancer. *Hp*'s role in non-ulcer dyspepsia is controversial. Previously proposed associations between *Hp* infection and gastroesophageal reflux disorder or coronary disease appear unlikely.

### Who should be tested for *Hp* infections?

The diagnostic method of choice for *Hp* infection is the C-urea breath test (UBT).<sup>3,4</sup> Compared to endoscopic testing, the UBT is non-invasive and less expensive.<sup>5</sup> Since not everyone who is infected by HP develops ulcer-related diseases, routine testing of asymptomatic patients is not justified.<sup>1</sup> The Canadian HP Consensus Conference has developed guidelines indicating who should be considered for testing:<sup>3,4</sup>

- Patients with known peptic ulcers currently taking anti-secretory medications,
- Asymptomatic people with a family history of gastric cancer or social / geographic background associated with high risk of gastric cancer.
- Patients less than 50 years old with uninvestigated ulcer-like dyspepsia (predominant symptom epigastric pain not heartburn or regurgitation) lasting for three or more months without other alarm symptoms (persistent vomiting, GI bleeding, anemia, unexplained weight loss or difficulty swallowing). Endoscopic examination is recommended for patients over 50 years complaining of dyspepsia and /or any of the alarm symptoms.
- Patients **STARTING** long-term NSAID therapy. (There is no proven benefit to *Hp* eradication in patients currently on chronic NSAID therapy.)
- Patients **STARTING** long-term ASA prophylaxis for cardiovascular disease.
- Routine testing is **NOT** recommended before starting long-term therapy with proton pump inhibitors (PPIs).

Patients should discontinue proton pump inhibitor and H-2 receptor blocker therapy for at least 2 weeks before having the UBT and should not use antibiotics for at least 4 weeks before the UBT to avoid false negatives.<sup>5</sup>

### How to Eradicate HP?

Eradication of *Hp* is a challenge. The organism is located in an acidic environment that limits antibiotic activity.<sup>1</sup> In addition, the contents of the stomach are always changing, rapidly decreasing the concentration/effects of the antibiotic.<sup>1</sup> Usual therapy consists of a triple drug combination: a PPI to decrease the acidic content of the stomach and

two antibiotics active against *Hp*.<sup>3</sup> (Table 1) The Canadian *HP* Consensus Conference recently recommended that quadruple therapy with a PPI (standard dose) BID and bismuth 262 mg, tetracycline 375 or 500 mg and metronidazole 375 or 500 mg QID for 10 – 14 days also be considered first-line therapy.<sup>4</sup> This decision was based on a meta-analysis that reported equivalent effectiveness, compliance and side effect incidence.<sup>6</sup>

**Table 1: Approved Therapies for *Hp* Eradication<sup>3</sup>**

First-Line Regimens	Second-Line Regimens
PPI*, clarithromycin 500 mg, amoxicillin 1000 mg, all BID X 7 days	PPI*, metronidazole 500 mg, amoxicillin 1000 mg, all BID X 7 days
PPI*, clarithromycin 250 mg, metronidazole 500 mg, all BID X 7 days	Bismuth subsalicylate 262mg, metronidazole 250 mg, tetracycline 500 mg, all QID X 14 days

\* omeprazole 20 mg, lansoprazole 30 mg, pantoprazole 40 mg, rabeprazole 20 mg, or esomeprazole 40 mg (OD)

Failure of therapy has been linked to non-compliance, bacterial resistance, excess gastric acidity and high bacterial loads.<sup>7</sup> In Canada, estimates of *Hp* resistance prevalence are 8 % for clarithromycin and 20 % for metronidazole.<sup>4</sup> If a patient has tried a triple therapy regimen previously without success, identify which medication combination was used, and avoid that combination to circumvent resistance issues.<sup>7</sup> The duration of the therapy should be lengthened to 10-14 days.<sup>7, 8</sup> It is also important to investigate if the reason for the treatment failure was an issue of compliance.<sup>8</sup> Other options being studied for refractory *Hp* are higher PPI doses, alternative antibiotics such as levofloxacin or rifabutin and adjuvant probiotics.<sup>7</sup>

**Should eradication of *Hp* be confirmed?<sup>9</sup>**

Many patients will continue to experience symptoms of stomach pain after *Hp* eradication. Therefore high risk patients should not be assessed on symptoms alone. Follow-up testing for *Hp* is recommended for patients with new ulcer disease, a history of complicated ulcer disease, or patients worried about the outcome. A UBT should be performed no earlier than 4-6 weeks after *Hp* eradication treatment. If PPIs are still being used they should be discontinued for two weeks before the test.

**The Pharmacist’s Role<sup>1,8</sup>**

1. Ensure a patient is confirmed *Hp* positive before initiation of treatment.
2. When recommending or evaluating therapy for an individual patient, consider: drug allergies; previous attempts at *Hp* eradication; previous antibiotic use in the past few months; side effects expected with each therapy; and cost to the patient.
3. Provide information to the patient on the importance of eradicating *Hp* and the purpose of the individual drugs in the therapy.
3. Make the patient aware of the common side effects experienced while being treated and give suggestions on how to manage them.
4. Consider follow up with the patient by telephone to discuss any problems with therapy and encourage compliance.

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References available on the SDIS website ([www.usask.ca/druginfo](http://www.usask.ca/druginfo)) or upon request.

**\*\*Regarding References for Drug Use During Lactation\*\***

Manufacturers’ monographs, the major source of content in the CPS, tend to be quite conservative regarding the use of their products by breastfeeding mothers. When possible, check additional references (such as *Hale’s Medications and Mothers’ Milk* or the American Academy of Pediatrics website [www.aap.org](http://www.aap.org) or call **SDIS**) to ensure that women and their physicians are given the most current, comprehensive risk and benefit information on which to base their drug-use decisions.

**WE WELCOME YOUR QUESTIONS ON THIS OR ANY OTHER DRUG-RELATED TOPIC.**

References:

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