Review: 7-day proton-pump inhibitor-based triple therapy is as effective as > 7 days of the same regimen for healing *H. pylori*–associated peptic ulcer

Gisbert JP, Pajares JM. **Systematic review and meta-analysis: is 1-week proton pump inhibitor-based triple therapy sufficient to heal peptic ulcer?** Aliment Pharmacol Ther. 2005;21:795-804.

Clinical impact ratings: GIM/FP/GP ★★★★★★☆ Hospitalists ★★★★★★☆ Gastroenterology ★★★★★☆☆

QUESTION

In patients with *Helicobacter pylori* infection and peptic ulcer, is a 7-day proton-pump inhibitor (PPI)–based triple therapy regimen as effective as > 7 days of the same regimen for healing the peptic ulcer?

METHODS

Data sources: MEDLINE, EMBASE/Excerpta Medica, and CINAHL (to August 2004); the Cochrane Library (Issue 3, 2004); and reference lists of selected articles.

Study selection and assessment: Randomized controlled trials (RCTs) in any language except Japanese that endoscopically documented the presence of the ulcer and compared a 7-day combination of a PPI plus 2 antibiotics with the same regimen and PPI prolonged for > 7 days to cure *H. pylori* and to heal peptic ulcer disease (duodenal [DU] or gastric ulcer [GU]). Trials of patients taking nonsteroidal antiinflammatory drugs (NSAIDs) were excluded. Study quality was assessed for randomization, blinding, and follow-up using the 5-point Jadad scale.

Outcomes: Ulcer healing.

MAIN RESULTS

Of 24 RCTs (n = 2342) that assessed ulcer healing with 7-day PPI-based eradication therapy, 6 RCTs (n = 862) met the selection criteria for comparison of healing with or without subsequent acid-suppression therapy. 5 RCTs (83%) had a Jadad score ≥ 4 out of 5. In the 6 RCTs that were pooled, triple therapy included a PPI (omeprazole [20 mg twice daily] or esomeprazole [20 mg, twice daily]) and 2 antibiotics (clarithromycin [250 to 500 mg, twice daily] and amoxicillin [1 g twice daily], metronidazole [400 mg twice daily], or tinidazole [500 mg twice daily]). The duration of the prolonged PPI regimen was 2 to 4 weeks. Both the 7-day PPI regimen and prolonged PPI regimen groups had high mean ulcer healing rates (91% vs 92%, respectively). Meta-analysis of 6 RCTs using the random-effects model showed that the groups did not differ for ulcer healing (Table).

CONCLUSION

In patients with *Helicobacter pylori* infection and peptic ulcer, a 7-day proton pump inhibitor (PPI)–based triple therapy is as effective as the same regimen with PPI prolonged for > 7 days for healing peptic ulcer.

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A 7-day proton pump inhibitor (PPI)–based triple therapy (7-d PPI) vs the same regimen with the PPI prolonged for > 7 days (> 7-d PPI) for healing ulcer in *Helicobacter pylori* at 4 to 9 weeks*

Number of trials (n)	Weighted event rates		RRR (95% CI)	NNT
	7-d PPI	> 7-d PPI		
6 (862)	90%	90%	1% (–3 to 5)	Not significant

*Abbreviations defined in Glossary; weighted event rates, RRR, and NNT calculated from data in article using a random-effects model.

COMMENTARY

Treatment of *H. pylori*–positive DU and GU has revolutionized treatment of peptic ulcer disease. The meta-analysis by Gisbert and Pajares has addressed the question of whether a 7-day PPI-based triple therapy aimed at curing *H. pylori* is as effective in ulcer healing as the same regimen with the addition of prolonged PPI therapy (> 7 d) in patients with *H. pylori*–positive DU or GU.

The review showed that the ulcer healing rate in 1289 patients was 86% for all patients combined and 95% for those in whom *H. pylori* was cured. In 6 trials (n = 862), healing rates were 91% for 7-day anti–*H. pylori* therapy and 92% after anti–*H. pylori* treatment plus 2 to 4 more weeks of ongoing treatment with PPI alone. Applying evidence-based medicine criteria, one would have to say that additional acid-suppressive therapy beyond the 7- to 14-day anti–*H. pylori* therapy is not necessary.

It is doubtful, however, that clinicians will follow this approach in non-DU patients for several reasons. First, the results only apply to uncomplicated (i.e., nonbleeding) or non-NSAID (including aspirin) DUs. NSAID use is common in patients with ulcers. Although some studies included NSAID users, no data for this subgroup were provided. Second, after 1 week, it is generally not known whether *H. pylori* has been cured, and ulcer healing rates were lower in patients in whom *H. pylori* persisted (weighted average 86% for eradicated and noneradicated *H. pylori* vs 95% of patients who were cured). This means that the ulcer was not healed in 1 out of every 7 patients in whom *H. pylori* persisted. Third, the overall *H. pylori* cure rate was not mentioned. In clinical practice and certainly in North America, the cure rate is probably lower than the 80% target recommended by most guidelines. Fourth, because the study did not evaluate symptoms, it is not known whether symptoms could be used as a surrogate indicator for unhealed ulcers. Fifth, only 1 trial (n = 73) included GU patients; as discussed by the authors, it is well-known that GUs tend to heal more slowly. Finally, ulcer size is probably important (as discussed by the authors). For large ulcers (e.g., > 1 cm), clinicians should prolong acid suppression to ensure healing.

For small, low-risk DUs, the evidence suggests that 4-week ulcer healing rates will be high, irrespective of success or failure of anti–*H. pylori* treatment. In practice, failure of anti–*H. pylori* therapy will probably occur in > 20% of patients. Therefore, for high-risk DUs and most GUs, clinicians may want to continue acid suppression beyond 1 week to increase the probability that the ulcer will be healed, given that *H. pylori* eradication cannot be assumed or confirmed by the end of 1 week of therapy.

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