

# Clarithromycin, lansoprazole, and metronidazole eradicated *H. pylori* infection in chronic renal insufficiency

Sheu BS, Huang JJ, Yang HB, Huang AH, Wu JJ. The selection of triple therapy for *Helicobacter pylori* eradication in chronic renal insufficiency. *Aliment Pharmacol Ther.* 2003;17:1283-90.

## QUESTION

In patients with dyspepsia and chronic renal insufficiency, is triple therapy consisting of clarithromycin, lansoprazole, and metronidazole (CLM) more effective than one consisting of clarithromycin, lansoprazole, and a reduced dosage of amoxicillin (CLA) for eradicating *Helicobacter pylori*?

## DESIGN

Randomized {allocation concealed\*}†, blinded (outcome assessors)\*, controlled trial with 6-week follow-up.

## SETTING

A university hospital in Tainan, Taiwan.

## PATIENTS

88 patients (mean age 46 y, 55% men) with dyspepsia who had chronic renal insufficiency and *H. pylori* infection. Exclusion criteria included use of H<sub>2</sub>-receptor antagonists, proton-pump inhibitors, bismuth, or antibiotics ≤ 4 weeks before the study; and end-stage renal disease requiring hemodialysis. Follow-up was 89%.

## INTERVENTION

44 patients each were allocated to CLM (clarithromycin, 500 mg; lansoprazole, 30 mg; and metronidazole, 500 mg) or CLA (clarithromycin, 500 mg; lansoprazole, 30

mg; and amoxicillin 750 mg), twice daily for 1 week.

## MAIN OUTCOME MEASURES

Success of *H. pylori* eradication measured at 6 weeks; drug compliance categorized as good (≥ 7 d triple therapy completed), modest (≥ 5 d triple therapy completed), or poor (< 5 d of triple therapy completed); and creatinine clearance assessed at 1, 2, and 6 weeks of follow-up.

## MAIN RESULTS

Analysis was by intention to treat. The rates of successful *H. pylori* eradication and complete drug compliance were greater in the CLM group than in the CLA group (Table). The incidence of acute renal failure was lower in the CLM group than in the CLA group (Table). At 6 weeks, percentage decrease in

creatinine clearance was greater in the CLA group than in the CLM group (7.7% vs 1.5%,  $P \leq 0.05$ ).

## CONCLUSION

In patients with dyspepsia and chronic renal insufficiency, triple therapy consisting of clarithromycin, lansoprazole, and metronidazole was more effective, and less nephrotoxic, than one consisting of clarithromycin, lansoprazole, and a reduced dosage of amoxicillin for eradicating *H. pylori*.

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\*See Glossary.

†Information provided by author.

## Clarithromycin, lansoprazole, and metronidazole (CLM) vs clarithromycin, lansoprazole, and a reduced dosage of amoxicillin (CLA) in *Helicobacter pylori* infection and chronic renal insufficiency at 6 weeks†

Outcomes	CLM	CLA	RBI (95% CI)	NNT (CI)
Successful eradication of <i>H. pylori</i>	84%	66%	28% (0 to 68)	6 (3 to ∞)
Complete compliance (7 d triple therapy completed)	77%	52%	48% (8 to 110)	4 (3 to 21)
<b>RRR (CI)</b>				
Acute renal failure	2%	18%	88% (28 to 98)	7 (4 to 26)

‡Abbreviations defined in Glossary; RBI, RRR, NNT, and CI calculated from data in article.

## COMMENTARY

The study by Sheu and colleagues compared a metronidazole-clarithromycin-based regimen (CLM) with an amoxicillin-clarithromycin-based regimen (CLA) for eradicating *H. pylori* in patients with chronic renal insufficiency and dyspepsia. CLM had an eradication rate similar to that reported in patients with normal renal function, but CLA had a rate that was substantially lower (1). This discrepancy probably arises from use of a reduced (renal) dose of amoxicillin. The authors also reported better drug compliance and less deterioration of renal function with the CLM therapy.

Although the study was well done, 2 points should be noted. First, testing and treating for *H. pylori* prevents recurrent ulcers in patients with peptic ulcer disease, but the benefits of this strategy in nonulcer dyspepsia remain controversial (2). Nearly half the study patients had only gastric inflammation on endoscopy, suggesting a diagnosis of nonulcer dyspepsia. Eradicating *H. pylori* in such patients may do little to improve symptoms while causing unintended consequences. For example, CLM therapy may select for highly resistant enterococci that can persist for > 3 years (3). Second, regional differences in antibiotic resistance may limit extrapolation of the present study results to other practice settings. In the United States, the overall rate of *H. pylori* resistance to clarithromycin is about 10%, to metronidazole 37%, and to

amoxicillin only 1% (2). In part, because of differences in antibiotic resistance, a 7-day regimen is recommended in Europe but a 14-day course seems to be more effective in the United States and is recommended by the Food and Drug Administration (2). Whereas a 7-day CLM regimen may be the preferred treatment for *H. pylori* in patients with chronic renal insufficiency in Taiwan, we have little data about what to use in other settings. In the United States, because of relatively high rates of resistance to metronidazole and clarithromycin, it may be worthwhile to consider extending CLM eradication therapy to 14 days in patients with chronic renal insufficiency and proven peptic ulcers.

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## References

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