

## Background

- Helicobacter pylori* (*H. pylori*) is the most common chronic bacterial infection worldwide
- Data on *H. pylori* antibiotic resistance remains scarce and may not be generalizable
- Further evaluation is needed to determine local, regional and national patterns of resistance in order to guide appropriate treatment

## Aims

- To determine in adult patients at a safety-net hospital with confirmed *H. pylori* infection the overall failure rate, prescribing patterns, and the failure rate of quadruple therapy compared to triple therapy

## Methods

- Design: retrospective cohort study at a safety-net hospital from 2020-2021
- Data Sources: pathology results from endoscopy, *H. pylori* stool antigen, and *H. pylori* serology tests
- Patient Inclusion:
  - Consecutive patients with diagnosis of *H. pylori* based on serology, stool, or histology AND
  - Prescribed antibiotic therapy AND
  - Confirmed testing by either stool antigen or histology for eradication
- Patient Exclusion:
  - Diagnosed with *H. pylori* but did not receive treatment OR
  - Received treatment but did not have confirmation testing of eradication
- Descriptive statistics and chi-square tests performed

**Table 1.** Baseline characteristics of patients with confirmed *H. pylori* infection

<b>Age, median (range)</b>	47 (18 to 74)
<b>Gender</b>	
Female	61%
<b>Race / Ethnicity</b>	
Hispanic	54%
Asian	21%
Non-Hispanic black	8%
Non-Hispanic white	11%
<b>Preferred Language</b>	
Spanish	46%
English	36%
Cantonese	8%
Other	10%
<b>Treatment type</b>	
Triple therapy	86%
Quadruple therapy	14%
<b>Antibiotic subtype</b>	
Clarithromycin	85%
Levofloxacin	2%
Metronidazole	19%
Tetracycline	14%
Amoxicillin	85%
<b>Duration of Treatment</b>	
10 day regimen	10%
14 day regimen	90%

**Table 2.** Risk of *H. pylori* treatment failure

	Treated, n	Failed, n	Failure Rate (%)	RR, 95% CI	P-value
<b>Overall</b>	100	16	16.0%		
<b>Age</b>					
< = 45	44	9	20.5%	--	
> 45	56	7	12.5%	0.61	0.28
<b>Gender</b>					
Female	61	13	21.3%	--	
Male	39	3	7.7%	0.36	0.07
<b>Race / Ethnicity</b>					
Hispanic	54	11	20.4%	--	
Asian	21	1	4.8%	0.44	0.1
Non-Hispanic black	8	1	12.5%	0.61	0.6
Non-Hispanic white	11	2	18.2%	0.82	0.77
<b>Treatment type</b>					
Triple therapy	86	12	14.0%	--	
Quadruple therapy	14	4	28.6%	2.05	0.16
<b>Duration of Treatment</b>					
14 day regimen	90	13	14.4%	--	
10 day regimen	10	3	30.0%	2.08	0.2

## Results

- 100 patients were included in the analysis to date
- Characteristics of confirmed *H. pylori* infection (Table 1):
  - age 47 (range 18-74), 61% female
  - 54% Hispanic, 21% Asian
- 86% received triple therapy compared to 14% who received quadruple therapy
- 90% received a 14-day antibiotic regimen compared to 10% who received a 10-day regimen
- H. pylori* treatment failure rate was 16% (Table 2):
  - Quadruple therapy failure rate was 28.6% compared to 14% for triple therapy (p=0.16)
  - Women more likely to experience treatment failure than men (21.3% vs. 7.7%, p=0.07)
  - Asians had lowest rate of treatment failure at 4.8% (p=0.10)

## Discussion

- In this retrospective cohort study of adult patients at a safety net hospital with confirmed *H. pylori* infection, the overall failure rate was modestly lower than the published literature
- Triple therapy more commonly prescribed and tended to be more effective than quadruple therapy
- Increased power and multivariable analysis are needed to account for confounding in triple therapy compared to quadruple therapy by gender and race/ethnicity

## References

- Goodwin CS, Worsley BW. Microbiology of *Helicobacter pylori*. *Gastroenterol Clin North Am*. 1993 Mar;22(1):5-19. PMID: 8449570.
- Chey WD, Leontiadis GI, Howden CW, Moss SF. ACG Clinical Guideline: Treatment of *Helicobacter pylori* Infection. *Am J Gastroenterol*. 2017 Feb;112(2):212-239. doi: 10.1038/ajg.2016.563. Epub 2017 Jan 10. Erratum in: *Am J Gastroenterol*. 2018 Jul;113(7):1102. PMID: 28071659.
- Fischbach L, Evans EL. Meta-analysis: the effect of antibiotic resistance status on the efficacy of triple and quadruple first-line therapies for *Helicobacter pylori*. *Aliment Pharmacol Ther*. 2007 Aug 1;26(3):343-57. doi: 10.1111/j.1365-2036.2007.03386.x. PMID: 17635369.
- Shiota S, Reddy R, Alsarraj A, El-Serag HB, Graham DY. Antibiotic Resistance of *Helicobacter pylori* Among Male United States Veterans. *Clin Gastroenterol Hepatol*. 2015 Sep;13(9):1616-24. doi: 10.1016/j.cgh.2015.02.005. Epub 2015 Feb 11. PMID: 25681693; PMCID: PMC6905083.
- Yaghoobi, Negar MD<sup>1</sup>; Ayyala, Divya BS<sup>1</sup>; Alipour, Omeed BS<sup>1</sup>; Shaker, Anisa MD<sup>2</sup>; Buxbaum, James L. MD<sup>2</sup> Low Eradication Rates of *Helicobacter pylori* at a Safety Net Hospital, *American Journal of Gastroenterology*; October 2017 - Volume 112 - Issue - p S596