10-2022

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Beaumont

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Introduction

- *Clostridium difficile* infection (CDI) is one of the most common gastrointestinal illnesses.
- There are conflicting studies regarding the association of CDI with *Helicobacter Pylori (H. pylori)* treatment regimens.[1-3]
- Our aim is to investigate the risk of CDI in those treated for *H. pylori* as well as characterize other risk factors for developing CDI.

Methods

- A retrospective study was performed in the adult population diagnosed with *H. pylori* within the Beaumont Hospital system in Michigan, from 2010 to 2021.
- Inclusion criteria included age > 18 years and diagnosis of *H. pylori* with one of three proven methods: endoscopic biopsy with pathology, stool antigen test or urea breath test.
- Treatment was defined as being prescribed any one of the established multi-regimen therapies used to treat *H. pylori*.[4]
- Diagnosis of CDI was queried in two groups: within 6 months and 12 months of *H pylori* diagnosis, while both required a positive stool toxin or PCR for diagnosis.

Results

- In a case control analysis for CDI within 6 months of *H. pylori* diagnosis, matched for 10-year age interval, sex and 3-unit BMI intervals with those without CDI, 23 (41.1%) vs 17 (30.4%) had been prescribed an antibiotic known to be associated with CDI, 5 (8.9%) vs 4 (7.1%) had been prescribed a histamine receptor 2 (H2) blocker, and 30 (53.6%) vs 29 (51.8%) had been prescribed a proton pump inhibitor (PPI).
- The odds of previous hospitalization among those who developed CDI are 300% greater than those who did not develop CDI . However, it is borderline statistically significant. Study might be limited due to the small sample size for CDI.

	Total CDI (56)	No CDI (1401)
Mean Age, in years	57.6	47.8
Sex		
Female	38 (67.9%)	6823 (59.8%)
Male	18 (32.1%)	4578 (40.2%)
Race		
Caucasian	28 (50%)	5934 (52%)
African American	16 (28.6%)	1788 (15.7%)
Others	10 (17.9%)	2786 (24.4%)
Treatment Regimen within 180 days		
Clarithromycin based triple therapy	5 (8.9%)	1939 (17.0%)
Clarithromycin based concomitant therapy	3 (5.4%)	211 (1.9%)
Bismuth quadruple therapy	0	246 (2.2%)
Levofloxacin based triple therapy	0	130 (1.1%)
Levofloxacin based quadruple therapy	0	2
Rifabutin based therapy	0	13 (0.1%)

Table 1. ***Comparison of characteristics of H. pylori diagnosed populations within 12 months of CDI and without CDI.*** *A total of 2341 (20.43%) patients were treated for H. pylori infection, and the most common regimen was clarithromycin based triple therapy in 1944 (17%).*

	Adjusted Odds Ratio	95% CI	P value
Previous Hospitalization		1.003 - 9.408	0.049
Yes (18)	3.07		
No (94)	1		
Treatment for *H pylori*		0.354 - 4.547	0.715
At least one regimen (12)	1.27		
None (100)	1		

Table 2. ***A Case- Control Study (N = 112) showing risk factors of CDI after H pylori treatment, matched on 10-year age, sex and 3- unit increment BMI .***

Results (cont.)

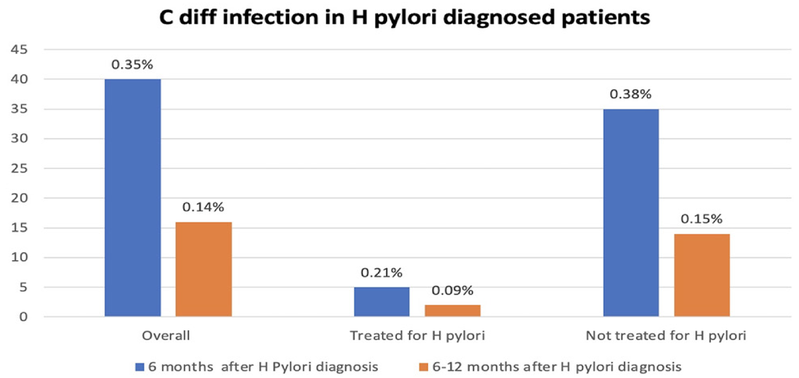

Figure 1. ***CDI in H. pylori diagnosed patients.*** *Among 11,457 patients, 56 (0.49%) had a subsequent CDI, with 5 (0.21%) and 35 (0.38%) among treated and untreated groups respectively.*

Conclusions

- **We found no association of future CDI after treatment of *H. pylori* infection.**
- **Our study suggests that previous hospitalization is a risk factor for developing CDI.**

References

1. Kumar S,et al. . Treatment of Helicobacter pylori Is Not Associated With Future Clostridium difficile Infection. American Journal of Gastroenterology. 2020 May 1;115(5):716-22.
2. Arriola V, et al. Assessing the Risk of Hospital-Acquired Clostridium Difficile Infection With Proton Pump Inhibitor Use: A Meta-Analysis. Infect Control Hosp Epidemiol. 2016;37:1408–1417.
3. Kwok CS, et. al. . Risk of Clostridium difficile infection with acid suppressing drugs and antibiotics: meta-analysis. Am J Gastroenterol. 2012;107:1011–1019
4. Chey WD, et al. ACG clinical guideline: treatment of Helicobacter pylori infection. Official journal of the American College of Gastroenterology| ACG. 2017 Feb 1;112(2):212-39.

P25311m_100522