Proton Pump Inhibitor Use in Patients with Helicobacter Gastritis is Associated with a High Prevalence of Corpus-Predominant Gastritis and Intestinal Metaplasia

Kirthi Kumar, MD, PhD; Elizabeth Coss, MD; Ramiz Iqbal; Byron L. Cryer MD; Christina Park; Robert M. Genta, MD, 1, 2

1Pathology, Dallas VA MC and University of Texas Medical Center at Dallas, Dallas, TX, United States. Medicine, Dallas VA MC and University of Texas Medical Center at Dallas, Dallas, TX, United States. 2Miraca Life Sciences Research Institute, Irving, Texas, United States.

Introduction

- European studies have shown that long-term proton-pump inhibitor (PPI) therapy in patients with GERD and antrectomy-predominant (AP) gastritis may induce a proximal shift of both bacteria and inflammation, resulting in corpus-predominant (CP) gastritis and acceleration of atrophy.
- In the US it is unclear whether candidates for chronic PPI therapy are tested and treated for Helicobacter pylori infection. Thus, both the prevalence of chronic use of PPI in H. pylori-infected patients and the effects of this therapy are unknown.
- This study was designed to test the hypothesis that the patterns of H. pylori gastritis are different in PPI users and non-users.

Study Design

- This study was approved by the North Texas Veteran Health Care System Institutional Review Board.
- US Veterans were recruited into a trial designed to test sequential therapy for H. pylori. Of the 251 patients tested, 109 were positive for H. pylori and represent the study population.
- The study is based upon histopathologic analysis of mapped gastric biopsies to compare the phenotypes of gastritis in PPI users and non-users.

Biopsy Acquisition and Interpretation

Topographically defined gastric biopsy specimens (2 each from corpus and antrum; 1 from the incisura) were obtained from each participating patient (Figure 1).

Two pathologists with no knowledge of the patient’s clinical and medication history and, specifically, no information regarding acid-suppressing therapies of any kind, including PPIs, used the Updated Sydney System to evaluate the biopsies.

A gastritis score was derived by adding the active and chronic inflammation scores for each biopsy fragment from each compartment, then dividing the sum by the number of fragments. For example, if a corpus specimen consisted of 4 fragments of atrophic mucosa, 2 of which had severe chronic inflammation (Sydney System score = 3), two had mild chronic inflammation (Sydney System Score = 1), and all had mild activity (Sydney System Score = 1), the formula [(1+3)*2 + (1+1)*2]/4 would yield a gastritis score of 3.

A gastritis score was greater in the antrum than in the corpus were assigned to the category Antrum-predominant gastritis (AP), when the score was true, then it was Corpus predominant (CP) and if the score was identical it was Pangastritis.

After the histopathologic categories were determined, the medication history with details on PPI and Histamine2-receptor blockers (H2-B) use was disclosed and the phenotypes of gastritis were analyzed.

Grading (Updated Sydney System)

Figure 2: The Updated Sydney System uses a visual analogue scale to grade various parameters, including H. pylori, acute and chronic inflammation, atrophy and intestinal metaplasia (IM).

Results

- There were 109 patients with H. pylori gastritis (median age 60 years, 88% men, 48% white), 58 patients (53.2%) were using PPIs.
- The overall prevalence of Pangastritis was 9.2% in users vs. non-users.
- PPI use for longer than 1 month was also associated with increased IM in the corpus and incisura (25.9% in users vs. 9.8% in non-users; OR 5.22 95% CI 1.79-15.18; p<0.005).
- Bacterial burdens in both antrum and corpus were higher in non-PPI users than in users, but not significantly so.
- Age, sex, race, and H2-B use had no influence on either the topography of gastritis or the presence of IM.

Conclusions

- Even short-term PPI use can affect the distribution of inflammation in H. pylori gastritis.
- This may induce or accelerate the development of intestinal metaplasia, known preneoplastic lesions in the transitional and oxytac mucosa.
- Our results provide support for the Maastricht guidelines, widely followed in Europe but not formally espoused by the American College of Gastroenterology, that recommend eradication of H. pylori prior to long-term PPI use.

References