

# PPI: non-classical uses

## Abstract

Although the classical uses of PPIs are well known either the short term uses in treating peptic ulcer disease, Gastroesophageal reflux disease (GERD), prophylaxis in high risk intensive care unit patients & eradication of H Pylori infection or the long-term uses in the treatment of refractory GERD, Barrets esophagus & in combination with long-term uses of NSAIDs & anti platelets in high risk patients, but little known about the non-classical uses in a number of conditions & diseases on the basis of their anti-acids properties or on the basis of their anti-inflammatory or even anti-bacterial effects.

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## Introduction

Although the classical uses of PPIs are well known either the short term uses in treating peptic ulcer disease, Gastroesophageal reflux disease (GERD), prophylaxis in high risk intensive care unit patients & eradication of H Pylori infection or the long-term uses in the treatment of refractory GERD, Barrets esophagus, & in combination with long-term uses of NSAIDs & anti platelets in high risk patients, but little known about the non-classical uses in a number of conditions & diseases on the basis of their anti-acids properties or on the basis of their anti-inflammatory or even anti-bacterial effects.

The non classical uses of proton pump inhibitors (PPI) include:

- i. Hemochromatosis.
- ii. Pancreatic insufficiency.
- iii. PPI-Responsive eosinophilic esophagitis.
- iv. In endoscopic variceal band ligation (EVBL) & in endoscopic submucosal dissection (ESD).
- v. Anti-inflammatory effects.
- vi. Anti-bacterial effects.

### In hemochromatosis

- a. PPIs Reduce the Frequency of Phlebotomy in Patients with Hereditary Hemochromatosis by reducing iron absorption.<sup>1</sup>
- b. In patients with HH homozygous for the C282Y mutation in HFE, treatment with PPIs for 2 or more years significantly reduced the number of phlebotomies required to maintain serum levels of ferrite below 100µg/L.

### In pancreatic insufficiency

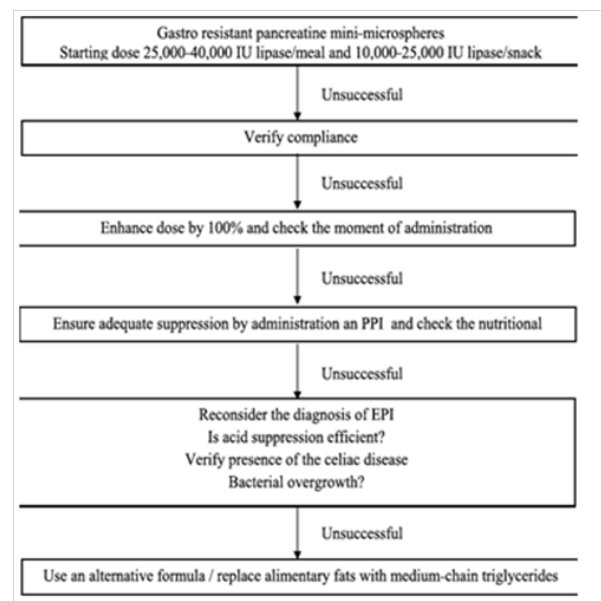
- a. Key requirements for a pancreatic enzyme formula include high lipase activity, protection of the lipase from being destroyed by gastric acid.
- b. Since the lipase of porcine pancreatin is destroyed by proteases & acids, protection from gastric acidity is essential by combining it with PPI.<sup>2</sup>
- c. As it is clear from this guideline:

### In EVBL

- a. PPI Is Associated With Reduction of Early Bleeding Risk After Prophylactic Endoscopic Variceal Band Ligation: A Retrospective Cohort Study.<sup>3</sup>

## PPI in ESD

Administration of PPI before ESD in differentiated EGC meeting the expanded criteria is effective to heal the ulcer lesion & reduce the mean procedure time. Complete healing of the ulcer after PPI administration suggests mucosal cancer.<sup>4</sup> Vonoprazan was superior to proton pump inhibitors in healing artificial ulcers of the stomach post-endoscopic submucosal dissection: A propensity score-matching analysis<sup>5</sup> (Figure 1).



**Figure 1** Management of the pancreatic enzyme replacement therapy.

## In PPI-responsive eosinophilic esophagitis

- a. A significant subset (25-50%) of pediatric & adults with symptomatic, endoscopic & histologic findings of EoE resolved with PPI.
- b. PPI responsive EE more closely resemble EoE than GERD from a clinical, genetic & immunologic perspective.
- c. The benefits of PPI therapy in EoE may be due to repair of mucosal permeability defects or direct anti-inflammatory effects.
- d. Current views indicate that responsiveness to PPI therapy should not be utilized to rule out EoE, but PPI should be viewed as an effective, safe & practical initial step in the management of patients with esophageal eosinophilia.<sup>6</sup>

### Anti-inflammatory effects

- a. In vitro results showed that the drug possesses both antioxidant and anti-inflammatory activity.
- b. There was a significant improvement in colon/body weight ratio, ulcer score and biochemical parameters in Omeprazole treated group compared to the colitis group which proved the antioxidant and anti-inflammatory activity.<sup>7</sup>

### Anti-bacterial effects

- a. PPIs have a weak antibacterial effect against *H. pylori* in vitro, antiurease activity & anti-ATPase activity, apart from acid suppression.
- b. The most potent effects are to stabilize & raise antibacterial effects of the combined antibiotics, especially clarithromycin/ amoxicillin in the hostile gastric environment, to concentrate the antibiotics via suppressing gastric juice.<sup>7</sup>

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### Conflicts of interest

Author declares there are no conflicts of interest.

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