MEDICAL MANAGEMENT OF GERD
&
PPI OVERUSE

ECIPA – HEALTHCARE CONFERENCE

GQEBERHA

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Disclaimer and conflict of interest disclosure

- View expressed in this presentation are my own

Disclosure

Y I have **NO** real, or perceived direct or indirect conflicts of interest that relate to the presentation

☐ I have the following, real or perceived direct or indirect conflicts of interest that relate to this presentation

Affiliation	Nature of interest	Company Name

PRESENTATION OUTLINE

- Why GERD, Pathophysiology, Diagnosis
- Evidence based management of GERD, Indications of PPI use
- PPI overuse, Risk of long-term use, Deprescribing PPIs
- When to refer to a gastroenterologist
- Take home messages

INTRODUCTION: GORD

- **Definition**

  - Chronic condition where stomach acid/contents repeatedly flows back into the esophagus, causing troublesome symptoms that can lead to mucosal damage and serious complications.

- **Symptoms**

  - Heartburn, regurgitation, odynophagia, dysphagia and EIM - cough etc.

- **Why bother – GORD complications**

  - Impact on quality of life, morbidity, permanent sequelae, mortality.

WHY BOTHER

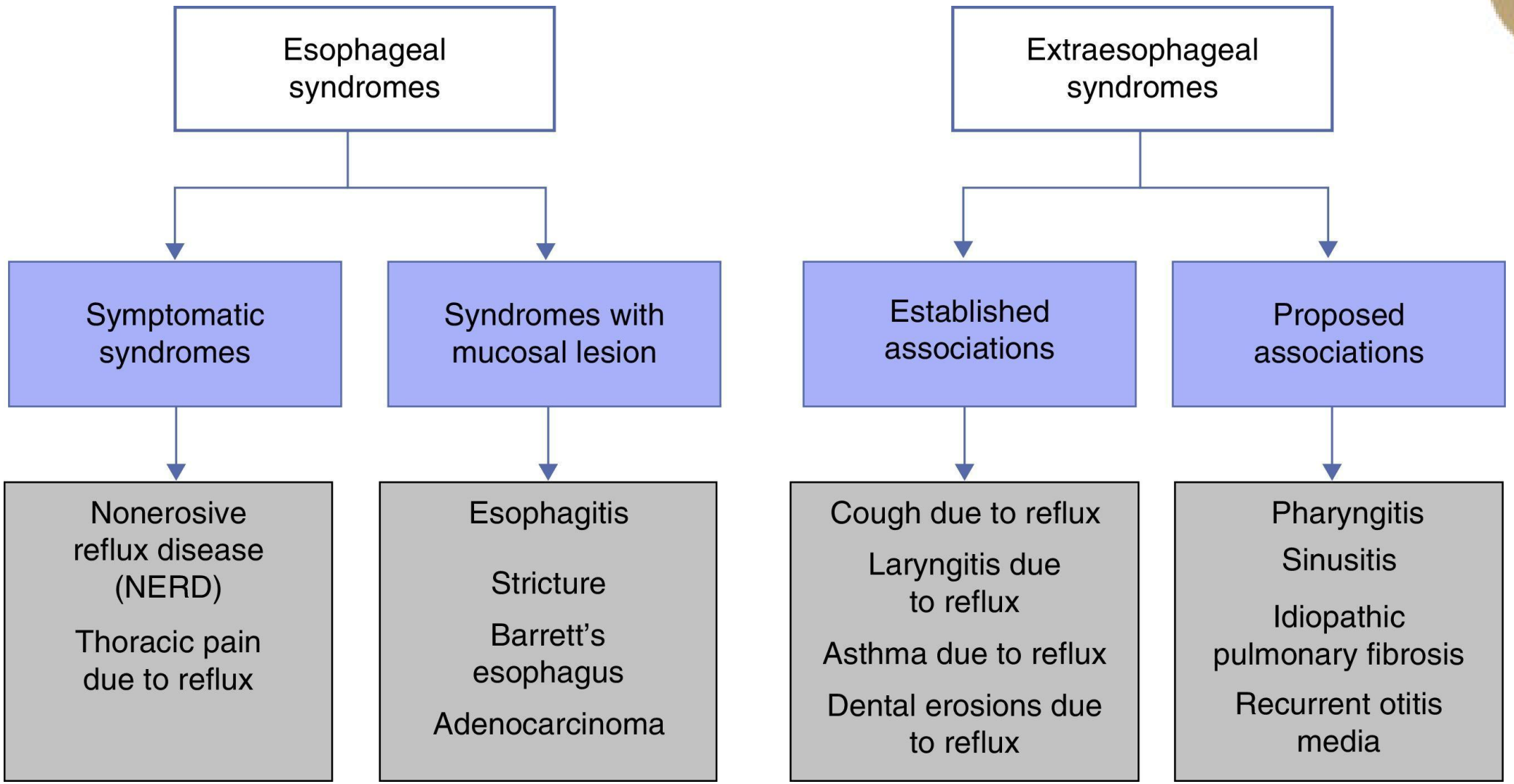
- GERD affects ~20% of adults globally
- PPIs are among the most prescribed drugs worldwide.
- Up to 25–70% of PPI prescriptions are inappropriate depending on setting.
- Nearly one-quarter of adults use a PPI; 25% use them >1 year.
- Unwanted – Side effects can be detrimental

INTRODUCTION: GORD

PHYSIOLOGY	ETIOLOGGY	RISK FACTORS
1. Esophageal motility 2. Saliva Production 3. Esophageal Epithelial Protection	1. Lax LES 2. Hiatus Hernia. 3. Extrinsic increase in IAP (Obesity) 4. Intrinsic increase in IAP (Pregnancy/Ascites) 5. Impaired Esophageal Motility. 6. Impaired Saliva Production. 7. Impaired oesophageal mucosal defence mechanisms.	1. Male sex 2. White ethnicity 3. >50 years or older 4. Tobacco use 5. Alcohol consumption 6. Delayed Gastric Emptying 7. MASH 8. Chronically decreased thoracic pressure 9. Use of Aspirin / NSAIDs 10. Use of drugs that decrease LES pressure (nitrates, calcium channel blocker agents, anticholinergics, α-adrenergic agonists, theophylline, and morphine) 11. Anxiety and Depression

Typical symptoms (heartburn, regurgitation) → trial of therapy appropriate.

MONTREAL CLASSICATION OF GORD



Vakil et al.

DIAGNOSIS OF GERD

Clinical diagnosis

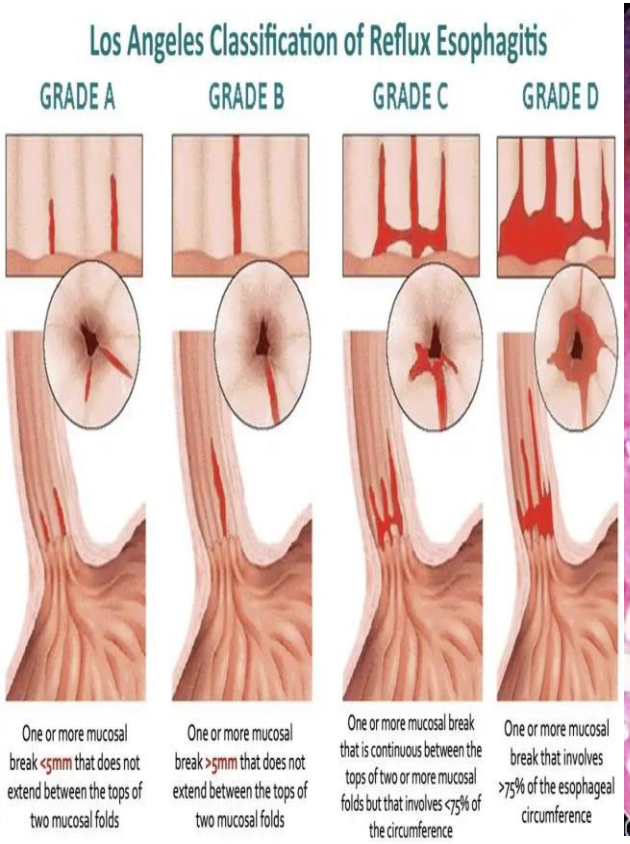
- Typical symptoms (heartburn, regurgitation) → trial of therapy appropriate

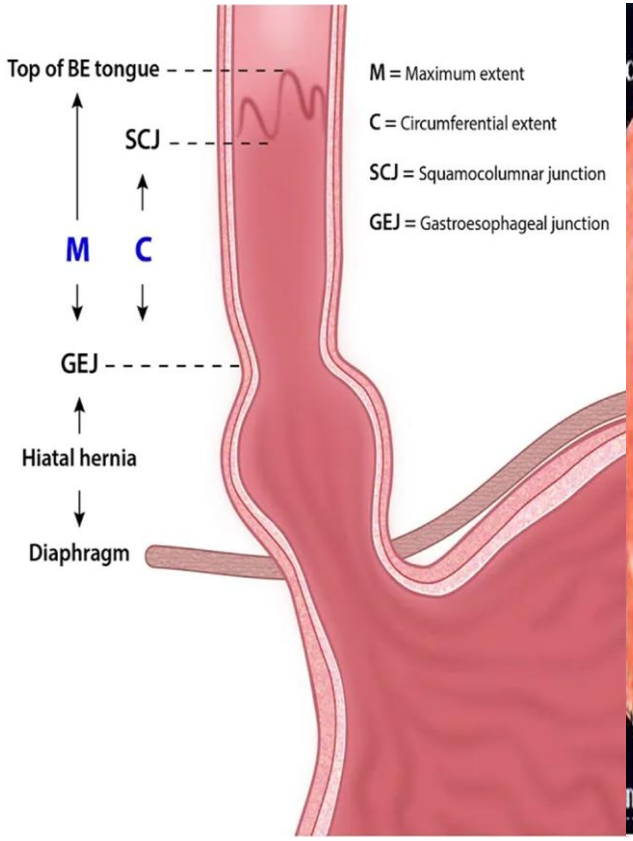
When to investigate

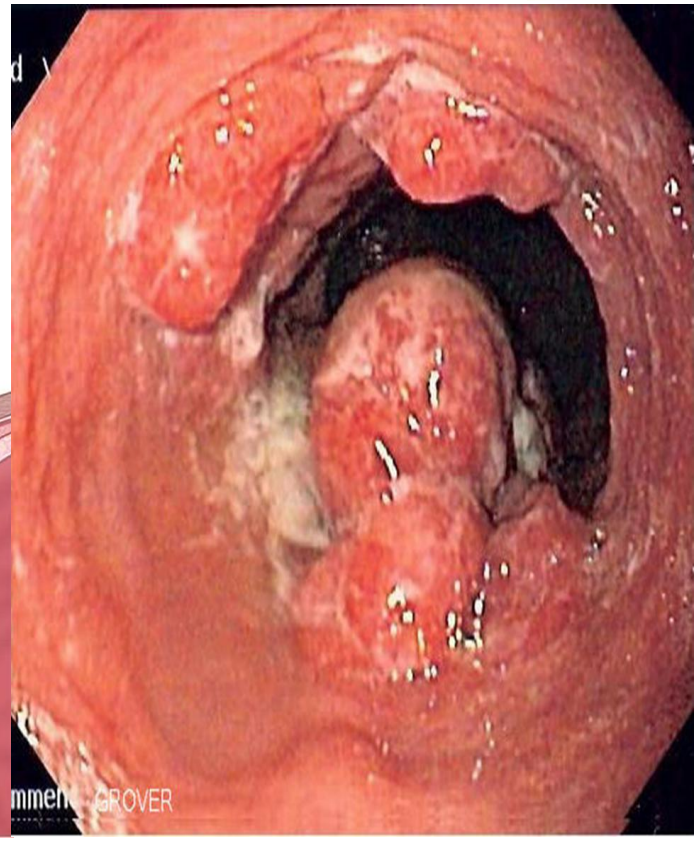
- Alarm features: dysphagia, weight loss, anaemia, vomiting.
- Persistent symptoms despite optimized therapy.
- Suspected complications (Barrett's, strictures, oesophageal cancer)

Tools: Endoscopy, pH monitoring, manometry

COMPLICATIONS: LUMINAL







REFLUX ESOPHAGITIS

PEPTIC STRICTURE

BARRET'S ESOPHAGITIS

Prague Classification

ESOPHAGEAL ADENOCARCINOMA

Evidence Based Medical Management of GERD

A. Lifestyle Measures (first line)

- **Weight loss**
- **Smoking Cessation**
- **Head of bed elevation**
- **Avoid late meals**
- **Antireflux maneuvers**
- **Personalized food diet elimination**

B. Pharmacologic Therapy

- **Antacids (**Topical relief, intermittent symptoms, short duration, not for healing GERD
- **H2-Receptor antagonist** (Useful for mild-moderate GERD, Tachyprophylaxis possible – avoid)
- **Proton pump inhibitors (PPIs) –** most effective for healing GERD, standard course: 4 – 8 weeks and long term for specific indications.
- **Newer agents: P-cabs (** Venoprazam, Tegoprazam for severe or refractory GERD.

INDICATIONS FOR PPI USE: SHORT-TERM

Definitely Indicated	Conditionally Indicated	Not Indicated
• *Helicobacter pylori* eradication • Stress ulcer prophylaxis in ICU w/ risk • Uninvestigated GERD/dyspepsia • NSAID-related ulcers	• On-demand use for reflux symptoms • Functional dyspepsia (initial) • Ulcer prevention in variceal banding • Mallory-Weiss tear rebleeding prevention	• Laryngopharyngeal symptom empiric Rx • Acute, undifferentiated abdominal pain • Acute nausea/vomiting not from GERD • Isolated lower GI symptoms

Targownik, Laura E. et al. Gastroenterology, Volume 162, Issue 4, 1334 - 1342.

INDICATIONS FOR PPI USE: LONG-TERM

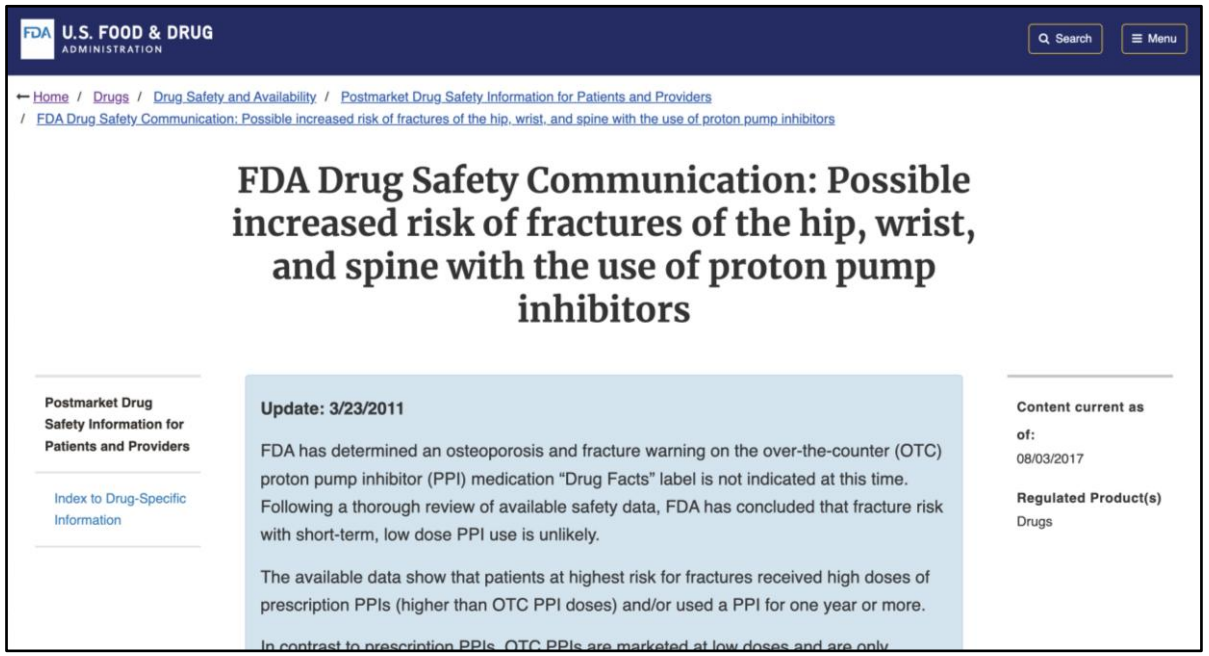
Definitely Indicated	Conditionally Indicated	Not Indicated
• Barrett's esophagus • LA Grade C/D esophagitis • Erosive esophagitis • Esophageal strictures • Zollinger-Ellison syndrome • Eosinophilic esophagitis • GI bleed prophylaxis (NSAID users) • Idiopathic pulmonary fibrosis (ILD)	• Endoscopy-negative reflux disease with recurrence • Functional dyspepsia with recurrence • Upper airway symptoms (e.g. laryngopharyngeal reflux) • Refractory steatorrhea in chronic pancreatic insufficiency • Secondary prevention of ulcers without antiplatelets	• Nonresponsive reflux symptoms • Functional dyspepsia nonresponsive to PPIs • Steroid use without NSAIDs • Prevention of GI bleeds (non-ulcer causes) • Non-ulcer dyspepsia

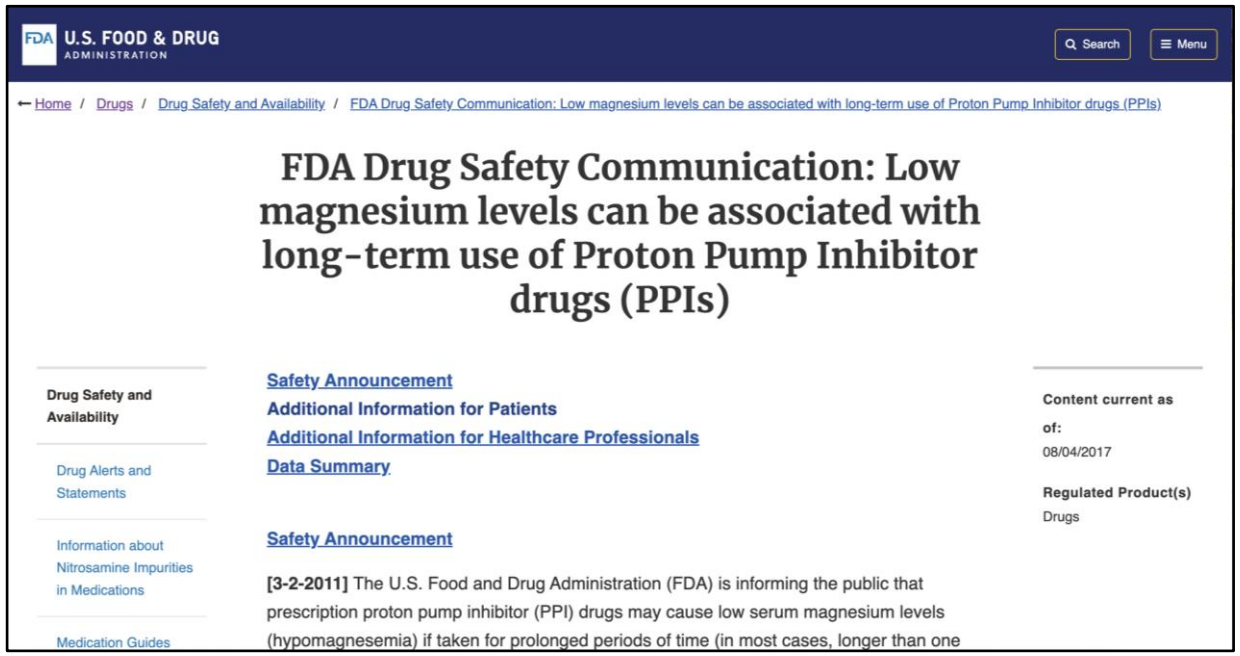
Targownik, Laura E. et al. Gastroenterology, Volume 162, Issue 4, 1334 - 1342.

PPI DRUGS INTERACTIONS

- **Clopidogrel**
- Digoxin
- Warfarin
- Methotrexate
- Phenytoin
- Azoles
- Protease inhibitors (Atazanavir, Saquinavir, Tipranavir)
- Others

FDA WARNINGS





ADVERSE EFFECTS OF PPI USE

Side effect	Observational data (2010-2021)	Metanalysis (2023-2025)
Vit B12 deficiency	A 65% increased risk [2] Mild increased risk[3, 4]	(25 studies, 31k participants) B12 deficiency higher in PPI users, OR 1.42, 95% (CI: 1.16-1.73)[9]
Hypomagnesaemia	Mild increase especially with concomitant medications causing low Mg[5, 6]	
Hypocalcemia	Mild increased risk[7]	
Iron deficiency	RR=2.5[8]	

1. Rochoy M, et al. Therapie. https://doi.org/10.1016/j.therap.2017.08.005. **2.** Chinzon D, et al. Arq Gastroenterol. 2022;59:219–225. **3.** Lam J.R, et al. JAMA. 2013; 310(22): 2435-2442. **4.** Jung S.B, et al. Intern Med J. 2015; 45(4): 409-416. **5.** Florentin M, et al. World J Nephrol. 2012; 1(6): 151-154. **6.** Begley J, et al. Br J Clin Pharmacol. 2016; 81(4): 753-758. **7.** Bahtiri E, et al. Turk J Gastroenterol. 2017; 28(2): 104-109. **8.** Ali MD. Curr Rev Clin Exp Pharmacol. 2023;18(2):158-166. **9**. Choudhury A, et al. Expert Rev Gastroenterol Hepatol. 2023;17(5):479-487.

SUMMARY BASED ON RECENT METANALYSES

Modest risk	Increased risk	Beneficial	Inconclusive	No increased risk
• Dementia (1.16) • CVA, no prior CVD (1.2) • Osteoporosis (1.2) • C. Diff (1.02) • Old age (1.14) • Gastric cancer (1.2)	• Vit B12 def (1.4) • CAP (1.37) • Fractures (1.5) • CKD (checkpoint inhibitors) 1.84 • Enteric infections (1.8) • SBP & other complications • Migraines in men (3.87) • SBB • CRC (2.0)	• AP pseudocyst	• Pregnancy	• MACE

1. *Chen Y, et al. PLoS One. 2016;11(12):e0168618.* ***2.*** *Hassing R.J, et al. Eur J Epidemiol. 2016;31(10):1057-1063.* ***3.*** *Moayyedi P, et al. Gastroenterology. 2019;157(3):682-691.e2.* ***4.*** *Lo W.K, et al. Clin Gastroenterol Hepatol. 2013; 11(5): 483-490.*
5. *Xu H.B, et al. Genet Mol Res. 2015; 14(3): 7490-7501.* ***6.*** *Kim J.H, et al. J Gastroenterol Hepatol. 2017; 32(5): 1064-1070.****7.*** *Zhang Q, et al. Dig Dis. 2025;43(1):28-35.* ***8.*** Liao L, et al. BMC Microbiol. 2023;23(1):386.
9. Wong Z, et al. Dig Dis Sci. 2024;69(1):289-297. **10.** Finke M, et al. J Infect.2025;90(5):106488.

CONTROVERSIES IN MEDICALLY TREATED GORD

PROTON PUMP INHIBITORS

- Correct indication vs Prescribed therapy (Clinical practice)
- PPIs side effects and Drug interactions
- Special populations: Elderly, CKD patients, Polypharmacy, Pregnancy
- PPI Potency and which one to use, when

QUALITIES OF A GOOD - BETTER PPI

- **Speed:** Fastest action of onset due to high pKa.
- **Predictability:** Non-enzymatic metabolism - efficacy regardless of patient genetics.
- **Safety:** Minimal drug-drug interactions - suitable for polymedicated patients.
- **Efficiency:** Superior symptom control improves patient adherence and quality of life.
- **Affordability**: health funders do not easily cover PPIs

UNMET NEEDS IN GERD MANAGEMENT

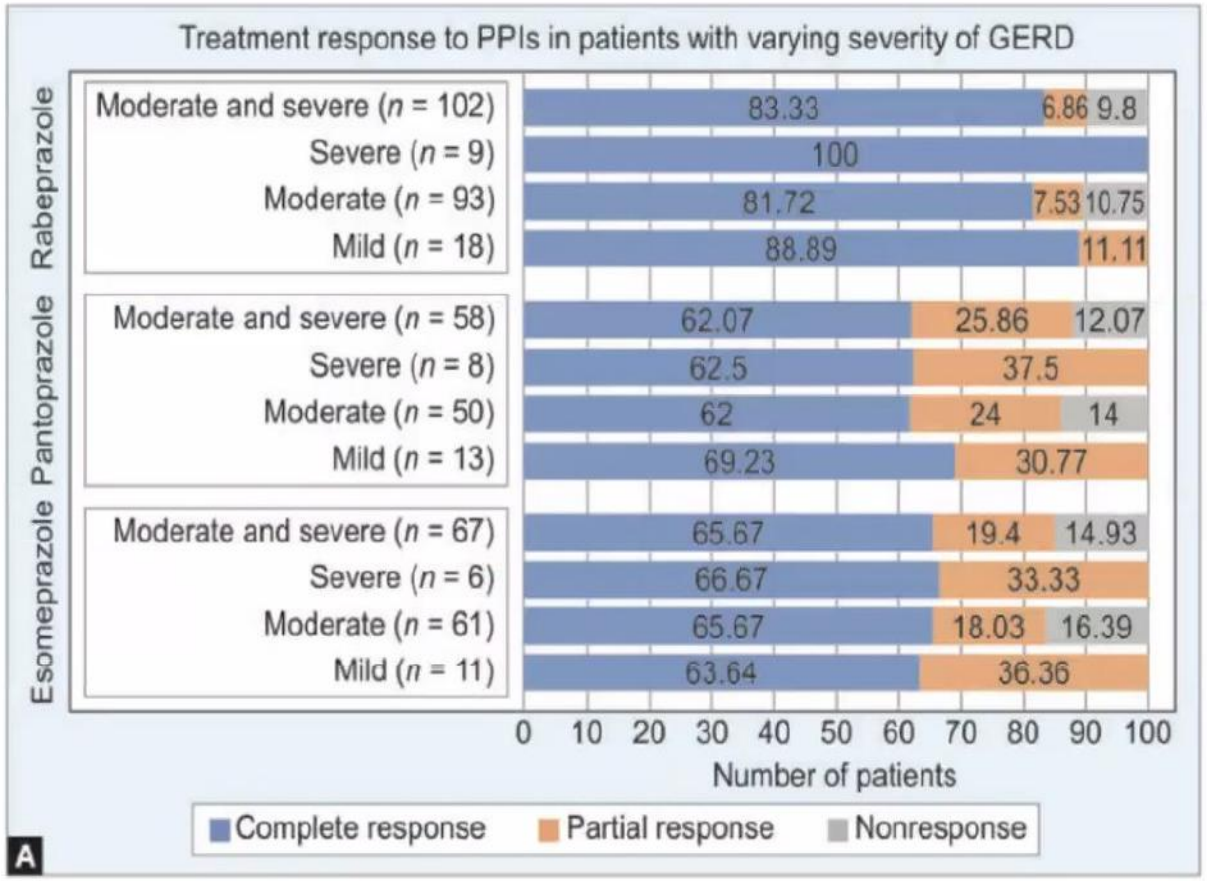
Limitations of current treatment			Dexilant®
PPI's have short half-lives (± 1–2 hours)	UP TO **49%**	use adjunctive medications to control discomfort	**Provide extended duration of active drug concentrations throughout the day**
PPI Prescriptions are twice daily	**30%**	of PPI prescriptions are twice daily or on demand to compensate for lack of 24-hour effect	**Once-daily administration** **True 24 hour acid reflux relief** **Effective step-down from twice-daily PPI to OD Dexlansoprazole**
Nocturnal symptoms	UP TO **89%**	of patients suffer from nocturnal symptoms	**Improved nocturnal gastric acid secretion control**
Poor adherence to therapy – meal associated dosing	+/- **50%**	take the dose with no consideration of meal-associated dosing – i.e. 30-60 minutes before a meal	**Flexible dosing – irrespective of a meal**

COMPARATIVE SAFETY PROFILE & ONSET OF ACTION

Parameter	Rabeprazole	Omeprazole	Pantoprazole
Pka (Approx)	5.0	4.0	3.9
Metabolism	Non-enxymatic	CYP2C19	CYP2C19
Onset of action	Very rapid	Moderate	Slow
DDI Risk	Lowest	High	Low

EQUIVALENT PPI DOSAGES/TREATMENT RESPONSE

PROTON PUMP INHIBITOR	FULL STANDARD DOSE	LOW DOSE (ON-DEMAND)	DOUBLE DOSE
Esomeprazole	20 mg once daily	Not available	40 mg once daily
Lansoprazole	30 mg once daily	15 mg once daily	30 mg twice daily
Omeprazole	20 mg once daily	10 mg once daily	40 mg once daily
Pantoprazole	40 mg once daily	20 mg once daily	40 mg twice daily
Rabeprazole	20 mg once daily	10 mg once daily	20 mg twice daily



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Eur J Clin Pharmacol (2009) 65:19–31
DOI 10.1007/s00228-008-0576-5

REVIEW ARTICLE

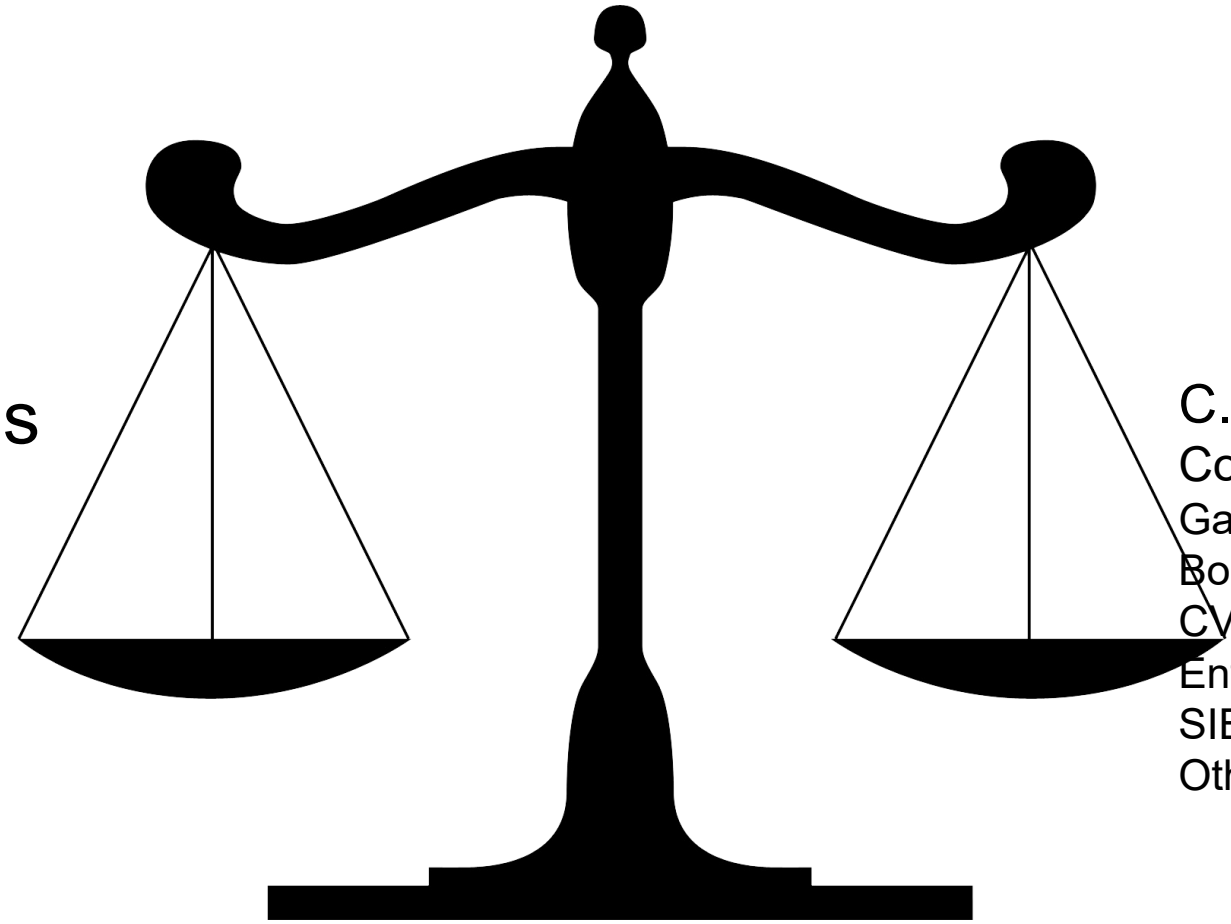
Relative potency of proton-pump inhibitors—comparison of effects on intragastric pH

Julia Kirchheiner · Silke Glatt · Uwe Fuhr · Ulrich Klotz · Ingolf Meineke · Thomas Seufferlein · Jürgen Brockmöller

Results Fifty-seven studies fulfilled the inclusion criteria. Based on the mean 24-h gastric pH, the relative potencies of the five PPIs compared to omeprazole were 0.23, 0.90, 1.00, 1.60, and 1.82 for pantoprazole, lansoprazole, omeprazole, esomeprazole, and rabeprazole, respectively.

Benefits

Erosive Esophagitis
NSAID ulcer
Barrett's esophagus
Functional dyspepsia
Functional heartburn
Others



Risks

C. diff
Community acquired pneumonia
Gastric cancer
Bone disease
CV events
Enteric infections
SIBO
Others

Adapted from: Kinoshita Y, et al. J Neurogastroenterol Motil. 2018 Apr 30;24(2):182-196.

Deprescribing PPIs: Practical Algorithm for GPs

Step 1: Reassess Indication

- If no long-term indication → deprescribe.
- Supported by Choosing Wisely and multiple guidelines.

Step 2: Tapering Strategy

- Reduce dose for 1–2 weeks → every-other-day dosing → stop or switch to H2RA.
- Supported by large RCT showing combined prescriber + patient education improves deprescribing success (14.9% vs 7%).

Step 3: Manage Rebound Acid Hypersecretion

- Warn patients about transient rebound.
- Use antacids or H2RA PRN.

Step 4: Follow-up

- Reassess symptoms at 4–8 weeks.

CONCLUSION

- Overprescribing PPIs have created alarmism in both patients, clinicians and society/press
- Risk-stratify patients is key to favourable outcomes
- Judicious use is mandatory for long-term PPIs (defined indications, lowest dose and monitoring)
- Caution **not to de-escalate** therapy in those with bona fide indications for safety concerns

CONCLUSION

- PPIs are highly effective but overused.
- Use PPIs at the **lowest effective dose** for the **shortest necessary duration**.
- Reserve long-term therapy for clear indications.
- Deprescribing is safe and evidence-based.
- Lifestyle modification remains foundational.
- GPs play a central role in PPI stewardship.

THANK YOU