

Long-Term Omeprazole Use Causing Critical Electrolyte Derangements

Henry Lam, DO¹, Margaret Spinoso, MD², Arjan Ahluwalia, MD¹, Robert Doll, MD³, Frederic Stelzer, MD²

Lehigh Valley Health Network, Allentown, PA

¹Department of Medicine, ²Division of Gastroenterology, ³Department of Endocrinology



Introduction

- Proton-pump inhibitors (PPI) are the mainstay therapy for acid-related GI entities.
- Longstanding use is associated with an increased risk of adverse effects.
- **Clinically significant side effects, such as metabolic derangements, are rare.**

Presentation

- A 61-year-old female with a history of hypertension and GERD presented with numbness of bilateral upper extremities for several months.
- She noted similar symptoms in the past related to herniated disc of the cervical spine for which she had spinal fusion.
- Imaging was unremarkable with intact spinal fusion.
- Exam revealed no focal neurologic deficits.

	Day 0	Day 3	Day 5	Day 6
K+ (mmol/L)	3.3	3.2	3.8	3.9
Ca+2 (mg/dL)	5.7	6.6	7.8	9.5
Mg+2 (mg/dL)	0.5	1.6	1.7	1.6

Table 1. Electrolyte derangements including hypokalemia, hypocalcemia, and hypomagnesemia, which remained suboptimal despite aggressive repletion. Electrolytes finally stabilized after switching from PPI to H2 blocker.

Work Up

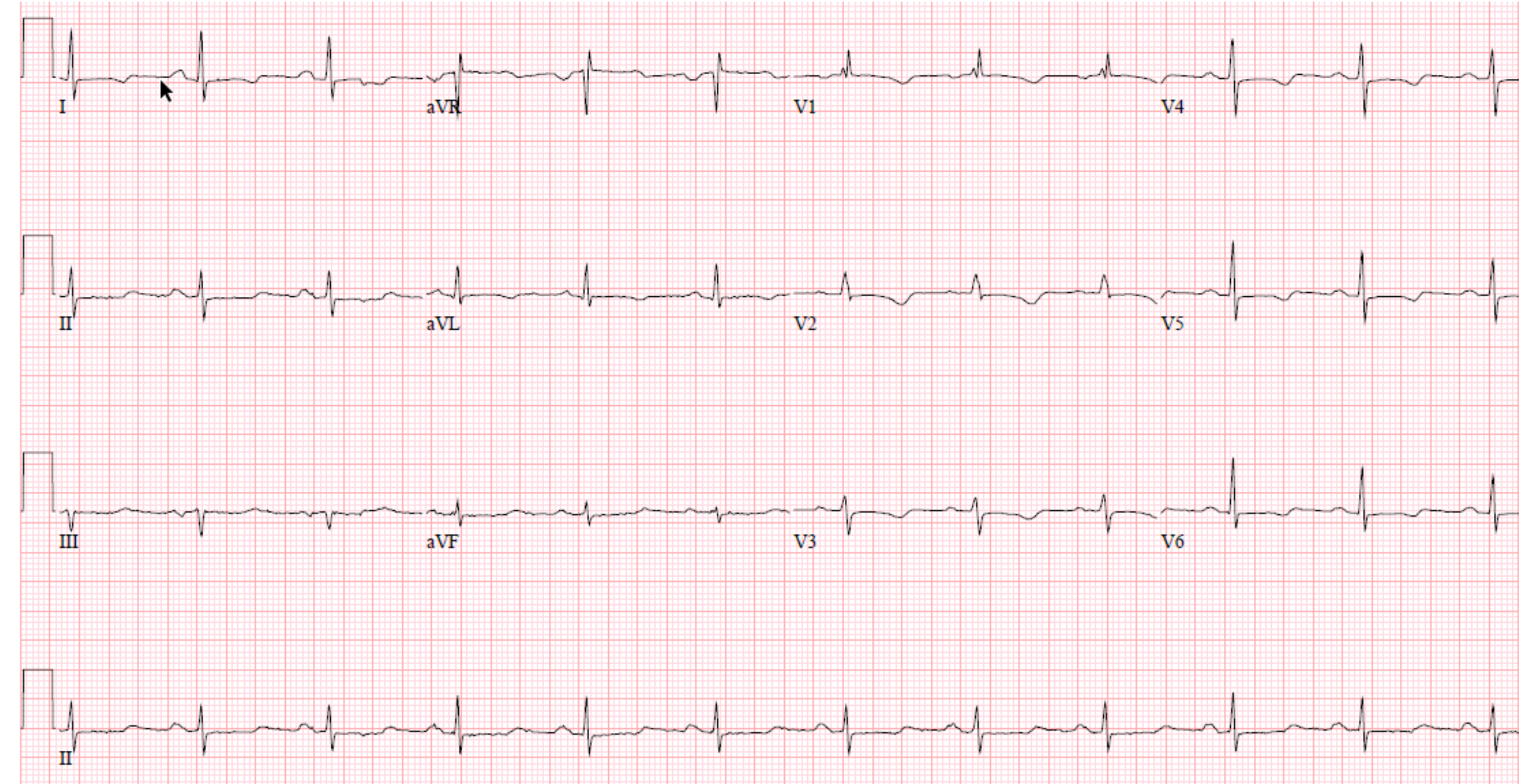


Figure 1. EKG showing QTC prolongation at 542 ms. PR interval WNL. No other signs of arrhythmias detected.

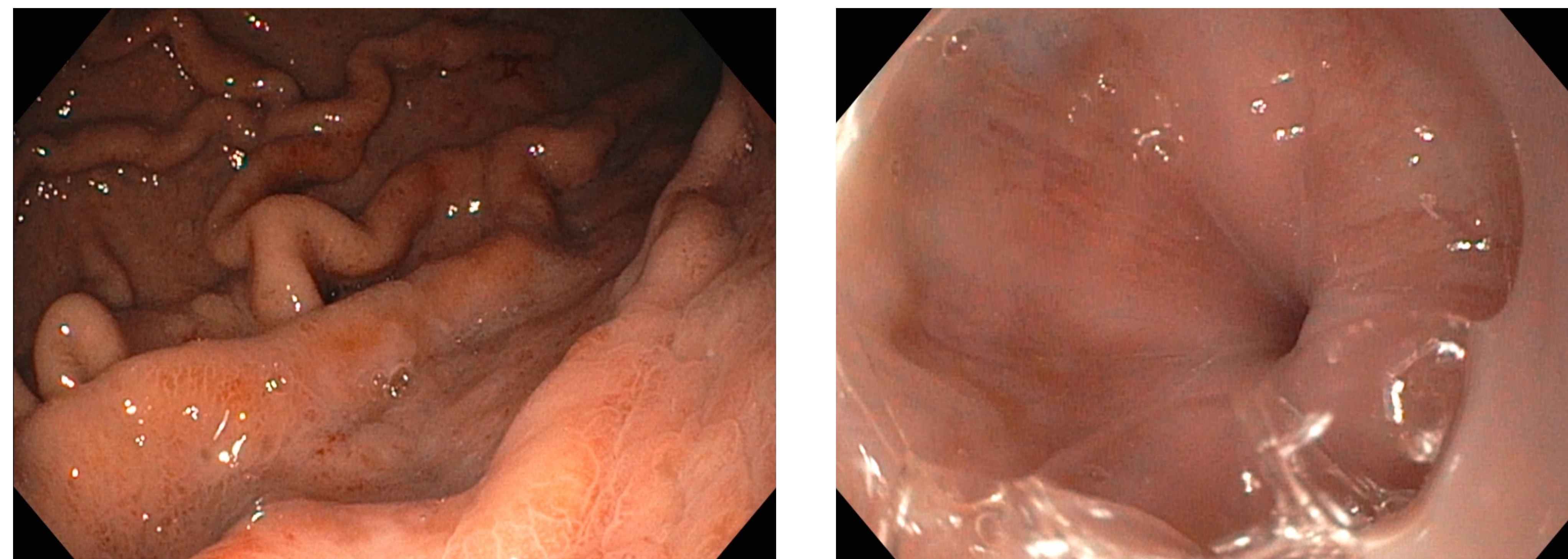


Figure 2. EGD showing mild gastritis (left) with normal appearing gastroesophageal junction (right).

Outcomes

- Final diagnosis: **PPI induced hypomagnesemia.**
 - She was on omeprazole for **~20 years** after evaluation by ENT for vocal cord hoarseness thought to be secondary to GERD.
 - Interestingly, she lacked objective data demonstrating GERD, and her outpatient gastroenterologist had considered de-escalation of therapy.
 - Her electrolytes stabilized after switching to H2 blocker, **famotidine.**

Discussion

- Hypomagnesemia is a rare side effect of PPI use initially identified in **2006**.
- In **2011**, the FDA issued drug safety warning.
- Manifestations of hypocalcemia and hypokalemia can be **concealed by calcium and potassium-sparing agents**, which was likely the case in our patient who was taking candesartan-hydrochlorothiazide combo.

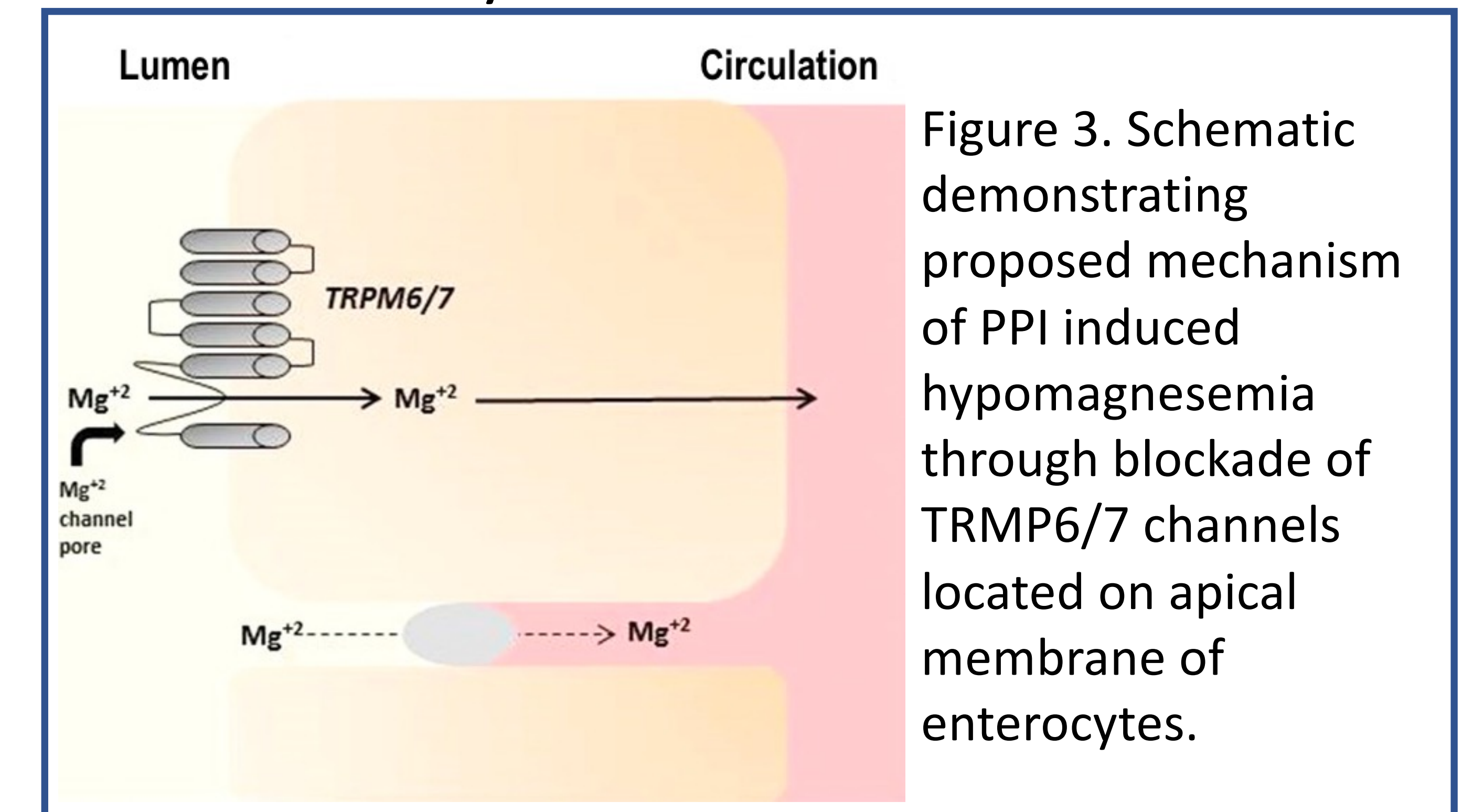


Figure 3. Schematic demonstrating proposed mechanism of PPI induced hypomagnesemia through blockade of TRPM6/7 channels located on apical membrane of enterocytes.

Conclusion

Limiting chronic PPI therapy is important given the potential for serious consequences. Increased efforts should be aimed at deprescribing PPI therapy.

References

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