

Letter regarding the article “The impact of hypomagnesemia on erectile dysfunction in elderly, non-diabetic, stage 3 and 4 chronic kidney disease patients: a prospective cross-sectional study”

Pasquale Fatuzzo*

Luca Zanolli*

Viviana Scollo

Department of Clinical and Experimental Medicine, Section of Nephrology, University of Catania, Catania, Italy

*These authors contributed equally to this work

Dear editor

In an article published in a recent issue of *Clinical Interventions in Aging*, Toprak et al¹ found that, among patients with stage 3–4 chronic kidney disease (CKD), the prevalence of erectile dysfunction was higher in patients with hypomagnesemia. This finding is clinically relevant because it supports the hypothesis that hypomagnesemia may lead to inflammation² and endothelial dysfunction, two causes of erectile dysfunction. Toprak et al¹ concluded that the detection of the serum magnesium level in non-diabetic elderly men with CKD could be useful to assess the risk of erectile dysfunction. Consequently, it is important to assess the causes of hypomagnesemia in patients with CKD, in particular the causes that are potentially reversible. With this in mind, hypomagnesemia could be caused by the long-term use of proton pump inhibitors,^{2,3} widely used in patients with CKD but not reported in the study of Toprak et al,¹ alone or in combination with diuretics² or cyclosporine.⁴ Hypomagnesemia may also be associated with low levels of parathyroid hormone (slightly reduced in the cohort of patients with hypomagnesemia enrolled by Toprak et al¹), calcemia (not reduced in the cohort of patients with hypomagnesemia enrolled by Toprak et al¹) and kalemia (not evaluated in the study of Toprak et al¹). Moreover, an association between short-term use of proton pump inhibitors and erectile dysfunction has been previously reported.^{5,6} In conclusion, it could be useful to investigate and report, if available, the pharmacological history and serum and urinary cation levels in patients with CKD and hypomagnesemia in order to evaluate whether a proton pump inhibitor or cyclosporine are used and if hypokalemia is present.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Toprak O, Sari Y, Koç A, Sari E, Kırık A. The impact of hypomagnesemia on erectile dysfunction in elderly, non-diabetic, stage 3 and 4 chronic kidney disease patients: a prospective cross-sectional study. *Clin Interv Aging*. 2017;12:437–444.
2. Fatuzzo P, Zanolli L, Scollo V, et al. Review: UPDATE sul metabolismo del magnesio [Review: UPDATE on magnesium metabolism]. *G Ital Nefrol*. 2016;33(6). Italian.
3. Fatuzzo P, Portale G, Scollo V, Zanolli L, Granata A. Proton pump inhibitors and symptomatic hypomagnesemic hypoparathyroidism. *J Nephrol*. 2016;30(2):297–301.

Correspondence: Pasquale Fatuzzo
Department of Clinical and Experimental Medicine, Section of Nephrology, Policlinico Universitario, University of Catania, Via Santa Sofia 78, 95123 Catania, Italy
Tel +39 09 5378 1530
Fax +39 09 5378 2376
Email fatuzzo@unict.it

4. Rapisarda F, Portale G, Ferrario S, et al. Nessuno nasce solo o è nato per sé solo [Magnesium, calcium and potassium: “no one was born alone”]. *G Ital Nefrol*. 2016;33(1). Italian.
5. Lindquist M, Edwards IR. Endocrine adverse effects of omeprazole. *BMJ*. 1992;305(6851):451–452.
6. Grau Amorós J. Disfunción eréctil e inhibidores de la bomba de protones [Erectile dysfunction and proton pump inhibitors]. *Med Clin (Barc)*. 2000;114(12):478. Spanish.

Authors' reply

Omer Toprak¹

Yasin Sarı²

Akif Koç³

Erhan Sarı³

Ali Kırık²

¹Division of Nephrology, ²Division of Internal Medicine, ³Division of Urology, Department of Medicine, Balikesir University School of Medicine, Balikesir, Turkey

Correspondence: Omer Toprak

Division of Nephrology, Department of Medicine, Balikesir University School of Medicine, Çağış Yerleşkesi, Balikesir 10145, Turkey

Tel +90 266 258 9585

Fax +90 266 612 1023

Email omertoprak@balikesir.edu.tr

Dear editor

We are in full agreement with Fatuzzo et al that it is important to assess the causes of hypomagnesemia in patients with chronic kidney disease.^{1,2} Hypomagnesemia may be caused by malabsorption, inflammatory bowel disease or gastrointestinal disorders, diarrheal diseases, alcohol abuse, use of laxatives, diuretics, corticosteroids, oral contraceptives, bile acid sequestrants, proton pump inhibitors, amphotericin B, aminoglycosides, tetracycline, chemotherapy drugs (cisplatin, amsacrine), immunosuppressants (cyclosporine, sirolimus), bisphosphonates, beta adrenergic agonists, foscarnet, pentamidine, hypokalemia, hypocalcemia, inherited renal tubular defects, and kidney transplantation.²

Proton pump inhibitors are widely used and are one of the causes of hypomagnesemia. In our study, patients' medical histories were reviewed, and comorbidities, risk factors, and medications with the potential to affect erectile dysfunction

and magnesium levels were recorded.³ We recorded all pharmacological history of the patients involved in our study. We checked the use of proton pump inhibitor usage in all patients and a non-significant result was found between the study groups. Fourteen hypomagnesemia patients (7.7%), and 17 normomagnesemia patients (8.8%) used proton pump inhibitors ($P=0.732$). None of our patients used cyclosporine. We also recorded the potassium levels of the patients in our study and found that there was no statistically significant difference between the study groups. The level of potassium was 3.92 ± 0.71 mEq/L in the hypomagnesemia group and 4.11 ± 0.72 mEq/L in the normomagnesemia group ($P=0.123$).

In conclusion, we agree with Fatuzzo et al that the pharmacological history and electrolyte levels are important to evaluate hypomagnesemia in patients with chronic kidney disease.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Gröber U, Schmidt J, Kisters K. Magnesium in prevention and therapy. *Nutrients*. 2015;7(9):8199–8226.
2. Toprak O, Kurt H, Sarı Y, Şarkış C, Us H, Kırık A. Magnesium replacement improves the metabolic profile in obese and pre-diabetic patients with mild-to-moderate chronic kidney disease: a 3-month, randomised, double-blind, placebo-controlled study. *Kidney Blood Press Res*. 2017; 42(1):33–42.
3. Toprak O, Sarı Y, Koç A, Sarı E, Kırık A. The impact of hypomagnesemia on erectile dysfunction in elderly, non-diabetic, stage 3 and 4 chronic kidney disease patients: a prospective cross-sectional study. *Clin Interv Aging*. 2017;12:437–444.

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Clinical Interventions in Aging 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Clinical Interventions in Aging editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

Clinical Interventions in Aging

Publish your work in this journal

Clinical Interventions in Aging is an international, peer-reviewed journal focusing on evidence-based reports on the value or lack thereof of treatments intended to prevent or delay the onset of maladaptive correlates of aging in human beings. This journal is indexed on PubMed Central, MedLine,

CAS, Scopus and the Elsevier Bibliographic databases. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <http://www.dovepress.com/clinical-interventions-in-aging-journal>

Dovepress