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Original Article

Associations of proton pump inhibitors and hospitalization due to hyponatremia: A population-based case-control study

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Highlights

- Newly initiated PPIs and hospitalization due to hyponatremia was associated.
- Lansoprazole was an exception with no association found.
- In severe hyponatremia with newly initiated PPI, consider an alternative.
- If the indication for PPI use remains, lansoprazole could here be an option.
- Severe hyponatremia was not associated with ongoing PPI treatment.

Abstract

Background

Small observational studies and case reports have indicated that [proton pump inhibitors](#) (PPIs) may cause [hyponatremia](#). Whether there is a difference between the individual PPIs is yet unknown. Since PPIs are one of the most commonly prescribed groups of drugs, even a rare adverse reaction may have large implications. The objective was to study the association between

PPIs and hospitalization due to hyponatremia.

Methods

This register-based [case-control study](#) was based on the general Swedish population. Patients hospitalized with a principal diagnosis of hyponatremia ($n = 14,359$) were compared to matched controls ($n = 57,383$). The association between newly initiated (≤ 90 days) and ongoing PPI use was explored using multivariable logistic regression adjusting for [concomitant drugs](#), medical conditions, previous hospitalizations and socioeconomic factors.

Results

Adjusted ORs (95%CI) for hospitalization due to hyponatremia, compared to controls, were for newly initiated: omeprazole 2.67 (2.37–3.01); [pantoprazole](#) 2.06 (1.32–3.19); [lansoprazole](#) 1.19 (0.72–1.94); [esomeprazole](#) 2.89 (2.21–3.79) and any PPI 2.78 (2.48–3.11). Only one individual had been newly initiated on rabeprazole and had been hospitalized due to hyponatremia. Adjusted ORs (95%CI) for individuals with ongoing treatment were for: omeprazole 1.04 (0.97–1.11); pantoprazole 0.81 (0.62–1.05); lansoprazole 0.90 (0.70–1.15); rabeprazole 3.34 (0.84–11.43); esomeprazole 1.12 (0.94–1.33) and any PPI 1.04 (0.98–1.11).

Conclusions

With the exception of lansoprazole, this study suggests an association between any newly initiated PPI-treatment and hospitalization due to hyponatremia. Ongoing PPI use was not associated with an increased risk.

Keywords

Omeprazole, ; Pantoprazole, ; Lansoprazole, ; Rabeprazole, ; Esomeprazole, ; Hyponatremia, ; SIADH, ; Adverse reaction, ;

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