

# Appropriateness of proton pump inhibitors use at hospital admission and discharge: an observational study from a teaching hospital in Slovenia

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**Background** Proton pump inhibitors (PPIs) are among the most prescribed drugs, having widespread indications and a favourable safety profile. However, their use often expands to higher doses, longer periods and indications other than those recommended in treatment guidelines.

**Purpose** The aim of this study was to analyse PPIs' use at hospital admission and discharge and evaluate their appropriateness according to treatment guidelines in medical patients from a single teaching hospital in Slovenia.

**Method** We performed an observational study of randomly selected medical patients, hospitalised at the University Clinic Golnik between September 2019 and February 2020. Data on PPIs' use before admission were prospectively collected through patients' interviews, performed by pharmacists, while other medical data and data on PPIs' use at discharge were collected from medical documentation. Patients were offered routine clinical pharmacy services, with no specific intervention targeting PPIs deprescribing. PPIs' use was assessed as appropriate if the indication, dose and duration of treatment were all concordant with the relevant national treatment guidelines.

**Findings** Among the 382 interviewed patients (53 % male, median age 71 years), nearly half (47 %; 181/382) were using PPIs prior to hospital admission. Most were using a PPI due to chronic NSAID use (41 %; 74/181) and GERD (35 %; 63/181). The most common prescribed PPI was pantoprazole (72 %; 130/181), usually in high doses (e.g. pantoprazole ≥ 40 mg; 59 %; 107/181) and for over one year (65 %; 117/181). Use of PPIs prior to admission was concordant with treatment guidelines in only a third of patients (32 %; 57/181), with discrepancies due to prolonged treatment (44 %; 80/181), typically in GERD patients, too high PPIs' doses (43 %; 78/181), typically in chronic NSAID users, and the lack of a valid indication (19 %; 35/181). At hospital discharge, changes in PPIs' treatment were undertaken in approximately 20% of all included patients (77/382), with initiation of PPIs being the commonest (12 %; 46/382). At discharge, the rate of appropriate PPIs' treatment according to guidelines raised to 40 % of PPIs' users (86/216), however with a third of users lacking a valid indication (72/216).

**Conclusion** Nearly half of hospitalised medical patients used PPIs prior to hospital admission and two thirds of PPIs' treatments were not concordant with guidelines. The share of appropriate PPIs' use improved at hospital discharge, but only modestly. These findings mandate vigorous reassessment of PPIs use to identify possibilities for PPI deprescribing.