

# **ABSTRACT**

## **INTRODUCTION**

The deepening process of demographic aging has a significant impact on all areas of the society. With increasing age, the presence of illness, as well as the amount of used drugs increases. The most commonly prescribed drugs are often proton pump inhibitors, which play an irreplaceable role in the treatment of many gastrointestinal diseases. The trend of the overuse of proton pump inhibitors as the main antisecretory drugs is mainly related to their long-term administration in the prophylaxis of concurrent use of gastrotoxic drugs. The aim of this work was to evaluate the rationality of use of proton pump inhibitors including indications, administered dosages and duration of treatment.

## **METHODS**

The data collected and used in this work are a part of the FIP7 project of the EUROAGEISM H2020 program. The study involved 438 geriatric patients in acute care institutions in Brno, Prague, and Hradec Králové, who were hospitalized between August 2018 and January 2019. The inclusion criteria were age over 65 years and adherence to inclusion criteria of the study. Seniors with severe cognitive impairment (MMSE < 10 points), memory impairment, speech or hearing impairment, patients hospitalized in the intensive care unit and in the terminal stage of the disease were excluded from the study. Data were collected from the patients medical records and completed on the basis of interview with the patient and medical staff. Subsequently a statistical descriptive analysis was performed by using Fisher's exact test. The differences between the individual centers were determined ( $p < 0,05$ ). Except main sample characteristics, prevalence of gastrointestinal disorders and symptoms, the prevalence of the use of gastrotoxic drugs and the rationality of the administration of proton pump inhibitors in terms of indication, dose and length of administration was evaluated.

## **RESULTS:**

60 % of women and 40 % of men participated in the study, with an average age of 80 years. 53 % of the seniors suffered from 5–9 diseases, 40 % from 10 or more and 45,9 % of seniors used 5–9 drugs. Proton pump inhibitors were prescribed by 58,5 % of hospitalized seniors, with the most prevalent use of omeprazole (37,2 %), followed by pantoprazole (20,8 %). The most frequent was their gastroprotective use with a concurrent use of NSAID or ASA (10,7 %), therapy of dyspepsia (13 %), gastroesophageal reflux (9,5 %) and gastroduodenal ulcer disease (9,9 %). 28,8 % of the patients used proton pump inhibitor in combination with anticoagulants, SSRIs, corticosteroids or antiplatelet therapy (except ASA) in the absence of a clinical diagnosis justifying their indication. Patients mostly used IPPs for months (16 %), followed by years (9,4 %), weeks (9 %) and at least days (7,8 %).

## **CONCLUSION**

As in other available studies, a high prevalence of IPP use by geriatric patients was confirmed, with the highest prevalence of gastroprotective use in patients at not high risk. Increasing drug consumption in seniors means also increased risk of side effects or interactions with a subsequent patient harm. The goal of the treatment of geriatric patients should be an individualized and rationalized prescribing resulting in the lowest possible use of drugs, which could also reduce the prevalence of IPP use in preventive indications as well as the economic burden of the health system.

## **KEY WORDS**

rational pharmacotherapy, geriatric patients, proton pump inhibitors, inappropriate prescribing, gastrotoxic medications

## **DEDICATION**



*This project has received funding and support from the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie grant agreement No 764632, SVV 260417 and PROGRESS Q42 scientific program of the Faculty of Pharmacy, Hradec Králové, Czech Republic.*