ABSTRACT

Institution/department: Charles University, Faculty of Pharmacy in Hradec Kralove, Department of Social and Clinical Pharmacy
Title of diploma thesis: The rational use of proton pump inhibitors among geriatric patients in the Czech Republic
Supervisor: Assoc. Prof. Daniela Fialova, PharmDr. Ph.D.
Author: Ivana Geletova

Introduction: The dynamic process of ageing requires adequate attention at a global level, mainly in the area of providing a proper healthcare. Ageing process is specific by significant involutional changes and is often complicated by higher polymorbidity and polypharmacotherapy. Therefore, it is necessary to eliminate the negative impact of possible drug-related and nondrug-related risk factors and to ensure the rational use of medicines. Proton pump inhibitors (PPIs) are one of the most frequently prescribed classes of drugs in older adults, administered especially for the treatment of gastrointestinal tract (GIT) disorders associated with increased secretion of gastric acid and/or impairment of GIT or as a preventive treatment of potential drug-related and other gastropathies. This diploma thesis focused on evaluating the prevalence of use of PPIs among geriatric patients in acute, ambulatory and pharmacy settings of healthcare in the Czech Republic, in the EUROAGEISM H2020 project, and also on evaluating of selected basic aspects of the rationality of use of PPIs.

Methodology: The collection of analysed data was conducted in 2018 – 2020 in the ESR7 project of the European programme EUROAGEISM H2020 (November 2017 – April 2022). Into ongoing study in the Czech Republic were involved 1452 patients aged 65 years and older. Patients were examined by a validated research protocol in geriatric outpatient clinics (N=563, including Brno, Hradec Kralove, Opava and Prague), in acute geriatric clinics (N=589, including Brno, Hradec Kralove, Opava and Prague) and in the pharmacy healthcare setting (N=300, in this diploma thesis including Holesov and Hradec Kralove).
Data of all involved participants were provided anonymously, with the consent of the ethics committee and after signing an informed consent. Data coming from a pharmacy setting were obtained only by a structured interview with the patient. In other settings of care, data from medical records and interviews with the healthcare professionals were taken into an account. The prevalence of evaluated categories among the PPIs users was stated by using descriptive statistic analysis. Analysis of variance was conducted to compare an average age, while a Kruskal-Wallis‘s test compared the age categories. Statistically significant differences

between healthcare facilities *(p<0,05)* were determined by applying a Chi-squared test and a Fisher‘s exact test.

Results: The study involved 1452 participants (66,5 % of women and 33,5 % of men) with an average age of 79,1 (standard deviation (SD) ± 8,8) years, whereas 41,0 % of geriatric patients used PPIs. The most commonly used drug was omeprazole (22,7 %) and the next one was pantoprazole (16, 2 %). The usage of PPIs was most frequent during gastroesophageal reflux disease treatment (5,9 %), during active gastroduodenal ulcer disease (5,6 %) and drug-related gastroprotective indications (14,1 %). 14,7 % of patients received a strongly gastrotoxic drug without the concurrent use of the PPI. Long-term therapy (more than one year) was documented in 64,5 % of PPIs users. On the other hand, the lowest number of patients (7,9 %) were treated in the period of time between 2 months up to 1 year. Hypochromic anemia (28,6 %), osteoporosis (25,0 %) and malnutrition (21,3 %) were the most common potential complications of drug therapy among users of PPI.

Conclusion: Analysis of the Czech sample of patients participating in the EUROAGEISM H2020 project pointed out the frequent and long-term administration of the PPIs among older adults. Mostly standard dosages were prescribed. A more accurate assessment of PPI risks in current clinical practice would require longitudinal data that were not collected in the EUROAGEISM H2020 project, or evaluation of at least multivariate logistic regression analysis which will be conducted after the termination of data collection. In the baseline analysis, hypochromic anemia, osteoporosis and malnutrition were documented among potential complications/risks of treatment.

Key words: rational geriatric pharmacotherapy, inappropriate drug prescribing, proton pump inhibitors, risks of pharmacotherapy

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