

POLYPHARMACY IN PRESCRIBING DRUGS TO ELDERLY PATIENTS

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ABSTRACT

A certain contribution to the appointment of OZLS is made by doctors following the recommendations for managing patients with a certain nosology, which in most cases are based on randomized controlled clinical trials, specifically excluding elderly people with multimorbidity. We compared patients with no prescriptions for OPZD and patients with similar prescriptions in their medical records. Student's t-test for normal distribution of variables or Mann-Whitney test for non-normal distribution of variables was used. The most common drug. The ones identified as MEPs were vasodilators, aspirin, and 1st generation antihistamines.

KEYWORDS: *Multimorbidity, Antihistamines, Nosology*

INTRODUCTION

Demographic data shows that in the developed countries of the world today the number of elderly people is growing rapidly. According to UN statistics, in 20-25 years the number of people over 60 years old worldwide will reach 1.2 billion [1]. Especially expected to increase the number of those people who will be over 80 years old. Studies have shown that the number of older people (75-80 years old) worldwide is increasing by about 2.5%. Due to the changes occurring in the body of older people, the pharmacodynamics and pharmacokinetics of drugs most often change, therefore, the frequency and development of side effects after the use of drugs developed. Lack of knowledge of the doctor can exacerbate and worsen the course of the disease in elderly patients. Therefore, at this time, physicians of all specialties should be trained continuously in geriatric practice and pharmacotherapy. Especially primary care physicians. Patients in the group of 75-80 years old in 65% of cases have 3 or more diseases [2,3]. Comorbidity is a major factor in polypharmacy in the elderly. In turn, the elderly and especially senile age, which causes changes in the pharmacodynamics and pharmacokinetics of drugs, the presence of other comorbidities, and polypharmacy are the main risk factors for prescribing in medical practice regarding illicit drugs [4,5]. Drugs that pose more of a risk than a benefit to the patient are called relatively illicit drugs (RMPs). Most often, OZLS is prescribed to elderly

patients in a hospital setting; Mucalo I, et al (2018) demonstrated the prescription of at least one OPM in 69% of patients (according to the STOPP version 2 criteria) and 67% of patients according to the EU (7)-PIM list [6]. The high risk of prescribing OZD, according to published data, is associated with the following factors: the number of drugs taken in the last 5-7 days; the number of visits to various doctors in the last 12 months; sleep disorders; psychiatric pathology; diseases affecting the musculoskeletal system. Clinical prescription of illicit drugs is associated with negative outcomes such as acute drug side effects and unplanned hospitalizations. A certain contribution to the appointment of OZLS is made by doctors following the recommendations for managing patients with a certain nosology, which in most cases are based on randomized controlled clinical trials, specifically excluding elderly people with multimorbidity [7,8]. According to current data, OMPs are widespread in the population of elderly and senile patients, which necessitates the use of tools aimed at improving the safety of pharmacotherapy in this category of patients. The following tools include the special Beers STOPP/START criteria and the McLeod criteria, which assess the safety of drug therapy in elderly patients. In Europe, in 2008 the STOPP/START criteria were widely recognized, which included 65 STOPP criteria. It includes relatively illegal drugs that cannot be prescribed in special clinical situations in the elderly, the risk of using the drug significantly and significantly exceeds the benefits. Also, 22 START criteria - treatment associated with benefits for elderly patients. Since 2015, the Beers criteria have been developed and put into practice by a group of 19 geriatric scientists from 13 European countries. After the review by scientists - experts, the total number of criteria increased to 114 (in 2015, 80 STOPP criteria and 34 START criteria) [9]. According to experts-developers, the STOPP/START criteria are intended for patients over 65 years of age in all primary care and inpatient health care settings to validate drug therapy prescriptions.

Objective: To determine the prevalence of prescriptions for illicit drugs (OPDs) in the outpatient population ≥ 65 years of age and to identify factors associated with the prescription of OOPs in this patient population.

MATERIALS AND METHODS

A retrospective pharmacoepidemiological study was used, which included data from outpatient medical records of patients ≥ 65 years of age who were treated in city family clinics No. 3,6,7 of the city of Samarkand, for a period of 12 months from November 2019 to November 2020. The inclusion criterion is age ≥ 65 years. The total number of patients was 399 people. The analysis included: demographic data; the reasons for this visit to the clinic and hospitalization; accompanying illnesses; diagnosis when contacting the clinic; the frequency of hospitalizations in the 4 years preceding the current hospitalization; prescription of drug therapy in the hospital and drugs taken by the patient before hospitalization on an outpatient basis. The data were analyzed based on a standardized data collection form (Microsoft Excel® 2016).

Patients were divided into three age groups: 65-74, 75-84, and ≥ 85 years of age. Each patient was assigned an anonymous individual identification number. The STOPP criteria were used to analyze prescribing to identify prescribing related to illicit drugs (EPDs). Predictor variables included patient age, gender, number of relatively non-recommended medications, and diagnosis. The primary endpoint was the prevalence of illicit drug use (ORD) prevalence. Secondary endpoints included the identification of drugs, the most commonly prescribed drugs. Each drug was assigned a seven-digit code under the ATC classification (11th edition, 2008) [10].

Statistical analysis was presented using descriptive statistics methods, including mean and standard deviation (SD) for normal distribution of variables, median and interquartile range (IQR) for non-normal distribution of variables. The association of the prescription of the FMP with variables was examined using Pearson's exact χ^2 test or Fisher's test for categorical variables. Using analysis of variance or the Mann-Whitney method, differences between normally distributed continuous variables were assessed. Multivariate logistic regression was used to establish the influence of factors identified by univariate analysis as being significantly associated with prescribing OPM. Regression analysis results are expressed as odds ratios (ORs) with 95% confidence intervals (95% CI); a probability value <0.05 was considered statistically significant. Results Characterization of the study population. Main characteristics of the study population (n = 401). The mean age was 77.4 ± 7.18 years. 72.1% of patients were female. Analysis of comorbidities found that the most common chronic disease in the study population was chronic heart failure (35.7%), followed by hypertension (32.7%), cerebrovascular disease (32.7%), arrhythmias (28.4%), and diabetes mellitus (15.2%). The median comorbidity was 3 (IQR 0–5). A total of 993 drugs were prescribed to 401 patients. The median number of drug prescriptions per patient was 2 (IQR, 0-4). More than 78.8% of patients were on medication before admission (median (IQR) 2(1-4)). Five or more medications were prescribed in 37.4% of patients. , antiplatelet agents, diuretics, hypolipidemic and hypoglycemic drugs. [11]

Using the STOPP-2 criteria, 239 episodes of prescription of potentially non-recommended drugs were detected in 134 patients, which is 33.4%; of these, 77 (19.2%) had one RNLS prescription, 31 (7.7%) had 2, 26 (6.4%) - 3 or more. More often, prescriptions for OZLS were noted in women - 289 (72.1%) (in men - 27.9%). The appointment of OZLS was the most typical for the pharmacotherapy of cardiovascular diseases - 124 (51.9%) episodes. For diseases of the central nervous system - 34 (14.2%). In the case of the treatment of diseases of the gastrointestinal tract - 20 (8.4%), the musculoskeletal system - 17 (7%), the endocrine system -7 (2.9%). The appointment of a duplicate drug within the same pharmacological group and other drugs with unproven efficacy was 32 cases (13.4%). The following drugs were most commonly used as PDRs: vasodilators such as isosorbide dinitrate [C01DA08], verapamil [C08DA01], nifedipine [C08CA05], and losartan [C09CA01] in patients with persistent postural hypotension (risk of syncope, falls) -15.5% (95% CI: 12.2-18% of patients; aspirin [B01AC06] in combination with a vitamin K antagonist, a direct thrombin inhibitor, or a factor Xa inhibitor in patients with chronic atrial fibrillation (AF) or patients with no clear indication for aspirin 10.6% (95% CI: 7-14%) patients. [12-15]

We compared patients with no prescriptions for OPZD and patients with similar prescriptions in their medical records. Student's t-test for normal distribution of variables or Mann-Whitney test for non-normal distribution of variables was used. Significant differences were found in terms of the burden of comorbidity and the number of drugs prescribed. No age or gender differences were found ($p < 0.712$ and $p < 0.157$, respectively). Patients with the appointment of OPLS were characterized by higher rates of comorbidities ($p < 0.001$) and received more medications ($p < 0.001$). Arterial hypertension and type 2 diabetes mellitus were the most common chronic diseases in the group of patients with the appointment of OPLS ($p < 0.000$). [16-20]

Multivariate regression: A significant correlation was found between the number of prescribed drugs and the FMP when calculating the Spearman rank correlation coefficient. There was no correlation between age, gender, and incidence of AFLD ($p = 0.356$ and $p = 0.718$, respectively).

Multivariate regression analysis of OMP prescriptions found a high association with diabetes mellitus ([95% CI] 28.168 [12.548; 63.230]; $p = 0.000$) and arterial hypertension (OR [95% CI] 2.698 [1.637; 4.448]). No significant association was found with other comorbid or demographic variables.

DISCUSSION

The present study was aimed at determining the prevalence of prescribing OPM in elderly patients. As a result, 239 episodes of RNLS prescriptions were identified, which indicates a relatively high prevalence of these prescriptions - in 33.4% of patients (134 out of 401). The prevalence of OZLS according to world practice lies mainly in the range of 13-35%. There are also data on higher figures - among patients of geriatric centers located in Belgium, this parameter was more than 50%, about 40% was noted according to a study using updated STOPP / START criteria among patients over the age of 65 in Spain. According to the data of our study, the drugs identified as ADRs were most often represented by 1st generation antihypertensive, antithrombotic, and antihistamine drugs widely used in the clinical practice of primary health care and hospitals. The use of safer alternatives is often limited due to the influence of hospital budgetary policies. The use of antiplatelet agents (8%) and anticoagulants in patients with stroke and gastric ulcers (7%) was noted as prescriptions for RNLS. [21-25]

According to the results of our study, it was revealed that a certain number of drugs (32 (13.4%)) were prescribed without clinical indications; these drugs included amlodipine - 5 cases (2%) and trimetazidine - 19 cases (8%). Our study also found that aldosterone antagonists and ACE inhibitors were co-administered with potassium-sparing drugs in 15 (6%) cases, which is irrational and potentially harmful to the patient. Multivariate analysis revealed that the risk factors associated with prescribing OMPs were the number of drugs prescribed and the burden of comorbidity (type 2 diabetes mellitus ([95% CI] 28.168 [12.548, 63.230]; $p = 0.000$) and arterial hypertension (OR [95% CI] 2.698 [1.637; 4.448]). The fact that the presence of comorbidity increases the risk of OPD in elderly patients was demonstrated in the work of Japanese researchers [26-30]. The frequency of prolonged hospital stay was also associated with an increased frequency of prescriptions for OPD (OR 1.522; 95% CI: 1.250-1.939.) According to our results, the average number of drugs received per patient was 2 (IQR, 0-4), 37.4% of patients received 5 or more drugs daily. risk factor for prescribing OPM was confirmed by multivariate analysis and is consistent with published data from European studies of polypharmacy in the elderly. [31-34].

CONCLUSIONS

The use of the STOPP-2 criteria showed the practical prevalence of prescribing OZLS drugs, especially pronounced about the pharmacotherapy of cardiovascular diseases. The most common drug. The ones identified as MEPs were vasodilators, aspirin, and 1st generation antihistamines. An association has been established between the frequency of hospitalizations, the presence of comorbidities, and the prescription of OPZD. Purpose pharmacotherapy in clinical practice should be aimed at achieving a realistic goal, which should primarily include improving the quality of life. [35,36]

Research limitation

The present study has some limitations: our data were obtained from outpatient medical records in a retrospective analysis, the study did not include direct contact with patients.

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