

Original Research Article

Utilization pattern of drugs among patients attending geriatric outpatient department in a tertiary care hospital in Kashmir

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ABSTRACT

Background: Quality and safety of prescribing in older people remains a global healthcare concern and inappropriate prescribing is a major public health issue because of its direct association with morbidity, mortality and wastage of health resources in this age group. Very limited data is available on the drug utilization pattern in geriatric population and the present study was carried out to see the prescription pattern in geriatric population in this part of the world.

Methods: The present study was conducted by the department of pharmacology in outpatient department of geriatrics in a tertiary care centre to look into the prescription pattern among geriatric age group.

Results: A total of 237 prescriptions were collected, out of which 108 (45.56%) were males and 129 (54.44%) were females. The majority of the patients were in the age group of 60-69 years (n=141, 59.5%). The most commonly found comorbidity was hypertension (63.29%) and antihypertensive agents (74.68%) were the most frequently prescribed class of drugs. Calcium (37.57%), budesonide (32.91%), thyroxine (27.84%) and pantoprazole (25.31%) were the most common individual drugs prescribed.

Conclusions: Like other studies on geriatric population polypharmacy was also observed in the present study and periodic therapeutic audit is essential to ensure rational medicine use.

Keywords: Drug utilization, Geriatrics, Rational prescription

INTRODUCTION

Life expectancy has increased dramatically over the past century and the number of older adults worldwide is expected to increase from 420 to 974 million between the years 2000 to 2050.¹ In year 2010, India had an estimated elderly population of about 96 million, and this is expected to reach over 316 million by 2050.² Although the elderly age group comprise 12% of the U.S population but receive 30% of all prescriptions.³ This social transformation represents a challenge to provide appropriate, affordable and accessible health service to this vulnerable age group. Elderly people require use of multiple medications because of the presence of co-

morbidities, which increase the likely hood of irrational prescription, use of inappropriate medications, noncompliance, economic burden, adverse drug reactions (ADRs), and drug interactions in this population group.⁴ The overall incidence of ADR is two to three times higher in elderly patients and most of them are potentially avoidable.⁵ Inappropriate prescribing in the elderly population is now considered a major public health issue because of its direct association with morbidity, mortality and wastage of health resources. Up to 30% of hospital admissions in older people are related to adverse drug events.⁶ These hurdles in pharmacotherapy of this age group can be overcome by periodic evaluation of drug

utilization and optimizing prescribing pattern by forming prescription guidelines for geriatric patients.

Drug utilization research is an important tool to analyze the use of drugs with special emphasis on medical, social, and economic consequences in a society.⁷ Drug utilization studies improve standards of medical treatment at all levels in the health-care system. Periodic auditing of prescriptions helps in the identification of polypharmacy, drug-drug interactions, and adverse drug reactions. Published literature related to the drug utilization pattern in elderly in this part (Jammu and Kashmir) of the country is limited. With this background, the study was initiated to find out the prescription pattern in elderly in a tertiary care hospital in Kashmir province.

METHODS

The present prospective, observational, cross sectional study was done among the geriatric patients attending the Geriatrics Outpatient Department of Sher-I-Kashmir Institute of Medical Sciences (SKIMS), which is a tertiary care hospital of Jammu and Kashmir. The study was conducted after getting approval from the institutional ethical committee and written informed consent from the patients. The study was done for a period of three months from June 2019 to August 2019. All the geriatric patients belonging to the age group of ≥ 60 and attending Geriatrics OPD of SKIMS were included. A total of 237 patients were evaluated. Data was collected through the structured case record form for demographic profile, diagnosis, different drug classes, individual drugs, and total number of drugs prescribed per patient. The data was subjected to descriptive analysis using Microsoft Excel and analysed using SPSS-20.0 (IBM Corp., NY).

RESULTS

A total of 237 prescriptions were collected, out of which 108 (45.56%) were males and 129 (54.44%) were females. The majority of the patients were in the age group of 60-69 years (n=141, 59.5%) followed by the age group of 70-79 years (n=84, 34.4%), and 80-89 years (n=12, 5.1%). The average age among the patients was found to be 68.37 ± 6.38 years. When the patients were evaluated on the basis of their residence, they were found to be equally divided in rural and urban areas (50.6% vs. 49.4%) (Table 1).

Out of 237 patients, only 5.59% had just one comorbidity, 22.70% had two comorbidities, whereas a good percentage of patients (34.17%) were having three comorbidities. During the study it was found that 22.70% of patients had four comorbidities and 12.65% had five comorbidities. The most commonly found comorbidity was hypertension (63.29%) followed by chronic obstructive pulmonary disease (COPD) and diabetes mellitus (DM) which was found in 29.67% and 26.58% patients respectively.

A good number (24.05%) of geriatric patients were seen to be suffering from sub clinical hypothyroidism (SCH), whereas benign hyperplasia of prostate (BHP) was found in 10.12 % of patients. Minimum number of drugs prescribed in a prescription was 2 and maximum were 10. An average number of drugs prescribed were found to be 5.54 ± 1.70 per prescription. Depending on the number of drugs prescribed, prescriptions with ≥ 5 medicines were considered as polypharmacy.

Of the 237 prescriptions, 165 (69.62%) were prescribed with 5 or more than 5 medicines. Most of the drugs were prescribed by single route which was found to be oral (67.08%). A good number of patients were prescribed drugs by 2 routes with oral and other route in 26.58% and oral and Injectable route in only 5.06%. Only in 1.26% instances drugs were prescribed by more than two routes (Table 2).

Table 1: Sociodemographic profile of patients.

Patient characteristics	Number of patients	Percentage (%)
Gender		
Male	108	45.56
Female	129	54.44
Residence		
Rural	120	50.63
Urban	117	49.37
Age group		
60-69	141	59.5
70-79	84	34.4
80-89	12	5.1
Total	237	100
Average age	68.37 ± 6.38	

Table 2: Different types of disease diagnosis among the geriatric patients.

Diagnosis	Frequency	Percentage (%)
Hypertension	150	63.29
COPD	81	29.67
Diabetes mellitus	63	26.58
SCH	57	24.05
BHP	24	10.12
Osteoporosis	18	7.59
Parkinsonism	18	7.59

COPD-Chronic obstructive pulmonary disease, SCH-Subclinical hypothyroidism, BHP-Benign hyperplasia prostate

Anti-hypertensive agents (74.68%) were the most frequently prescribed class of drugs, followed by respiratory agents (46.83%) and minerals and vitamins (43.02%). A good percentage of geriatric patients were prescribed proton pump inhibitors (39.24%), thyroxine (22.78%) and gamma amino butyric acid (GABA) analogues (18.98%). Antibiotics and anti-diabetic agents were prescribed in 17.72 % and 16.45 % cases (Table 3).

Table 3: Distribution of drugs according to therapeutic classification.

Drug class	Frequency	Percentage
Anti- hypertensives	177	74.68
Respiratory agents	111	46.83
Minerals and vitamins	102	43.02
Proton pump inhibitors	93	39.24
Thyroxine	54	22.78
GABA- analogues	45	18.98
Antibiotics	42	17.72
Anti- diabetic drugs	39	16.45

Calcium (37.57%), budesonide (32.91%), thyroxine (27.84%) and pantoprazole (25.31%) were the most commonly prescribed individual drugs. Among the anti-hypertensive agents, torsemide was the most commonly prescribed drug which was given in 22.78%. For the treatment of DM, oral hypoglycaemic agents were chosen, most frequently having been prescribed in 13.92% diabetic patients. Rosuvastatin (12.65%) and Pregabalin (11.39%) were the other frequently prescribed drugs to the patients (Table 4).

Table 4: Individual drugs prescribed to the patients.

Name of the drug	Frequency	Percentage
Calcium	90	37.97
Budesonide	78	32.91
Thyroxine	66	27.84
Pantoprazole	60	25.31
Torsemide	54	22.78
Oral hypoglycaemics	33	13.92
Rosuvastatin	30	12.65
Pregabalin	27	11.39

DISCUSSION

Drug prescription is considered as an integral part of healthcare and represents a relatively safe, effective, and inexpensive mode of treatment.⁸ Irrational prescribing is commonly found world over and this has got serious financial implications as developing countries spend 30-40% of their total health budget only on drugs.⁹ Therefore it is mandatory that the drug prescribing pattern needs to be evaluated from time to time. Average number of drugs per prescription is an important index of prescription analysis and in the present study average number of drugs prescribed were found to be 5.54 ± 1.70 per prescription which is almost similar to studies conducted by Taskeen et al, where the average drugs per prescription were 6.07 and similar to the results of study conducted by Badar et al.¹⁰ The higher number of drug prescription could be due to the type of patients visiting the tertiary care hospital and the tendency for multiple comorbidities in the elderly. It is preferable to keep the average number of drugs per prescription as low as possible, since higher figures always lead to increased risk of drug interactions,

adverse drug reactions and poor medication compliance. In a study carried out by Lau et al, it was observed that as the number of diagnosis increases, the number of medications to treat each particular disease condition also increases and this leads to inappropriate medications.¹¹

When the morbidity pattern was studied, it was found that maximum number of patients were having hypertension (n= 150, 63.29%) followed by COPD (n=81, 29.67%) and DM (n=63, 26.58%). The morbidity pattern is same as found by Shah R B et al, and other Indian studies.¹²⁻¹⁴ Although cardiovascular diseases are usually common in this age group world over but respiratory ailments including COPD is quite prevalent in this part of the world. This could be because of the long winters and less ventilated living conditions during these periods here. This is contrary to many western countries, where psychiatric diseases are more common. This low prevalence of psychiatric conditions in this study could be due to poor awareness regarding psychiatric illness among these patients and family members and the family support provided to the elderly in this part of world.

Of the total drugs prescribed in the current study, 74.68% were prescribed for hypertension followed by respiratory agents (46.83%) and minerals and vitamins (43.02%). Proton pump inhibitors and thyroxine were also prescribed quite often to the selected geriatric population. This prescription pattern is in accordance with the disease pattern found during the present study, as hypertension and COPD were the most common diagnosis. The prescription of minerals and vitamins could be because of the fact that the elderly population do not take a balanced diet and are often suffering from osteoporosis and other nutritional deficiencies. These findings were different from the study conducted by Shah et al, in Gujarat where cardiovascular drugs were prescribed the most, followed by antimicrobial agents, drugs acting on the gastrointestinal system, and vitamin supplements.¹⁵ Proton pump inhibitors were also frequently prescribed therapeutic class of drug even though the prevalence of gastrointestinal diseases was very low in this study. This could be justified by the fact that gastrointestinal prophylaxis is given to inhibit gastric acid secretion and chances of nausea and vomiting which is common when many drug combinations are prescribed simultaneously that too in elderly population. When it comes to prescription of individual drugs, calcium, budesonide, thyroxine and pantoprazole were the commonly prescribed drugs. The explanation for this could be that calcium is an integral constituent of the bones and the osteoporotic bones are prone to get fractures, especially in elderly patients. Budesonide and thyroxine were given frequently because a large percentage of the studied population was suffering from respiratory ailments (COPD) and SCH. Pantoprazole was also one of the common drugs prescribed in the present study, same was the case in a study carried out by Abraham et al.¹⁶ Previous studies of Shah et al, and Kumar et al, showed Ranitidine as the most frequently prescribed drug.^{15,17}

CONCLUSION

To conclude, the present study provides insights into the patterns of drug use and its appropriateness in elderly population. Although the average number of drugs per prescription was comparatively high but the drugs were mostly used by oral route and the antibiotic use was minimal. Study suggests the current prescribing practice is associated with greater polypharmacy and efforts should be made to discourage this practice as much as possible. Among the approaches that could lead to reducing the frequency of polypharmacy and prescribing without indications is the periodic medication chart review by the clinical pharmacist. It will also reduce the cost of the therapy which will ultimately benefit the patients. There is an urgent need that continuous medical education with focus on rational drug use and evidence-based medicine should be undertaken in all the hospitals.

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