

Evaluation of Drug Utilization for Geriatric Patient in Private Doctors Chamber according to WHO Prescribing Criteria

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Abstract

Introduction: Drug utilization research is defined by WHO as “the marketing, distribution, prescription and use of drug in a society”. Geriatrics is a branch of medicine which deals with health and disease problems of the older persons, therefore it is concerned with the physiological and pathological problems of the older age-groups. Thus, the aim of this study was to identify the common geriatric disease and their treatment according to their disease.

Methods: This cross sectional study included 262 prescriptions of geriatric patients from 131 registered private practitioners were collected from the chambers of private practitioners within Rajshahi Metropolitan area during January 2016 to December 2016.

Result: Among the 262 patients, 142 (54.20%) were male and 116 (44.27%) were female. The age group of 65-70 years accounted for the highest number 188 (71.8%). Co-morbid diseases were the most common health problem 58 (22.2%). Most commonly prescribed drug was anti-ulcerant 193 (14.85%) out of the 262 prescriptions.

Conclusion: We can conclude as polypharmacy was highly predominant in patients over 65 years of age among the chamber practitioner of geriatric patients. Appropriate prescription by considering the rational use of drug is the ultimate solution to improve the drug safety of elderly patients.

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Key words: Geriatric, Drug utilization, Prescription, Patient

Introduction

Drug utilization research is defined by WHO as “the marketing, distribution, prescription and use of drug in a society,” due to our research is medical science basis so we deal only with prescription and use of drug in a society. Drugs play an important role in disease prevention and in health care delivery. The availability and affordability of good quality drugs along with their rational use is required for effective health care. The

principle aim of the drug utilization research is to facilitate rationale use of drugs in population. For the individual patient, rationale use of a drug implies the prescription of a well-documented drug in an optimal dose for a right indication, with the correct information and at an affordable price. Without knowledge on how drug are being prescribed and used, it is difficult to initiate discussion on rationale drug use.¹

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Society has traditionally classified every one over 65 years as elderly but most authorities consider geriatrics to person over 75 years. The National Institute on Aging and the National Institute of Health, have redefined the term “elderly” as referring to the age group greater than or equal to 65 years old.² The field of ageing and health has become a dominant area of concern in the 21st century. This is due to an increase in the absolute and relative numbers of older people in both developed and developing countries. In the year 2000, there were an estimated 600 million people aged 60 years and above in the world. By 2025, this would double to about 1.2 billion people with 80 percent of them living in developing countries.³ The elderly have an increased incidence of many condition including dementia, parkinsonism, stroke, osteoporosis, arthritis, hypertension, myocardial infraction, cardiac failure, leg ulcer, urinary incontinence, constipation, gastrointestinal ulceration and bleeding⁴. So people over the age of 65 years are more likely to be on medication than younger people. They are often taking several drugs at once to treat concomitant disease processes. So prescribing for geriatric patient needs special attention. In the very old manifestation of normal ageing may be mistaken for disease leading to inappropriate prescribing. Drug therapy is considered unnecessary or inappropriate for the patient if there was not or there is no longer a valid medical indication for a particular drug.³

In addition, there are external factors interfering with the pharmacotherapy of the elderly, such as inappropriate use and the lack of access to information. Many therapeutic classes of drugs should be used with caution or avoided in the elderly population, such as anti-inflammatory, some anti-hypertensive drugs, diuretics and digitalis. If not managed carefully, these medicines can affect the safety and quality of life in the elderly.

Chronic illness increases with increasing age and elderly people are more likely to have conditions that require multiple drug treatment. The greater the number of drugs patient receives, the higher the chances of drug interactions.⁵

Methods

This cross sectional descriptive study was carried out in department of pharmacology and therapeutics, Rajshahi Medical College, Rajshahi. 262 prescriptions of geriatric patients from 131 registered private practitioner were collected from the chambers of private practitioners and also in front of pharmacies within Rajshahi Metropolitan area during January 2016 to December 2016. Simple random sampling technique was applied for selection of doctors. A partially structured checklist which was duly pretested and used as research instrument. Then the prescriptions were analyzed by tabulated data in prescription sheet. All relevant information was recorded on the basis of a prescription order writing check list. The data was analyzed using SPSS (statistical package for social sciences) software program version 16. Descriptive analytic techniques involving frequency description, computation of percentage, mean and standard deviation etc were applied. After data analysis, results was find out according to objectives, study results will be presented in the form of tables, chart, graphs and description of the key findings according to need.

Result

Among 131 geriatric patients (262 prescriptions), 71 (54.20%) were male and 58 (44.27%) were female. In rest of four prescriptions, the sex was not mentioned. It was also observed that, there were about 241 (91.98%) prescriptions have written the diagnosis and 21 (8.2%) prescriptions did not have any diagnosis written.

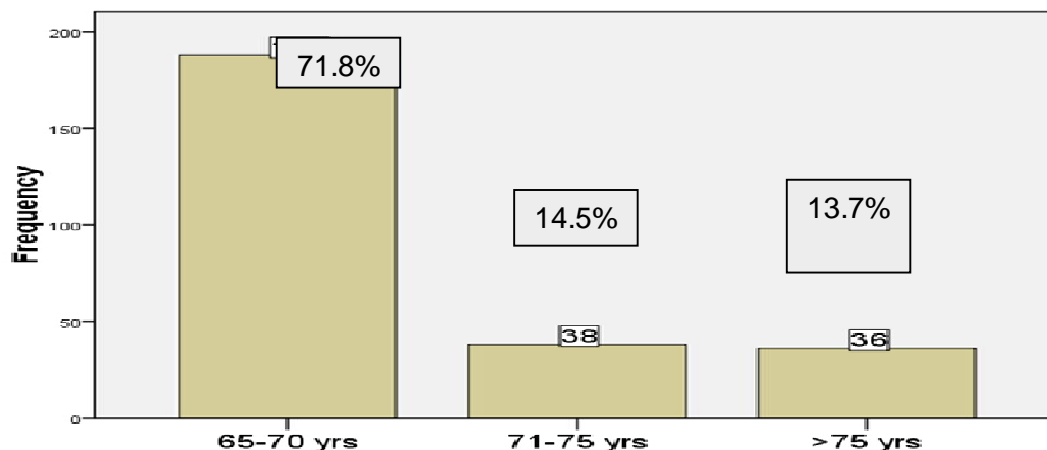


Figure 1. Age distribution of patients

The age group of 65-70 years accounted for the highest number 188 (71.8%) (Fig. 1). The mean age of the patients was 70.04 year.

Table I: Diagnosis profile of geriatric patient in chamber of private practitioners

Diagnosis	Number of cases	Percent (%)
Co-morbid disease condition	58	22.2
Musculoskeletal disease	31	11.8
Hypertension and Cardiovascular disease	30	11.5
Genitourinary disease	29	11.1
Gastrointestinal disease	18	6.9
Respiratory disease	13	5.0
Neurological disease	12	4.6
Skin and VD	10	3.8
Diabetes and other endocrine disease	9	3.4
Malignancy	6	2.3

The geriatric patients having various common illnesses who visited private practitioner's chamber are shown in table-I. Out of 262 prescriptions, co-morbid diseases were the most common (22.2%). Second most common was musculoskeletal disease (11.8%), followed by hypertension and cardiovascular disease (11.5%), genitourinary disease (11.1%), gastrointestinal disease (6.9%), respiratory disease (5.0%) neurological disease (4.6%) skin and VD (3.8%), diabetes and other endocrine disease (3.4%), malignancy (2.3%).

Table II: Distribution pattern of common co-morbid disease conditions

Co-morbid disease conditions	Number of cases	Percentage(%)
Hypertension and Cardiovascular disease + Genitourinary disease.	12	20.69
Hypertension and Cardiovascular disease + Diabetes and other endocrine disease	11	18.96
Hypertension and Cardiovascular disease+ Diabetes and other endocrine disease + Respiratory disease	6	10.34
Diabetes and other endocrine disease+ Genitourinary disease.	4	6.90

The patients having common co-morbid disease visited private practitioners chamber are shown in table II. Out of 262 prescriptions, Hypertension and Cardiovascular disease + Genitourinary disease were most common 12 (20.69%). Patients also complained of various co-morbid disease related to Hypertension and Cardiovascular disease + Diabetes and other endocrine disease which were second most common 11 (18.96%) in position, followed by Hypertension and Cardiovascular disease + Diabetes and other endocrine disease + Respiratory disease, Diabetes and other endocrine disease + Genitourinary disease were 10.34% and 6.90%.

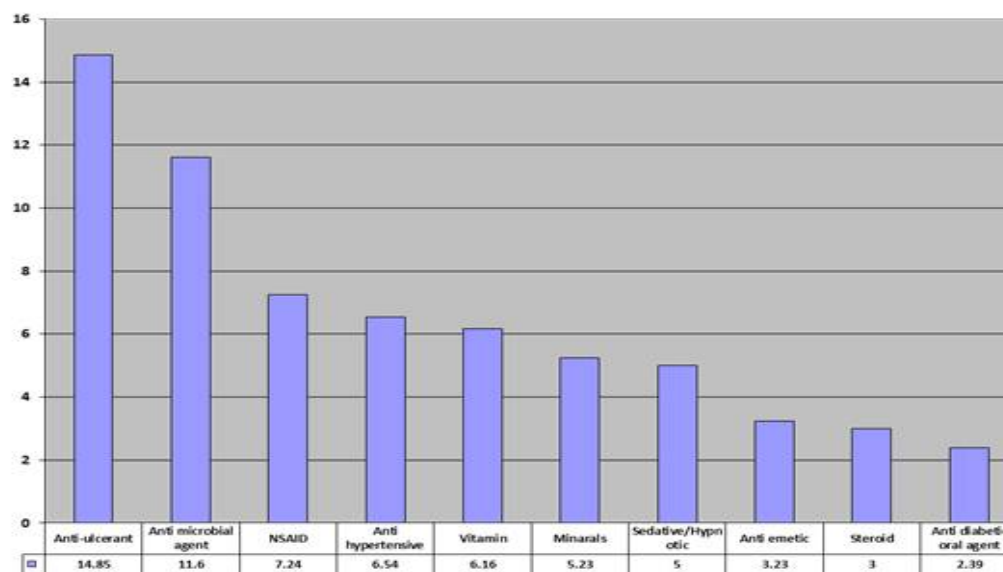


Figure 2. Distribution of ten most commonly prescribed drugs

The ten most common prescribed drugs are shown in figure 2. Most commonly prescribed drug was anti-ulcerant 193 (14.85%) out of the 262 prescriptions followed by anti-microbial agent, NSAID, anti-hypertensive, vitamins, minerals, sedative/hypnotics, anti-emetics, steroid, oral anti-diabetic agent, which were 11.60%, 7.24%, 6.54%, 6.16%, 5.23%, 5.0%, 3.23%, 3.0% and 2.39% respectively.

Table III: Most common drugs prescribe as Combinations form of drug

Drugs prescribed in combination	No. of time prescribed	Percentage(%)
Vitamin+ Minerals	48	47.52
Calcium channel blocker +Angiotensin receptor blocker	15	14.85
Fluticasone + Salmeterol	9	8.91
Aspirin + Clopidogrel	6	5.94

The percentages of the prescribed combination form were shown in table III. Combinations form of drugs were prescribed in 101 prescriptions out of total 262 prescriptions. The most commonly prescribed combinations form of drug was Vitamin+ Minerals which were prescribed in 48 (47.52%) prescriptions out of 101 prescriptions followed by Calcium channel blocker + Angiotensin receptor blocker, Fluticasone + Salmeterol, Aspirin + Clopidogrel were 14.85%, 8.91%, 5.94% respectively.

Table IV: WHO core drug prescribing indicators

WHO core drug use indicator (Prescribing)	Values obtained	WHO standard for adults in general
Average no. of drugs per prescription	4.80	1.6-1.8
Percentage of drugs prescribed by generic name	0.0	100
Percentage of encounters with an antimicrobial prescribed	11.60	20-26.8
Percentage of encounters with an injection prescribed	2.94	13.4-24.1
Percentage of drugs prescribed from EDL of Bangladesh	27.96	

WHO core drug prescribing indicators are shown in table IV. Average no. of drugs per prescription were 4.80. Percentage of drugs prescribed by generic name was 0.0. Percentage of encounters with an antimicrobial prescribed were 11.60. Percentage of encounters with an injection prescribed were 2.94 and Percentage of drugs prescribed from EDL of Bangladesh were 27.96.

Discussion

In this study, only geriatric patients prescriptions were included. Two prescriptions were collected from each physician. A total of 131 physicians chamber were targeted. So a picture on the geriatric disease pattern of the city has been found from the study. Out of total 262 prescriptions there were about 241 (91.98%) prescriptions with a written diagnosis. In the present study, Co-morbid diseases (22.2%) were most common indication of geriatric patients, who were visiting the private practitioners chamber due to deterioration of normal

physiological condition and they were suffering from more than one disease at same time. This study also showed that geriatric patients were associated with musculoskeletal disease (11.8%), hypertension and cardiovascular disease (11.5%), genitourinary disease (11.1%) and gastrointestinal disease (6.9%).

Groups of drug which was most commonly prescribed was antiulcerant, accounted for 193 times and the omeprazole was prescribed in 147 prescriptions which was included within the EDL and the ranitidine was

prescribed in 46 prescriptions which was not included in EDL. The first reason for the highest number of antiulcerant use was for the geriatric patient associated abdominal discomfort, acidity and second cause was the co-prescription with NSAIDs, which was due to muscular skeletal pain. It was showed that second commonly prescribed drug was antimicrobial agent used 146 times, third commonly prescribed drug was NSAID used 94 times. Combination form of drugs were used in 101(38.55%) prescriptions. In the present study, three most commonly used combination form of drugs were vitamin + minerals used in (47.52%) followed by Calcium channel blocker + angiotensin receptor blocker (14.85%) and fluticasone + salmeterol (8.91%).

In the present study, percentage of encounters with an antimicrobial prescribed was 11.6%. According to WHO for adults in general the percentage of encounters with an antimicrobial is 20-26.8%.⁶ Antibiotic resistance among pathogenic microorganism is a matter of worldwide concern, in this study we see the use of antimicrobial was limited among geriatric patient. It may be due to physician are concern about adverse effect produced by antimicrobial use in case of geriatric patient than young adult, because they are physically weak and their vital organ like liver, kidney etc function are reduced by increasing their age.

WHO recommended target for adults in general of prescribing injection is 13.4-24.1%.⁶ But in this study the percentage was 2.9%, this decrease rate of injection use may be caused by some factors like injectable drug use is painful, expensive and self-medication is not possible. Doctors prescribed injectable drug after hospitalization of patient but in this study prescription collected only from private chamber.

Percentage of drugs prescribed in generic name was 0% in the current study. This is very much less in comparison to other countries. More than 60% of the drugs were prescribed by generic name in 26 countries. Pakistan, India, Uzbekistan, Namibia showed less than 50% of drugs prescribed by generic name.⁷ According to WHO for adults in general the percentage of drug prescribed by generic name is 100%.⁶

With regard to the average number of drugs per prescription, the value found in the present study was 4.8. Similar studies conducted in other countries, where the values found were lower than the current study, like the result of a study in Nepal 2.53,⁷ in India 2.7,⁸ in Pakistan 3.04⁹ and in Ghana 3.7.¹⁰ This difference may be due to variation in health care delivery system, socioeconomic condition and mortality and morbidity criteria of the population. According to WHO for adults in general, the average number of drugs per prescription should be 1.6-1.8.⁶ So polypharmacy is reflected by the result of the study. This polypharmacy might cause adverse drug reactions, drug-drug interactions, decreased efficacy of treatment regimens and unnecessary drug expenses. But in private practitioners chambers sometimes prescribers prescribe more drugs to satisfy patients desire. Some patients believe that expensive and more number of medicines will cure them from illness perfectly and quickly. Availability of irrational and non-essential drug combinations, aggressive drug promotion and unethical marketing strategy of pharmaceutical companies are responsible for polypharmacy. In some cases of co-morbid disease, chronic illness like diabetes mellitus and hypertension, patients can receive more drugs than as recommended by WHO, polypharmacy is considerable in such cases.¹¹

Conclusion

We can conclude as polypharmacy was highly predominant in patients over 65 years of age among the chamber practitioner of geriatric patients. According to our findings, polypharmacy itself was not a major risk factor for ADRs. More important was the quality of prescribing: overdosing, prescribing of wrong drug by ignoring the drug-drug interaction is one of the main reason for adverse drug reaction. Appropriate prescription by considering the rational use of drug is the ultimate solution to improve the drug safety of elderly patients. A standard prescription layout should be formatted at national level and regular monitoring should be conducted to ensure its maintenance properly. The drug control authorities should be more active in controlling the present situation. The physicians and all health related professionals along with the drug manufacturers should be more committed to obtain the goals of National Drug Policy (NDP). At the end of this study we can conclude by saying that there are many scopes to improve the prescribing practices for geriatric patients.

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