

Drug utilization pattern in geriatric out patient in tertiary care hospital**Rakesh R. Jadhav, Asha D. Jadhav*, Sudhir L. Padwal, Anand S. Kale, Harshal N. Pise**

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ABSTRACT

Background: Inappropriate drug prescribing is a global problem affecting the healthcare system. Aim and objective of the study was to study the drug utilization pattern in geriatric patient at rural tertiary care hospital.

Methods: This was a cross-sectional observational study involving 600 geriatric outpatient. This study was carried out from Nov 2015 to May 2016. The data were collected using predesigned proforma specially designed for this purpose. Relevant information was obtained by analyzing prescription for World Health Organization (WHO) core drug indicators.

Results: Total number 600 prescriptions analyzed at the end of six months were from general medicine department. The mean age of the patients was 63.9 years in which male (61.33%) outnumber the female. Total number 2598 drugs were prescribed to 600 patients for different diseases. The mean number of drugs per prescription were 4.33, drugs were prescribed by generic name 26.42%. drugs were prescribed from WHO essential drug list 86.33. The type of formulations used were tablets and capsules in 88.5%, syrups in 5%, injections 3.5 % and inhalers 2%. Drug for Cardiovascular diseases were the most common (29.66) followed gastrointestinal (16.67), vitamins and minerals (14.66). Analgesic and NSAIDs (14.13) also prescribed commonly. Antimicrobial drugs prescribed in (7.46%) and common antibiotic prescribed were Amoxicillin ciprofloxacin and metronidazole.

Conclusions: This study also effectively provides very useful baseline data also demonstrates the prescribing patterns of drugs in the geriatric patients.

Keywords: Cross-sectional study, Geriatric patients, Inappropriate drug prescribing, Prospective

INTRODUCTION

Rational use of drugs is one of the major problems that public health providers and administrators face now a days in many countries.¹ The rational use of drugs requires that the patients receive medications to their clinical need in appropriate doses that meet their own individual requirement for an adequate period of time and at the lowest cost to them and their community as per defined by the World Health Organization. The five important criteria for rational drug use are:²

- Accurate diagnosis
- Proper prescribing
- Correct dispensing

- Suitable packing
- Patient adherence

The human body is in a state of change as the years go by. There is a progressive functional decline in many organ systems with advancing age. Age-associated physiologic changes may cause reduction in functional reserve capacity (i.e. the ability to respond physiologic challenges or stresses). Drug prescribing for older patients offers special challenges. As compared to the younger individuals, older people take more medications because of the increased incidence of chronic problems.³ As the number of drugs increase the risk for drug interactions, adverse reactions also increase. Special precautions have

to be taken as there are changes in pharmacokinetics and pharmacodynamics due to the age.

Drug utilisation research has been defined by the World Health Organisation as “the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences”.

As there is paucity of information to guide the physicians and take proper decisions while prescribing to this special category of patients, we have under taken the present study of drug utilization in elderly.

METHODS

This was a cross-sectional observational study undertaken from Nov 2015 to June 2016 in Swami Ramanand Teerth Rural Government Medical College and Hospital, Ambajogai.

Totally, 600 patients in the geriatric age group from the outpatient departments of Swami Ramanand Teerth Rural Government Medical College and Hospital, Ambajogai were included in the study.

Patients of either sex who had completed 65 years of age on 30th April or earlier and attended outpatient departments were included in the study. Patients who were unwilling to participate in the study were excluded from the study.

Medical dispensary was attended daily in order to collect prescriptions of patients who attended various out-patient departments in the hospital. All the patients who participated in the study were given clear explanations about the purpose and nature of the study in the language they understood. Informed consent was taken from every patient who participated in the study.

The data were collected using predesigned proforma specially designed for this purpose. Patient’s prescription sheet was evaluated and age and gender wise distribution of patients, diseases suffered and co-morbid conditions were examined. Analysis was carried out for total number of drugs prescribed, average number of drugs per prescription, use of fixed dose combinations (FDC), whether drugs were included in WHO-Essential Medicines List (WHO-EML), category wise distribution of drugs, route of administration of drugs. Analysis was carried out by using Microsoft Excel.

RESULTS

Total number 600 prescriptions analyzed at the end of six months were from general medicine department. The mean age of the patients was 63.9. Out of 600 patients, 61.33% (368) were male and 38.67% (232) were females. A total number of 2598 drugs were prescribed, out of which 343 (13.20) were FDCs and 2255 (86.80 %) drugs contained

only one ingredient. Oral route (2429, 93.50%) was the most common route of drug administration. 687 drugs (26.42%) were prescribed by their generic name and 1911 drugs (73.58%) were prescribed by their brand name. 2243 (86.33%) drugs prescribed were from WHO-EML. The mean numbers of drugs per prescription were 4.33.

Table 1: Demographic characteristics of the geriatric patients.

Characteristics	Number of prescriptions	Percentage
Age group ((years)		
65-70	420	69.90
71-75	163	27.10
>75	17	3
Sex		
Male	368	61.33
Females	232	38.67

Out of total number of prescription, highest drugs were prescribed for diseases related to cardiovascular system (554, 21.33%) were the most common, followed by gastrointestinal (433, 16.67) and musculoskeletal diseases (367, 14.13%). Vitamins and minerals were prescribed for (380, 14.66). Antimicrobial drugs prescribed in (7.46%) and common antibiotic prescribed were Amoxicillin ciprofloxacin and metronidazole. Respiratory system drugs were prescribed in 154(5.95%) of the prescriptions.

Table 2: World Health Organization core drug use indicators.

Drug prescribing indicators	Percentage
Average number of drugs per prescription	4.33
Drugs prescribed by generic name	26.42
Drugs prescribed by brand name	73.58
Drugs from essential drug list	86.33
Drugs prescribed by oral route	93.50
Fixed dose combinations	13.20

Table 3: Category wise distribution of drugs.

Category of drugs	Number of drugs	Percentage
Cardiovascular drugs	554	21.33
Drugs acting on endocrine system	243	9.36
Antimicrobial drugs	194	7.46
Drugs acting on gastrointestinal system	433	16.67
Vitamins, minerals	380	14.66
Analgesic, NSAIDS	367	14.13
Anti-allergic drugs	139	5.33
Ocular drugs	88	3.38
Psychiatry drugs	46	1.76
Drugs acting on respiratory system	154	5.95

Drugs for the Psychiatric diseases (46, 1.76%) were the least commonly encountered.

DISCUSSION

The present study has been undertaken for understanding the pattern of drug use in geriatric patient to identify the problems with ultimate aim to achieve rational drug use.

A total of geriatric patients was evaluated during the study period. In the present study, male preponderance was seen.

The mean number of drugs per prescription in our study were 4.33 this indicate that there was polypharmacy. Polypharmacy is the use of four or more medications by a patient, generally adults aged over 65 years which results in increased cost of treatment, which may lead to non-adherence by patients as they have more medicines than they can cope with.^{4,5} It also increases the risk of significant adverse drug interaction.

Despite advances in control of drug regulation and availability of drugs, irrational drug prescribing is still worldwide concern. The percentage of generics drug use low. This further emphasizes the need to reduce the cost of medications to patients through increased prescription of drugs in their generic names and reduction in number of drugs per prescription to foster patients' compliance and rational drug prescription without a fall in treatment standards towards attaining optimal disease control. Prescribing by generic name allows flexibility of stocking and dispensing various brands of a particular drug that are cheaper than and as effective as proprietary brands.⁶ This is the basis of essential drugs list use. Some prescription by the proprietary names may have resulted from the good relationships existing between the physicians and the pharmaceutical sales representatives that market the drugs to the hospital. However, in our the most of drugs were prescribed from the essential drug list, which was good habit of prescription writing and promote the rational use of drugs.⁷

This study revealed the use of many therapeutic groups among the elderly. Drugs acting on cardiovascular system were most frequently prescribed. Cardiovascular drugs among which anti hypertensive's were most frequently prescribed. The incidence of hypertension in the geriatric population is very high and is a significant determinant of cardiovascular risk in this group. The tendency for blood pressure to increase with age may depend on environmental factors such as diet, stress, and inactivity. Senescent changes in the cardiovascular system leading to decreased vascular compliance and decreased baroreceptor sensitivity contribute to rising blood pressure. The hallmark of hypertension in the elderly is increased vascular resistance.⁸

Drug acting on the gastrointestinal system and vitamins and mineral were the next common medication. The high occurrence of vitamin and other health supplements in the

prescriptions is not surprising as many people don't consume an optimal amount of all vitamins by diet alone. Pending strong evidence of effectiveness from randomized trials, it appears prudent for adults to take vitamin supplements. Physicians should make specific efforts to learn about their patients use of vitamins to ensure that they take only the vitamins that they should.⁹

Analgesics were also frequently prescribed, with Diclofenac ranking as the highest of them followed by amino salicylic acid. This finding is similar to those of other studies which also indicated that analgesics were the most prescribed medicines.¹⁰ The use of analgesics in the elderly is usually due to complaints of body pains by this special population. In addition to its analgesic effect, ASA was prescribed for its cardio protective properties.

Anti-diabetics were the most frequently prescribed drug among the endocrine drug, with metformin ranking as the highest of them.

On the striking feature was that psychiatric disorders were not common (1.76%) which is in contrast to the data from the western countries. This may be due to the fact that most of the elderly people may be living with their family and were receiving proper family support and care, consequently avoiding these conditions.

A low percentage of injection utilization from this study is observed because we had taken only outpatients in OPD.

CONCLUSION

This study also effectively provides very useful baseline data also demonstrates the prescribing patterns of drugs in the geriatric patients. However, it is essential to make the prescriber, aware about appropriate/ inappropriate medications to be prescribed and encourage them to follow it strictly for better health care to geriatric population at all the level of health care. More studies are required on the pattern of inappropriate prescribing over a long period of time.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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