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Assessment of drug utilization among geriatric patients

[1]Dr. Monika Mishra, Senior professor, Department of Pharmacology, SMS Medical College, Jaipur

Corresponding Author: Dr. Monika Mishra, Senior professor, Department of Pharmacology, SMS Medical College, Jaipur

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Abstract

Background: This study aims to study the drug utilization pattern in geriatric inpatients of medicine wards at a government tertiary care hospital.

Methods: A prospective observational study including 200 geriatric inpatients admitted to hospital. Relevant details were collected from case files of the patients and entered into a predesigned pro forma and data were analyzed.

Results: Majority of the patients were between the ages of 60 and 65years. There was male preponderance. Among the antimicrobial agents, ceftriaxone was the most prescribed drug and furosemide was the most commonly prescribed drug for cardiac disorders. The most commonly prescribed parenteral drug was ranitidine which was also the most commonly prescribed drug among the patients.

Conclusion: Drug utilization data can help in assessing the quality of care given to patients; promote rational use of medicines by helping to improve prescribing patterns.

Keywords: Geriatric Patients; World Health Organization Prescribing Indicators; Essential Medicines List

Introduction

Drug utilization research may provide insights into different aspects of drug use and drug prescribing, such as pattern of use, quality of use, determinants of use, and outcome of drug use.Drug utilization study forms an important component of many research studies which aim to examine clinical as well as economic effectiveness of pharmacotherapy. Medication prescription habits and the use of medications are to be monitored and strategies ought to be recommended for containing the medication cost.[1]

In India, the size of elderly population, i.e., persons above the age of 60 years is fast growing although it constituted only 7.4% of total population at the turn of new millennium. This segment of population faces multiple medical and psychological problems[2]

The consumption of drugs among elderly segment of society has been maximum and many of them use at least three prescribed drugs concurrently, one of the plausible explanations for the usage of large number of medicines being the prevalence of comorbidities. As the number of medicines taken by geriatric patients and the incidence of adverse drug reactions (ADRs) is more in this age group, it becomes increasingly important to study patterns of drug use. With the alteration of

pharmacokinetics and pharmacodynamics of many drugs with advancing age, it is essential to monitor drug effects, especially ADRs, drug interactions, and clinical outcome in geriatric patients.[3]

Material And Methods

A prospective observational study was carried out in medicine departments of S M S M C Jaipur and tertiary care teaching hospital.

Geriatric inpatients of both genders, aged 60 years and above admitted to hospital, who stayed for >24 hours were included in the study.

Inclusion criteria

Patients of both gender who has crossed 60 years of age and who are admitted in the Department of Medicine, Surgery, Obstetrics and Gynaecology, DVL, ENT, Ophthalmology, Orthopaedics and Psychiatric.

Exclusion criteria

Patients unable to communicate i.e., Patients on ventilators or critically ill (Coma) patients requiring ICU admission and patients who are not willing to participate.Sample size was 200 case records based on proportion of subjects staying for >24 hours to total admissions in medicine ward.

A total of 200 prescriptions were analyzed. Complete prescriptions were recorded in predesigned case record form. Case records of subjects were also looked into to collect pertinent patient details as required by the study. Demographic data such as age, gender, and place of residence were noted. The clinical data comprising diagnosis, names of the drugs, and their route of administration were recorded. Confidentiality of the study subjects was maintained.

Statistical analysis

The data analysis was done using Epi-info software. Descriptive statistics was applied and results were expressed in percentages.

Results

Table 1: Socio-demographic profile

Mean age (Yrs)	45.23±12.48 Yrs.
Male : Female	32 : 18
Rural : Urban	27 : 23

Out of 200 patients, 127 (63.5%) patients were males while 73(46.50%) patients were females. Mean age of patients was 65.31±4.56 Yrs.

Table 2: Department wise distribution of study subject

Department	No of cases	Percentage
Medicine	135	67.50
TB and Chest	18	9.00
Ophthalmology	13	6.50
Surgery	20	10.00
ENT	9	4.50
Psychiatry	5	2.50

Diseases related to the cardiovascular system were the most common cause for attending the hospital, followed by Diabetes mellitus and respiratory conditions.

Table 3: Category-wise distribution of drugs prescribed

Category of drug	No of cases	Percentage
Drugs acting on cardiovascular system	118	59.00
Anti-microbial drug	96	48.00
Analgesic, anti-inflammatory, and antipyretic drugs	126	63.00
Drugs acting on endocrine system	112	56.00
Drugs acting on gastrointestinal system	122	61.00
Drugs acting on nervous system	86	43.00

Drugs acting on respiratory system	92	46.00
Vitamins, minerals, and supplement	132	66.00
Others	78	39.00

Among the antimicrobial agents, ceftriaxone was the most prescribed drug and furosemide was the most commonly prescribed drug for cardiac disorders. The most commonly prescribed parenteral drug was ranitidine which was also the most commonly prescribed drug among the patients.

Discussion

The morbidity pattern and the organ systems affected were also similar to the studies done by others. The common morbidities seen in our study were similar to those from studies conducted elsewhere in India.[5] Majority of patients in our study had comorbid conditions another study by Sharma et al[6] where 38% had three comorbid conditions. The functional loss with aging of the organ systems explains the vulnerability of elderly population to multiple diseases. The presence of comorbidities also explains polypharmacy and hence the increased prevalence of drug-drug interactions and ADRs.

The most commonly prescribed class of drugs was the antimicrobial agents, ceftriaxone being the most commonly prescribed antibiotic. This is in contrast to the study that was done by Singh[7] where antimicrobials were prescribed to 83.42% of the subjects and 92.57% in the study done by Abraham et al.[8] In the study done by Veena et al., [9] percentage of antimicrobials prescribed to 16.94%, which was similar to the results obtained from our study. Higher and injudicious use of antibiotics results in antimicrobial resistance and prudent decisions are to be taken while prescribing antibiotics. The most frequently prescribed drug in our study was ranitidine. This is in line with findings from other studies in India[10] where ranitidine was the most commonly prescribed drug. It is also in accordance with a Brazilian study that was conducted by Braga et al[11] where ranitidine was the most commonly prescribed drug and also in a study done in Nepal by Shankar et al.[12] Although gastrointestinal disorders were not frequently encountered, ranitidine was commonly prescribed as prophylaxis against gastritis. However, the rationale of its prescription is questionable.

Conclusion

There is a strong and urgent need of developing prescribing guidelines for elderly patients for different conditions. The same must be implemented in all health/medical care setups. Geriatric population needs efficient and safe medical care, which can be provided only by rational prescribing and using medicines for them safely.

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