



STUDY OF RATIONAL PRESCRIBING PATTERN AND DRUG MANAGEMENT FOR GERIATRIC PATIENTS IN A TERTIARY CARE HOSPITAL

Nayana P. Kunderi¹, Lalchandami Colney*², Sateesh Kumar¹ and Narayanaswamy V. B.¹

¹Department of Pharmacy Practice RR College of Pharmacy Bangalore, Karnataka, India.

²Intern, Dept of Pharmacy Practice, R R College of Pharmacy, Bangalore.

*Corresponding Author: Lalchandami Colney

Intern, Dept of Pharmacy Practice, R R College of Pharmacy, Bangalore.

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ABSTRACT

It was a prospective observational study carried out on geriatric patients at Sathagiri Institute of Medical Science & Research Center for a period of 6 months where case report form are used to collect the patient details who are of 60 years and above and meeting the inclusion criteria. Among 150 cases, 57% were females and 43% were males. Among them 66% of patients were reported to have 2 diseases, 24 % of patients were diagnosed with 3 disease while patients having >3 diseases were reported to be 10%. The chronic cases of diseases related to hypertension and diabetes were counted to be greater in frequency (DM: 23 %, HTN: 49% DM+ HTN: 28 %). Amlodipine (5 mg) was prescribed rationally for most of the hypertensive patients. Along with that, Human Actrapid (Insulin) and Metformin (oral hypoglycemic agent) was prescribed rationally for more number of diabetic patients. This study found out that Amlodipine (5mg) was prescribed rationally for most of the hypertension patients. Along with that Human Actrapid (insulin) and Metformin (oral hypoglycemic agent) was prescribed rationally for more number of diabetic patients. Hence, drug utilization and prescription studies of these drugs are conducted to help prescribers to make appropriate changes if needed to ensure that the drugs are prescribed rationally. This result also emphasized the rational use of geriatric medicine mostly related to the chronic condition of hypertension and diabetes. It shows the acceptability and tolerability of drugs prescribed for geriatric individuals.

KEYWORDS: Hypertension, Diabetes, Insulin, Rational.

INTRODUCTION

Prescribing is the most important tool used by physicians to cure illness, relieve symptoms and prevent future disease. Prescribing is also a complex task that requires diagnostic skills, knowledge of common medicines, understanding of the principles of clinical pharmacology, communication skills, and the ability to make decisions based on judgments of potential benefit and risks, having taken into account available evidence and specific factors relating to the patient being treated. Rational prescribing decisions are often based on evidence that must be interpreted in the context of many other factors not encountered in any clinical trial. Rational prescribers should attempt to:- maximize clinical effectiveness, minimize harms, avoid wasting scarce healthcare resources, respect patient choice.^[1]

Richard W Besdine (MD),^[2] Warren Alpert Medical School of Brown University states that the effects of aging must be taken into account during the diagnosis and treatment of older adults. Clinicians should not-

- Mistake pure aging for disease (eg, slow information retrieval is not dementia)
- Mistake disease for pure aging (eg, ascribe debilitating arthritis, tremor, or dementia to old age)
- Ignore the increased risk of adverse drug effects on weak-link systems stressed by illness
- Forget that older adults often have multiple underlying disorders (eg, hypertension, diabetes, and atherosclerosis) that accelerate the potential for harm.^[2]

Geriatric or geriatric medicine is a specialty that focuses on health care of elderly people; It aims to promote health by preventing and treating diseases and disabilities in older adults. Geriatrics also refers to medical care for older adults, an age group that is not easy to define precisely. "Older" is preferred over "elderly," but both are equally imprecise; > 65 is the age often used, but most people do not need geriatrics expertise in their care until age 70, 75, or even 80. There are 2 main approaches to optimize the drug therapy in older adults: -(a) using appropriate drugs as indicated and to maximize cost

effectiveness (b) Avoiding adverse drugs effect by ensuring drugs are dosed correctly, discontinuing unnecessary drugs and avoiding drug-drug and drug-disease interactions. Anti-diabetic drugs such as Human Actrapid, metformin and insulin regular are commonly used for the treatment of diabetic geriatric patients. Anti-hypertensive drugs such as amlodipine, metoprolol and atenolol are commonly used for the treatment of hypertensive geriatric patients. These medications have the ability to cure or control the diseases. However, the prescriber must be aware of number of factors which must be considered before the drug is prescribed. Principal among them are:- (a) gender of the patients,(b) chronic pain or physical illness,(c) previous substance used,(d) history of illness,(e) physical disabilities,(f) polypharmacy.

Similar studies are also conducted by Dharamvir Ranjan Bharati et al^[3], where a cross-sectional study was carried out in Pondicherry among 214 elderly persons from the age group of 60 years and above using a pre-designed and pre-tested questionnaire that addressed the disease magnitude in comparison with the socioeconomic variables. Overall, 43% of the participants were diabetic, 47.7% hypertensive, 86% anemic and 68.2% visually impaired. All the morbidities were noted to be higher in the 70–79 years age group. Hypertension risk was significantly higher among females, among those leading sedentary life, those eating vegetarian food, those addicted to tobacco and with abdominal obesity.^[3]

METHODOLOGY

A hospital based Prospective observational study was carried out in In-patient Department of Saphthagiri Institute of Medical Science and Research Centre, Bangalore. The study was conducted in all adult patients who are 60 years and above satisfying the inclusion criteria. The data was collected and reviewed from those patients on daily basis in a pre-designed format which included the demographic details, past medication history, co morbid conditions, dose of the medication; duration and frequency of drugs are being recorded. The collected data was entered in Microsoft excel sheet for analysis of results later. The entire data was analyzed using statistical method.

RESULTS

Out of 150 cases selected 57% of the patients were found to be female and 43% of the patients were found to be male. The maximum numbers of patients were admitted between the age group of 65 to 70 years, whereas the least number of patients that are admitted were reported at the age of 80 to 85 years. The survey showed that maximum patient was admitted in the hospital for a period of 5-10 days and 10-15 days. Out of 150 cases, patients who are having more than 2 diseases (66%) result more in numbers as compared to patients having 3 diseases (24%) or more than 3 diseases (10%). Hypertension and diabetes has been occurred more in number than any other age related diseases.

Bone related diseases like Osteoarthritis and pulmonary diseases like asthma and COPD occurs frequently after Diabetes and Hypertension. Some psychiatry and dermatology department related diseases were found in very rare cases. Maximum patients (49%) were admitted for hypertension, followed by patients who suffered from combination of diabetes and hypertension (28%). (23%) of diabetes mellitus patients were found to be admitted in the study done for chronic cases.

Medication studies showed the use of Human Actrapid Insulin (short-acting insulin) (20%) was used in most of the diabetic patients, followed by insulin regular (short-acting) with the percentage of 16%. Metformin (Biguanides) (18%) was the most used oral hypoglycemic agent followed by Glibenclamide (16%) and Glimpiride (Sulfonyl urea) (16%). Long acting insulin analog- Bosalog was rarely used with only 14% of the patients were administered.

Hypertensive patients above 60 years of age have been mostly prescribed with Amlodipine- 5mg (CCB) as the first choice and is recommended throughout their life. The use of Atenolol, Metoprolol (cardio selective B-blocker), Furosemide (Diuretics) and Clinidipine (CCB) drugs have been used as an adjustment therapy in most complicated cases. Propranolol, Diltiazem, Telmisartan were rarely used and only a few patients were administered.

From the study, we found out that maximum of 46% of the patients were administered minimum of 6-10 medications. More than 11 medications were prescribed to 22% of the patients and only 32% of the total patients received 5 or less than 5 number of medicines.

DISCUSSION

The study was done among the inpatients who are 60 years and above with a disease related to old age. As diabetes and hypertension are the two common diseases among the geriatric patients, drugs which are used for the treatment of these diseases are being studied and recorded. For this study 150 cases were collected from Saphthagiri Institute of Health Sciences & Research Center among geriatric patients. One of the important safety concerns in prescribing practice especially for old people is inappropriate prescription. Inappropriate Prescription in elderly patients increase the risk of adverse drug reactions It includes over- and under-prescribing that may result in increased morbidity, hospitalization, and even death.^[4]

According to our investigation, we found out that female age group was more prone to diseases than the male age group, similar results were found in a study done by Marina Scavini et al, in which among the Zuni Indians, the prevalence of diabetes was 57% higher among female than male members of the population.^[5] Whereas, the study conducted by Anna Nordstrom found out that the prevalence of type 2 diabetes was more in male

14.6% than in women 9.1%. Results showed 65-70 age group were admitted in the hospital compared to the age group of 60-65 years. The frequency of number of patients in the age group 70-75 resulted same as in the age group of 60-65 years.^[6]

Co-morbidities study showed that maximum diagnosis of cases with combination diabetes and hypertension in an individual was found to be (28%). Individuals having 3 diseases were 24% and individuals with more than 3 diseases were 10%.

DM and HTN were the most frequent cases studied out of 150 cases. Orthopedics and CVS related cases were found less in number but more in frequency. Cases related to Dermatology and pulmonary conditions along with GIT and CNS problems were diagnosed in rare numbers. Medication chart showed the number of antihypertensive drugs and diabetic drugs used were more.

CONCLUSION

From this study it is found out that Diabetes Mellitus and Hypertension are the two common diseases among the geriatric patients where females are more affected as compared to male. The creatinine clearance decreases with age although the serum creatinine level remains relatively constant due to a proportionate age-related decrease in creatinine production, as a result of which toxicity and renal insufficiency was observed.^[7] To overcome these obstacles, standard and appropriate treatment guidelines must be followed. Drugs like Amlodipine and Human actrapid (Insulin) are drugs which are given for long term used. Insulin Human Actrapid and Insulin Regular were more commonly used along with some oral hypoglycemic agents like Glibenclamide and Metformin. Amlong was found to be the best choice of medication in the patients with early detected high blood pressure as according to Hassan Fares *et al.*,^[8] as compared to our study Amlodipine 5mg have been prescribed the most.

The first choice of drug for hypertensive patients. Cardio-selective B-blockers like Atenolol and Metoprolol were also prescribed to some of the hypertensive patients.

Drug utilization and prescription studies of these drugs are conducted not only to generate baseline data but also help prescribers to make appropriate changes. To maintain proper prescribing pattern, Beer's criteria for inappropriate medications must be followed. Physicians must follow START and STOPP criteria to reduce irrational use of medicines and to minimize potential risk and adverse drug reactions. Formulae and nomograms have been developed to estimate true creatinine clearance in relation to age. This formula can be useful to determine initial doses of drugs that are eliminated predominantly by renal excretion.^[9] Also, drug utilization

studies can increase the therapeutic benefits and decrease the adverse effects on the patients.

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