Geriatric population in India is on the rise. Cost of pharmacological treatment and drug interactions due to polypharmacy is a concern in elderly population. The study of prescribing pattern helps to make medical care rational and cost effective. Objective of the study was to describe and analyze the profile of prescriptions among geriatric patients attending a cardiology clinic. Two hundred and twelve prescriptions of geriatric patients, during January to December 2007 in a cardiology clinic, were analyzed. Those aged 70-74 years formed the largest group. Polypharmacy of 4 or more drugs was found in 71.77% of prescriptions. Diabetes mellitus was associated with 29% of 178 prescriptions for ischemic heart disease with hypertension. Large number of drugs prescribed were not found in essential drug list. Anti-platelets were the most often prescribed drug followed by beta blockers and nitrates. Average cost of medications/day was Indian rupees 21.64. Cost of diabetic medications/day was Indian rupees 6.03. Study represents current prescribing trend in cardiovascular drugs among elderly patients.

Key words: Poly pharmacy, drug utilization, fixed dose combination, geriatric population

INTRODUCTION

Drug usage patterns change as a result of the increasing incidence of disease with age and the tendency to prescribe multiple drugs for patients. Increased incidence of multiple diseases in geriatric age groups, may actually increase the need for multiple medications. The cost of drugs can be a major disincentive in elderly patients in India receiving meager retirement incomes, usually dependent on their children and hardly covered by health insurance. The prescriber must always be on the look out for cheaper alternative therapies. Even though compliance is likely to be better, with single drugs, use of two or more drugs (polypharmacy) is inevitable in conditions like moderate to severe hypertension. However, it should be remembered that polypharmacy may be the cause of most serious cases of drug toxicity, drug interactions and overdosage.

Prescription audit is a part of drug utilization studies. The study of prescribing pattern also aims to monitor, evaluate and suggest modifications in prescribing practices. This helps to make medical care rational and cost effective. Prescription analysis and drug utilization studies provide feedbacks to prescribers and create awareness about the irrational use of drugs. Because of the lacunae in rational drug policy, production of pharmaceutical preparations in India is grossly distorted. More than 70,000 formulations are available in India, compared to approximately 350 preparations listed in WHO essential drug list.

Aim of the study was to determine the utilization of drugs for cardiovascular diseases and diabetes mellitus in elderly patients. Estimation of the cost of medications in these patients was another objective.

MATERIALS AND METHODS

Study design

This is an observational and descriptive study. A longitudinal retrospective design was employed to analyze the prescriptions of all the geriatric patients attending an exclusive cardiac clinic in Mangalore, during 2007.

Data sources and analysis

Computerized demographic and clinical data were accessed from the records of cardiology clinic after obtaining permission from institutional ethics committee. All the prescriptions for the year 2007 stored in the computer were analyzed. Those aged 65 years or more were considered as belonging to geriatric age group. The number of drugs prescribed in every prescription (Geriatric group) was taken into account to calculate the incidence of polypharmacy. Brand names were identified and cost calculated using 'Drug today ready reckoner' and the website www.mims.com. Cost of each drug in all the prescriptions were considered to arrive at the average cost of medications per day. Prescribing frequency was expressed as a percentage of the number of prescriptions for each of the listed drugs out of the total number of prescriptions.

Statistical analysis

Data was analyzed using SPSS package 10.5.

RESULTS

During the study period 212 (14.74%) of all prescriptions (1438) belonged to geriatric age group. There were 133 males and 79 females. Most of the patients were almost equally distributed in 65-69years (40%) and 70-74 years (42%) age groups. IHD (Ischemic heart disease) was the most often encountered. IHD (Ischemic heart disease) was the most often encountered (63.20%) diagnosis among 212 patients followed closely by hypertension (55.18%). Diabetes mellitus was seen in 26.4% of patients. Statins were 962 drug formulations distributed among 212 prescriptions. Mean number of drugs per prescription was 4.53. Polypharmacy of more than one drug was seen in 96% of the prescriptions where as 142 (67%) prescriptions had four drugs or more. Among the 962 drugs prescribed nearly half (436) were from the WHO approved essential drug list. There were 128 (13.3%) fixed dose combinations. Antiplatelets (155) were the most often prescribed group of drug, followed by beta-adrenergic antagonists (117) and nitrates (115). There were 87 prescriptions for Statins. Among fixed dose combina-
DISCUSSION:

Average number of drugs per prescription is an important index of the scope for review and intervention in prescribing practices. A community-based study on prescribing pattern conducted from retail outlets in India reported a mean number of 2 drugs per prescription which was less than what was observed in the present study. Other hospital-based studies in India reported figures of 3-5 drugs per prescription. It is difficult to keep the mean number of drugs per prescription below two, but higher figures always be justified in geriatric patients because of the increasing risk of drug interactions and errors of prescribing associated with polypharmacy and multiple drug therapy may predispose to adverse effects. Increasing age and increase in the number of drugs per prescriptions, were found to be not statistical significant (p=0.584). Similar findings are reported by Denis Xavier et al. As more than 80% of the patients had both ischaemic heart diseases and hypertension and almost similar class of drugs are used in both the conditions, medications for ischaemic heart diseases and hypertension were not analyzed separately. Antidepileptics were prescribed for 155 (73%) patients, which is more than the prevalence of use of Clopidogrel-Aspirin combinations and Statins indicated in primary prevention of coronary artery disease in those with risk factors for the same. A reason for high prevalence (55%) of drugs prescribed for Cardiovascular diseases was that almost similar class of drugs are used in both the conditions, medications for ischaemic heart diseases and hypertension were not analyzed separately. Antidepileptics were prescribed for 155 (73%) patients, which is more than the prevalence of use of Clopidogrel-Aspirin combinations and Statins indicated in primary prevention of coronary artery disease in those with risk factors for the same. A reason for high prevalence (55%) of drugs prescribed was that almost similar class of drugs are used in both the conditions, medications for ischaemic heart diseases and hypertension were not analyzed separately. Antiplatelets were prescribed for 155 (73%) patients, which is more than the prevalence of use of Clopidogrel-Aspirin combinations and Statins indicated in primary prevention of coronary artery disease in those with risk factors for the same. A reason for high prevalence (55%) of drugs prescribed was that almost similar class of drugs are used in both the conditions, medications for ischaemic heart diseases and hypertension were not analyzed separately.

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