Research Article

Prescribing Patterns of Drugs in Geriatric Patient

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Abstract

A prospective observational study on prescribing pattern of drugs in the geriatric patients was conducted in Navodaya Medical College Hospital and Research Centre. The present study aimed to study prescribing patterns of various drugs in elderly patients and to evaluate inappropriate prescribing with the help of beers criteria. A total of 100 patients of geriatric age group(>/65 years) was included in the study for the period of 3 months of which, most of the patients were in the age group of 65-70 years (79.24%), out of which 52 were male and 48 were females. Maximum subjects were prescribed with antibiotics and proton pump inhibitors followed by analgesics. A minimum of 5 drugs were prescribed in 46 cases, followed by 5-8 drugs in 36 cases, then more than 8 drugs were prescribed in around 18 cases. Based on beers criteria 23 patients received potentially inappropriate prescription of at least 1 drug and all these belongs to category A. The study concluded that there is need for careful application of the criteria by health care professional, consumers, payers and health systems should lead to closer monitoring of drug use.

Keywords: Prescribing pattern, geriatrics, beers criteria, antibiotics, analgesics.

INTRODUCTION

The elderly population is increasing worldwide. Inter individual differences in age related pharmacokinetic and pharmacodynamic changes, as well as comorbid conditions have to be considered while prescribing medicines in elderly population. Changes in the pharmacokinetic profile of drugs occur in the elderly because of reduced body water, reduced renal and hepatic functions and increased body fat. Multiple drug use and polypharmacy is highly prevalent in elderly, exposing them to drug interactions and increased cost of therapy [1].

Drug utilization research provides insights into different aspects of drug use and drug prescribing such as pattern of use, quality of use, determinants of use and outcomes of drug use. Drug utilization becomes essential for elderly care, although the incorrect use of medicines is one of the greatest problem experienced by this population. Aiming to evaluate the conditions of the services offered to the population concerning medication, the WHO developed medication use indicators, including prescribing indicators. Prescribing indicators allow the therapeutic actions taken in similar institutions to be ascertain, enabling subsequent comparison of parameters between them and to evaluate population medication needs and determine the most frequently used medications in a given place. In addition, these indicators allow identification of the prescription profile and quality of services offered to the population [2].

STOPP (Screening Tool of Older Person's Prescriptions) and START (Screening Tool to Alert to Right Treatment) are explicit criteria that facilitate medication review in multi-morbid older people in most clinical settings. In single-center trials, applying STOPP/START criteria improved medication appropriateness, reduced polypharmacy, reduced adverse drug reactions, led to fewer falls and lower medication costs. Applying STOPP/START criteria improves clinical outcomes in multi- morbid older people [3].

Several assessment tools have been developed to measure potentially inappropriate medication (PIM) for older people. The beers criteria are the most frequently used of those explicit methods for determining PIMs. Beers criteria are comprehensive set of explicit criteria for potentially inappropriate drug use in elderly aged 65 years and above. According to beers criteria, drugs which are prescribed inappropriately are classified into one of the following categories:

Category A: drugs that generally should be avoided in older adults.

Category B: drugs that exceed maximum recommended daily dose.

Category C: drugs to be avoided in combination with specific comorbidities [4].

MATERIALS AND METHODS

A prospective observational study was undertaken for 3 months duration in Navodaya medical hospital and research center. The study protocol was approved by institutional ethics committee. 100 patients of geriatric age groups (>65years) were included in the study. Data was obtained from medical records section about the inpatients admitted to medicine wards. Data was collected in structured proforma, which included patient demographic details,

inpatient registration number, diagnosis and complete prescription.

RESULTS

100 case records were analysed during the study period. Most of the patients were in the age group of 65-75years (79.24%). The study population comprised of 55.66% males. Maximum admissions were given antibiotics; gastrointestinal agents followed by analgesics were most prescribed drugs. Polypharmacy was observed in 45 cases. A minimum of 5 drugs were around 18 cases. Based on beers criteria 23 patients received potentially inappropriate prescription of at least one drug and all these belong to category A. A total of 590 formulations were prescribed out of which 23 were prescribed inappropriately (compared with beers criteria 2015).

As shown in the fig 1 which explains about the gender distribution which shows males were more in number than females.
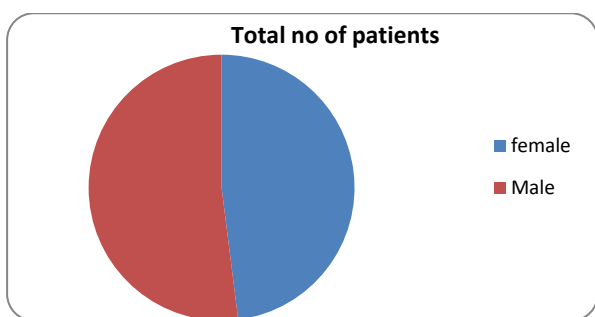

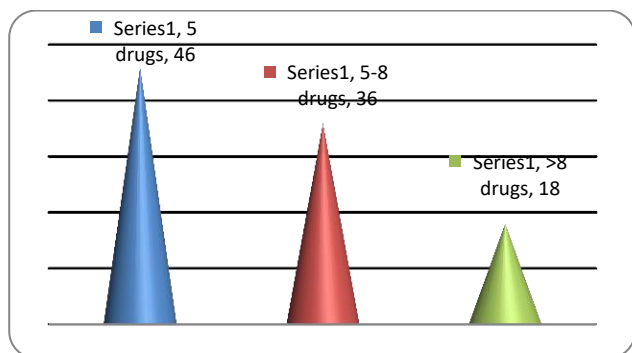Figure 1: Number of drugs per prescription

Figure 2: explains about the number of drugs per prescription were more in 46 cases in 5 drugs category followed by 36 cases in 5-8 drugs categories and 18 cases in more than 8 drugs category.
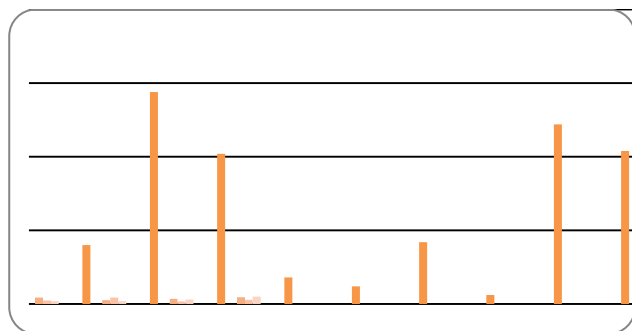

Figure 3: shows maximum admissions were given antibiotics, gastrointestinal agents, analgesics followed by other agents such as vitamins minerals and dietary supplements, drugs acting on haematological system, respiratory system, cardiovascular system, endocrine system and CNS.

Table 1

Category	Name of drugs	Total =23
A	**Generally to be avoided in older adults**	
	Alprazolam	5
	Aspirin	5
	Tramadol	4
	Theophylline	3
	Chlorpheniramine	3
	Nitrofurantoin	3
B	**Drugs that exceeded maximum recommended daily dose**	NIL
C	**Drugs to be avoided in combination with specific co-morbidity.**	NIL

Table 1 shows that based on beers criteria 23 patients potentially inappropriate prescription of at least 1 drug and all these belong to category A.

DISCUSSION

Drug therapy is most common and important treatment in elderly people. Most geriatric patients take medications for long durations to control chronic conditions such as diabetes, hypertension, heart failure etc. Drugs are also used for shorter periods for symptomatic relief from condition such as pain, to treat infection and prophylactically to prevent disease.

Ageing of population is rapidly increasing throughout the world. Many studies have revealed that patients are being exposed for unnecessary therapy for long term, leading to development of adverse drug reaction and taxing the patients in terms of physical, economical and psychological well-being.

In present study, the age group of 65-75 years had the highest number of patients (79.24%); whereas only 20.76% were above 85 years. These trends in age group pattern are comparable to a similar study done in India.[5]

Antibiotics, gastrointestinal agents, analgesics followed by other agents such as vitamins, minerals and dietary supplements, drugs acting on haematological system, respiratory system, cardiovascular system, endocrine system and CNS were the most commonly prescribed medicines for geriatrics.

The issue of polypharmacy is of particular concern in older people compared to younger individuals; elderly tend to have more disease condition for which more therapies are prescribed. Polypharmacy is defined as the use of 5 or more medications that occur in 20-40% of people. In our study, polypharmacy was observed in 45 cases

Average number of drugs per prescription is an important index of the scope for review and intervention in prescribing practices. It is preferable to keep the mean number of drugs per prescription as minimum as possible. This will help to avoid the drug-drug interactions, development of bacterial resistance and will decrease hospital cost. In this study, the average number of drugs per prescription was 5.9.

Inappropriate use of medication in patients, 65 years and above has been linked to many adverse drug interactions;

poor physical functioning and excess health care cost. Justifiable interventions will add value in appropriate drug selection by physicians. Prescribing pattern of drugs reflects the clinical judgement of the clinicians. Currently, there are a number of medication assessment tools available to clinicians for the purpose of evaluating medication regimens for rationality or appropriateness in elderly.

The prescribed medications were reviewed using the Beer's criteria by the American Geriatric Society which identified 2.3% of drugs were prescribed inappropriately. Beer's criteria is a well- established method for evaluating appropriateness of prescribing medicines and can be an important tool for assessing appropriateness of prescribing in geriatrics. Category A which includes drugs that should be avoided in elderly and should not be prescribed, forms a major category of inappropriate use of drugs. In this study 23 drugs were enlisted under this category.

CONCLUSION

The study concludes the need for creating more awareness among general practitioners and clinicians on the importance of public health issue by conducting more continued medical education programmes. Our study suggests the need to establish rational drug therapy. Health care professional should be aware of the risks and fully evaluate all the medications at each patient visit to prevent poly pharmacy from occurring.

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