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PATTERN OF DRUGS PRESCRIBED FOR ELDERLY PATIENTS BY PRIVATE PRACTITIONERS OF MODERN MEDICINE IN LUCKNOW, THE CAPITAL OF UTTAR PRADESH

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ABSTRACT: Changes in drug prescribing-pattern in different groups of population and age-related pathophysiological changes may result in altered response of drugs and need proper monitoring to avoid adverse consequences. Polypharmacy is very common in elderly which further increases risk for unwanted effects. Moreover, physicians should be more familiar with the common problems and diseases occurring amongst elderly population and the drugs safe for this age group. Present study has been done to know the pattern of diseases occurring amongst elderly and commonly prescribed drugs for this population. Study-design was cross-sectional and it included private medical practitioners at Lucknow. Patients above 60 years of age attending these physicians were interviewed personally using a questionnaire. Thus, this study describes pattern of medication consumption by elderly patients among community dwelling in urban and rural areas of Lucknow. Out of 112 subjects interviewed, 51.5% elderly were prescribed three or more medications. Overall consumption varied from 1 to 10 different medications per day. Out of all medications prescribed; antihypertensives ranked first followed by analgesics, sedative-hypnotics, antacids and ulcer protectives, anti- diabetes drugs, antianginal drugs, psychotropics, cerebral and peripheral vasodilators. Other drugs prescribed were dietary supplements, calcium, iron, vitamin preparations. Moreover, for male-patients, drugs for prostate problems (e.g., α_1-blockers and 5- α reductase inhibitors) were frequently prescribed. In female- patients, hormonal preparations were prescribed.

INTRODUCTION: Rational use of medicines is one essential to be achieved to improve quality of health and medical care for the patients and community [1, 2].

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Rational use of drugs requires that patients receive medications appropriate to their clinical needs in doses that meet their own requirements, for an adequate period of time and at the lowest cost [3].

Inappropriate medical treatment and inefficient use of drugs can be observed throughout the world and more commonly in developing countries including India. Prescribing appropriate drugs for diseases and providing related information to patients are needed for rational use of medicines. Higher incidence of chronic diseases and degenerative

pathologies in old age give rise to and increase the demand for prescription and over the counter medicines [4]. In a study, mean utilization by elderly ranges from 2 to 5 medicines per day, and about one third of all elderly employ more than five drugs simultaneously [5]. Older patients are prone to adverse drug events due to multiple medications used simultaneously for multiple complaints and altered physiological state of patients. Pathophysiological alterations may affect the pharmacokinetics and pharmacodynamics of drugs. Multiple medications also increase the chances of drug interactions and chances of adverse drug events [6-9].

The pattern of drug prescription also changes according to growing incidence of age-related diseases, multiple nutritional problems and decreased financial resources. This may cause an increase in morbidity instead of an improvement in quality of life. The use of drugs in women is greater than in men of the same age [10, 11].

Hence, there is need to monitor pharmacotherapy in elderly. Pattern of drug prescribing and drug-use in developing countries has been studied extensively for other groups but no study has been done regarding pattern amongst elderly population. Therefore, present study has been planned to know the prescription pattern among elderly patients of both sexes by private practitioners.

METHODS: According to biological parameters, there is no definite stage which can be termed as old age. Chronological old age varies culturally and historically [12]. However, we have followed the criterion based on Indian guidelines; i.e., as per 'National Policy for Older Person (Ministry of Social Justice and Empowerment, Govt of India)-1999, Elderly or senior citizens have been defined as people with age more than 60 years [13]. Hence, in our study, we included people who were 60 years of age or older.

Exclusion Criteria: patients suffering from infections and/ or polytrauma/ accidental injuries were excluded from the study. As this study is an observational study where no intervention took place from our side, and we were just performing a survey where we were working only as observers. We didn't introduce any treatment, we were only recording whatever was happening around us related to the study topic; so, here, in such a study, approval from an Institutional Ethics Committee is not always required. We hereby solemnly state that we have done this study keenly, following all the necessary guidelines pertaining to a prospective observational study. This study was cross sectional descriptive analysis of the qualitative and quantitative patterns of medication consumption by a group of older adults (men and women). Study was done for a total period of 18 months (from January 2022 to June 2023). Prescriptions for patients of more than 60 years of age from four different areas of Lucknow were collected and photocopied. If patients were available, they were requested to give the answers of questions in the preformed proforma which also included query about any other type of therapy patient might have used. Later on, data were segregated separately for males and females and according to general indications of drugs/ treatments, analysis was done. In order to assess the significance of difference in prescription pattern based on gender, the Kolmogorov – Smirnov test (for two or more samples) was used and $p<0.05$ was considered as statistically significant.

RESULTS: Amongst the 312 participants in this study, 59.9% (n=187) were women and 40.1% (n=125) were men. On an average, participants aged 66.7+6.78 years (women aged 61 to 87 years) and 65.6+5.1 years (men aged 60 to 89 years). Overall consumption of medicines varied from 1 to 10 in case of women and 1 to 9 in case of men. **Table 1** shows number of drugs prescribed simultaneously to the patients. **Table 2** shows pattern of drugs prescribed in elderly patients.

TABLE 1: NUMBER OF DRUGS PRESCRIBED SIMULTANEOUSLY IN ELDERLY PATIENTS

S. no.	Number of drugs Women (n=187) Men (n=125)	Prescribed simultaneously
1	25	23
2	18	27
3	101	55
4	16	7
5	12	5
6	7	4
7	5	2
8	4	1
9	2	1
10	1	0

TABLE 2: TYPES OF DRUGS PRESCRIBED TO ELDERLY PATIENTS (PROPORTIONS OF MEDICATIONS BELONGING TO ONE THERAPEUTIC CLASS IN RELATION TO THE OVERALL PRESCRIBED MEDICATIONS)

Therapeutic Class	Frequency in women	Frequency in men
Antihypertensive drugs	30.80%	31.60%
Anti-inflammatory drugs	15.90%	60.50%
Antacids andulcer Protectives	11.60%	9.80%
Digestive supplements	12.90%	8.80%
Sedative- hypnotics	8.90%	7.40%
Anti- diabetes drugs	7.60%	9.40%
Anti- anginal drugs	2.90%	3.90%
Cognition enhancers	1.90%	2.80%
Calcium preparations	29.8%	22.2%
Iron preparations	18.9%	13.7%
Vitamins and health- tonics	49.8%	39.9%
Others	7.50%	9.80%

DISCUSSION AND CONCLUSION: There is evidence showing that elderly consume more drugs than younger people and number of drugs prescribed increases with age [14]. There is also an increase in the incidence of adverse reactions with a greater number of drugs' prescriptions [15]. In our study women consumed more drugs than men which is similar to the report by other authors. Our results do not show significant statistical differences between sexes regarding types of drugs prescribed.

Vitamins and health tonics were most frequently prescribed regardless of the disease characters. Other drugs which dominated the list were antihypertensives, calcium preparations, anti-inflammatory anti-rheumatic drugs, antacids and ulcer protective etc. Prescribing multiple drugs to the same patient is very common and needs reassessment for chances of drug interactions. These types of studies are regularly needed and the physicians need special training to handle the geriatric population so that more rational drug therapy may become possible for this special group of patients.

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CONFLICT OF INTEREST: All authors declare that they have no conflicts of interest.

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