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A QUESTIONNAIRE BASED OBSERVATIONAL STUDY ON POLYPHARMACY IN ELDERLY PEOPLE LIVING IN URBAN AND RURAL AREAS

Pharmacology

Avula Baby Suguna M.D. Associate Professor,Department of Pharmacology, Government Medical College, Nizamabad, Telangana, India

N.Jagathi Devi* M.D., Associate Professor, Department of Pharmacology, Government Medical College, Nalgonda, Telangana, India *Corresponding Author

ABSTRACT

Introduction: Polypharmacy is defined as taking more than five drugs per day, every day. Polypharmacy in elderly is becoming more common because of increased number of chronic diseases with which an elderly person suffers given the longer life expectancy in modern times. The major concern about polypharmacy in elderly is prescription cascade. Drug interaction and adverse drug reactions are misinterpreted and misdiagnosed as another health problem. This will lead to one more prescription. Quality of life of an elderly person is compromised with polypharmacy though it prolongs life expectancy.

Method: Questionnaire based cross sectional study conducted on both urban and ruralpopulation. Institutional ethics committee permission has been taken. Oral consent has been taken from the subjects and only their information has been used in this study.Subjects aged more than 60 years have been considered for the study. Bed ridden patients, hospitalized patients and elderly people with acute illness were excluded from the study.

Results: Data was collected from 134 subjects. Number of subjects: urban participants were 64 and rural participants were 70. Male and female were included. Prevalence of polypharmacy observed in this study was 40% in urban participants and 23% in rural participants. It was observed that, among elderly participants on polypharmacy 75% faced adverse drug reactions and 60% were subjected to prescription cascade. Among the elderly participants taking less than 5 drugs per day, 50% faced adverse drug reactions and 12% were subjected to prescription cascade.

Discussion: Adverse drug reactions and prescription cascade are main complications of polypharmacy in elderly people. Prescription review, counseling, life style modification and carefully supervised deprescription are some of the available solutions to solve the complications due to polypharmacy.

KEYWORDS

Polypharmacy, Adverse drug reactions, Prescription cascade, Deprescription, inappropriate medication.

INTRODUCTION:

The term Polypharmacy has a range of definitions: one, it refers to use of multiple medication, two, inappropriate medications and others. In this study polypharmacy was defined as use of five or more medications concurrently every day by the recipient [1]. Polypharmacy is common among older individuals because of age associated chronic conditions.

According to Population Census 2011, there are nearly 104 million elderly people in India. Increase in elderly population size is because of improved living conditions, better health care services and medicines. Because of advancements in medical research there is a pill for almost every illness. Elderly people who are frail, lack strength to deal even with minor physical or mental illness depend mainly on pills for their physical wellbeing. As age increases number of chronic diseases with which a person suffers is also increasing this in turn increases the number of medications to be consumed [2]. Polypharmacy is directly related to the number of chronic diseases with which a person is suffering [3].

Prescribing for elderly people is complex, because of age related changes in pharmacokinetics of drugs and associated multiple chronic diseases. Multiple chronic diseases demand more medication. Elderly people are more prone for adverse drug reaction and drug interaction because of altered pharmacokinetics and Polypharmacy. Sometimes OTC (over the counter) drugs taken by the patient, in addition to prescription drugs can precipitate or worsen the existing conditionor it may lead to an adverse reaction.

In general people may neglect adverse reactions in elderly people because symptoms may mimic problems associated with older age such as forgetfulness, weakness, tremor or falls. Sometimes heath care professionals may misinterpret and misdiagnose adverse drug reaction as another health problem and treat it with a drug, leading to prescription cascade.

Aim of this study is to observe the prevalence of polypharmacy, percentage of elderly people suffering with adverse reactions and percentage of elderly people on prescription cascade. Another objective of this study is to find out the reasons for Polypharmacy and supportive evidence for the need of "regular medication review".

METHODOLOGY:

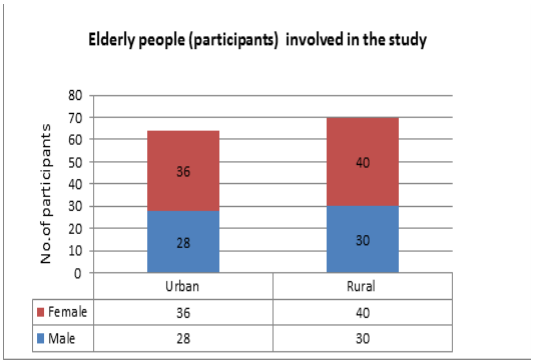
It is a cross sectional observational community based study. Pre-structured Questionnaire containing 11 questions was used in this study, to get information from the participant, related to age, occupation, health status, medication, adverse drug reactions. All questions were multiple choice questions except one that is related to medication what the participant is taking. one question related to health condition of the participant, one question related to use of OTC drugs, one question related to use of non-pharmacological remedies, two questions related to drug compliance, one question related to adverse drug reactions and prescription cascade and two questions related to his/her hospital visits.

Institutional ethics committee permission has been taken. Oral consent has been taken from the subjects and only their information has been used in this study. Elderly people aged more than 60 years, both male and female were included in the study. Bed ridden patients, hospitalized, mentally ill patients and elderly people with acute illness were excluded from the study. Data collected from the people who are visiting the community parks and other public areas in both urban and rural areas. Descriptive statistics were uses in this study.

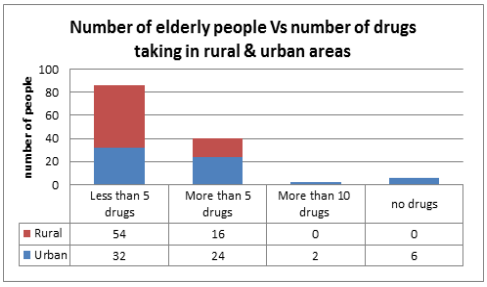
RESULTS:

Graph 1:

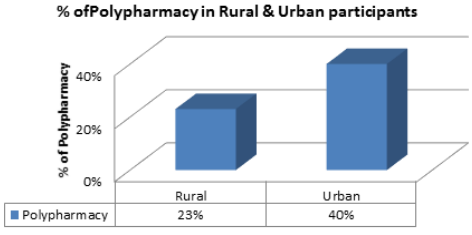
Total number of participants was 134. Number of Urban participants was 64 and number of rural participants was 70. Males and females distribution shown in the graph-1.



Graph 2:
Number of urban and rural participant taking more than 5drugs (polypharmacy) and number of participant taking less than 5drugs calculated and tabulated.



Graph 3:
Percentage of Polypharmacy is calculated and tabulated. 40% of urban participant and 23% rural participants were on Polypharmacy. Same was shown in the graph.



Graph 4:
85% of participants on polypharmacy were suffering with two or more chronic diseases. whereas 70% of participants, those who were taking less than 5 drugs, were suffering with only one chronic condition.

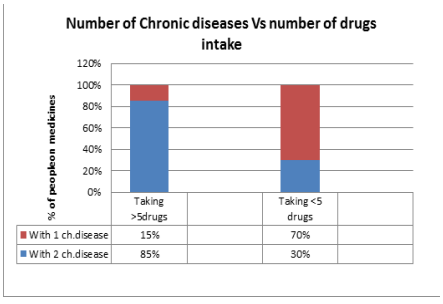


Table 1: Percentage of participants experienced adverse drug reactions and faced prescription cascade in relation to number of drug intake per day.

	Adverse drug reactions	Prescription cascade
% of Participants taking more than 5 drugs(polypharmacy)	75%	60%
% of Participants taking less than 5drugs.	50%	12%

Among the participants, who were on polypharmacy, 75% were experienced adverse drug reactions and 60% were faced prescription cascade. Whereas only 50% of participants, who were on less than 5 drugs per day, experienced adverse drug reactions and only 12% faced prescription cascade.

Table 2: List of adverse drug reactions experienced by the participants and the type of drug taken to get relief from the Adverse drug reaction.

Adverse drug reaction	Number of Participants experienced ADR	Name of the Drug consumed to counter ADR (Prescription cascade)
Indigestion / Belching / Constipation	20	Antacids and Proton Pump Inhibitors(PPI)
Cough	6	Cough expectorants
Headache / Body pains	6	Paracetamol
Shivering, sweating & Headache	2	
Giddiness/ Light headedness	4	Glucose water
General weakness & fatigue	20	Multivitamines, oral Iron preparations
Number of falls in last 6 months	1	
Change in sleep pattern /sleeplessness	4	Hypnotics
Forgetfulness	10	
Swelling of legs	4	
Nasal stuffiness	1	cetrizine

Observed adverse drug reactions, number of participants suffer with each type of adverse drug reaction and the drug used by the participant to counter the adverse reaction were tabulated. Indigestion belching and acidity are the adverse drug reaction experienced by the 20 participants. Antacids,

DISCUSSION:

Aim of this study is to evaluate the prevalence of polypharmacy in urban and in rural elderly people. 134 participants both male and female elderly people aged more than 60 years were involved in this study. Prevalence of polypharmacy observed in this study was 23% in rural population and 40% in urban population. Average percentage of polypharmacy in this study was 31.5%, which is almost nearer to the polypharmacy prevalence value 35.6% , study done by Negar Golchin et al., [4][5].

In this study one of the observations was polypharmacy directly related to the number of chronic diseases with which he/she suffers. Among the participants, who were on polypharmacy, 85% were suffering with two or more chronic diseases. Whereas among the participants, who were taking less than 5 drug per day, 70% were suffering with only one chronic disease. This finding correlate with the findings of the study done by Ami Vyas et al., [6].

There is a strong relationship between polypharmacy and negative clinical outcomes in the form of adverse drug reactions and drug interactions.[7]. Among the participants, who were on polypharmacy, 75% were experienced adverse drug reactions and 60% were faced prescription cascade. Whereas the participants, who were taking less than 5 drugs, 50% were experienced adverse drug reactions and 25% were faced Prescription cascade.

Interesting observation from this study was among the participants 48% were consulting with one doctor, whereas 36% were visit multiple specialty doctors and 6% of rural participants prefer to go to a RMP. Visiting multiple doctors and lack of proper communication between patient and doctor are some of the contributing factors for polypharmacy.

Adverse drug reactions observed in this study were almost all are considered as one more health problem and treated with drugs. Among the all participants, average 43% of participants faced prescription cascade.

Drug safety in elderly people is one of the major responsibility of a health care provider. Prescription review and carefully supervised deprescriptions, educating the patient about adverse drug reactions, non-pharmacological approach to cure some of the minor health conditions are some of the tools to achieve drug safety in elderly people.

Limitations:

Need to study on large population.

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