

Prevalence of Polypharmacy in Geriatric Patients in Rural Teaching Hospital

Maheshkumar V.P.* and Dhanapal C.K

Department of Pharmacy, Annamalai University, Chidambaram- 608002, Tamil Nadu, India

ABSTRACT

This study was performed to assess and establish the prevalence of Polypharmacy in geriatric population in the Medicine ward of Rajah Muthaiya Medical College and Hospital, Annamalai University, during one year from January 2013 to January 2014. Demographic analyses of this prospective study revealed that out of 520 patients, 342 (65.76%) were males and 178 (34.23%) were females. All the collected prescriptions were scrutinized for Polypharmacy and were categorized as minor Polypharmacy -concurrent use of ≤ 5 drugs; and major Polypharmacy -concurrent use of > 5 drugs. Out of 502 Prescriptions 61(11.73%) prescriptions were minor Polypharmacy and 457(88.26%) prescriptions were major Polypharmacy. The maximum patients were in the age group of 60-64 (38.84%) range lead to a significant increase in the number of medications. The most common diseases associated systems were Cardiovascular system 147 (28.26 %) patients, and followed by Respiratory system 103(19.80%). Our results show that there is a higher prevalence of Polypharmacy among the males than females. The length of hospital stay of geriatric patients is increase in major Polypharmacy compare with minor Polypharmacy. The prevalence of cardiovascular drugs and respiratory drugs were often involved in Polypharmacy among geriatric patients. Polypharmacy is very common among geriatric patient and health care professional's interventions to improve the optimal use of medication in geriatric could lead to reduction in the drug related problems associated with Polypharmacy.

Keywords: Polypharmacy, Geriatric, Optimal use, Drug related problem.

Address for Correspondence

Department of
Pharmacy, Annamalai
University,
Chidambaram-
608002, Tamil Nadu,
India **E-mail:**
[pharma_mahesh@
yahoo.com](mailto:pharma_mahesh@yahoo.com)

INTRODUCTION

The word “poly” is Greek and means many or much¹. However, the term Polypharmacy has been given definitions connected both to the use of more than ascertain number of drugs concomitantly and to the clinical

appropriateness of drug use.²⁻¹⁰ Polypharmacy is the use of multiple medications by a patient, generally older adults (those aged over 65 years).¹¹ More specifically, it is often

defined as the use of five or more regular medications. It sometimes alternatively refers to purportedly excessive or unnecessary prescriptions. The term Polypharmacy lacks a universally consistent definition. Polypharmacy is most common in the elderly, affecting about 40% of older adults living in their own homes.¹² Patients aged 60 years and older constitute a significant percentage of inpatients in the hospital. In the elderly, altered pharmacokinetics and pharmacodynamics can alter drug responsiveness. As a result of having multiple diseases, the elderly may be on multiple drugs, leading to potential drug interactions, adverse drug reactions and poor compliance.¹³ Previous studies in different countries have also found inappropriate prescriptions among in the elderly.^{14,15}

Elderly people are now the most rapidly growing part of the patient population worldwide, thanks to more focus on primary prevention of diseases and improvements in healthcare for the younger ill patient.¹⁶ Elderly persons are exposed to Polypharmacy because of multiple chronic conditions. Many risk factors for Polypharmacy have been identified including age, race/ethnicity, sex, educational achievement level, health status, and number of chronic diseases. However, drugs prescribed for individual diseases have not been analyzed.¹⁷

Available data suggests pharmacists have the potential to have a large effect in combating this problem through a variety of interventions such as reducing the number of medications taken, reducing the number of doses taken, increasing patient adherence, preventing adverse drug reactions (ADRs), improving patient quality of life and decreasing facility and drug Costs.^{18,19}

MATERIALS AND METHODS

This prospective observational study was carried out in the Medicine ward of

Rajah Muthaiya Medical College and Hospital, Annamalai University during one year from January 2013 to January 2014. The research protocol was approved by Institutional Human Ethical Committee and informed consent was obtained from patients. The study included 520 hospitalized patients of geriatric age group. The study method involved selection of patient based on the inclusion and exclusion criteria

Inclusion Criteria

- In-Patients with age of 60 years and above of both gender
- All the Geriatric patients who had been admitted in medicine units
- Patients with multiple disease

Exclusion Criteria

- Patients who discontinued the treatment
- Patients who were not willing to participate.

The demographic data, medical and medication history were collected from the patient's case sheet. Then collected information was analyzed according to their age, gender and therapeutic category and was classified as major and minor Polypharmacy. The basic statistic tools were used to analysis the data with help of Graph Pad Prism software.

RESULT AND DISCUSSION

A total of 520 geriatric cases were collected from the Rajah Muthaiya Medical College and Hospital. In our total study population 342(65.76%) cases were males and 178(34.23%) were females. The total geriatric populations were classified into four age groups and patient in each group were recorded. The data from our study represent that; 60-64 years 38.84% (n=202), 65-69 years 29.23% (n=152), 70-74 years 19.80% (n=103), 75 and above years 12.11% (n=63).

Tabulated data of age distribution in the study population is given in Table-1

Polypharmacy was observed by number of drugs prescribed in each geriatric patients, according that observation, 6 -8 drugs were prescribed for most patients 294 (56.53%) and all the remaining details are revealed in the figure 1.

Quantitative Estimation of Polypharmacy

Out of 520 geriatric patients prescriptions 61 (11.73%) were found to be of minor Polypharmacy and 459 (88.26%) prescriptions were of major Polypharmacy.

Polypharmacy Vs Gender

In minor Polypharmacy (n=61), 43 were males and 18 were females. Out of 459 major Polypharmacy, 299 were males and 160 were females. Table 2 explains the prevalence of Polypharmacy in both genders in the study population.

Polypharmacy Vs Age

The numbers of drugs prescribed to the various age groups were analyzed and are presented in table 3.

Polypharmacy Vs Hospital stays

The duration of treatment varies with severity of disease. Our result shows that major Polypharmacy patients 303 (66.01%) were stayed 1 week and 137 (29.50%) were stayed 1-2 weeks and 19 (4.13%) were stayed more than 2 weeks in the hospital. All the minor Polypharmacy patient's hospital stays are presented in table 4.

Therapeutic Category of Prescription

The collected geriatric prescriptions were classified to various therapeutic category according with disease associated system is given in table 5. Out of the total prescriptions Cardiovascular (n=147), Respiratory (n=103) and Hepatic system (n=97) accounted for major geriatric cases.

Therapeutic Category Vs Polypharmacy

The observation of Polypharmacy in each therapeutic category was carried out and prevalence of Polypharmacy was estimated. The results shows that major Polypharmacy is more prevalent in cardiovascular system diseases (31.15%) followed by respiratory system diseases (20.91%). The results are presented in table 6.

In this study we used hospital case sheets of geriatric patients for the estimation of prevalence of Polypharmacy. This study total prescriptions (n=520) were classified into minor Polypharmacy (≤ 5 drugs) and major Polypharmacy (> 5 drugs). Polypharmacy is more prevalent in the age group 60 to 64 years. Our results show that there is a higher prevalence of Polypharmacy among the males than females. The length of hospital stay of geriatric patients is increase in major Polypharmacy compare with minor Polypharmacy. The prevalence of cardiovascular drugs and respiratory drugs were often involved in Polypharmacy among geriatric patients.

CONCLUSION

Polypharmacy is common among the geriatric patients. This study shows that major Polypharmacy is more prevalent in males at the age group of 60 to 64 years. Health care professionals (doctor, Pharmacist, Nurse) should be aware of the risks and fully evaluate all medications at each geriatric patient visit to prevent Polypharmacy from occurring. Physician should prescribe evidence based medicine and educate the patient about their drug therapy. As a pharmacist should provide pharmaceutical care for geriatric patient by the way of resolving and preventing drug related problems and also improve their quality of life.

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Table 1. Age Distribution

Age Groups	Male	Female	Total Number of Patients	Percentage (%)
60 - 64	123	79	202	38.84
65 – 69	99	53	152	29.23
70 – 74	75	28	103	19.80
≥ 75	45	18	63	12.11

Table 2. Polypharmacy Vs Gender

Number of drugs	Male	Female	Total	Percentage (%)
≤ 5	43	18	61	11.73
More than 5	299	160	459	88.26

Table 3. Polypharmacy Vs Age

Number of drugs	Age Groups	Number of Patients	Percentage (%)
≤ 5	60 - 64	27	44.26
	65 – 69	23	37.70
	70 – 74	7	11.47
	≥ 75	4	6.55
More than 5	60 - 64	175	38.12
	65 – 69	129	28.10
	70 – 74	96	20.91
	≥ 75	59	12.85

Table 4. Polypharmacy Vs Hospital stays

Number of drugs	1 Week	1-2 Week	> 2 Week	Total	Percentage (%)
≤ 5	39 (63.93%)	18(29.50%)	4(6.55%)	61	11.73
More than 5	303(66.01%)	137(29.84%)	19(4.13%)	459	88.26

Table 5. Therapeutic Category of Prescription

Therapeutic Category	Number of Patients (n= 520)	Percentage (%)
Cardiovascular System	147	28.26
Respiratory System	103	19.80
Hepatic System	97	18.65
Endocrine system	73	14.03
Nervous System	41	7.85
Gastrointestinal System	36	6.92
Others	23	4.42

Table 6. Therapeutic Category Vs Polypharmacy

Therapeutic Category	Minor Polypharmacy (≤ 5 drugs)	Percentage (%)	Major Polypharmacy (> 5 drugs)	Percentage (%)
Cardiovascular System	4	6.55	143	31.15
Respiratory System	7	11.47	96	20.91
Hepatic System	11	18.03	86	18.73
Endocrine System	7	11.47	66	14.37
Nervous System	10	16.39	31	6.75
Gastrointestinal System	13	21.31	23	5.01
Others	9	14.75	14	3.05

