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Original Article

Survey of polypharmacy prescription in a tertiary care Hospital, Belagavi

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ABSTRACT

Background: Polypharmacy is the use of four or more medications in one prescription or implies the prescription of too many medications for an individual. Concerns about polypharmacy include increase adverse drug reactions, drug interactions, prescribing cascade and higher cost. Objectives**:** To conduct a prescription survey of polypharmacy in tertiary care hospital at Belagavi. **Methodology:** The study was conducted in the Medicine outpatient department of a tertiary care hospital, Belagavi, after obtaining approval and clearance from the Institutional Ethics Committee. Total 83 patients were selected by Simple Random Sampling and the data were collected prospectively by direct observation in specially designed proforma containing relevant patient details like registration number, age, gender and diagnosis, disease data and drug data. **Results:** Out of the total sample population (N=83), 56.62% had prescriptions falling under major polypharmacy(>6 drugs), 43.37% had prescriptions categorized as minor polypharmacy(3-5 drugs). The most common age group of patients receiving prescriptions with polypharmacy was between 41 to 60 years accounting for 38.55%. Majority of the patients receiving prescriptions with polypharmacy in our study were females (59.03%) as compared to males (40.96%). Major polypharmacy is more prevalent in patients receiving treatment for Hypertension (60.24%) followed by patients with diabetes (23.67%). **Conclusion:** Our prescription survey portrays polypharmacy to be widely prevalent in a tertiary care setting. Specific treatment goals with certainty are the essential need for curing diseases rather than polypharmacy, which could be a possible threat of more harm than good.

Keywords: *Adverse drug reaction, Drug interactions, Polypharmacy*

Introduction

Polypharmacy is the use of multiple medications in one prescription or simply the prescription of too many medications for an individual. Concerns about polypharmacy include an increase in adverse drug reactions, drug interactions, prescribing cascade and higher cost. Polypharmacy is often associated with decreased quality of life, decreased mobility and cognition, especially in the elderly.[1] The risk can be minimized through identifying the prevalence of this potential problem in a high-risk population and by increasing awareness among patients and health care professionals.

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The problem can be mitigated through a variety of interventions such as reducing the number of medications, dose frequency; improving patient compliance and adherence, preventing adverse drug reactions, and improving patient quality of life and reducing drug costs.

Polypharmacy is a major issue in the global healthcare system. Nevertheless, there are evident potential risks of polypharmacy; however, so are benefits to patients. When medications are combined to treat, its slows the progression or reduce the symptoms and complications of the disease. Balancing the risks and benefits of multiple drug therapies in older adults is a challenging endeavour for prescribers.[2]

Polypharmacy is unavoidable in the elderly as they often suffer from multiple co-morbidities. But potential drug-drug interactions and inappropriate medications must be carefully assessed.[3]

Polypharmacy is much prevalent in older adults, particularly in senior residents staying in a nursing home and hospitalized patients. Rational approaches to increase the appropriateness of polypharmacy can improve overall clinical outcomes in older adults.[4]

Polypharmacy is sometimes necessary for certain co-morbid conditions but may be associated with an increased risk of adverse outcomes.[5,6].Also, the use of multiple drugs proves to be a costly affair. The U.S. Centres for Medicare and Medicaid Services estimated the annual costs of polypharmacy at over 50 billion dollars.[7]

Our study aims at surveying prescription patterns in a tertiary care hospital to understand the prevalence of polypharmacy.

Methods and materials

Sources of data: Data were collected from outpatient prescriptions in the Medicine Department in a tertiary care hospital, Belagavi after approval by institutional ethical committee.

Study Design: Prospective observational study
Sample size: Total 83 patients who had prescription sheets with polypharmacy in patients attending medicine outpatient department.

Inclusion Criteria:
i) Prescriptions with polypharmacy
ii) Patients aged above 18 as the study was conducted in General Medicine OPD

Exclusion Criteria:
i) Patients aged below 18 years
ii) Inpatients of Medicine department. After obtaining approval and clearance from the Institutional Ethical Committee, a total of 83 patients were selected by simple random sampling.

Data Collection: The data was collected using proforma containing patient details like registration number, age, gender and diagnosis, disease and drug data. Later the prescriptions were classified into minor polypharmacy (3 to 5 drugs) and major polypharmacy (>6 drugs).

Statistical Analysis: Microsoft Excel was used for statistical analysis and results are expressed in number and percentage.

Results

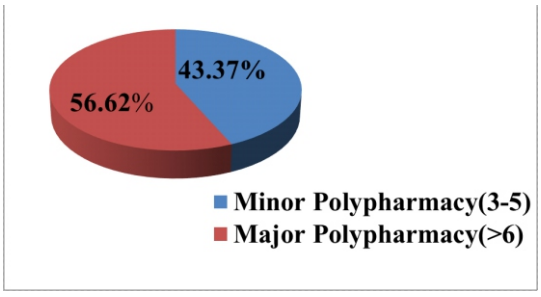

Figure:1 - Forms of polypharmacy in study population

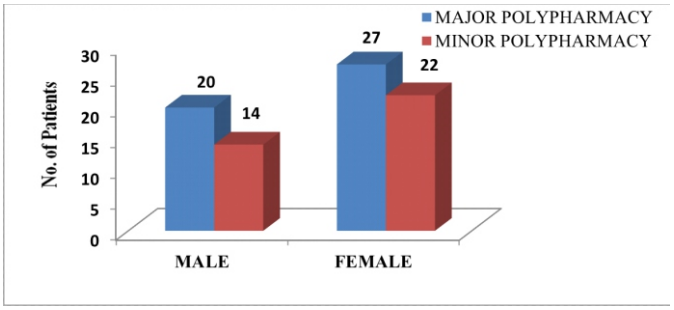

Figure: 2- Gender-distribution of polypharmacy in both genders

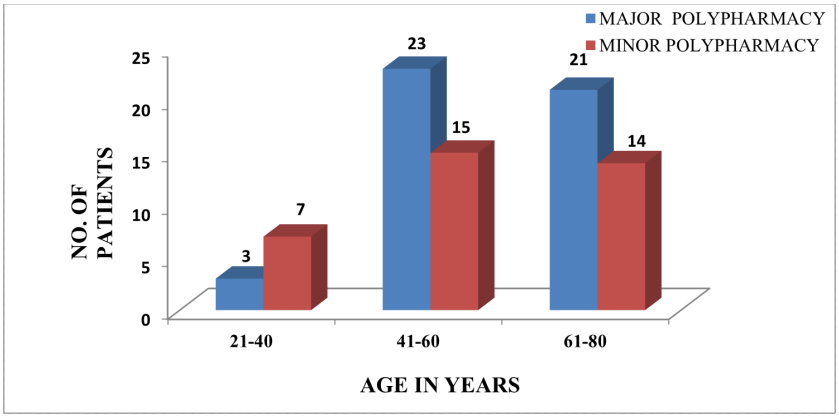

Figure 3 - Age-distibution of polypharmacy in various age groups

Table :1 - Polypharmacy in therapeutic category

Therapeutic category	Major	Percentage (%)	Minor	Percentage (%)
Respiratory	3	3.61	1	1.20
Gastrointestinal	2	2.40	4	4.81
Ischemic heart disease and Hypertension	51	61.44	25	30.12
Infections	4	4.81	5	6.02
Diabetes Mellitus	17	20.48	3	3.61

Discussion

Polypharmacy is more prevalent in the age group above 40 years. The elderly population in this era use multiple pharmacies. Switching between different pharmacies may exacerbate communication among patients, pharmacists, and physicians, which increases the risk of inappropriate medication use and potential adverse consequences.[8] Multiple studies reported that polypharmacy was associated with poor adherence by patients which can hinder their treatment. Medication nonadherence increases the risk of suboptimal drug treatment and its further consequences[9].

Our results show that there is a higher prevalence of polypharmacy among women than men. In a similar study, authors found that women used more drugs than men only until the age of 79 though men had more drug usage after age 80[10]. A probable justification could be that women are more concerned about their health and consult health services more often and earlier than men, and women are more accustomed to the use of drugs. In addition, more health programs are developed for women, such as colon and breast cancer prevention programs [11] Though polypharmacy among women was more prevalent from our results, it may not hold good for a wider population due to limitation in sample size and sampling technique.

The results show that major (61.44%) and minor (30.12%) polypharmacy is more prevalent in Cardiovascular diseases (CVD). Among various causes of the rising burden of diseases, the upcoming pandemic of obesity and diabetes further enhances the prevalence of cardiovascular morbidity and mortality and healthcare costs over the next decades. Although advances in CVD treatment have increased life expectancy, future perspectives guarantee a growing ageing population, with increasing comorbid conditions[12]. To effectively manage this, we are left with no choice but to prescribe multiple drugs but rational use is highly warranted.

In our study population, chronic diseases like hypertension and ischaemic heart disease (91.56%) diabetes mellitus (24.09%), top the list in polypharmacy due to comorbid conditions. Single-pill formulations can ease the medication regimen, and specific combinations of drugs can offer more benefits, such as enhanced reduction of macrovascular and microvascular complications, independent of blood pressure and diabetes reductions[13]. Rational combination therapy can maximize BP control along with glycemic control and help maximize the benefits of polypharmacy on

outcomes in elderly patients with hypertension, diabetes and other co-morbid condition. Various approaches towards the management of polypharmacy are advised in the currently available literature. They vary in terms of their complexity, applicability and usability, and yet no "gold standard" is identifiable. For practical reasons, explicit criteria-based individual drug reviews seem to be advisable.[14]

Conclusion

From the study conducted, it is evident that Polypharmacy is widely prevalent among practising physicians in tertiary care hospitals. Polypharmacy though helps the physician provide a comprehensive cure to the patient for ensuring symptom-specific management, it does own its disadvantages of drug interactions and adverse reactions. Specific treatment goals with certainty are the essential need for curing diseases rather than polypharmacy, which could be risky than beneficial.

Conflict of interest

None

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