Conference track «29.3 Experimental studies»

Polypharmacy in Elderly Patients: Risks and Optimization Strategies An Observational Study of 30 Elderly Patients

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Abstract

Background: Polypharmacy is common among elderly patients due to multimorbidity and age-related physiological changes. Excessive medication use increases the risk of adverse drug events, falls, and reduced treatment adherence.

Objective: To evaluate the prevalence of polypharmacy, identify potentially inappropriate medications, and assess opportunities for medication optimization in elderly patients.

Methods: A small observational study was conducted involving 30 patients aged 65 years and older. Data on comorbidities, number of medications, and adverse symptoms were collected. Medication regimens were assessed using Beers Criteria and STOPP/START guidelines.

Results: Polypharmacy ($\geq$5 medications) was observed in 24 patients (80%). Potentially inappropriate medications were identified in 18 patients (60%), most frequently sedative-hypnotics and anticholinergic drugs. Common complaints included dizziness, balance disturbances, and cognitive symptoms. Medication review resulted in deprescribing recommendations in more than half of the patients.

Conclusion: Polypharmacy was highly prevalent in the studied population and often associated with potentially inappropriate prescribing. Even limited medication review using established criteria allowed identification of modifiable risk factors. Regular medication assessment and interdisciplinary collaboration may improve safety in elderly patients.

Introduction

Polypharmacy, usually defined as the concurrent use of five or more medications, represents a growing challenge in modern clinical practice. The aging of the population and the increasing prevalence of chronic diseases have led to a steady rise in medication burden among elderly patients. While multiple medications may be clinically justified, excessive or inappropriate prescribing can result in significant harm.

In elderly patients, age-related changes in pharmacokinetics and pharmacodynamics—such as reduced renal clearance, altered hepatic metabolism, and increased drug sensitivity—contribute to a higher risk of adverse drug reactions. Additionally, fragmented healthcare, involvement of multiple specialists, and long-term medication continuation without regular reassessment further increase the likelihood of inappropriate polypharmacy.

Although large studies have extensively described this problem, small clinical observations remain valuable for understanding how polypharmacy manifests in everyday practice. The present study aims to assess medication burden, identify potentially inappropriate medications, and explore optimization strategies in a limited cohort of elderly patients.

Materials and Methods

Study Design

This was a **prospective observational study** conducted in a clinical setting. The study included **30 elderly patients** aged 65 years and older who were receiving regular medical care.

Inclusion Criteria

Age ≥65 years

Use of at least three regular medications

Data Collection

For each patient, the following data were collected:

Age and sex

Number of chronic conditions

Total number of prescribed medications

Presence of over-the-counter drug use

Patient-reported symptoms possibly related to medication use (e.g., dizziness, fatigue, cognitive complaints)

Medication Assessment

Medication regimens were evaluated using:

- **Beers Criteria** for potentially inappropriate medications in older adults
- **STOPP/START criteria** to identify potentially inappropriate prescriptions and omissions

The assessment was descriptive and did not involve changes to therapy without clinical supervision.

Results

Patient Characteristics

The mean age of patients was 73.8 years (range 65–86). Most patients had multiple chronic conditions, with cardiovascular diseases, diabetes mellitus, osteoarthritis, and sleep disorders being the most common.

Prevalence of Polypharmacy

Polypharmacy (≥5 medications) was observed in **24 out of 30 patients (80%)**. The average number of medications per patient was **7.2**, with some patients receiving up to 10 medications daily.

Potentially Inappropriate Medications

Using Beers and STOPP/START criteria, at least one potentially inappropriate medication was identified in **18 patients (60%)**. The most frequently identified drug groups were:

- Sedative-hypnotics
- Anticholinergic agents
- Long-term NSAIDs without adequate protection

Adverse Symptoms

The most commonly reported symptoms were:

- Dizziness or general weakness (43%)
- Balance disturbances or falls (27%)
- Cognitive complaints, such as memory impairment (20%)

Optimization Opportunities

Medication review suggested potential deprescribing in **18 patients (60%)**, most often involving sedatives or duplicate therapies. In several cases, simplification of treatment regimens was associated with improved subjective well-being during follow-up visits.

Table. Main Optimization Strategies Identified

Strategy
Application
Clinical Rationale
Medication review
All patients
Identification of excessive or duplicative therapy
Beers / STOPP screening
30 patients
Detection of high-risk medications
Deprescribing recommendations
18 patients
Reduction of adverse effects
Patient counseling
Majority of patients
Improved understanding and adherence

Clinical Example

An 82-year-old woman with hypertension, osteoarthritis, and chronic insomnia was taking eight medications daily. Medication assessment revealed the use of zolpidem and diphenhydramine, both associated with increased fall risk in elderly patients. Following gradual discontinuation and implementation of non-pharmacological sleep measures, the patient reported improved alertness and no further episodes of dizziness.

Discussion

The findings of this observational study confirm that polypharmacy is common among elderly patients and often associated with potentially inappropriate prescribing. The prevalence observed in this cohort is comparable to data reported in larger studies. Importantly, many of the identified risks were modifiable through relatively simple interventions such as medication review and deprescribing.

Although the study was limited in size, it demonstrates the practical applicability of prescribing criteria in routine clinical settings. The results emphasize the importance of regular medication reassessment rather than one-time evaluation.

Limitations

This study has several limitations. The small sample size limits generalizability, and the observational design does not allow causal conclusions. Adverse effects were largely based on patient-reported symptoms. Long-term outcomes following deprescribing were not systematically assessed.

Conclusion

Polypharmacy remains a significant issue in elderly patients and is frequently associated with potentially inappropriate medication use. This study shows that even small-scale clinical evaluation can identify meaningful opportunities for medication optimization. Regular medication review, use of established prescribing criteria, and patient-centered deprescribing strategies should be integral components of geriatric care.