



## Polypharmacy in older patients

Rekha Nair

Date of Submission: 10-05-2024

Date of Acceptance: 20-05-2024

One third of the outpatient prescription spending in the US, comes from the geriatric population that is 65 years and older even though they constitute only 14% of the total population in the US. Polypharmacy, hence, is a big concern in this population. Often older patients deal with chronic ailments, because of which they are subjected to multiple medication therapies. At times, more commonly so now, this results in overuse of medications and abuse of medications in the older individuals. Polypharmacy is a term used to describe the use of medications to treat diseases and extend life expectancy in patients which often amass in quantities. The dangerous aspect of Polypharmacy comes from the fact that adding 5 or more drugs into a patient's regimen without proper indication and drug review, could lead to unnecessary side effects and interactions that could result in falls, delirium, urinary tract problems, incontinence, diarrhea, and ultimately mortality. These tremendously effect the quality of life of the patient and they end up in a vicious cycle of treating each symptom after the other resulting from improper therapy management in such patients.

There are multiple factors associated with Polypharmacy that raise concern with safety of such population. Adverse drug effects being one of the major ones. It is estimated that 5% to 28% of the acute geriatric medical admissions result from preventable adverse drug effects. Drug category closely associated with these are often the cardiovascular, diuretics, hypoglycemics anticoagulants, narcotic pain killers and NSAIDs. A study of 5213 participants in England found the rate of falls was 21% higher for people taking 4 or more medications compared with those taking fewer. A meta-analysis including 47 studies further confirms that the risk in mortality increases as the number of medications rise from 1 to 4. Another study of 2735 patients with a mean age of 80 years, independent predictors of 30-day unplanned rehospitalization included the use of 7 or more drugs (Hazard ratio [HR],3.94;95%CI,1.62 to 9.54; P=0.02). Another major factor of concern is the drug – drug interaction, drug-food interactions that may result from the use of multiple medications,

use of over-the-counter medications and supplements. These interactions and adverse drug effects may often mask the actual reason for a resulting ailment or rehospitalization and the patient gets prescribed a newer drug to treat the newer ailment. This causes a prescribing cascade and tremendously decreases the quality of life and increase mortality in older patients. Age related changes in the geriatric population is also a big concern with respect to Polypharmacy. The way it is linked is that the rate of absorption, drug distribution, metabolism and elimination of a drug varies greatly in the elderly due to the change in their physiology with aging. As a result, multiple medications in the patient's body could lead to toxicity or even lack of effectiveness.

The leading cause of Polypharmacy comes from improper drug reviews, medication reconciliation, medication errors, inadequate patient medication history, patient medical history of geriatric population who may have multiple healthcare providers, multiple pharmacies, improper follow ups, lack of drug discontinuation, non-adherence and many such factors. What this leads to is a new health condition which leads to a new prescription to the already existing amass of medications.

Older patients may require multiple medications to manage their complex medical problems.

Advocating a systematic team approach to address patients effectively with lengthy medications lists and assessing for adherence difficulties is one way to avoid medication errors and over prescribing of drugs in such population. Health care providers, pharmacies must go over the medication lists with the patients to ensure what over the counter, supplements, alternative medications the patient could be on in addition to prescription drugs. Thorough evaluation of patients presenting with adverse drug effects should be conducted, so it could be considered as a possibility resulting from polypharmacy unless proven otherwise. This will prevent from prescribing cascade and risk of further hospitalization. Reconciling medications at care transitions from hospital and long-term care (LTC) has shown to reduce errors in medication orders and addresses



clarity of change in therapy. It is also important to be aware as a healthcare professionals and care providers, the risks associated with polypharmacy. Some examples are hip fractures, falls, decreased cognitive functions and so on. This awareness and education will help manage such patients with caution before adding another medication into their regimen to treat the symptom rather than evaluating the actual cause. Focus should be on improving the quality of life of patients and not just blindly treating one symptom after the other. A holistic and individualized approach is necessary when dealing with older patients. Timely follow ups and evaluating the medication reconciliation in a timely manner so to discontinue medications that no longer benefit the patient or improve the quality of life of the patient is an effective way to prevent polypharmacy and the risk of mortality and health care costs associated with it.

Using Beers Criteria is recommended especially before prescribing potentially harmful medications. This will prevent PIM (Potentially Inappropriate Medication) usage in older adults. Integration of STOPP (Screening tool of older person's prescriptions) and START (Screening tool to alert to right treatment) in medication review is highly beneficial as well. Other tools such as Morisky Medication Adherence Scale has validity in revealing breakdown in adherence and related barriers to taking medications and maybe administered by a trained care team member. As research repeatedly has proven that adherence difficulties are rooted within higher number medications and increasing doses.

### SUMMARY

Polypharmacy is a concerning issue and repeatedly has shown associations with complications of falls, hospitalization, and mortality irrespective of the medications involved. It shown to tremendously decreases the quality of

life in older adults, resulting in decrease in life expectancy and not meeting the goals of treatments. Use of tools like Beer's criteria and STOPP/START criteria will help recognize high-risk medications in older adults and avert adverse drug effects. Every health care worker, including doctors, pharmacist and nurse practitioner must regularly determine what medications each patient takes. This interprofessional team approach will minimize the medication errors, treatment failures and rehospitalizations. Use of AI is a newer approach to reduce polypharmacy. The results are promising, however, HIPPA (the Health Insurance Portability and Accountability Act) compliance, data privacy and ethical challenges need to be addressed before application of AI in healthcare and polypharmacy.

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