



Polypharmacy: A Prevailing but Neglected Drug Use Issue

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With the advancement in medical science, pharmaceutical industry has come up with solutions to countless health related issues. One can easily find treatment for all the ailments, be it prophylactic or curative. Also, with advancement, growth has been seen in the diversity and prevalence of medical problems. People from all age groups are suffering from varying conditions and are taking multiple medications for the same. This phenomenon called polypharmacy has been associated with multimorbidity and is counted as an important risk factor for poor outcomes.

KEYWORDS: Polypharmacy, Drug Interactions, Multimorbidity

INTRODUCTION

Polypharmacy is the concurrent use of multiple medications, often defined as the use of five or more medications on routinely basis¹ which includes use of over the counter drugs, prescribed, traditional and complementary medicines by a patient.² The term polypharmacy was first mentioned in the medical literature more than 150 years ago³ but still a majority of the population, including healthcare professionals have no idea about it. In most instances, polypharmacy is a logical response for management of complex and co-existing health problems in elderly.⁴ However, most of the old people are using lot many medications in an improper way which is of growing concern. Combination of multiple drugs can make their harmful effects outweigh the benefits when used in a complex regimen commonly seen in patients admitted to nursing homes, among elderly people and in the context of EOLC, end of life care.⁵⁻⁷

Medicines are often used in inappropriate ways that undermine their value. They are being prescribed for unapproved indications, not prescribed when they should be and patients often take them incorrectly, show treatment non-compliance or combine these drugs with other herbal products or supplements and this can cause potential harm.

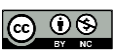
Polypharmacy is not only a burden for patients, it can be very dangerous leading to medically significant issues. It is vitally important that patients are authorized to make informed choices regarding the medications they are taking, and healthcare professionals play a prime role in educating the

patients. The factors like boom in pharmaceutical research and development to bring into the market the treatments for common chronic diseases, the willingness of patients to consume them, policies of governments and society to pay for them has given rise to the prevalence of polypharmacy.

Problems associated with polypharmacy are more prevalent in the elderly because of countless contributing factors like deterioration of general health with age, limited daily activities, reduced mobility, increased multimorbidity that is associated with multiple symptoms, impairments and disabilities, poor compliance due to complex and multiple drug therapies and these issues can interfere with the treatment process, lead to exacerbation of underlying disease and in turn can increase the need for more medication.^{8,9}

The patient groups that are most vulnerable to the risks of polypharmacy are susceptible to events such as drug interactions, higher risk of falls, fractures, chronic obstructive pulmonary disease, urinary retention, bleeding, renal injury and failure, physical and cognitive impairment, disability, progression of underlying diseases, non-adherence, poor nutritional status, frailty, sarcopenia, hampered quality of life more hospital admissions and even death.

If the medicines are prescribed for the purpose of achieving specific therapeutic benefits with an informed consent and agreement of the motivated patient to take these as intended, and have been

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regulated to curtail the risk of drug related side effects and reactions and therapeutic objectives are being met or there is a probability of the same being achieved in the time ahead, the polypharmacy can be considered as appropriate.

Use of one or more medicines that are no longer required, either because there is no confirmed diagnosis, the indication has resolved, the prescribed dose is unnecessarily high, the particular drug is contraindicated in the concerned population, the indication is not approved for that drug, there is no response or partial response to the drug, or the combination of prescribed drugs can result in interaction, cause adverse reaction, or the patient is not willing or able to take one or more medicines as intended due to any reason results in inappropriate polypharmacy.

Polypharmacy can result from several risk factors, most of them are patient centered like co-existing medical conditions under the care of several specialists, medications for symptomatic relief, self-medication, having chronic mental health conditions, prescription of medication to treat the adverse effects of another drug and residing in a long-term care facility like nursing homes. The factors at healthcare level includes incomplete medical records, inappropriate or wrong diagnosis, drug prescription and dosing errors, prescription of unnecessary medications, easy availability of diverse over the counter drugs, lack of patient motivation and provision of inadequate information to patients.

Many tools have been formulated to identify potentially inappropriate medication use although no single one has been of much help in decreasing the risk of polypharmacy. These include the Beers, the Medication Appropriateness Index, screening tool of older people's prescriptions and screening tool to alert to right treatment criteria. Regular and thorough monitoring of the patients' active medication is a must. It is also advisable to deprescribe any unnecessary medications. This would eventually decrease the pill burden, minimize the risks of drug interaction and adverse drug reactions, and also reduce the financial burden. The physicians should use point of care documentation that would help in the deprescription process and also to make the patients understand the need to decrease

medication overload in order to diminish the risks of polypharmacy.¹⁰

A major potential cause of polypharmacy is low literacy rate in general or poor health literacy at individual or population level. Miscommunication or misunderstanding physician prescriptions or orders as a result of disabilities, cognitive dysfunction, mental impairment and mistaking drugs because of similarity in shape, size, name or color, are additional contributing factors which may arise more often in elderly people.^{8,9,11,12}

Polypharmacy is an unfortunate sequela of the development and advancement in the field of medical science and research. This unpleasant consequence has led to high cost of medical treatment and poor health outcomes. Life expectancy has increased with significant rise in old population. Every day, new medicines are being discovered and new drugs are being formulated in pharmaceutical machinery to treat infinite medical conditions. The bitterness lies in the fact that these drugs behave like a double-edged sword. They are meant to upgrade, refine and boost patient health but they also have the capability and potential to result in adverse events, impairment and conditions that can be life-threatening or even fatal. Healthcare professionals need to be cautious and watchful in delivering treatment and care to their patients who are subjected to multiple medications and, when required, they should modify, alter or optimize the current regimen. They should also provide appropriate education regarding the drug use, dosage, adverse events and drug interaction to the patients and also perform a detailed and complete medication review with regular follow ups for subjects who are prescribed multiple medications.

CONCLUSION

There has been a tremendous increase in the prevalence of polypharmacy across the globe with most of the older population being exposed to polypharmacy which in turn is associated with a broad range of detrimental consequences. There is an urgent need to formulate, elaborate and refine the methods to assess the hazards of polypharmacy. There is also a need to review the international trends in the prevalence of polypharmacy, summarize and analyze their results and update the healthcare professionals regarding the clinical aftermaths of

polypharmacy.

REFERENCES

1. Fulton MM & Riley Allen E. Polypharmacy in the elderly: A literature review. *Journal of the American Academy of Nurse Practitioners* 2005;17:123-32.
2. <https://apps.who.int/iris/bitstream/handle/10665/325454/WHO-UHC-SDS-2019.11-eng.pdf?ua=1>. [Last accessed on 19th September, 2019].
3. Duerden M, Avery T, Payne R. Polypharmacy and medicines optimization: Making it safe and sound. London: The King's Fund; 2013. Available from https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/polypharmacy-and-medicines-optimisation-kingsfund-nov13.pdf. [Last accessed on 19 Sep, 2019].
4. Wise J. Polypharmacy: a necessary evil. *BMJ*. 2013;347:f7033.
5. Jokanovic N, Tan EC, Dooley MJ, et al. Prevalence and factors associated with polypharmacy in long-term care facilities: a systematic review. *J Am Med Dir Assoc*. 2015;16(6):535e1-12.
6. Narayan S, Nishtala P. Decade-long temporal trends in the utilization of preventive medicines by centenarians. *J Clin Pharm Ther*. 2017;42(2):165-9.
7. Morin L, Vetrano DL, Rizzuto D, et al. Choosing wisely? Measuring the burden of medications in older adults near the end of life: nationwide, longitudinal cohort study. *Am J Med*. 2017;130(8):927-36.
8. Williams A, Manias E, Walker R. Interventions to improve medication adherence in people with multiple chronic conditions: a systematic review. *J Adv Nurs* 2008;63:132-43.
9. MacLaughlin EJ, Raehl CL, Treadway AK, et al. Assessing medication adherence in the elderly: which tools to use in clinical practice? *Drugs Aging* 2005;22:231-55.
10. Halli-Tierney AD, Scarbrough C, Carroll D. Polypharmacy: Evaluating Risks and Deprescribing. *Am Fam Physician* 2019;100(1):32-8.
11. Hajjar ER, Cafiero AC, Hanlon JT. Polypharmacy in elderly patients. *Am J Geriatr Pharmacother* 2007;5:345-51.
12. Baker DW, Wolf MS, Feinglass J, et al. Health literacy and mortality among elderly persons. *Arch Intern Med* 2007;167:1503-9.

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