De-prescription: What, When and How?

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Abstract:

De-prescription or de-prescribing is a new idea in clinical medicine. This is the structured way of withdrawing of inappropriate medication supervised by a health care professional with the goal of managing polypharmacy and improving outcomes. It is estimated that half of older adult patients are treated with polypharmacy (five or more drugs). The prevalence of Polypharmacy in the elderly is higher, ranging from 30% to 70%, even reaching 90% in residents of some residential geriatric care facilities in developed nations. Polypharmacy in the elderly increases the risk of adverse reactions, inappropriate prescriptions, drug interactions, number of hospitalizations, costs, and even death. Polypharmacy and CNS drugs increase fall risk by about 50%. Withdrawal of psychotropic drugs reduced falls by 66%. There are different deprescribing models. These are focused especially on elderly patients as well as on specific specialties such as psychiatry. It includes meticulous evaluation of the patient, identifying potentially inappropriate medications, prioritizing drug discontinuation, performing the deprescription and monitoring the result bearing in mind the risks of deprescribing.

Key words-De-prescription, Deprescribing, Polypharmacy

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Introduction:

De-prescription or de-prescribing is a new idea in clinical medicine. This is the process of withdrawal of inappropriate medication supervised by a health care professional with the goal of managing polypharmacy and improving outcomes. The word 'deprescribing' was first used in the literature in 2003.[1]The concept of reviewing the prescribed medications from time to time has been discussed in medical literature for couple of decades. Theclinicians began to question whether medications should be indefinitely or if they could be withdrawn safely. [2-4] The ideal treatment duration, potential benefit, harm, cost as well as issues like adherence of the ongoing treatment were in question. There are differences in the concept as well as the use of the term 'deprescribing'.[5] The magnitude of problem caused by polypharmacy in our day to day practice has raised the issue into custody. It is estimated that half of older adult patients are treated with polypharmacy. The prevalence of Polypharmacy in the elderly is higher, ranging from 30% to 70%, even reaching 90% in residents of residential geriatric care facilities in developed nations.[6]Polypharmacy in the elderly increases the risk of adverse reactions, inappropriate prescriptions, drug interactions, number of hospitalizations, costs, and even death. Polypharmacy and CNS drugs increase fall risk by about 50%. Withdrawal of psychotropic drugs reduced falls by 66% .[6-8]Prescribing greater number of medications is not a proportional to the quality of a prescription. Although in some cases, multiple medications may be appropriate in case of multiple co-morbidities. There is opportunity to decrease the medication burden in this patient population. This is the situation where deprescription is essential. Dr. J. Avorn, Geriatrician nicely said- "Any new symptom in an elderly patient should be considered a drug side effect until proven otherwise.' One-third of hospitalizations in older adults are medication related.[9, 10]

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Methodology:
In this review we searched for all published peer-reviewed articles in medical journals that included the word 'deprescription' and 'deprescribing', in the title, abstract or keywords to ensure the paper is focused on deprescribing. To identify the relevant papers, a text word search in the MEDLINE, pubmed and google scholar has been done. The inclusion criteria were that the full manuscript must be available in English. Theavailable full-text articles were read with attention to clarify and reproduce concept of de-prescription and deprescribing.

Prevalence & disadvantages of Polypharmacy:
Polypharmacy is commonly used to mean the use of fiveor more medications.[11]It is estimated that one-fifth of adult patients are treated with polypharmacy (five or more drugs) and the prevalence of this phenomenon in the elderly is higher, ranging from 30% to 70%, even reaching 90% in residents of residential aged care facilities.[12] The common culprits are- Benzodiazepines, PPI, Diuretics, steroids, laxatives, multivitamins, food supplements. Polypharmacyresults in many undesirable health outcomes, including nutritional deficiencies, falls, frailty, impaired cognition, increased hospital admissions and adverse drugreactions.[6-8]

Polypharmacy in the elderly increases the risk of adverse reaction, drug interactions, geriatric syndromes like delirium, falls, urinary incontinence and even death.[13,14,15] Every third patient receiving five or more drugs suffers an ADR every year, with more than 25% deemed preventable.[10] Polypharmacyincrease fall risk by about 50%, withdrawal of psychotropic drugs reduced falls by 66%. Avoiding benzodiazepine in elderly could reduce hip fractures by 10%. Apart from the greater potential for ADR, the rate of compliance is inversely proportional to the number drugs prescribed, and this has been found to be as high as 85%[15].

What is deprescription?
In a systematic review on 2008Deprescribing was defined as 'medication withdrawal in older people.[16] This definition is not satisfying for the clinicians. Later Le Couteur et al. clarified that this was the 'cessation of long-term therapy supervised by a clinician'.[17]These concepts were combined in a 2015 publication that proposed a definition as 'the process of tapering or withdrawing drugs with the goal of managing polypharmacy and improving outcomes'.[9] Alternative definition was proposed in 2015 saying deprescribing is a 'systematic process of identifying and discontinuing medicines where the actual or potential harms outweigh the benefits, within the context of an individual patient's care goals, current level of functioning, life expectancy, values and preferences'.[18]

Different definitionsfocus different issues pertinent to polypharmacy, specially in older patients. and There is no consensus on the definition. Some of the papers define deprescribing as to withdraw a particular category of medications such as long-term, unsafe or inappropriate medications. On the other hand some uses deprescribing as a synonym of medication withdrawal, discontinuation or cessation. Few of the definitions include a structured process with planning, supervised withdrawal and monitoring.[19] The common definition is the one that is proposed by Scott et al. This is as follows- 'It is the systematic process of identifying and reducing or discontinuing drugs in instances in which existing or potential harms outweigh existing or potential benefits, bearing in mind the medical status and current level of functioning.'[12]Few papers referenced the definition by Reeve et al. Here is their proposed definition- 'The process of tapering or withdrawing drugs with the goal of managing polypharmacy and improving outcomes.[19]Some papers cited Woodward'soriginal paper to suggest that it is a process of medication withdrawal, although Woodward's original paper do not propose a precise definition.[20]

Goals of deprescription:
The goal of deprescription is to optimize medical therapy, and hence to manage chronic conditions, avoid adverse effects, improve outcomes and enhance and maintain the quality of life,improving and/or preserving cognitive function, Reduce risk of hospitalization and death[21,22].

Indications of deprescription:
Deprescription is a necessity in the following conditions[23,24,25,26]

1) Inappropriate medications- when there is no valid indication for the medicine
2) Polypharmacy
3) Adverse drug reaction and drug interactions
4) Lack of effectiveness, diminished benefit
5) When there is a risk of cumulative toxicity
6) Nonadherence/ non-compliance of the patient.

7) Decline in hepatic function/ renal function
8) Patients with frailty, dementia
9) Short life expectancy. At end of life, patients often continue to take medications that no longer provide clinical benefits.
10) When a young lady intends to become pregnant or diagnosed as pregnant while on therapy for a certain condition, it is well known that any drug unless otherwise is considered absolutely essential, is to be avoided during pregnancy, more so during the first trimester, to prevent teratogenic effects.

How to do deprescription:
This should be done in partnership with the patient, his family members, care givers and supervised by healthcare professionals. A five step process have been proposed.[27,28,29]

1. Obtaining a comprehensive medical history, medication history and checking adherence
2. Identifying any potentially inappropriate polypharmacy.
3. Determining whether the potentially inappropriate drug can be stopped.
4. Planning the withdrawal regimen: reducing or stopping one medicine at a time, if problems develop it makes it easier to identify the likely cause. We can consider if the medicine can be stopped abruptly, e.g. if toxicity has developed, or needs to be tapered, this is usually the best option; sometimes a smaller dose may need to be continued long term.
5. Checking for benefit or harm after each medicine has been reduced or stopped (provide contact details to the patient for support in case of problems), this may include monitoring tests.

There are different approaches to stopping medicines:

Stepwise approach: Useful if the patient is well and clinically stable but there is a risk that multiple changes in drugs will destabilize their situation. Tapering the dose helps reduce the likelihood of an adverse withdrawal event for some medicines.

All at once: Useful if the patient is unwell as a result of likely drug side effects or in a safe monitored environment (e.g. admission to hospital).

Mixed approach: In practice, often several drugs can be stopped or reduced at once with little chance of harm. However, certain drugs (e.g. antidepressant and antipsychotic drugs) will need to be withdrawn more cautiously. In this situation it should be documented clearly which drugs can be stopped immediately and which drugs are to be withdrawn more cautiously.

Advantages vs Disadvantages of deprescription:
Advantages of deprescription may be summarized are as follows[30, 31]

a) Reduce adverse effects and drug interaction
b) Reduce poly-pharmacy related sufferings, hospital admissions and death
c) Avoid inappropriate medications
d) Reduce the cost burden of treatment Physicians must have to bear in mind the disadvantages and monitor the patient.

a) Withdrawal symptoms
b) Recurrence of symptoms that were being treated with the ceased medication
c) Rebound effects

Barriers to deprescription:
There are hindrance and barriers of deprescription from the both end that is on the part of patients and doctors.[30]

From the Patients part there may be the following obstacles-

1) Patients may be psychologically attached to a medication
2) They may be physically dependent on a medication
3) They Feel abandoned if the medication is stopped
4) They consider that death is imminent
5) They do not believe thata treatment may not be useful for a longer period rather it may be harmful.

On the doctor's part there are following barriers

1) The physicians are concerned with patients' resistance to change
2) They are concerned with other clinicians' resistance to change

3) Fear of drug withdrawal events.
4) They are concerned with the fear of recurrence of symptoms.
5) Reluctant to stop medications when they have been started by a colleague or when its length of use or original indication is unclear.
6) They are not sure if the drug can be stopped abruptly or should be tapered.

How to resolve barriers to deprescribing in clinical practice:

Increasing awareness among current and future clinicians would help them appreciate the scope of deprescribing inappropriate medication use as a population health issue and recognize the barriers they may encounter during patient care.[32]Educational workshops about how to effectively deprescribe may help physicians better understand how to communicate with other care providers and address patients' concerns. Utilizing available medication or class-specific deprescribing tools with a monitoring plan could help ease clinicians into the decision-making process.

Physicians should take the time to conduct a comprehensive review of the medications that their patients are taking, including those prescribed by other providers. This is especially relevant for elderly patients who are still taking medications that were prescribed while they had a different health status—in these cases, discontinuation or reduced dosages are possibilities to consider.

Non-drug measures can provide the same benefit without adverse effects. Elderly people often complain of insomnia, constipation, and such other symptoms, which are more often due to underlying depression, sedentary lifestyle, or when they are on central nervous depressants like sedative-hypnotics, and such factors. One often tends or is pressurized, to prescribe a hypnotic, laxative, which adds to the cost, hidden ADR such as falls. Rather, appropriate counseling on healthy lifestyle, sleep hygiene, high fiber diet would not only avoid drugs but also and expenditure.

Medications that are possible targets for deprescribing:

Medication-related problems are extremely common in the general population especially in older adults, who take multiple medications .These problems include side effects including delirium, fall, nonadherence etc.[29]That iswhy careful review and consideration of deprescribing is appropriate for people who take medication for prolong period.

1. Strongly anticholinergic medications
2. Benzodiazepines and Benzodiazepine receptor agonists
3. Long-acting sulfonylureas
4. Insulins
5. Chronic use of proton pump inhibitors without strong indication
6. Chronic use of NSAIDs without strong indication
7. Aspirin for primary prevention of cardiovascular disease in older patients

Current Deprescribing guidelines:

Following deprescribing guidelines are available on the website namedwww.deprescribing.org :

I. Proton Pump Inhibitor evidence-based deprescribing guideline
II. Antihyperglycemic deprescribing guideline
III. Antipsychoticdeprescribing guideline
IV. Benzodiazepinedeprescribing guideline

Special settings for deprescription:

Hospitalized patients — Hospitalizationprovides a good settingfor medication review including full medical history and examination and monitoring after discontinuation of inappropriate drugs. Assurance and counseling of patient and family members are possiblerepeatedly.[33,]

During end of life care — As life expectancy shortens, people often prioritize to relieve symptoms. There are many medications that are inappropriate near the end of life.[34]

Deprescribing in pediatrics-Poly-pharmacy in children is not common. There are few literatures regarding deprescribing in children. Scopes of deprescribing should be considered in patients with complex neurological diseases.[35]

Conclusion:

The more is not better always. There is a tendency to prescribe drugs for each and every symptom the patient complains of, rather than aiming for the underlying cause of the given condition or yielding to patients' pressure. Such practice often leads to polypharmacy or prescription of unwanted drugs,

with attendant increase in adverse reactions, including morbidity. It has been shown proactive initiatives to deprescribe not only reduced the average number of drugs consumed (by more than 50%), but also reduced mortality (by up to 50%), referrals requiring emergency care (by more than about 50%), and health care cost with improvement in health (by more than 90%).[11,12]So, we must be careful about deprescribing for the betterment of patient's overall outcome. The potential risks of deprescribing should be monitored meticulously. Theanxiety of patients or the family, worriesof the treating physician must be considered. The decision should be taken after through discussion with patient, his family members and treating physicians of different specialties for a successful deprescription.

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