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Medication adherence: Challenges and strategies for older adults

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Introduction

Medication adherence, defined by the World Health Organization as "the extent to which a person's medication-taking behavior corresponds with agreed recommendations from a health care provider,"[1] is an essential yet challenging practice for patients. Nonadherence is associated with suboptimal illness control, unnecessary dosage adjustments, repeat hospitalizations, and mortality, causing 125 000 deaths and over $100 billion in added costs annually.[2]

Medication nonadherence is especially prevalent in the geriatric population, requiring targeted and individualized interventions. A 2015 systematic review evaluated factors impacting medication adherence in older adults, which we categorize into patient and nonpatient factors.[3] Patient factors include poor neurocognitive and psychological functioning, chronic medical conditions, physical limitations (eg, poor dexterity and hearing impairment), poor health literacy, and patient beliefs about medications.[3] Nonpatient factors include medication regimen, healthcare provider, healthcare system, and other factors.[3] A sample of commonly cited, relevant, and actionable nonpatient factors is included in the Table.

Illustrative Case

Mrs. B, age 81, with a history of type 2 diabetes mellitus, bipolar I disorder, and mild cognitive impairment, was hospitalized after 1 week of decreased sleep, pressured speech, and irritability. She had been stable on divalproex 250 mg and olanzapine 5 mg (both oral) at bedtime for many years, but divalproex was increased to 500 mg 1 month ago due to subacute worsening of symptoms. Her medications are dispensed in bubble packaging, which her husband picks up from the pharmacy. She lives with her husband, who is healthy and takes atorvastatin nightly.

Her family notes several days of medication nonadherence before hospitalization. When asked about this, Mrs. B reports increased numbness and tingling in her toes since the dose increase, consequently leading her to skip some doses. Additionally, her divalproex has been administered as two 250 mg tablets since the dose increase, and she is unsure whether to take 2 tablets or 1 (as she had done previously). Her insight and symptoms begin to improve once she is restabilized on her home regimen.

Evidence-Based Discussion

Clinicians can most easily address patient- and medication-related sources of nonadherence at the clinical care level; those relating to healthcare providers, the healthcare system, and other causes require more complex systems-level approaches. Thus, a selection of practical interventions from existing literature and author experience addressing these domains is presented below. However, evidence-based interventions remain limited, offering significant opportunities for further research.

Practice Points:

1. Medication nonadherence is a significant problem in geriatric psychiatry, leading to increased healthcare spending, poor illness control, hospitalizations, and death.
2. Medication nonadherence has many causes, but clinicians can most easily address those related to the patient and medication regimen.
3. It is important to identify the specific causes of a patient's medication nonadherence and implement individualized and multifaceted plans to address them.
4. Existing evidence regarding interventions is limited, and more research will help clinicians implement effective strategies to solve this significant challenge.

Addressing Patient-Related Factors

General Strategies

The authors have found interventions that increase structure and accountability to be effective, such as taking medication with routine daily activities (eg, brushing teeth and getting dressed) and taking medications together with others in the household. Additionally, maintaining a comprehensive list that includes medication name, indication, dosing schedule, prescriber, pill shape and color (if consistent), and other details, may help with organization and understanding and facilitate medication reconciliation at medical appointments. An example of such a list (the "Tracking your medications" worksheet) can be found online from the National Institutes of Health National Institute on Aging.[5]

Addressing Cognitive Impairment

Cognitive impairment confers a heightened risk of medication nonadherence, with a relative risk as high as 400% compared with patients without cognitive impairment.[4] Evidence-based strategies vary based on the degree and domain of cognitive impairment (memory, visuospatial ability, attention, etc), as more significant cognitive impairment requires more involved support. Those with mild cognitive impairment, for example, may find phone alarms sufficient to remember medications, while those with a major neurocognitive disorder may require additional interventions such as reminders and supervision from caregivers. Evidence-based strategies include location aids (eg, placing medications in frequented areas of the home)[4] and reminder notifications.[6] While technology-based reminders may be helpful, personal reminders from caregivers tend to be more effective.[6] Other emerging promising strategies include smartphone apps and pill dispensers.[7]

Addressing Physical Limitations

Physical limitations are also common in this population and can negatively impact adherence. Clinicians and patients with visual impairment may ask pharmacists for large print container labels, and patients with poor dexterity who struggle with child-resistant packaging may sign a blanket waiver at community pharmacies to remove requirements outlined by the Poison Prevention Packaging Act.[8]

Addressing Poor Health Literacy

Poor health literacy limits adherence in older adults with and without cognitive impairment. Patient education programs are insufficient on their own in improving adherence and may be more effective when paired with other modalities, such as behavior-based interventions detailed above.[6] Pharmacist-led medication education for older adults with low health literacy has also shown promise.[6]

Addressing Patient Beliefs

The results of the placebo effect are well-known and extensively documented. The nocebo effect—wherein patients falsely believe unrelated symptoms are negative medication side effects—is also common, especially in patients with a

TABLE: Nonpatient factors associated with medication nonadherence[3,4]

Healthcare Provider Factors: • Poor communication • Lack of trust and confidence in provider • Lack of patient involvement • Patient dissatisfaction • Not completing regular medication reviews	**Healthcare System Factors:** • Poor patient education • Poor follow-up • Short prescription duration requiring frequent refills • Multiple prescribers • Initiation of multiple new medications at the same time
Medication-Related Factors: • Polypharmacy • Complex dosing regimen/increased pill burden • Child-resistant packaging that is difficult to open • Pill formulation/needing to cut pills • Intolerable side effects • High medication cost • Logistical difficulties in refilling	**Other Factors:** • Prior nonadherence • Lack of caregiver • Large caregiver burden • Lack of immediate improvement from medication • Hospitalization in the past 6 months

history of chronic baseline symptoms, somatization, or who have previously experienced negative side effects.[9,10] A thoughtful and deliberate discussion about side effects with emphasis on the medication's beneficial effects can help avoid this phenomenon.[10,11]

Addressing Medication-Related Factors

Older adults have unique medication considerations compared with younger populations. Where appropriate and feasible, the treating clinician should clarify medical necessity, optimize medication formulation, monitor serum concentration when indicated, and assess barriers to administration and storage, including pill boxes or bubble packaging. Complex medication regimens and polypharmacy further complicate medication adherence. Treating clinicians should aim to consolidate medication regimens by prescribing in available tablet strengths to avoid multiple or split tablets, discontinuing medications as clinically appropriate, and outlining medication changes at each transition of care.

Recommended Strategies for Above Illustrative Case

Mrs. B's clinician should first obtain a serum divalproex level and compare it with prior levels to determine the degree of nonadherence. Given her cognitive impairment, involving caretakers in her medication adherence plan may be beneficial. Mrs. B and her husband should consider taking their bedtime medications together, providing more accountability and a sense of routine. Mrs. B also may be experiencing a "nocebo effect," falsely attributing numbness and tingling to the divalproex dose increase when it is likely from her diabetes. She and her family would benefit from increased education regarding divalproex side effects, and her psychiatrist should inform her primary care physician of the worsening peripheral neuropathy. Additionally, Mrs. B was unsure whether to take 1 or 2 tablets of divalproex; dispensing as one 500-mg tablet instead of two 250-mg tablets would minimize confusion and pill burden. Mrs. B notably still has nonadherence despite her supportive caregiver and bubble-packaged medications, underscoring the need for multifaceted and iterative solutions to address this challenging problem.

Conclusion

Medication nonadherence is a significant problem in geriatric psychiatry, leading to increased healthcare spending, poor illness control, hospitalizations, and even death. Various factors relating to the patient, medication regimen, healthcare provider, healthcare system, and other domains can contribute to medication nonadherence. However, clinicians can most easily address patient and medication factors at the clinical care level. When medication nonadherence is detected, it is important to identify specific causes and to develop individualized interventions to address it. Despite the magnitude of this problem, research remains limited and existing studies have not found substantial impacts of population-level interventions. More research is necessary to help clinicians optimize strategies to address this common clinical challenge.

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