

Medication and Non-Adherence In the Older Adult

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Ms. D, a 65-year-old woman with hypertension and diabetes, presented to your office for a routine appointment. Her most recent hemoglobin A1C was 9.0. On examination, her vital signs were normal with the exception of blood pressure which was 165/85. Her medications included zestoretic and pioglitazone. On questioning, she revealed that she has not been able to buy her medications because they are too expensive: she had reached the 'donut hole' in her prescription coverage plan.

DEFINITION AND IMPACT OF MEDICATION ADHERENCE

The term “non-adherence” is preferred to “non-compliance” because non-compliance implies an element of fault or blame on the part of the patient.¹ Non-adherence has been defined in the literature as a patient’s passive failure to follow a prescribed therapeutic regimen. The same principle applies to dietary regimens, screening tests, and lifestyle modifications. Non-adherence to medication has profound implications on the patient as well as on doctor-patient relationships and interactions, plans of care, and the healthcare system.

Without taking medications as prescribed, the patient will not benefit from the medication, adequate drug serum levels will not be achieved, and the medication will not be an effective therapeutic intervention. For example, if a patient with diabetes mellitus is prescribed an oral agent but is not consistently adhering to the regimen, only suboptimal intermittent glucose control will be achieved instead of the continuous control required for optimal prevention of the long-term consequences of diabetes. In addition, physicians may erroneously interpret the inadequate glucose control as indicating a need for more medication and thus potentially over-prescribe, putting the patient at risk for hypoglycemia.

Ultimately, non-adherence leads to increased healthcare utilization through undertreatment of chronic and acute prob-

lems. It has been estimated that the yearly cost of non-adherence in America ranges from \$396 to \$792 million,² and that approximately 1/3 to 1/2 of all medication-related hospital admissions are attributed to non-adherence.² Continuing with the example above, the patient with uncontrolled diabetes will have elevated serum glucose levels that impair immunity, rendering her susceptible to infections, and predispose her to developing a diabetes-related syndrome, such as hyperosmolar hyperglycemic non-ketotic state, either of which can result in a costly hospital admission.

REASONS FOR NON-ADHERENCE

An estimated 33 to 50% of patients do not adhere to their medication regimens as prescribed.³ In a study aimed at adherence in the elderly population, it was demonstrated that when prescribed statin therapy, there was only 40% compliance.⁴ Also, the highest rate of non-adherence tends to occur within the first few months of therapy.³ Explanations include the sudden added financial burden of a new prescription or the appearance of side effects soon after initiation. These possibilities should be explored with every patient in the months following the addition of new medications.

A multitude of reasons contribute to non-adherence. (Table 1).³ For example, the elderly patient with multiple medical problems requiring complex drug regimens may find it difficult to take numerous medications multiple times each day. The rate of adherence is inversely proportional to the number of medications a patient takes. Complex regimens of multiple drugs are commonly a problem for older adults, who take the highest number of medications of all age groups.¹

Another common reason for is cost. Although older Americans are no longer the poorest, they are still overrepresented in the poverty range. With Medicare Part D prescription programs, older adults are required to pay 100% for their medications costs once their costs reach the “donut-hole” at \$2700 (their co-payment plus their insurers’ payments). Patients leave the hole, after paying up to \$4350 out-of-pocket for medications. As a result, many elderly patients on limited incomes begin rationing their medications or stop taking them altogether.⁵

Patients are often not forthcoming about non-adherence because of guilt, lack of education or understanding about the importance of adherence, embarrassment about their inability to manage an overwhelmingly complex drug regimen or about their financial limitations, or fear of angering their physicians.

Table 1. Potential Etiologies for Non-Adherence

- Complex medication regimens (HIV and HAART)
- Convenience factors (eg, dosing frequency)
- Behavioral factors
- Treatment of asymptomatic conditions
- Affordability
- Side effect profiles of medications
- Severity of the problem (VA hypertensive study)
- Patient disagreeing with therapeutic plan

Table 2. Solutions for Non-Adherence

- Patient Education
- Helping Patients Improve Their Organization Skills
- Mailed Communications
- Manual Telephone Follow-up
- Self-Monitoring
- Obtain help from family members
- Simplifying the Medication Regimen
 - Recommend Pillboxes
 - Using generic medications if cost is an issue
 - Combination drug regimens
 - Once a day dosing if possible
 - Ask patients to bring in pill bottles at every visit
 - Provide written instructions

SOLUTIONS

Health care providers can employ numerous interventions to improve adherence in the older adult. (Table 2). Simplifying a patient’s medication list as much as possible can increase adherence as well as save the patient money. For example, when **Highly Active Anti-Retroviral Therapy (HAART)** was introduced, the complex regimens required patients to take multiple medicines throughout the day. As a result, many patients could not adhere to these regimens because of the time and effort that was required. However, as therapies have improved and regimens became streamlined, adherence improved. In one study, HIV patients reported a 94% improvement in adherence with simplification of the regimen, as well as with directly observed therapy.⁶

Another simple intervention is to ask patients to bring their pill bottles at each visit. This lets the physician quickly assess whether or not the medications are being taken as prescribed.

Pre-loaded pillboxes can provide reminders and improve adherence. When the list of medications is long and the regimen complex, the risk of non-adherence grows. The boxes divide the medications into daily doses. Alternatives include using charts to track medication administration as well as a reminder system, available with electronic systems like personal

digital assistants. For patients with cognitive impairment, the physician might ask family members to keep track of medication usage.

If cost is as an important reason for non-adherence, switching brand name medications to generic or cheaper alternatives is helpful. Reviewing the regimen for medications that may no longer be necessary can streamline the regimen for ease and cost purposes. If the side effects are troubling for the patient, alternative medications in the same class but with better side effect profiles can be identified.

BACK TO THE CASE

Ms. D was advised to use pharmacy retailers with low cost prescriptions, and her antihypertensive and diabetic medications were changed to generics. She was counseled about the long-term consequences of not appropriately managing her hypertension and diabetes. She agreed to the plan as described and was asked to return for a follow-up visit in one month. At that visit, her blood pressure was better controlled at 130/70 and she reported no difficulty in obtaining her medicines.

REFERENCES

1. Osterberg L,Blaschke T. Adherence to medication. *NEJM* 2005;353:487-97.
2. LaFleur J, Oderda GM. Methods to measure patient compliance with medication regimens. *J Pain Palliat Care Pharmacother* 2004;18:81-7.
3. MungerM, Van Tassel BW,LaFleur J. Medication nonadherence. *Medscape Gen Med* 2007;9:58.
4. Jackevicius CA, Mamdani M, Tu J. Adherence with statin therapy in elderly patients with and without acute coronary syndromes. *JAMA* 2002;288:462-7.
5. Zhang Y, Donohue JM, et al. The effect of Medicare Part D on drug and medical spending. *NEJM* 2009;361:52-60.
6. Simoni JM, Frick PA, et al. Antiretroviral adherence interventions. *Top HIV Med* 2003;11: 185-98.

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