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The Importance of Considering Clinical Inertia and Implementation Science When Addressing Medication Adherence

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Both in the United States and globally, it is estimated that half of patients with chronic diseases do not use their medications as prescribed.[1,2] This suboptimal medication adherence leads to avoidable morbidity and mortality, as well as unnecessary health care use and costs.[3] While there have been numerous interventions seeking to improve medication adherence, few studies have examined long-term adherence, often referred to as *persistence*.

One intervention that has received recent attention is the use of financial incentives to improve persistence. The randomized clinical trial by Barankay and colleagues[4] examined which of 3 financial incentive interventions would be most effective in encouraging statin adherence among individuals with suboptimal low-density lipoprotein cholesterol control or demonstrated poor statin adherence over 12 months compared with a control. Within a racially diverse sample, the investigators observed improvements in statin adherence, as measured with electronic pill monitors, as well as in low-density lipoprotein cholesterol levels in all 4 groups. There were no statistical differences observed; however, the decline in low-density lipoprotein cholesterol levels across all 4 groups was clinically meaningful. There are at least 2 lessons one can learn from this randomized clinical trial.

The first lesson is the need to consider clinical inertia in the context of medication adherence. One of the "holy grails" of clinical care is to find what motivates people to engage in healthy behaviors, such as medication adherence. That is, how can patients be incentivized to follow evidence-based guidelines? Similarly, while there is a focus on incentivizing patients, there needs to be a focus on incentivizing health care practitioners to initiate and intensify treatment using evidence-based guidelines.

Perhaps 1 reason the 3 financial incentive interventions were not effective compared with the control group in the study by Barankay et al[4] is that only half of the cholesterol-lowering equation was addressed. Medication adherence interventions are often strictly patient-focused and do not consider clinician inertia.[5] Unfortunately, it is not always safe to assume that evidence-based treatments are being initiated and intensified appropriately. In other words, patients can only adhere to the medication they are prescribed, and improved medication adherence to a suboptimal regimen may not translate to improved outcomes.[6] Delays in treatment intensification have been observed in multiple studies across chronic conditions.[7] It is possible that in addition to patient adherence, clinical inertia was occurring in the study.

In addition to encouraging the initiation of evidence-based behaviors, the goal of the health care system should just as importantly focus on how to sustain these hard-won changes. Support for the change in health behaviors often begins with conscious health decisions, and with reinforcement, changes transition into healthy habits that require minimal self-regulation.

The second lesson is to consider the use of implementation science to assist in the formal evaluation of trials. Implementation science is the study of how evidence-based programs can be embedded to maximize successful outcomes.[8] Implementation science is concerned with using a systematic and scientific approach to identify the range of factors that are likely to facilitate administration of an intervention. A way to address clinical inertia is the use of implementation science, which can inform researchers and clinicians about for whom, how, when, why, and in what situations clinical inertia impedes medication adherence as well as help develop successful and sustainable interventions and programs. By studying the success and failure of intervention

adoption, researchers and clinicians can better understand why an intervention was or was not effective. The use of implementation science highlights the factors central to successful adoption and sustainability of programs.

As with all meaningful research, there are more questions than answers in the study by Barankay and colleagues.[4] Additional questions that may require further attention is the issue of delayed gratification. Use of cholesterol as a focus is appropriate in the sense that individuals do not experience direct benefits from taking the medications, but on the other hand, it tends to be challenging to encourage an individual to adhere to a treatment with a long delay in gratification and subsequent long-term risk reduction. Related to delayed gratification, further basic science may be necessary to better understand how closely tied a specific behavior needs to be to the reward and relevant context, and as Barankay and colleagues[4] set out to answer, how long a behavior needs to be reinforced before it becomes a habit. Using implementation science principles and methods, one can create classifications for individuals who need low-, moderate-, or high-touch interventions to sustain adherence to medications. The same could be for clinicians to address clinical inertia: some may need more attention. If so, who are these individuals, and are there specific factors that may characterize them?

In conclusion, while the goal is to improve clinical outcomes, one still must consider adherence to treatment. Consideration of potential clinical inertia and the use of implementation science methods may help explain why, despite improvements in statin adherence, there was not a difference in the intervention arms compared with the control. Given the substantial societal cost of medication nonadherence, work such as the study by Barankay and colleagues[4] helps inform what tools could be used to address the costly and significant societal burden of medication nonadherence.

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