Factors contributing to therapeutic inertia related to patients’ medication experiences include concerns about side effects and out-of-pocket costs, stigmatization for having diabetes, confusion about frequent changes in evidence-based guidelines, low health literacy, and social determinants of health. A variety of solutions to this multifactorial problem may be necessary, including integrating pharmacists into interprofessional care teams, using medication refill synchronization programs, maximizing time with patients to discuss fears and concerns, being cognizant of language used to discuss diabetes-related topics, and avoiding stigmatizing patients. Managing diabetes successfully is a team effort, and the full commitment of all team members (including patients) is required to achieve desired outcomes through an individualized approach.

Despite decades of research investigating the importance of achieving diabetes-related goals and countless innovations introduced in the field of diabetes, slightly less than half of adults living with diabetes in the United States met recommended goals for comprehensive diabetes care in 2010 (1). A subsequent analysis looking at individualized A1C targets noted a slight decline in patients achieving their glycemic goals from 2003 to 2014, with only 64% of adults with diabetes achieving their individualized A1C goal (2). The factors contributing to this phenomenon are various, ranging from patient-level decisions to the current landscape of the U.S. health care delivery system (3). Regardless, therapeutic inertia is one of the most significant reasons for this phenomenon. To complement the perspectives of other articles in this Diabetes Spectrum From Research to Practice section, this article focuses on therapeutic inertia directly related to patients’ medication experiences.

Relevant Definitions

“Clinical inertia” has been defined previously as “the failure of health care providers to initiate or intensify therapy when indicated, caused by overestimation of care provided, use of ‘soft’ reasons to avoid intensification of therapy, and/or lack of education, training, and practice organization aimed at achieving therapeutic goals” (4). Unfortunately, this definition only speaks to the actions of health care providers, and multiple other factors also contribute to delays in helping patients achieve their diabetes-related goals, including patient- and health system–related factors (5,6). Therefore, the term “therapeutic inertia” will be used in this article to encompass this broader range of factors (7).

Another important term to introduce is the “medication experience,” a practice concept that refers to seeking to understand patients’ experiences with medications and medication-taking behaviors to meet their medication-related needs (8). This concept has four general constructs: a meaningful encounter, bodily effects, unremitting nature, and exerting control. A meaningful encounter is any initial exposure to the medication, ranging from a discussion with a provider or friend about a new medication to administering the first dose of a new medication. The construct of bodily effects encompasses the gamut of outcomes patients experience after initiating a medication, from the positive (e.g., improved glucose levels) to the negative (e.g., adverse effects). The unremitting nature construct speaks to the nature of living with a chronic condition, the importance of medications to help manage that condition, and the psychological toll that having a chronic condition can have on a person. Finally, the construct of exerting control describes how patients may begin to self-adjust their medications to better suit their symptoms or daily routine, mostly for the better (e.g., timing medications around daily activities), but sometimes for the worse (e.g., intentionally omitting doses).
When therapeutic inertia or lack of engagement arises, the root of the problem is often derived from a patient’s medication experience (9). Therefore, when discussing therapeutic inertia, it is crucial for clinicians to remember that patients are individuals leading their own independent lives and actively making their own health-related decisions rooted in their specific knowledge, skills, beliefs, and emotions (10).

Sources of Therapeutic Inertia Within the Medication Experience

Adverse Effects of Medications

One of the first questions patients ask when initiating a new medication is, “What are the side effects?” The most commonly cited patient concerns are generally those of the short-term effects of the medication, especially hypoglycemia and weight gain (11,12). However, the long-term safety of medications can be equally concerning for some patients (13). This is especially true for medications that are newer to the market or have been correlated with a serious long-term risk (e.g., for cancer) in epidemiological studies. Although causation cannot be confirmed through these types of studies, unfortunately, many patients assume causation when hearing about these associations on the news, in social media, or from other sources, resulting in patients self-discontinuing therapy or being wary to initiate the new medication (14).

Out-of-Pocket Costs

It is not possible to discuss therapeutic inertia without identifying out-of-pocket costs as a barrier to intensifying a patient’s medication regimen. Although some of the newer agents on the market have demonstrated considerable benefits beyond glucose-lowering effects in clinical trials, these agents are often cost-prohibitive for many patients, even those with prescription drug coverage (15,16). According to recently updated diabetes care guidelines, the preferred options to use after maximizing metformin and comprehensive lifestyle intervention for patients who have cost concerns include sulfonylureas, thiazolidinediones, and insulin (3,16). Although these medications are all very effective for lowering blood glucose, they may not be ideal from an overall cardiometabolic risk perspective. This raises the question of which is more important to our health care system—achieving a lower A1C or ensuring that patients improve their overall cardiometabolic health profile (17).

In addition to the cost of the medications, it is also important to consider the costs associated with follow-up visits for medication titration and laboratory draws for evaluating the safety and efficacy of new medications. In the case of injectable agents and medications with an increased risk of hypoglycemia, the additional costs associated with supplies related to administering the medication (e.g., needles, syringes, and alcohol pads) and the necessary increased frequency of monitoring (e.g., lancets and glucose test strips), respectively, must also be considered (16,18,19).

Insulin-Specific Factors

In addition to all of the general medication-related concerns, insulin brings its own contributions to the therapeutic inertia dilemma. Some reasons why people discontinue or are hesitant to start insulin include perceived harm (from either their worsening condition or the insulin itself), inconvenience, lack of a perceived benefit, and problematic interactions with health care professionals (20,21). When insulin is mentioned as an option, a patient may relate a personal story about some relative who died of hypoglycemia or had to start dialysis after initiating insulin. The patient may believe that insulin, rather than diabetes or its complications, caused the negative outcome. Such personal experiences trigger an emotional response from patients, which clinicians must acknowledge and respect (10). These experiences will be extremely influential on patients’ medication experiences, likely overpowering any education a clinician may provide. However, if patients are receptive to input, it may be helpful to discuss how modern insulins, syringes and pen needles, and glucose meters all compare with what was used in the past (e.g., recombinant vs. animal-derived insulins, shorter needle lengths, and smaller blood sample requirements for checking blood glucose).

There also appears to be a perception that insulin instantly makes one’s diabetes more complicated because of the requirement for additional blood glucose checks and the higher risk of hypoglycemia, although these assumptions are not inherently accurate for individuals starting on a basal-only insulin regimen (as opposed to an intensive insulin regimen) (22). Other common misconceptions include the belief that insulin needs to be refrigerated at all times (which could severely affect a person’s daily routine) and the fear that exogenous insulin will shut down a patient’s natural insulin production through a negative feedback mechanism, rendering the patient “addicted” to insulin (23).

Finally, the need for insulin to be titrated also lends itself to therapeutic inertia because insulin is dosed differently from other medications that come in fixed-dose regimens. Insulin may not be titrated in a timely manner for a variety of reasons, thereby leading patients to perceive the insulin itself (rather than their inadequate dose) is ineffective. Conversely, if patients are not advised when initiating insulin that dose titration would be needed, they may become frustrated by the fact that their dose is continually...
changing. Patients have also reported getting frustrated when they do not achieve their A1C targets quickly, citing the relatively long length of time it takes to reach their target glucose levels as an even greater barrier to initiating insulin than hypoglycemia (24,25).

**Constantly Changing Practice Standards**

Evidence-based medicine and advances in diabetes care are evolving rapidly, with guideline updates, clinical trials, and new medications being released on a routine basis. The most prominent example of this is the dramatic shift in the approach to reducing the risk of developing atherosclerotic cardiovascular disease that occurred in 2013 and the ripple effects that ensued in the public and medical media (26–28). Although the health and well-being of patients are driving factors for these updates, frequent changes may cause the general public to disbelieve the newest research and can place clinicians at a crossroads regarding how to care for specific patients. Currently, the American Diabetes Association, the American Association of Clinical Endocrinologists/American College of Endocrinology, and the American College of Physicians have differing recommendations for A1C goals in nonpregnant adults with type 2 diabetes, resulting in conflicting practice standards (29–31). Although each of these guidelines mentions a patient-centered approach to escalating or deescalating therapies, this ambiguity in direction for clinicians and patients can certainly contribute to therapeutic inertia.

Furthermore, although A1C has been the practice standard for assessing glycemic stability for decades, advocates for a more comprehensive method would also like to incorporate patient-reported outcome measures when assessing a treatment’s effectiveness and determining whether to intensify therapy. This situation presents a difficult balance to maintain because the intensification of treatments may not correlate with better quality of life, despite improving glycemic stability and intermediate health outcomes (32). As the U.S. health care system places more emphasis on evidence-based, condition-specific metrics when developing payment methodologies, it is crucial that patients’ perceptions are also incorporated to ensure treatment success over the long term.

**Low Health Literacy**

Common barriers impeding patients’ abilities to take medications include low health literacy, lack of consistency in prescription labeling and medication instructions, and medication burden (33,34). It has been estimated that 50% of prescribed medications fail to produce desired results because of improper use, and up to 21% of patients never even fill their initial prescription (35). Low health literacy can directly contribute to therapeutic inertia for various reasons, including patients not understanding insurance-related concepts (e.g., quantity limits, prior authorizations, and refill procedures) or that chronic medications are to be taken over the long term (i.e., understanding the difference between an acute illness and a chronic condition). These concepts can be difficult for health care professionals, who interact with the health care system on a daily basis, to understand; they are even more difficult for the general public to comprehend.

**Diabetes Stigma**

Unfortunately, conditions such as type 2 diabetes and obesity historically have been viewed by the public and by the medical community as results of a lack of willpower or motivation; obesity was not even classified as a disease until 2013 (36–38). This pervasive viewpoint has led many individuals living with these chronic conditions to feel stigmatized or to experience shaming from others for what is seen as a personal failing rather than a combination of genetic, environmental, and lifestyle factors (38,39). In one study of >5,000 individuals living with diabetes, the most widely reported experiences of diabetes stigmatization were the perception of having a character flaw or failure of personal responsibility (81%), followed by the perception of being a burden on the health care system (65%) (39). If a person has been led to believe that these perceptions are true, having a discussion about the pathophysiology of diabetes tailored to that patient’s specific situation before discussing treatment options is essential for helping the patient better comprehend the broader context for his or her situation.

**Social Determinants of Health**

The prevalence of type 2 diabetes is generally higher in people with lower socioeconomic status and in racial/ethnic minorities, populations generally most disadvantaged when it comes to access to health care services, safe neighborhoods, reliable transportation, and healthy foods (40–43). These social determinants significantly affect patients’ abilities to manage their diabetes well (44,45). Emphasizing medications as the sole option for treating diabetes without seeking to understand patients’ broader social determinants of health may lead patients to perceive that their life circumstances are becoming over-medicalized (46). Therefore, it is important to first strategize with patients how to realistically integrate comprehensive lifestyle management into their living situations (18,47). Only after acquiring this information is it possible to identify the right patient-specific medications to augment these lifestyle
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modifications (3,16,48). Just as medications alone are never sufficient to manage diabetes, comprehensive lifestyle management alone (without the addition of medication) is sometimes not enough for certain people, and the addition of medications should never be seen as a personal failing or medicalization of a patient’s life circumstances.

Potential Solutions for Overcoming Therapeutic Inertia Within the Medication Experience

Integrating Pharmacists Into Interprofessional Care Teams

With an in-depth understanding of mechanisms of action, pharmacokinetics, adverse effect profiles, and general costs of medications, pharmacists can leverage their knowledge to help develop patient-specific treatment plans for people with diabetes, especially those with multiple concurrent chronic conditions. With adverse effects and hypoglycemia, two of the most prominent patient-reported concerns regarding medications, pharmacists can help to maximize the use of more effective medications with lower risks of hypoglycemia while communicating to patients the risks and strategies to mitigate them.

Studies have repeatedly demonstrated that integrating pharmacists with a collaborative practice agreement into patients’ interprofessional care team to provide comprehensive medication management can help overcome therapeutic inertia by assisting patients in achieving their individualized A1C, blood pressure, and LDL cholesterol goals in less time and for a lower overall cost of care compared with care teams without integrated pharmacists (49–55). Pharmacists can also assist the care team by providing patient and provider education, refill reminders, unit-of-use packaging for prescriptions, and coordination of refills (56).

Medication Refill Synchronization

With suboptimal medication use as a driving factor in therapeutic inertia, medication refill synchronization (“med sync”) programs can assist patients by aligning all of their medication refills on a single date (57). Without medication synchronization, the timing of refills for a specific medication is dependent on the date the prescription was initially filled, causing some patients to come to the pharmacy several times per month to fill different prescriptions. Med sync programs allow for prescriptions to be filled in such a way that the timing of refills aligns for all of a patient’s chronic medications. These programs have demonstrated an increase in patients’ abilities to take their medications and a reduction in health care costs, at least in the short term (58,59). These programs are also beneficial in reducing patients’ trips to the pharmacy, enabling pharmacists to more readily identify medication errors and gaps in care, and improving the workflow for all health care professionals across the spectrum of the health care system.

Spending Time With Patients

Ensuring that patients have an adequate amount of time to discuss their fears, learn about their new medications, and comprehend their diabetes (whether they are newly or previously diagnosed) can help reduce confusion and uncertainty regarding diabetes management. Taking such time can also help empower patients to maintain progress toward their health-related goals. Taking adequate time is important when initiating any medication, but it becomes especially crucial when a patient is starting insulin because concerns about hypoglycemia, weight gain, injections, and disease progression are all at the forefront of the patient’s mind.

It is important to let patients present these concerns and engage them in the decision-making process before prescribing any medication to increase the likelihood that a mutually agreed upon plan will be successful. In one study, efforts to address patients’ injection-related concerns by demonstrating the actual injection process, explaining the benefits of insulin, and adopting a collaborative communication style were all linked with earlier insulin initiation and greater insulin persistence over time (60).

One strategy to ensure that adequate time is available to facilitate these types of meaningful conversations with ever-shortening medical appointment times is to leverage an interprofessional team approach and diabetes self-management education and support services (61).

Stop the Diabetes Stigma Cycle

Lastly, but perhaps most importantly, it is crucial for health care professionals to avoid fueling the stigmatization that patients may feel because of their diabetes diagnosis. This effort starts with avoiding judgmental language and terminology when discussing diabetes with patients and other members of the health care team (62). Clinicians must also meet patients where they are by identifying realistic goals (e.g., interim goals), encouraging positive self-affirmations, and most importantly, avoiding using medications as a threat or evidence of failure. This latter point is most important when discussing insulin because clinicians may use insulin as a threat, perhaps subconsciously, when they urge more active self-care and patient engagement so patients can “avoid progression to insulin therapy” (63). Unfortunately, the addition of insulin is often a necessary step for patients as their diabetes progresses, and placing it in
negative light early on is increasing the risk for future therapeutic inertia if insulin needs to be added eventually.

Conclusion

The factors contributing to therapeutic inertia that are related to patients’ medication experiences are numerous and include concerns about side effects and out-of-pocket costs, stigmatization for having diabetes, confusion among clinicians and patients about frequent changes in evidence-based care guidelines, health literacy deficits, and social determinants of health. A variety of solutions may be necessary to address this multifactorial problem, and the approach ultimately chosen should be tailored to each patient’s specific situation. Solutions include integrating pharmacists into interprofessional diabetes care teams, favoring medications with a low incidence of hypoglycemia or other adverse effects, educating patients on how to mitigate the risk of an adverse effect, using med sync programs, maximizing time with patients to allow for in-depth discussions of fears and concerns, being cognizant of the terminology being used to discuss diabetes-related topics, and avoiding stigmatizing patients. Managing diabetes successfully is a team effort, and the full commitment of all team members (including patients, their support networks, and all health care professionals) is required to achieve desired outcomes.

DUALITY OF INTEREST

No potential conflicts of interest relevant to this article were reported.

AUTHOR CONTRIBUTIONS

The authors jointly developed the outline, reviewed the literature, wrote the content, and edited the manuscript prior to submission for publication. Both authors are the guarantors of this work and, as such, had full access to all the references cited and take responsibility for the integrity of the review and accuracy of the analysis.

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