A Behavioral Perspective of Therapeutic Inertia: A Look at the Transition to Insulin Therapy

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From a behavioral perspective, therapeutic inertia can happen when obstacles to changing a diabetes treatment plan outweigh perceived benefits. There is a complex interaction of important treatment-related obstacles for people with diabetes (PWD), their treating health care professional (HCP), and the clinical setting in which they interact. Tipping the scales toward more effective action involve strategies that increase perceptions of the benefits of treatment intensification while addressing important obstacles so that treatment changes are seen by both PWD and HCPs as worthwhile and achievable.

Effective diabetes care requires a complex series of choices made by people with diabetes (PWD) and the health care professionals (HCPs) who manage their therapeutic and psychological needs. Although treatment intensification over time is needed for nearly all people with type 2 diabetes, there may be extended periods of time during which no significant changes are made to their treatment plan despite their elevated risk factors. From a behavioral perspective, therapeutic inertia can happen when barriers to changing a diabetes treatment plan outweigh perceived benefits. There is a complex interaction of important treatment-related obstacles for PWD, their treating HCP, and the clinical setting in which they interact. The treatment setting itself may represent the most significant barrier to change and may represent an important limiting factor or opportunity for tipping the scales toward more effective action.

Diabetes therapeutic inertia occurs when there is a delay in treatment intensification despite evidence that intensification is warranted and effective (1). This delay can lead to a significant proportion of PWD (~30–50% [2]) experiencing years of elevated glycemic levels before treatment is escalated (3).

Starting insulin therapy (IT) is an important transition for many people who have type 2 diabetes. A closer look at the barriers to successfully initiating IT can elucidate the behavioral perspective of therapeutic inertia. Diabetes care guidelines emphasize the early consideration and initiation of IT among PWD not reaching target glycemic outcomes (4). However, declining or postponing IT is highly prevalent. A recent study examined the prevalence of PWD declining IT and its impact on insulin initiation over a 4-year period in 3,295 insulin-naive PWD (5). In the study sample, 30% (984 PWD) initially declined insulin. Those with the highest A1C levels (≥9.0%) were more likely to have declined insulin than those with lower A1C elevations (7.0–8.9%). Of those who initially declined insulin, 38% went on to eventually initiate IT, with an average time to initiation of just over 2 years.

Reluctance to initiate IT is also common among primary care providers (PCPs). With the very high number of PWD and relatively small number of diabetes specialists worldwide, most PWD receive diabetes care from PCPs. Results from a multinational survey revealed that 20% of PCPs overall never or rarely personally initiated or intensified insulin (compared with 4% of specialists), despite 92% of PCPs agreeing that insulin intensification is an essential element of diabetes management (6). In another study, although specialists were more aggressive with insulin initiation than PCPs, less than half of patients with high A1C levels had intensification of their medications, regardless of the specialty of their HCP (7).

Obstacles to IT for PWD

Problematic beliefs about diabetes, the effectiveness of treatments, and their own ability to make needed behavior changes are fundamental obstacles for reaching glycemic goals for many PWD. Research suggests that many PWD

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believe that complications from diabetes are inevitable, a phenomenon referred to as diabetes fatalism (8). Skepticism about the effectiveness and safety of available diabetes treatments is another barrier to effective management (9). In addition, many PWD report significant distress related to feeling that they are failing at diabetes management tasks (10) and lacking confidence in their ability and motivation to perform diabetes self-care tasks (9,10). PWD with high levels of diabetes distress are more likely to be the highest risk patients with regard to glycemic levels, health behaviors, and engagement with HCPs about diabetes care (10,11). Given the prevalent fatalistic beliefs about diabetes, uncertainties about the effectiveness of treatment, and doubts about self-efficacy, it is understandable how many PWD may not see a point to diabetes treatment.

Problematic beliefs about the role of medication intervention represent another significant obstacle in diabetes treatment and lead many PWD and HCPs to have opposing views on treatment intensification (12). Most HCPs view treatment intensification for PWD as necessary over time to achieve metabolic goals. However, PWD often have a goal of reducing or eliminating medication (12) and may see the need for more or different medication as evidence that they have failed at diabetes management or that their health is worsening (13–17). They may also perceive treatment intensification as punishment for having failed at their diabetes management (18).

Concerns about IT in particular are a significant obstacle to treatment intensification. Both realistic clinical concerns and misconceptions of PWD about insulin can lead to a reluctance or unwillingness to consider IT, a phenomenon often referred to as "psychological insulin resistance" (19). Ng et al. (20) reviewed numerous studies enumerating key misperceptions about IT that are commonly held by insulin-naive PWD. The most problematic beliefs PWD report include the beliefs that IT is not effective or necessary, that their quality of life will be considerably reduced by IT, and that they will not be able to make the adjustment to an increasingly complex treatment regimen (18). Heightened fears of unwanted side effects such as weight gain and hypoglycemia (14,18,21) and of injection pain are commonly reported by PWD who decline IT. Other common beliefs and fears include the idea that IT represents worsening health (i.e., that it is a "treatment of last resort"), fear of IT permanence once initiated, feelings of personal failure and shame, concerns about interference with work and social life, social stigma of injections, and concerns that insulin causes harm (e.g., blindness or amputations) (1,15,16,18).

The TRIAD (Translating Research Into Action for Diabetes) Insulin Starts Project (18) assessed how attitudes toward IT among PWD related to actual IT behavior, comparing PWD who did not fill their first insulin prescriptions to those who initiated IT. Among patients who did not fill their insulin prescriptions, significant proportions expressed moderate to extreme concerns about their ability to give themselves injections (42%) and had concerns that insulin might have a negative impact on their social lives (38%) and their jobs (33%). Fear of injection pain occurred for 30% of patients who did not start insulin. However, most PWD (55%) who did not initiate IT reported that they did not fill their prescription because of being confused or unclear about how to give themselves injections and were unclear about why IT was important. The most striking difference between those who initiated IT and those who did not is that 100% of those who initiated IT reported that they had some form of insulin self-management education, whereas only 16% of those who did not start IT reported that they received such preparation. These findings highlight the importance of helping PWD understand the purpose and benefits of IT and empowering them with self-management programs to facilitate their self-confidence in administering insulin injections.

Another potentially important obstacle for many PWD may be the increasing financial burden of IT, since the cost of insulin has risen rapidly in recent years. Prices of all types of insulin and insulin products have increased, with retail prices roughly tripling between 2002 and 2013 (22). A recent study on the effect of rising costs (23) highlighted the negative impact on both insulin initiation and intensification rates with higher generic drug copayments, even among PWD who have commercial insurance.

Most PWD report multiple obstacles to IT that together may be experienced with high salience (16). In the absence of a clear understanding of the possible important benefits of IT and without a perception that successful IT is personally achievable, it is not surprising that many PWD respond with initial unwillingness to consider IT.

Obstacles to IT for HCPs

There are several important barriers to HCPs recommending and facilitating the transition to IT for PWD who are medically appropriate for consideration. Although most HCPs recognize the importance of IT for achieving glycemic targets, most HCPs also believe that several factors would mitigate patients' ability to initiate IT (24). In addition to heightened concerns about hypoglycemia and weight gain, most HCP barriers to IT initiation arise from their concerns about "adherence," perceiving many PWD as unable or unwilling to adapt to a more complex treatment

plan. For most HCPs, perceived patient resistance to IT (especially as a result of injection fear), perceived lack of diabetes self-management skills on the part of patients, and perceptions regarding patients' prior "nonadherence" to oral agents can dissuade them from initiating insulin for some PWD. Additional HCP barriers include insufficient time; a lack HCP knowledge of, training for, and experience with IT; perceived health literacy problems of patients; and language barriers (7,24–27).

However, there may be problems with how accurate HCPs are in their assessment of patients' preferences, concerns, and self-management skills (26,28). Compared to the rates of IT barriers actually reported by PWD, physicians were found to overestimate the impact of injection fear as a primary rationale for PWD declining IT and to underestimate the impact of PWD not understanding IT risks and benefits, lacking self-efficacy, and having concerns about IT negatively affecting their work and social lives (24).

Misassumptions about the self-management capacity of those considered "nonadherent" could contribute to disparities in treatment intensification for PWD with elevated A1C levels. A large-scale study examined the pharmacy claims of PWD with elevated A1C levels who did not have treatment intensification by HCPs. Evidence of medication-taking gaps of ≥20% of days covered was found in 23% of the PWD with elevated A1C levels who had no treatment intensification. However, no evidence of medication-taking gaps was found in 30% of PWD with elevated A1C levels who did not have treatment intensification (29). This finding highlights the fact that actual medication-taking does not adequately explain a lack of treatment intensification. It is also important to understand that a person's diabetes self-management capacity is not a static factor but instead reflects behaviors that can be influenced by appropriate intervention (30).

The obstacles HCPs perceive to recommending IT may lead them to not pursue the effort with certain patients or to give up suggesting IT after an initial decline. In the absence of confidence that specific patients could benefit from IT, HCPs may come to the conclusion that many PWD cannot or will not transition to IT.

PWD-HCP Interactions That Interfere With IT

Effective communications between PWD and their HCPs about the need for treatment intensification are imperative for successful transition to IT (30). Discussions about A1C results that are above treatment targets are likely to be perceived by PWD as getting "bad news." At such times, when changes to the treatment plan may be important, the quality of the connection between the person with diabetes and the HCP is vital. Having a discussion that challenges a person's beliefs about IT may be difficult for many HCPs. Indeed, such a conversation may seem to contradict the goal of shared decision-making, and HCPs may worry that having such a discussion could appear disrespectful of the patient's beliefs and choices when a patient has a negative initial reaction to the suggestion or IT or has chosen to decline IT. In an interview study of PWD-HCP communications about diabetes self-care behaviors (31), both HCPs and PWD recommended trust, nonjudgmental acceptance, open and honest communication, and providing PWD hope for living with diabetes as important factors for improving communication. PWD even stressed the clinical benefits of HCPs directly addressing problematic self-care behaviors. However, HCPs described having few strategies to address these difficulties. Barriers for communications about diabetes self-care behaviors included patients' reluctance to discuss self-care problems because of feelings of shame, guilt, and fear of judgment and HCPs' perceptions of not knowing how to address patients' reluctance.

In an effort to minimize biases against PWD who are not at glycemic goals, medical records and in-person communications should consider how elevated glycemic levels are labeled and discussed. Describing a person as "uncontrolled," "nonadherent," and having "failed" oral hypoglycemic agents or lifestyle changes only further stigmatizes, blames, and judges people and risks alienating the PWD who are most in need of additional medical intervention and support (32,33). These labels may lead HCPs to not consider IT for some PWD who might actually do well if their individual barriers are adequately addressed.

Obstacles to IT Related to the Therapeutic Setting

The pressures of the current clinical environment of limited appointment time, high patient volume, and electronic medical records have affected the quality of clinical encounters. Given the significant constraints imposed on appointment visits, therapeutic inertia may be an inevitable outcome. As a result, some researchers have proposed that an alternative explanation of therapeutic inertia as an adaptive response to the presence of competing demands (34,35). Encounters have a time constraint within which multiple conditions, problems, and patient concerns compete for a place on the appointment agenda. As a result, HCPs and PWD must prioritize demands to deal with the most symptomatic problems. Intensifying medication

therapy for elevated A1C levels may be determined to be less urgent and therefore deferred to a future appointment. In an observational study of primary care encounters (34), competing demands were evaluated during appointments as determined by the number of patient concerns raised. The number of competing demands raised by PWD best predicted a change in medication in response to an elevated A1C. As the number of patient concerns increased, medication changes decreased independent of appointment length, A1C level and trend, and number of topics brought up by the HCP. This finding underscores that it is not a lack of time per se that limits treatment changes but rather the competing demands of patient concerns during the clinical encounter.

Putting It All Together: Possible Solutions

Successfully breaking the cycle of therapeutic inertia with regard to IT involves implementing strategies that improve perceptions of the benefits of IT so that both PWD and HCPs view IT as worthwhile and achievable and facilitate cooperation between PWD and HCPs in minimizing the impact of the barriers to IT. A recent multinational study examined HCP actions that facilitated the successful transition to IT for PWD who were initially reluctant (30). PWD found the most helpful HCP actions for initiating IT were addressing injection concerns by demonstrating the actual injection process, explaining the benefits of insulin, and adopting a collaborative communication style. The perceived helpfulness of these three key HCP actions was linked with earlier insulin initiation and greater insulin persistence over time.

Strategies that address therapeutic inertia with IT (36) are most likely to be effective in a therapeutic setting that addresses the barriers for PWD and HCPs together, rather than as separate entities.

Therapeutic Setting Strategies

Prioritizing treatment intensification in clinical encounters may require more focused appointments such as designated "diabetes visits" to minimize competing demands. Opportunities for PWD to get injection education may be a crucial factor for IT initiation and persistence. The use of multidisciplinary support resources may facilitate injection demonstration and practice (preferably by a diabetes educator or diabetes paraprofessional) (37).

Strategies for PWD

Know the hopeful messages about living with diabetes (e.g., "With some care and effort you can live a long and healthy life with diabetes") and the importance of taking action right away to keep important diabetes targets in a safe range. Seek out diabetes education to learn or improve self-management skills. Learn early on about how type 2 diabetes changes over time and how the need for additional medication and treatment is not a sign of failure or an indication that diabetes is "worse," but rather a logical and necessary means of addressing the normal decline in pancreatic function associated with diabetes. Make the most of brief visits with the diabetes HCP by limiting the number of concerns raised at each appointment; consider dedicating an entire appointment to addressing only concerns about diabetes. When experiencing A1C levels that are not at goal, consider a time-limited trial of a treatment change, which may include IT. Learn the facts about insulin and address any concerns with the HCP. Viewing the HCP as being on the "same side" can facilitate a trusting relationship and the open and honest communication needed to foster willingness to consider new therapies, including IT.

Strategies for HCPs

Soon after patients are diagnosed with type 2 diabetes, begin discussions about the natural course of the disease and how treatment changes are a normal part of living with diabetes and not a sign of personal failure. Explain that IT is eventually required in most cases to keep diabetes at glycemic goals. Learn enough about IT and its benefits to feel comfortable with prescribing, adjusting doses, demonstrating an injection, and addressing common patient concerns. Refer PWD to a diabetes educator. Discuss the health benefits of treatment targets rather than threatening patients that diabetes complications may result from elevated glycemic levels. Consider the role of personal biases when feeling reluctant to prescribe insulin. For PWD who are appropriate candidates for IT, first explain the benefits, demonstrate proper injection technique, and assess and address patients' concerns and beliefs about insulin. Then, if a patient is willing, collaborate with the patient to plan a time-limited trial of IT. Be sure to address patients' concerns about hypoglycemia and weight gain. Learn how to facilitate open and honest communication by seeing each patient as an individual with unique circumstances, obstacles, and strengths.

Conclusion

Embedded in a treatment environment that enables the status quo, therapeutic inertia happens all too often, leaving PWD at risk. Some PWD may believe that successful diabetes management is unachievable and may not

understand the importance of reaching glycemic targets and the benefits of medication generally and IT in particular. HCPs may be reluctant to make therapeutic changes for the very patients who are most likely to have extended elevated glycemia—namely, those who feel hopeless about diabetes or have problematic diabetes self-care behaviors. Although the time pressures of the current health care environment pose challenges, it is still possible to have effective, person-centered discussions about treatment changes that allow for successful therapeutic intensification. Strategies that improve perceptions of the benefits of IT while also addressing the obstacles faced by both PWD and HCPs may foster agreement that treatment intensification is both achievable and worth the effort.

AUTHOR CONTRIBUTIONS

S.J.G. is the sole author and guarantor of this work. As such, she had full access to all the references cited and takes responsibility for the integrity of the review.

DUALITY OF INTEREST

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

REFERENCES

1. Phillips LS, Branch WT, Cook CB, et al. Clinical inertia. Ann Intern Med 2001;135:825–834
2. Blonde L, Chava P, Dex T, Lin J, Nikonova EV, Goldenberg RM. Predictors of outcomes in patients with type 2 diabetes in the lixisenatide GetGoal clinical trials. Diabetes Obes Metab 2017;19: 275–283
3. Khunti K, Millar-Jones D. Clinical inertia to insulin initiation and intensification in the UK: a focused literature review. Prim Care Diabetes 2017;11:3–12
4. American Diabetes Association. 9. Pharmacologic approaches to glycemic treatment: *Standards of Medical Care in Diabetes—2019*. Diabetes Care 2019;42(Suppl. 1):S90–S102
5. Hosomura N, Malmasi S, Timerman D, et al. Decline of insulin therapy and delays in insulin initiation in people with uncontrolled diabetes mellitus. Diabet Med 2017;34:1599–1602
6. Cuddihy RM, Philis-Tsimikas A, Nazeri A. Type 2 diabetes care and insulin intensification: is a more multidisciplinary approach needed? Results from the MODIFY survey. Diabetes Educ 2011;37: 111–123
7. Shah BR, Hux JE, Laupacis A, Zinman B, van Walraven C. Clinical inertia in response to inadequate glycemic control: do specialists differ from primary care physicians? Diabetes Care 2005;28: 600–606
8. Asuzu CC, Walker RJ, Williams JS, Egede LE. Pathways for the relationship between diabetes distress, depression, fatalism and glycemic control in adults with type 2 diabetes. J Diabetes Complications 2017;31:169–174
9. Stack RJ, Elliott RA, Noyce PR, Bundy C. A qualitative exploration of multiple medicines beliefs in co-morbid diabetes and cardiovascular disease. Diabet Med 2008;25:1204–1210
10. Hessler D, Fisher L, Strycker LA, Arean PA, Bowyer V. Causal and bidirectional linkages over time between depression and diabetes regimen distress in adults with type 2 diabetes. Diabetes Res Clin Pract 2015;108:360–366
11. Gonzalez JS, Shreck E, Psaros C, Safren SA. Distress and type 2 diabetes-treatment adherence: a mediating role for perceived control. Health Psychol 2015;34:505–513
12. Grant RW, Pabon-Nau L, Ross KM, Youatt EJ, Pandiscio JC, Park ER. Diabetes oral medication initiation and intensification: patient views compared with current treatment guidelines. Diabetes Educ 2011;37:78–84
13. Ross SA. Breaking down patient and physician barriers to optimize glycemic control in type 2 diabetes. Am J Med 2013;126(Suppl. 1):S38–S48
14. Peyrot M, Barnett AH, Meneghini LF, Schumm-Draeger PM. Insulin adherence behaviours and barriers in the multinational Global Attitudes of Patients and Physicians in Insulin Therapy study. Diabet Med 2012;29:682–689
15. Holmes-Truscott E, Blackberry I, O'Neal DN, Furler JS, Speight J. Willingness to initiate insulin among adults with type 2 diabetes in Australian primary care: results from the Stepping Up Study. Diabetes Res Clin Pract 2016;114:126–135
16. Polonsky WH, Fisher L, Guzman S, Villa-Caballero L, Edelman SV. Psychological insulin resistance in patients with type 2 diabetes: the scope of the problem. Diabetes Care 2005;28: 2543–2545
17. Polonsky WH, Hajos TR, Dain MP, Snoek FJ. Are patients with type 2 diabetes reluctant to start insulin therapy? An examination of the scope and underpinnings of psychological insulin resistance in a large, international population. Curr Med Res Opin 2011;27: 1169–1174
18. Karter AJ, Subramanian U, Saha C, et al. Barriers to insulin initiation: the translating research into action for diabetes insulin starts project. Diabetes Care 2010;33:733–735
19. Brod M, Kongsø JH, Lessard S, Christensen TL. Psychological insulin resistance: patient beliefs and implications for diabetes management. Qual Life Res 2009;18:23–32
20. Ng CJ, Lai PS, Lee YK, Azmi SA, Teo CH. Barriers and facilitators to starting insulin in patients with type 2 diabetes: a systematic review. Int J Clin Pract 2015;69:1050–1070
21. Kunt T, Snoek FJ. Barriers to insulin initiation and intensification and how to overcome them. Int J Clin Pract Suppl 2009;164: 6–10
22. Hua X, Carvalho N, Tew M, Huang ES, Herman WH, Clarke P. Expenditures and prices of antihyperglycemic medications in the United States: 2002–2013. JAMA 2016;315:1400–1402
23. Gilstrap LG, Mehrotra A, Bai B, Rose S, Blair RA, Chernew ME. National rates of initiation and intensification of antidiabetic therapy among patients with commercial insurance. Diabetes Care 2018;41:1776–1782
24. Ratanawongsa N, Crosson JC, Schillinger D, Karter AJ, Saha CK, Marrero DG. Getting under the skin of clinical inertia in insulin initiation: the Translating Research Into Action for Diabetes (TRIAD) Insulin Starts Project. Diabetes Educ 2012;38: 94–100
25. Zafar A, Stone MA, Davies MJ, Khunti K. Acknowledging and allocating responsibility for clinical inertia in the management of type 2 diabetes in primary care: a qualitative study. Diabet Med 2015;32:407–413
26. Patel N, Stone MA, Chauhan A, Davies MJ, Khunti K. Insulin initiation and management in people with type 2 diabetes in an ethnically diverse population: the healthcare provider perspective. Diabet Med 2012;29:1311–1316
27. Tan AM, Muthusamy L, Ng CC, Phoon KY, Ow JH, Tan NC. Initiation of insulin for type 2 diabetes mellitus patients: what are the issues? A qualitative study. Singapore Med J 2011;52:801–809
28. Grant RW, Wexler DJ, Watson AJ, et al. How doctors choose medications to treat type 2 diabetes: a national survey of

specialists and academic generalists. Diabetes Care 2007;30: 1448–1453

29. Schmittdiel JA, Uratsu CS, Karter AJ, et al. Why don't diabetes patients achieve recommended risk factor targets? Poor adherence versus lack of treatment intensification. J Gen Intern Med 2008;23:588–594
30. Polonsky WH, Fisher L, Hessler D, et al. Identifying solutions to psychological insulin resistance: an international study. J Diabetes Complications 2019;33:307–314
31. Ritholz MD, Beverly EA, Brooks KM, Abrahamson MJ, Weinger K. Barriers and facilitators to self-care communication during medical appointments in the United States for adults with type 2 diabetes. Chronic Illn 2014;10:303–313
32. Dickinson JK. The experience of diabetes-related language in diabetes care. Diabetes Spectr 2018;31:58–64
33. Dickinson JK, Guzman SJ, Maryniuk MD, et al. The use of language in diabetes care and education. Diabetes Care 2017;40:1790–1799
34. Parchman ML, Pugh JA, Romero RL, Bowers KW. Competing demands or clinical inertia: the case of elevated glycosylated hemoglobin. Ann Fam Med 2007;5:196–201
35. Jaén CR, Stange KC, Nutting PA. Competing demands of primary care: a model for the delivery of clinical preventive services. J Fam Pract 1994;38:166–171
36. Russell-Jones D, Pouwer F, Khunti K. Identification of barriers to insulin therapy and approaches to overcoming them. Diabetes Obes Metab 2018;20:488–496
37. Burke S, Crawley C, D'Hondt N, et al. Practice levels for diabetes educators and diabetes paraprofessionals. Available from www.diabeteseducator.org/practice/practice-documents/diabetes-educator-practice-levels. Accessed 30 May 2019