ABSTRACT: Evidence has shown that effective blood glucose control can reduce long-term diabetes complications, and a plethora of clinical guidelines have recommended glycemic targets. Yet many patients with diabetes have poor glycemic control, which may be caused by a number of factors including clinical inertia: the failure to initiate or augment therapy when it is clinically indicated. This article will examine how health care providers and patients can work together to address the issue of clinical inertia and improve patients’ willingness to accept appropriate treatment changes.

Effective control of blood glucose levels reduces the development of long-term microvascular complications and may reduce longer-term cardiovascular disease. In order to optimize long-term prognosis, diabetes care should be intensified as soon as a patient’s current therapeutic regimen can no longer maintain glucose levels within the recommended targets. However, many real-world patients do not achieve such targets.

National Health and Nutrition Examination Survey (NHANES) data from 2003 to 2004 show that 44% of patients with type 2 diabetes did not have hemoglobin A1c (HbA1c) levels within the American Diabetes Association (ADA) target range, which is lower than 7%. Rigorous glycemic control targets may not be appropriate for all elderly patients or those with certain comorbidities. Yet for most persons with diabetes, maintaining glycemic control within the recommended ranges should be the treatment goal.

Given the range of diabetes care interventions available and the clear clinical guidelines on their appropriate use, why are so many patients not achieving glycemic targets? Clinical inertia on the part of health care providers (HCPs) is one reason. The term “clinical inertia” has been used by Phillips and associates to describe the failure of HCPs to initiate or intensify therapy when indicated (ie, recognition of a problem but failure to act). The term is usually used in association with diabetes, hypertension, hyperlipidemia, and other chronic diseases in which HCPs and patients try to maintain clinical parameters within defined targets in order to avoid long-term adverse complications.

Since failure to achieve short-term clinical targets does not necessarily result in adverse symptoms, the HCP may continue an ineffective therapy for a longer period than is appropriate. In this form of clinical inertia, called clinical myopia, HCPs or patients may prioritize short-term rewards (eg, avoidance of having to make potentially difficult clinical choices/lifestyle changes) over long-term benefits (avoidance of complications).

The HCP may cite many other reasons for clinical inertia including concerns that patients will be unwilling or unable to manage intensification of care, the medical office does not have the time or resources to adequately implement treatment intensification, or intensification is likely to
be thwarted by lack of adherence on the part of the patient. Simple  
organizational factors, such as the inability to easily access the patient’s most  
recent HbA1c results or not having implemented clear, written guidelines defining diabetes care standards for their center, may also delay the HCP’s decision to intensify diabetes care.

Failure to achieve glycemic targets may also reflect patients’ difficulties in effectively self-managing their disease. For the majority of patients with type 2 diabetes, lifestyle changes that support and encourage weight loss and increased activity form the basis for treatment. Despite the benefits of this form of therapy, many patients find it difficult to maintain such changes over time. Current ADA guidelines recommend initiation of metformin along with lifestyle changes at the time of diagnosis as an added measure to help patients achieve their targets.

Patients display clinical inertia by resisting treatment intensification. Feelings of guilt over poor adherence to lifestyle changes create a rationale for giving the current regimen yet another chance. This attitude may reflect the fact that many patients do not fully understand the progressive and serious nature of diabetes and the resulting need for treatment intensification.

Depression and other mental health disorders can also impair patients’ ability to manage their diabetes. The Diabetes Attitudes Wishes and Needs (DAWN) study found that 41% of persons with diabetes had poor psychological well-being, which their HCPs felt could adversely affect their ability to manage their disease. Although psychological difficulties are common, only 12% of patients reported that they had received psychological support in the previous 5 years, suggesting a deficiency in providing psychosocial care for individuals with diabetes.

The aim of this article is to highlight the reasons behind delayed treatment intensification, focusing on patient and HCP factors that contribute to the delay and examining the ways in which patients and HCPs can be supported to improve outcomes.

**PATIENT NEEDS AT DIAGNOSIS AND BEYOND**

Patients with type 2 diabetes should be offered a variety of support measures at the time of diagnosis to help them understand their disease and to manage expectations about their current and future treatment needs. It is important that educational initiatives stress the importance of diet, exercise, and weight management; provide an overview of the available pharmacological interventions; and encourage and empower patients to actively self-manage their diabetes.

Patients need reassurance that they can indeed manage their diabetes, but it is important for HCPs to stress the progressive nature of the disease, setting the expectation that the treatment will need to be changed over time. Even when patients are taking every step to manage the disease effectively, changes in therapy will still be necessary.

A range of treatment options are available for persons with type 2 diabetes. These include lifestyle interventions that encourage positive changes in diet and activity levels as well as oral antidiabetic drugs (OADs) such as metformin, sulfonylureas, and thiazolidinediones. There are also therapies that target the incretin system, such as dipeptidyl peptidase-4 (DPP-4) inhibitors and glucagon-like peptide-1 (GLP-1)–receptor agonists in addition to a variety of insulins. Insulin analogs have been engineered to have pharmacokinetic properties that more closely resemble physiological insulin, mimicking basal and prandial insulin patterns.

While there is an important need to educate patients about their disease, diabetes self-management education (DSME) should also facilitate positive behavioral changes. The American Association of Diabetes Educators (AADE) has identified 7 self-care behaviors (healthy eating, being active, blood glucose monitoring, taking medication, problem solving, healthy coping, and reducing risks) that DSME should aim to facilitate through education and by identifying and addressing barriers to behavior changes. DSME should be individualized, taking account of factors including medical history, age, attitudes to health, cultural factors, disease knowledge, current ability to self-manage, and level of social and financial support. A team approach, including the primary care physician, other specialists (such as an endocrinologist, nurse practitioner, ophthalmologist, podiatrist, or dietician), and a diabetes educator, is recommended to provide the most comprehensive support for patients.

**CLINICAL INERTIA AND DIABETES OUTCOMES**

Because poor glycemic control is both an indicator that treatment should be changed and a predictor of poor outcomes, it is difficult to measure the effects of clinical inertia unless HCPs control for confounding factors. Treatment intensification is likely to be associated with worse glycemic control because it identifies a population of patients with more severe disease, while patients not receiving treatment intensification may have better outcomes purely because their diabetes is less severe.

A different approach has been taken by Berlowitz and colleagues, who examined a cohort of persons with diabetes receiving care at Veterans Affairs medical centers. This retrospective study compared the number of actual observed intensifications...
in patients’ diabetes care over a period of about 16 months with the number of predicted treatment intensifications, based on clinical status at each visit. Patients had a mean of 8.8 clinic visits per year. Active treatment intensification occurred when the number of actual treatment intensifications matched or exceeded the predicted number, while clinical inertia occurred when there were fewer actual treatment intensifications than predicted.

The results of this study identified widespread clinical inertia. Despite the fact that many persons had poor glycemic control, treatment was intensified in approximately 1 in 10 visits, and in only 32% of individuals whose most recent HbA1c was higher than 8%.20 The study also demonstrated that patients whose diabetes care was most actively intensified had better HbA1c outcomes. For example, poor glucose control (classified as HbA1c > 8%) was observed in over half of the persons in the lowest 20% for treatment intensity (eg, those whose therapy had been intensified the least) compared with 36% of the remaining patients (whose diabetes had been managed more actively).

The UK Prospective Diabetes Study (UKPDS) demonstrated that improving glycemic control through more intensive diabetes care resulted in long-term risk reductions for such type 2 diabetes complications as microvascular disease, myocardial infarction, and death from any cause.21 By failing to adjust diabetes care appropriately, therefore, clinical inertia leads to inadequate glycemic control, and the patient’s risk of developing diabetic complications increases.

**CLINICAL INERTIA AND PATIENT RESISTANCE WITH RESPECT TO INSULIN INITIATION**

If lifestyle interventions and metformin do not help patients achieve their glycemic goals, HCPs should consider adding a second medication, such as a sulfonylurea or a basal insulin.9 The addition of a GLP-1 receptor agonist may also offer benefits in this setting because these agents are associated with weight loss and a low risk of hypoglycemia.9 While insulin is more effective at lowering hyperglycemia and is an appropriate treatment choice for patients with HbA1c levels higher than 8.5%,9 resistance to insulin initiation is prevalent among both patients and their HCPs.12 Polonsky and colleagues22 coined the term “psychological insulin resistance,” describing patients who are reluctant about or refuse insulin therapy because of their misconceptions about this medication. In one study, 1267 individuals with type 2 diabetes completed an anonymous questionnaire about insulin. Of the 708 who were not taking insulin, 28% described themselves as unwilling to take insulin if prescribed, 24% were slightly willing, 23% were moderately willing, and 24% were very willing.22 Psychological insulin resistance was more common in women (32% unwilling) and ethnic minorities (35% unwilling). Persons who had a mean of 3 or more negative beliefs about insulin had a higher magnitude of psychological insulin resistance.22

The frequency of negative beliefs among all patients compared with those with psychological insulin resistance is shown in Table 1.
surprisingly, the frequency of these fears was higher in patients who were unwilling to take insulin. Other patient concerns include a fear of becoming addicted to insulin and the belief that long-term insulin use may cause complications. In addition, patients may have concerns about weight gain, hypoglycemia, lifestyle restrictions, painful injections, and loss of control/feelings of failure over their disease. Feelings of social stigma relating to injecting in public are also common and may result in avoidance of social engagements or skipping insulin doses when patients are out in public.

HCP RESISTANCE TO INSULIN THERAPY

HCPs contribute to delays in insulin initiation. A questionnaire survey of 505 US primary care physicians reported that 80% thought their patients were afraid of insulin therapy, 72% felt that their patients would be reluctant to accept a prescription for insulin, and 66% viewed insulin initiation as one of the most difficult aspects of managing diabetes.

These attitudes prevailed despite the fact that approximately 80% of physicians thought their patients felt physically much better once they became accustomed to insulin treatment and felt that the benefits of insulin outweighed the potential risks of hypoglycemia and weight gain. The study also identified misconceptions about insulin among some HCPs. Forty percent felt that patients would not require insulin initiation if they followed their physician’s treatment recommendations, and 33% felt that raising plasma insulin levels would increase cardiovascular risk.

In another study of 137 family physicians, reasons for not initiating insulin included patient noncompliance with treatment (92%), fear of hypoglycemia in a specific patient (80%), the feeling that patients would not be able to cope with the pain of regular blood tests (54%) or insulin injections (48%), and patient age. The DAWN study further identified a widespread attitude among 50% to 55% of US HCPs that insulin initiation should be delayed until absolutely necessary. Delay in prescribing OADs was also strongly associated with delay in prescribing insulin. The recent publication of clinical guidelines suggests that the need to address HCP attitudes about insulin and its initiation still exists. Any efforts to address clinical inertia among HCPs will need to target all classes of diabetic medications.

OVERCOMING BARRIERS TO TREATMENT

The ways in which diabetes care is organized within a practice can reduce clinical inertia. For example, computerized systems or flow sheets (simple forms that can be included with a patient’s notes that prompt HCPs to consider treatment intensification) can assist in clinical decision making. To ensure that recommended tests and disease interventions are carried out at appropriate intervals, diabetes flow forms may include current treatment targets and checklists. For example, small but significant improvements in adherence to diabetes assessment (55% vs 50%; P = .02) and treatment guidelines (80% vs 75%; P = .004) were observed in practices that used diabetes flow sheets, compared with those that had no such systems.

At a primary care clinic, performance feedback in the form of computerized systems or flow sheets (simple forms that can be included with a patient’s notes that prompt HCPs to consider treatment intensification) can assist in clinical decision making. To ensure that recommended tests and disease interventions are carried out at appropriate intervals, diabetes flow forms may include current treatment targets and checklists. For example, small but significant improvements in adherence to diabetes assessment (55% vs 50%; P = .02) and treatment guidelines (80% vs 75%; P = .004) were observed in practices that used diabetes flow sheets, compared with those that had no such systems.

It is likely that patients who have a better understanding of their disease will be more empowered to take an active role in disease management, demonstrate better day-to-day diabetes care, and be more open to treatment intensification as their disease progresses. A review of 3 meta-analyses, 7 primary studies, and 7 systematic reviews examining the effects of DSME demonstrated that it was effective in improving measures such as glycemic control, psychosocial well-being, and quality of life. Improvements in glycemic control are typically observed during the first 1 to 6 months following DSME, after which benefits tend to be reduced. This finding suggests that DSME needs to be an ongoing process rather than a one-time intervention. Although clinical guidelines recommend that DSME be an integral part of any diabetes care program, one study reported that approximately 60% to 70% of patients have not received any formal DSME. To address this deficiency, the health care system must widen access to ensure that patients receive the training they need to effectively self-manage their diabetes.
Addressing Barriers to Timely Intensification of Diabetes Care:
The Relationship Between Clinical Inertia and Patient Behavior

Table 2 – Strategy for success in insulin initiation

1. As a health care provider, recognize your attitudes to insulin and do not allow them to influence the way you present insulin initiation to your patient.
2. Discuss the potential need for insulin initiation early in the disease process.
3. Identify and discuss patient attitudes to insulin.
4. Find out whether the patient has family members or friends who have received insulin treatment, and whether they had a positive or negative experience.
5. Explore the patient’s major concerns about insulin.
6. Avoid viewing insulin initiation in a moral context (e.g., reflecting a failure to adhere to previous care regimens).
7. Be aware of and acknowledge the patient’s emotional feelings about diabetes.
8. Develop a plan in cooperation with the patient that will move him or her toward clinical goals.

Adapted from Reid T. Insulin. 2007.

Overcoming specific barriers to insulin treatment. In order to successfully initiate insulin, HCPs must help their patients overcome common barriers to intensifying diabetes therapy, while simultaneously addressing the specific concerns their patients may have about insulin. As with any change in treatment, options should be discussed and the HCP and patient should work together to develop a plan that will achieve clinical goals (Table 2).

In practical terms, modern insulin analogs help patients make the transition to insulin by reducing the risks of hypoglycemia. Prefilled insulin pens can help patients make the transition to insulin by providing easier, more convenient and discrete dosing than syringe administration and by using needles that reduce injection pain. All of these factors have positive effects on patient preference and treatment satisfaction and can improve adherence.

Patients also report improved quality of life after insulin initiation. In one study, insulin initiation with a structured diabetes treatment and teaching program was associated with improvements in diabetes-related quality of life (P = .09), reduced worries about the future (P = .02), reduced daily struggles (P = .01), and less fear of hypoglycemia (P < .001) 6 months after initiation when compared with pre-insulin treatment. These improvements were also associated with improved metabolic control (HbA1c level was 10.0% ± 1.4% at baseline and 8.4% ± 1.4% at 6 months following insulin initiation).

KEY RECOMMENDATIONS

Increased access to DSME and the participation of diabetes educators can give patients a sense of control and autonomy in the management of their disease. Educational interventions should highlight the fact that type 2 diabetes is a progressive disease, treatment will need to be intensified to address disease progression, and intensification is not a sign of failure on the part of the patient. Barriers to intensifying therapy should be identified and addressed on an individual basis.

Given the competing demands faced by physicians, there is not only a need but also an opportunity for diabetes educators to take on a greater role in diabetes care, and for clinical practices to take greater advantage of this resource. Simple measures such as electronic records, diabetes flow sheets, and regular performance appraisals/feedback can help reduce clinical inertia.

Clinical inertia is a widespread problem in patients with type 2 diabetes that leads to poor glucose control and the associated increased risks of long-term diabetic complications. Negative attitudes and barriers to appropriate treatment intensification affect both patients and their HCPs, so interventions to address clinical inertia should address both of these groups.

REFERENCES:


