

Understanding Clinical Inertia in Diabetes

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J Soc Health Diab 2019;7:77–80

Abstract

Keywords

- ▶ clinical inertia
- ▶ clinical inertia at patient care level
- ▶ clinical inertia at population
- ▶ diagnostic inertia
- ▶ reverse clinical inertia
- ▶ therapeutic inertia

Clinical inertia is common in the management of asymptomatic chronic disease such as diabetes, hypertension, and dyslipidemia. In case of diabetes, it exists in all stages of management of diabetes. It can be at population level or at patient level. In addition to assessment of glycemic control with blood glucose and hemoglobin A_{1c} (HbA_{1c}) monitoring, emerging concepts such as “glycemic variability” and “time in range” are increasingly used. Inability to reduce “glycemic variability” and attain “time in range” targets also contributes to clinical inertia.

Introduction

Various landmark trials showed that tight glycemic control reduces diabetes-related long-term complications. However, a significant proportion of people with diabetes on regular treatment and follow-up fail to achieve treatment target. Clinical inertia is one of the major contributing factors for this.

Clinical Inertia

Clinical inertia is defined as inability or failure of health care providers to initiate or intensify therapy when it is actually indicated.¹ In other words, it is “recognition of the problem, but failure to act.”

It is an “evidence practice gap.” Evidence practice gap is defined as the “difference between what we know from the best available research evidence and what actually happens in current practice.”² In other words, it is the gap between the best current practice recommendation and the level of care the patient received. In people with suboptimal glycemic control, if one is adding an agent that is unlikely to achieve glycemic target, that also contributes to clinical inertia.³

The term “clinical inertia” was first coined by Phillips et al in 2001, and the term “therapeutic inertia” was introduced by

Okonofua et al in 2006.^{1,4} Various terms such as “therapeutic inertia,” “physician inertia,” and “diagnostic inertia” are synonymously used with clinical inertia. However, some experts define it differently. Diagnostic inertia is defined as failure to consider the diagnosis, when it really exists,⁵ whereas therapeutic inertia is defined as failure of providers to begin new medications or increase dosages of existing medications when an abnormal clinical parameter is recorded.⁴

Another term related to this is “clinical myopia.” The failure to give preference to the long-term benefits of treatment intensification may represent a common mechanism underlying both patient’s nonadherence and physician’s clinical inertia. Such failures are called “clinical myopia.”⁶ Therapeutic momentum is defined as the reluctance to step down or withdraw therapy when further prescription is not required or not supported by evidence.⁷

Clinical inertia also may apply to the failure of physicians to stop or reduce therapy which is no longer required. Such inertia is called reverse clinical inertia.⁸ Failure to de-intensify therapy when appropriate is important in people with frail diabetes phenotype, which includes elderly individuals; underweight individuals; those having long duration of diabetes; and those having underlying heart disease, stroke, or renal insufficiency.⁹

received
May 10, 2019
accepted
May 18, 2019

DOI <https://doi.org/10.1055/s-0039-1694300>
ISSN 2321-0656.

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Clinical inertia exists in all stages of development of diabetes starting from the development of risk factors, stage of pre-diabetes to the stage of end-organ failure due to diabetes¹⁰ (► **Table 1**). Health care professional has got a pivotal role in the prevention and progression of diabetes at each stage. Population-based approach to prevent the development of risk factors reduces the chance of development of pre-diabetes and overt diabetes in the society.¹⁰ Early screening of those with risk factors helps diagnose diabetes early. Proper treatment of diabetes during initial years of diagnosis is associated with long-term cardiovascular beneficial effect that is called “legacy effect.” Strict glycemic control and control of other cardiovascular risk factors reduce the risk of diabetes-related long-term complications. In people with long-term diabetes, screening for long-term complication results in early identification of the complication and opportunity to prevent its further progression.¹⁰ In patients with long-term complications, aggressive management results in reduction of morbidity and mortality. Clinical inertia at all these stages results in increase in the global burden of diabetes and diabetes-related complications.¹⁰

Clinical inertia exists not only in the area of glycemic control but also in glycemic monitoring and identification and treatment of chronic complications of diabetes. In people

Table 1 Overview of clinical inertia in the management of diabetes

Overview of clinical inertia in the management of diabetes
Clinical inertia at population level
Clinical inertia to follow healthy lifestyle, e.g., eating habits, physical activity
Clinical inertia to screen for diabetes and other lifestyle disorders
Clinical inertia at patient level
Clinical inertia to initiate and intensify lifestyle modification
Clinical inertia to initiate and intensify oral antidiabetic agents
Clinical inertia to initiate and intensify injectable antidiabetic agents
Clinical inertia to monitor glycemic status regularly
Clinical inertia to screen for long-term complications of diabetes
Clinical inertia to initiate and intensify treatment for long-term complications of diabetes
Clinical inertia to modify antidiabetic medication in people with long-term complications of diabetes
Clinical inertia to redefine treatment targets in frail diabetes phenotype
Clinical inertia to deescalate therapy in frail diabetes phenotype
Clinical inertia to screen for other comorbid conditions, e.g., hypertension, dyslipidemia in people with diabetes
Clinical inertia to initiate and intensify treatment for other comorbid conditions, e.g., hypertension, dyslipidemia in people with diabetes

with diabetes, management of other cardiovascular risk factors such as hypertension, dyslipidemia, and obesity is also important. Clinical inertia exists in the management of these conditions contributing to increased risk of cardiovascular morbidity and mortality. Clinical inertia exists in all the stages of management of diabetes including initiation of lifestyle modification, initiation, and intensification of oral antidiabetic drugs and initiation and intensification of injectable agents including insulin.

Clinical Inertia at Population and at Patient Care Level

Depending on the level of clinical inertia, it can be of two types: clinical inertia at population level and clinical inertia at patient care level (► **Table 2**). Creating awareness about healthy lifestyle, prevention of development of risk factors such as obesity, prevention of development and progression of pre-diabetes, and early case detection by population-based screening is mainly done at community level. However, in people with diabetes; failure to intensify therapy contributes

Table 2 Comparison between clinical inertia at population level and at patient care level

Clinical inertia at population level	Clinical inertia at patient care level
Failure to improve awareness about healthy lifestyle and need for screening of lifestyle disorders in the population	Failure to intensify therapy in people with diabetes
Failure to motivate people to lead healthy lifestyle and early disease screening	
Reflect the quality of preventive care	Reflect the quality of patient care
Achieved mainly with nonpharmacologic interventions and lifestyle modifications	Achieved mainly with pharmacologic therapy
Inertia in activities like creating awareness about healthy lifestyle in the society, prevention of development of risk factors, e.g., obesity, prevention of development and progression of pre-diabetes, early case detection by population-based screening	Inertia in activities, e.g., initiation and intensification of antidiabetic medications, regular monitoring of glycemic control, monitoring and treatment of other comorbidities, and diabetes-related complications
Inertia in population-based interventions	Inertia in hospital-/clinic-based interventions
Tackling clinical inertia reduces the burden of diabetes in the population	Tackling clinical inertia reduces the morbidity and mortality associated with poor glycemic control
Tackling clinical inertia reduces the risk of other lifestyle problems, e.g., hypertension, dyslipidemia, and obesity	Tackling clinical inertia reduces the risk of diabetes-related complications and associated comorbidities, e.g., hypertension, dyslipidemia, etc.

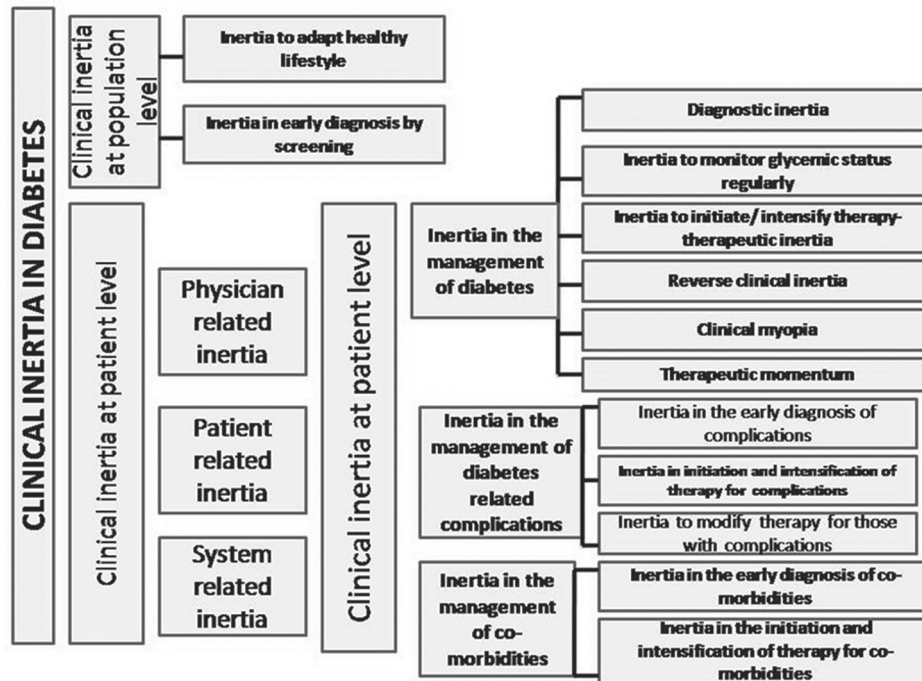


Fig. 1 Different aspects of clinical inertia.

to clinical inertia at patient care level (► Fig. 1). It can be due to provider-, patient-, or system-related issues.¹¹ Clinical inertia at population level usually reflects inadequate preventive care whereas clinical inertia at patient level reflects inadequate patient care.

The excess blood sugar level to which people with diabetes get exposed because of clinical inertia is called “glycemic burden.” The part of glycemic burden after the first out of target hemoglobin A_{1c} (HbA_{1c}) is called “avoidable glycemic burden,” and the remaining part of the glycemic burden is called “unavoidable glycemic burden.”¹² Early diagnosis and timely initiation and intensification of antidiabetic therapy reduce glycemic burden.¹³ Inability to monitor glycemic status regularly delays treatment intensification resulting in excess “glycemic burden.”

Emerging Concepts Regarding Clinical Inertia

In some people with diabetes, blood sugar values fluctuate widely. The degree of fluctuation of blood glucose level is called glycemic variability (GV). Various studies show that frequent or large glucose fluctuations may independently contribute to diabetes-related complications.¹⁴ Therefore, inability to reduce GV also contributes to clinical inertia.

Time in range (TIR) is another new concept that is defined as a measure of time where the blood glucose remains within the proposed target range.¹⁵ Therefore, inability to attain the TIR targets also contributes to clinical inertia.

Clinical inertia contributes to poor glycemic control in people with diabetes, resulting in exposure to high blood sugar level for months to years. In other words, clinical inertia results in increased risk of development of various

complications. One analysis showed that 80% of heart attacks are the result of clinical inertia in the management of diabetes, hypertension, and dyslipidemia.¹¹ Addressing the issues of clinical inertia in diabetes helps reduce diabetes-related morbidity and mortality.

Conclusion

Clinical inertia exists in all stages of management of diabetes. Clinical inertia at population level reflects the quality of preventive care whereas clinical inertia at patient level reflects the quality of treatment offered to the patients. Addressing the issues of clinical inertia helps reduce diabetes-related complications.

Funding

None.

Conflict of Interest

None declared.

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