Commentary

Clinical Inertia: A Wider Perspective and Proposed Classification Criteria

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Abstract

Clinical inertia is very common in day-to-day practice, and the factors contributing to that can be physician-related, patient-related, or health-care-related. Clinical inertia is commonly described in chronic asymptomatic illness. We searched the PubMed and Scopus databases for original articles and reviews. Based on the search result, in this review article, we redefine various terminologies to avoid confusion and propose classification criteria for the early identification of clinical inertia. Clinical inertia is also present in acute illness and in symptomatic disease. Early identification of clinical inertia is difficult because of very vague terminologies which have been used interchangeably as well as because of the lack of definitive classification criteria. In this article, we redefine clinical inertia and propose criteria for early identification, which will be useful for both clinicians and academicians. This review will help clinicians to identify and rectify various aspects of clinical inertia.

Keywords: Clinical inertia, proposed classification criteria, reverse clinical inertia, therapeutic dragging, therapeutic inertia

Introduction

In simple words, inertia means a tendency to remain unchanged, and when it comes to clinical practice, clinical inertia simply means a tendency of the clinician to remain unchanged in the diagnostic, preventive, and therapeutic aspects even when the change is warranted.[1,2]

Clinical inertia is commonly described in asymptomatic chronic disease, but if we analyse various clinical scenarios, it is clear that clinical inertia occurs in acute and chronic illnesses, infectious and non-infectious conditions, and symptomatic and asymptomatic conditions [Table 1]. In chronic conditions, the time lag in weeks or months is considered inertia, whereas it can be minutes or hours in acute conditions. In people with diabetes, if HbA1c targets are not achieved in a few months, it constitutes clinical inertia. However, in acute myocardial infarction, the goal should be achieving a door-to-needle time within 30 min for thrombolysis and a door-to-balloon time within 90 min for percutaneous coronary intervention (PCI) if appropriate facilities are available and any delay in that constitutes clinical inertia. Similarly, the door-to-needle (DTN) time in the management of acute ischemic stroke (AIS) is less than 60 min. Delay in the management of these results in adverse clinical outcomes is commonly emphasised by "Time is Muscle" in acute myocardial infarction and "Time is brain" in acute stroke.[3,4] In patients with meningitis, delay in antibiotic initiation (door-to-antibiotic time) is associated with increased mortality and unfavourable outcome at discharge.[5] In patients with sepsis, each 1 hour delay in the initiation of antibiotics is associated with a 10% increase in the 1 year mortality risk.[6] Similarly, clinical inertia is described in people with chronic asymptomatic disease or health conditions. However, clinical inertia can also occur in symptomatic diseases or health conditions if the treatment is mainly focussed on symptom relief without properly addressing the pathology of disease progression. In rheumatologic disease, the predominant symptom is joint pain, but the treatment must focus not only on symptom relief but also on preventing the progression of disease pathology and bone damage with disease-modifying agents. In a patient with a rheumatological disease, if the treatment focusses only on pain relief (with various NSAIDs)

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Table 1: A comparison between clinical inertia in acute and chronic illnesses

Comparison of clinical inertia in acute and chronic illnesses	
Clinical inertia in acute medical conditions	**Clinical inertia in chronic medical conditions**
Early diagnosis in minutes for conditions like acute myocardial infarction	Early diagnosis within days or weeks. It may extend to months in diseases where there is an atypical presentation or evolving clinical manifestation over a period of time as in SLE
Therapeutic inertia is the delay or inappropriate treatment for minutes or hours. For example, delay in early initiation of treatment usually in minutes results in a deleterious impact on the disease prognosis and outcome as in the case of myocardial infarction	Therapeutic inertia is the delay or inappropriate treatment for weeks or months. For example, delay in the initiation of treatment over months results in complications as in microvascular and macrovascular complications in diabetes or joint damage in rheumatoid arthritis
Consequences of inertia are evident after hours or days	Consequences of inertia are evident after months or years
Delay in monitoring the adequacy of treatment or inability to attain treatment targets within minutes results in poor outcome. For example, blood pressure control in acute myocardial infarction or acute pulmonary oedema or acute intra-cerebral bleed	Delay in achieving treatment targets in weeks to months results in chronic complications. For example, failure to achieve HbA1c targets in people with diabetes over months to years results in complications like neuropathy, nephropathy, and retinopathy
Failure to de-intensify treatment within minutes to days results in poor outcomes, for example, modifying immunosuppressive therapy in patients with severe infection or cytopenia	Failure to de-intensify treatment within weeks or months leads to the development of complications, for example, de-escalation of analgesics and steroids in rheumatoid arthritis
Most of the time, acute care involves a hospital setting or intensive care, where non-adherence to therapy and patient-related factors are less significant	Patient-related factors like non-adherence to therapy are important components of clinical inertia
Emerging concept	Well-established entity

without proper dose adjustment of the disease-modifying agent (to prevent joint damage), then it becomes a classic example of clinical inertia in symptomatic disease.[7]

Various terminologies like clinical inertia, therapeutic inertia, and physician inertia are used synonymously and interchangeably, resulting in confusion regarding these terminologies even though they are not synonymous.[8-15] After revising relevant literature, we redefine these terminologies to avoid confusion and propose criteria to help health care professionals recognise it at the earliest.

Redefining clinical inertia

We define clinical inertia as the "undue delay in identifying or starting or modifying preventive or therapeutic care of a particular condition appropriately as per the existing clinical evidence resulting in inadequate disease control or unfavorable clinical outcome". It is also known as medical inertia. In other words, clinical inertia is "recognition of the problem, but failure to act".[8-16]

Based on the contributing factors or barriers to change, clinical inertia is divided into three categories; they are physician inertia or health care provider inertia, patient inertia, and health authority inertia or system inertia.[9] Physician-related factors contributing to clinical inertia are denoted by physician inertia, whereas patient-related factors and system-related factors are denoted by patient inertia and system inertia or health authority inertia, respectively. Lack of time, poor training, over-estimation of current care, and lack of familiarity with available treatment options are important factors contributing to physician inertia; low health literacy, poor communication between clinician and patient, financial problems, non-adherence to prescribed drugs, and concern about medication adverse effects contribute to patient inertia; and resource constraints and time constraints are important contributors of system inertia. Physician inertia, patient inertia, and system inertia are not isolated compartments. They are inter-related and inter-connected. Most of the time, a combination of all three components (physician inertia, patient inertia, and health authorities' inertia) contributes to clinical inertia.[13] Failure to give preference to the long-term benefits of "treating to target" by the physician, resulting in physician inertia combined with patient inertia from non-adherence, is collectively called clinical myopia or clinical short-sightedness.

Clinical inertia can be inertia occurring in the diagnosis, prevention, or treatment of any illness. Therefore, we divide clinical inertia into three categories: diagnostic inertia, preventive inertia, and therapeutic inertia [See Figure 1].

Diagnostic inertia is defined as an "undue delay of the health care provider in considering a diagnosis seriously even when the clinician is aware of the diagnosis, due to a lack of adherence to clinical guidelines leading to inappropriate risk stratification or delay in preventive and therapeutic care". Diagnostic inertia can be inertia in diagnosing a disease or identifying poor disease control or development of disease complications. Delay in monitoring disease activity/disease control is also part of diagnostic inertia, where the clinician fails to diagnose poor disease control or complication at the earliest because of a delay in follow-up evaluation. We call this "monitoring inertia". Infrequent follow-up also results in undue delay in the identification and correction of poor disease control or complication, and we termed it "follow-up inertia".

Labelling those with stage 1 hypertension or pre-diabetes as 'normal' is one of the classical examples of diagnostic

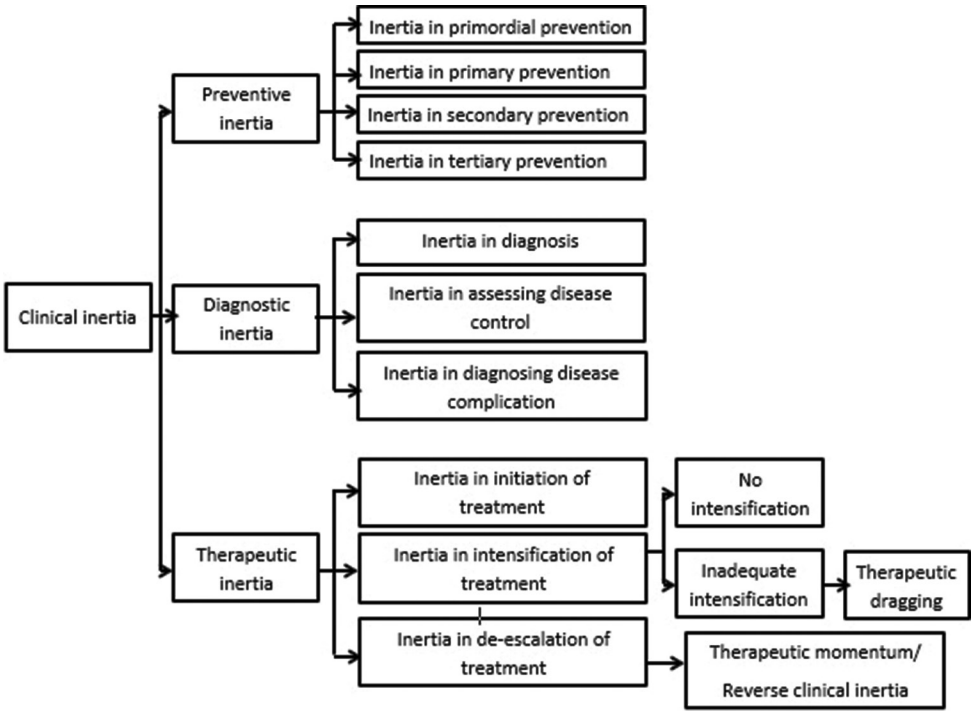

Figure 1: Clinical inertia can be divided into diagnostic, preventive, or therapeutic inertia

inertia. Diagnostic inertia has to be differentiated from error in judgment, leading to a wrong diagnosis. Once the diagnosis is made, the patient requires either preventive care or treatment or both. Any undue delay in diagnosis (diagnostic inertia) results in preventive inertia and therapeutic inertia.

We define preventive inertia as the "inability or undue delay in considering preventive strategies including a healthy lifestyle to prevent the emergence of risk factors in healthy individuals, disease in those with risk factors, and disease complications in those with diagnosed disease conditions".

Prevention can be primordial, primary, secondary, or tertiary. Therefore, preventive inertia can be at the primordial, primary, secondary, or tertiary levels[17] [See Table 2]. Primordial and primary preventive inertia mainly occurs from the side of society, health policymakers, and community physicians. Sometimes, from the operational aspect, therapeutic inertia can be the same as preventive inertia. For example, from the operational aspect, therapeutic inertia for the treatment of diabetes mellitus is the same as preventive inertia for the development of complications of diabetes.

Therapeutic inertia is defined as the "undue delay from clinicians to initiate, escalate or deescalate therapy when clinically indicated according to the currently available best practice guideline resulting in failure to attain or maintain treatment targets and achieve disease control".

The inability to stop or reduce therapy that is no longer needed is indicated by therapeutic momentum. We define therapeutic momentum or reverse clinical inertia as inertia to de-escalate therapy when it is indicated. Failure to de-escalate therapy can also result in serious consequences.[18]

Table 2: Preventive inertia at different levels

Preventive inertia at different levels	Level of prevention
Clinical inertia at the preventive level	Primordial prevention Primary prevention
Clinical inertia in the management of disease	Secondary prevention
Clinical inertia in the management of co-morbidities	Secondary prevention
Clinical inertia in the prevention of complications due to disease	Secondary prevention
Clinical inertia in the prevention of complications due to co-morbidities	Secondary prevention
Clinical inertia in the management of complications due to disease	Tertiary prevention
Clinical inertia in the management of complications due to co-morbidities	Tertiary prevention

Another type of therapeutic inertia noticed is intensification or escalation of treatment when the therapeutic target is not achieved but is inadequate and insufficient to attain the therapeutic target without further intensification in a stipulated time period. We call it "therapeutic dragging". In other words, it is "recognition of the problem, but inadequate action".

Applying uniform criteria to define clinical inertia without individualisation of treatment targets results in over-treatment or inappropriate action in special groups.[8] For example, in the elderly, in those with recurrent hypoglycaemia or in those with established vascular complications, the glycaemic targets

Table 3: Clinical inertia: proposed classification criteria

(a) Diagnostic inertia: proposed classification criteria

Diagnostic action criteria
- Undue delay in diagnosing a disease
- Undue delay in diagnosing disease complications
- Undue delay in diagnosing treatment-related complications

Duration criteria
- Within a defined time period for the particular disease

Diagnostic inertia outcome criteria
- Failure to attain the therapeutic target
- Development and progression of complication
- Development and progression of treatment-related complication

Diagnostic "gold standard" criteria
- There is a well-established guideline for the screening, diagnosis, and treatment
- There is clear evidence of the benefit of screening, early diagnosis, and treatment

Basic requirement criteria
- The mentioned diagnostic facility (screening test/complication monitoring) is available, accessible, acceptable, and affordable

Exclusion criteria
- The diagnostic/screening test is associated with substantial risk to the patient's health in view of the patient profile and associated co-morbidities/complications

(b) Preventive inertia: proposed classification criteria

Preventive action criteria
- Undue delay in initiating preventive care at any level (primordial, primary, secondary or tertiary)

Duration criteria
- Within a defined time period for the particular disease and a particular level of prevention

Preventive inertia outcome criteria
- Emergence of risk factors in healthy individuals/population
- Development of disease in a healthy individual
- Development of disease complications in those with disease
- Increase in morbidity and mortality (due to the disease complication) in those with disease complication

Preventive "gold standard" criteria
- There are well-established strategies to prevent the emergence of risk factor
- There are well-established strategies to prevent the development of disease
- There are well-established strategies to prevent the development of disease complication
- There are well-established strategies to prevent morbidity and mortality due to the disease complication

Basic requirement criteria
- The mentioned preventive strategies are available, accessible, acceptable, and affordable

Exclusion criteria
- Preventive care is associated with substantial risk to the health of the patients in view of patient profile and associated co-morbidities/disease/complications

(c) Therapeutic inertia: proposed classification criteria

Therapeutic action criteria
- Undue delay to initiate treatment
- Undue delay to escalate treatment
- Undue delay to de-escalate treatment

Contd...

Table 3: Contd...

Therapeutic inertia: proposed classification criteria

Duration criteria
- Within a defined time period for a particular disease

Therapeutic inertia outcome criteria
- Failure to attain the therapeutic target
- Progression of the disease process
- Development of disease complications
- Development of drug-related complications
- Development of overtreatment-related complications

Therapeutic "gold standard" criteria
- There is a well-established treatment guideline and therapeutic targets
- There is clear evidence of the benefit of therapy
- There is clear evidence of the benefit of attainment of treatment targets

Basic requirement criteria
- The mentioned treatment facility is available, accessible, acceptable, and affordable

Exclusion criteria
- The therapeutic target relaxed in view of patient profile and associated co-morbidities/disease/complications

are less stringent compared to those without them.[19] If we consider a uniform target, these will be considered as clinical inertia, but they are actually not. Such "appropriate inaction" has to be differentiated from clinical inertia and is commonly called "apparent clinical inertia". We define apparent clinical inertia as apparent delay or inability to achieve therapeutic targets resembling clinical inertia, which is actually because of resetting of therapeutic targets in a special group of patients in order to reduce treatment-related complications/consequences.

Therapeutic inertia is a retrospective diagnosis. It is identified based on the undue delay to attain the treatment target even after a defined time period in patients with a particular disease or based on unfavourable (disease treatment) outcomes like the development of complications, which could have been avoided if treated appropriately. Clinical uncertainty and competing demands also contribute to the failure to treat the target.[20] Among those not attaining treatment targets or developing unfavourable disease outcomes, these are not entirely because of therapeutic inertia. The following diagram illustrates various factors contributing to unfavourable disease outcomes [See Figure 2].

Classification criteria for clinical inertia

We propose classification criteria for diagnostic, preventive, and therapeutic inertia, which will be helpful for the clinician [see Table 3a, b, c]. Dividing clinical inertia into diagnostic, preventive, and therapeutic inertia will help the clinician to realise that inertia occurs in all stages and not only in starting injectable therapy as in the case of insulin initiation in diabetes treatment.

To classify clinical inertia, at least one component of action criteria, duration criteria, clinical outcome criteria, gold

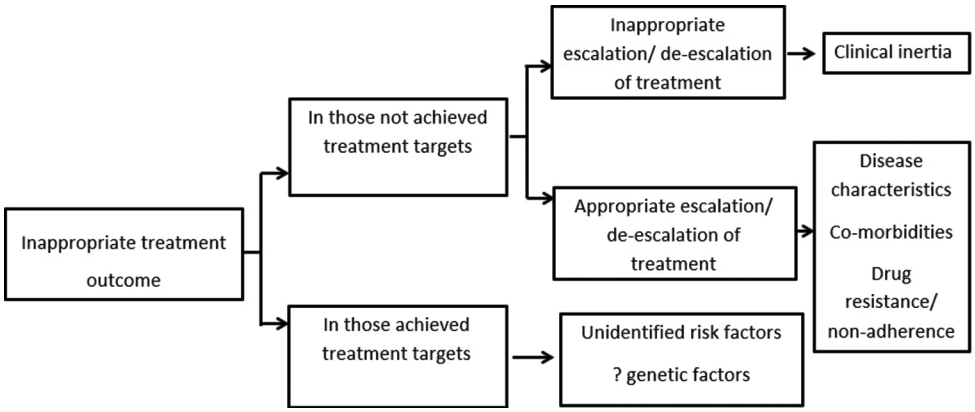

Figure 2: Factors contributing to inappropriate clinical outcome

standard criteria, and basic requirement criteria have to be present. The presence of exclusion criteria rules out clinical inertia in any circumstance, and the presence of all the criteria, along with exclusion criteria, indicates "apparent clinical inertia".

Duration criteria depend upon a particular disease. Generally, in acute illness, it can be in minutes, whereas in chronic illness, it can be in months. Some of the older definitions say that clinicians should be aware of the guideline in order to diagnose clinical inertia, but we did not include that in our diagnostic criteria because we feel that it is the responsibility of the health care professional to be updated with the current guidelines. In addition to that in this era of information technology, it is not difficult to get any updates in any part of the world.

Conclusion

Every clinician should be aware of the existence of clinical inertia. The proposed classification criteria will help the clinician to identify clinical inertia in the day-to-day practice at the earliest and thereby improve disease outcomes.

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Conflicts of interest

There are no conflicts of interest.

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