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Mitigating Therapeutic Inertia Across Severe Diseases: Strategies for Multifaceted Overcoming in Healthcare System

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ABSTRACT
Therapeutic inertia, characterized by a failure to escalate treatment in the face of uncontrolled disease, poses a substantial challenge across various severe medical conditions. This paper explores the unmasking of therapeutic inertia with a focus on bridging gaps in treatment strategies. The inertia links through the lens of hypertension management in the United States, shedding light on historical trends and the persistent racial disparities in blood pressure control, heart failure, hypertension, obesity, glycemia and Atherosclerotic cardiovascular diseases (ASCVD). Efforts to combat its impact encompass diverse initiatives targeting public awareness and care management systems at individual and systemic levels. Prompt medication administration, specific therapeutic agents and augmenting hospital resources are among the strategies outlined in this comprehensive review, shedding light on multifaceted approaches to mitigate the profound effects of therapeutic inertia across various severe diseases in healthcare systems.

INTRODUCTION

Background of Therapeutic Inertia: Therapeutic inertia, a notion that is receiving more attention in healthcare, pertains to the hesitancy or postponement in escalating medical intervention despite the continued presence of uncontrolled or deteriorating illness. This occurrence is especially noteworthy in the management of serious illnesses when prompt modifications to treatment strategies are crucial for enhancing patient outcomes.

Therapeutic inertia is the term used to describe the inaction of healthcare practitioners when they fail to start or intensify therapy when the planned therapeutic goals are not met. This phenomenon is well recognized as a substantial barrier to boosting patient care and improving clinical outcomes[1]. An evidence-practice gap refers to the "disparity between the knowledge derived from the most reliable research findings and the actual implementation of that knowledge in current practice"[2]. The idea of "therapeutic inertia" is a valuable tool for comprehending the reasons for the existence of these gaps. The word first surfaced in the MEDLINE indexed literature in a 2004 publication[3] that referred to the 2001 work authored by Phillips[4]. Therapeutic inertia, while it is sometimes associated with the inability to use pharmacological medicines, has a broader meaning, according to a literature review conducted in 2009[5]. It is used to describe the lack of action in many forms of treatment and is often used interchangeably with the word "clinical inertia".

Clinical or Therapeutic Inertia: The majority of writers saw clinical inertia, therapeutic inertia and physician inertia as interchangeable terms. When Phillips concept of clinical inertia was used, it was either stated explicitly[6,7] or implied. This definition was used to describe therapeutic inertia[8] or physician inertia[9]. Nevertheless, several writers argued that distinct concepts have to have distinct meanings. The terms clinical inertia and therapeutic inertia have been used recently by authors, primarily to attribute to physicians the apparent failure of patients to attain therapeutic blood pressure goals. We think it would be helpful to define and differentiate these terms[5]. Scheen made a clear distinction, stating that Therapeutic inertia is one of the components of clinical inertia.

A few specific elements were not clear about Phillip's definition. Ardery *et al*.[10] considered that Infrequent documentation of lifestyle recommendations could reflect another type of clinical inertia namely, missed opportunities to promote patient self-management. O'Connor concluded that Flexibility in how clinical inertia is defined could be seen by some as a limitation. However, from the point of view of care improvement, this sort of flexibility may often be an advantage because it allows local tailoring of initiatives and interventions[11].

Table 1 displays several categories of phrases that are associated with Therapeutic Inertia (TI). Therapeutic or clinical inertia, as indicated in the table, pertains to the management of risk factors in a medical environment. It occurs when treatment objectives are well-defined and the advantages of accomplishing these goals are well-established.

Navigating Diseases with Therapeutic Inertia: Therapeutic inertia has an impact on the treatment of glycemia, hypertension and lipid abnormalities, all of which contribute to an elevated risk of cardiovascular illnesses. Therefore, it is necessary to implement multifactorial therapies that target therapeutic objectives beyond glycemia.

Obesity Relation with Therapeutic Inertia and Healthcare Inequities: The simplistic depiction of obesity as a self-inflicted ailment, with a straightforward remedy of consuming less and exercising more, underscores a significant discrepancy in the management of obesity within healthcare systems in comparison to other non-communicable chronic diseases (NCDs). Many healthcare systems, encompassing both public and commercial sectors, inadequately provide equitable treatment to obese patients when compared to the level of care offered for other chronic conditions such as cardiovascular diseases, cancer, rheumatic disorders and diabetes[20]. Previous obesity management guidelines have typically restricted the use of more potent treatment options, such as anti-obesity medications and bariatric surgery, to patients with higher BMI values or those with slightly lower BMI but with confirmed obesity-related comorbidities or complications. According to the current European recommendations for managing obesity in adults[21], bariatric surgery may be an option for patients with a body mass index (BMI) of 40 kg/m2 or more. However, for individuals with a BMI of 35.0-39.9 kg/m2, bariatric surgery is only recommended if they have other health conditions. Failure to initiate or escalate therapy results in preventable delays, which subsequently contribute to heightened negative metabolic memory or excessive body weight inheritance from prolonged periods of obesity, ultimately elevating the risk of diseases associated with obesity. The dominant and continuous framing of obesity as a matter of personal responsibility is largely responsible for the lack of action in addressing this issue. This prejudice is evident in both explicit acts of fat-shaming and in the deliberate or unintentional bias shown by

healthcare professionals and policymakers, who have a responsibility to provide and promote treatment[22].

Optimal Glycemic Control Strategies to Alleviate Therapeutic Inertia: There are specific methods to mitigate therapeutic inertia. For example, achieving optimal regulation of blood sugar levels at an early stage. There is ample evidence supporting the idea that early treatment of glycemic control leads to positive outcomes, including a reduction in the occurrence of long-term chronic macrovascular and microvascular issues[23]. The Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial did not succeed in demonstrating the benefits of early tight glycemic control. However, the UK Prospective Diabetes Study (UKPDS) Post Trial Monitoring Study, which included 5102 participants, discovered a phenomenon called a legacy effect. The study found that closely monitoring and controlling glycated hemoglobin (HbA1c) levels from the time of diagnosis led to a notable decrease in the risk of myocardial infarction (MI) by 15% (with a range of risk reduction between 0.74 and 0.97) and mortality from any cause by 13% (with a reduction range of 0.79-0.96)[24]. The ADVANCE research, which focused on the relationship between diabetes and vascular disease, used a randomization method that included 11,140 individuals. The individuals were categorized into two distinct groups: a rigorous control group that strived to attain a target HbA1c level of <6.5% (48 mmol/mol) by implementing additional antihyperglycemic interventions and a standard glycemic-control group. The study found a substantial drop in the average HbA1c levels in the intensive therapy group (6.5%) compared to the control group getting conventional treatment (7.33%) across the 5-year follow-up period. The intensive control group exhibited a noteworthy decrease in major macrovascular and microvascular complications in comparison to the control group (18.1% vs 20.0%, hazard ratio [HR] = 0.90, 95% confidence interval [CI] 0.82-0.98). Moreover, there was a reduction in noteworthy microvascular events (9.4% vs. 10.9%, hazard ratio = 0.86; 95% confidence interval 0.77-0.97), mostly attributed to a drop in cases of nephropathy[25]. The Vascular Complications in Veterans and Glucose Control with Type 2 Diabetes (VADT) study found that individuals in the intensive study group saw a decrease in HbA1c levels by 6.9%, whereas those in the control group who got standard medication had a decrease of 8.4%.

MATERIALS AND METHODS

Methods to Overcome the Rapeutic Inertia in Diabetes: Multiple strategies exist for addressing inertia in diabetes management. These may be further divided into several groups.

Provider Level: Provider-level obstacles account for 50% of the factors contributing to inertia[26]. These challenges include factors such as limited time availability, conflicting priorities, insufficient expertise and discrepancies in guideline suggestions. The table is a summary of the methods to address therapeutic inertia at the level of healthcare providers. Healthcare professionals can evaluate their performance and educate themselves on diabetes treatment and the dangers of high and low blood sugar levels. They may also adhere to standards for managing the illness[27]. In addition the ADA-EASD Consensus Report provides a comprehensive strategy for reducing glucose levels in individuals with T2DM. It emphasizes the need to regularly evaluate and adjust medication every 3-6 months to prevent treatment stagnation[28].

Patient Level: Research suggests that over 30% of therapeutic inertia may be attributed to hurdles at the patient level, including worries about side effects, lack of awareness about treatment plans and the presence of several health conditions[32]. The study identified problematic hypoglycemia as a significant contributing reason to the poor adoption of insulin treatment. The issue of adhering to insulin regimens has been identified, along with additional concerns such as trypanophobia (the fear of needles) and anxiety related to injections. Other factors include apprehension towards self-monitoring, adjusting insulin doses as needed and psychological resistance to insulin, including anxiety and depression[33].

System Level: System-level impediments account for about 20% of the reasons for therapeutic inertia[37]. These include concerns related to healthcare and expenses associated with novel drugs, including variations across different healthcare environments. In some instances, there may be restrictions on the accessibility of pharmaceuticals[38]. The Prospective Urban Rural Epidemiology (PURE) research revealed a lack of availability of affordable important drugs, such as metformin and sulphonyl Reas, in several low-and middle-income countries[39]. Metformin was accessible in just 64.7% of pharmacies in low-income countries and in fewer than 89% of pharmacies in upper-and lower-middle-income countries. The survey also revealed that a mere 29.6% of persons residing in low-income nations who have been diagnosed with diabetes actually use drugs to manage their illness. Hence, the insufficiency of healthcare systems in several global places poses a significant obstacle that necessitates attention.

Therapeutic Inertia in Hypertension Management: Hypertension, often known as high blood pressure (BP), is a significant cause of both death and illness.

However, the rates of successful blood pressure control in the United States have only shown minimal improvements in recent years[43]. Historically, the rates of control have consistently hovered around the 50% threshold. Nevertheless, with the recent adjustment of the blood pressure (BP) target to below 130/80mmHg, the percentage of patients who have successfully achieved control has declined to fewer than 25%. Furthermore, it is important to highlight that African Americans have much lower rates of blood pressure control. This particular community bears a disproportionate burden of adverse health outcomes linked to uncontrolled blood pressure, such as stroke[44]. The lack of increase in antihypertensive drug dosage is a notable element, among several others, that leads to insufficient control of blood pressure. A retrospective cohort study was conducted with a sample size of 7,253 persons who were diagnosed with hypertension. The study revealed that only 13% of the total visits resulted in the escalation of antihypertensive medication when uncontrolled blood pressure was seen[45]. Furthermore, those with the lowest levels of treatment intensity (TI) were shown to have a considerably greater probability of obtaining blood pressure (BP) control compared to those with the highest levels of TI[46].

Hypertension remains a significant factor that may be changed and contributes to the disparities in the prevalence of cardiovascular disease (CVD) across different racial groups[47,48]. The rates of blood pressure (BP) regulation showed enhancement from 1999 to 2023. However, there has been a recent decline, especially among Hispanic and non-Hispanic Black adults with hypertension who are undergoing therapy with anti-hypertensive medication[49]. Among individuals in the United States, the proportion of non-Hispanic Black and Hispanic adults who achieve blood pressure control is significantly lower than that of non-Hispanic White adults despite similar rates of treatment and increased availability of safe, effective and affordable anti-hypertensive medications. The proportions of states reporting the use of anti-hypertensive medication are 53.2%,58.2% and 68.2%, correspondingly[50].

Additionally, it is important to mention that individuals of Hispanic and non-Hispanic Black descent have a greater prevalence of comorbidities that are associated with resistance to pharmacological interventions. The conditions include chronic renal illness, obesity and diabetes[51]. The prevalence of controlled blood pressure (defined as systolic/diastolic blood pressure < 140/80 mm Hg) among non-Hispanic White individuals with hypertension in the United States is 51.1%. By comparison, the percentages for Black and Hispanic persons are 42.7% and42.4%, respectively [see reference 49]. The occurrence of target organ damage in the treatment of hypertension remains high in clinical practice.

However, there is a lack of research on the differences in treatment inertia for hypertension across various racial and ethnic groups. Moreover, the available data on this subject provide conflicting results. Multiple research studies have shown a higher likelihood of therapeutic inertia in Black persons as opposed to White individuals with hypertension. However, other investigations have revealed similar or lower rates of incidence[52]. By analyzing the racial and ethnic differences in the delay or hesitation to initiate or intensify treatment for hypertension in a clinical study that followed a standardized and protocol-driven approach to blood pressure management, we may identify and prioritize specific therapies. The purpose of these treatments is to improve the management of blood pressure in all racial and ethnic groups, with the ultimate goal of reducing inequalities in blood pressure control and cardiovascular illness related to hypertension.

The Systolic Blood Pressure (SBP) Intervention Trial (SPRINT) undertook a randomization of individuals in the United States who were at a high risk of cardiovascular disease. The participants were divided into two groups one receiving intensive treatment to maintain their systolic blood pressure (SBP) below 120mm Hg and the other receiving standard care to keep their SBP below 140 mm Hg. The research used a uniform technique for measuring blood pressure and dispensing medication. The Sprint procedure required the increase of antihypertensive medication when the systolic blood pressure (SBP) did not reach the targeted goal. The approach that was put into action allowed for a quasi-natural experimental evaluation of the impact of race and ethnicity on TI inside a randomized therapeutic trial LeBeau *et al*.[53] demonstrated the impact of therapeutic inertia (TI) on hypertensive patients, which might hinder the escalation of medication and lead to insufficient control of blood pressure[53].

Anti-hypertensive Strategies to Alleviate Therapeutic Inertia: Research results suggest that starting anti-hypertensive therapy with a combination of two drugs, rather than just one, increases the probability of obtaining long-term blood pressure control. This indicates that a greater percentage of patients can maintain their blood pressure within the recommended range for a prolonged duration, ranging from months to even years[54]. The mentioned phenomenon can be explained by observing that initiating treatment with two antihypertensive medications has a higher correlation with long-term

adherence to the recommended therapeutic regimen compared to using only one anti-hypertensive medication[55,56]. A possible explanation for this occurrence might be that the rapid decrease in blood pressure resulting from the use of two anti-hypertensive drugs has a beneficial effect on patient's trust in the effectiveness of the treatment and their compliance with their doctor's recommendations[57]. It is worth considering that starting treatment using a mix of two drugs may assist in reducing therapeutic inertia. This pertains to the failure to transition from a single medication to a combination of medications despite the recognition that a medication combination is necessary to attain the prescribed blood pressure target in most patients[58-61]. The importance of therapeutic inertia may be assessed by analyzing the percentage of individuals who, after starting antihypertensive treatment with a single drug, switch to combination therapy in the following years, as recommended for managing hypertension[62].

Therapeutic Inertia in Cardiovascular Disease Management: It is well recognized that effectively managing key risk factors for Atherosclerotic cardiovascular disease (ASCVD), such as hypertension, dyslipidemia and diabetes mellitus, may substantially decrease the likelihood of developing ASCVD[63]. Effective management of many risk factors is crucial for both primary and secondary prevention of atherosclerotic cardiovascular disease (ASCVD). However, there are notable disparities between the treatment strategies suggested by guidelines and the actual implementation in clinical practice. It is both unexpected and regrettable, considering the range of pharmacological therapies available that have been shown to not only manage risk factors for ASCVD but also decrease the likelihood of developing ASCVD. Hypertension, or high blood pressure (BP), is a prominent contributor to mortality and impairment.

Nevertheless, the United States has seen only marginal advancements in BP management rates in recent times[63]. A significant factor leading to poor blood pressure management is the absence of intensification in anti-hypertensive medication. A retrospective cohort study including 7,253 patients with hypertension revealed that anti-hypertensive medicine was escalated in only 13% of visits when blood pressure was not under control[64]. In addition, those with the lowest rates of treatment intensity (TI) were 33 times more likely to attain blood pressure (BP) control compared to those with the highest TI rates. Statins are very efficient pharmacotherapeutic interventions for reducing cardiovascular morbidity and mortality. However, they are not commonly employed in clinical practice, particularly for individuals

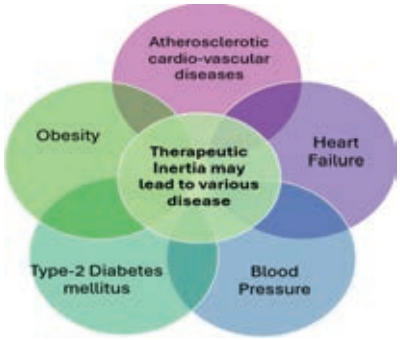

Fig. 1: Diseases arise from Therapeutic inertia

Fig. 2: The development and execution of recommendations for managing obesity and a propensity for therapeutic inertia

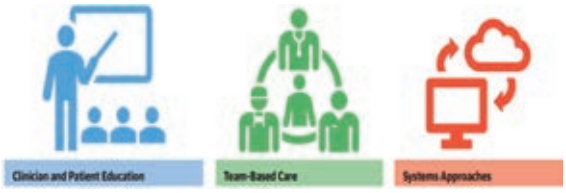

Fig. 3: Strategies to Reduce Therapeutic Inertia

Fig. 4: Three Factors Overcoming Therapeutic Inertia

with established atherosclerotic cardiovascular disease (ASCVD). Research examining the adoption

Table 1: Terminology and Definitions

Terms	Authors	Definition
Diagnostic inertia (DI)	Gil-Guillén *et al*.[12]	DI, or diagnostic inertia, refers to the situation when a person who has not been previously diagnosed with hypertension (HTN) and does not have high blood pressure not (BP) is examined for a diagonsis of HTN.
Therapeutic momentum	(TM)Faria *et al*.[13]	TI, TM and physician inertia are synonymous terms used to describe the phenomena often referred to as clinical inertia.
	Rodrigo *et al*.[14]	The reluctance to cease or end therapy when more medicine is unneeded or without scientific reason. The notion has been labeled as therapeutic momentum.
Clinical Myopia (CM)	Reach. Diabetes Metab[15]	The lack of prioritization of the long-term benefits of treatment intensification is believed to be a common factor that contributes to both patient non-adherence and professional therapeutic inertia. The term clinical myopia is used to describe the condition of refractive error in which there is a failure of the eye to focus properly on distant objects.
Physician inertia (PI)	Vinyoles Hipertension[16]	Three separate kinds of inertia hinder progress within the healthcare system: inertia of health authorities, inertia of patients and inertia of physicians.
	Moser *et al*.[17]	Physician inertia is the term used to describe the inaction of healthcare professionals in initiating, escalating, or adjusting therapy in patients with blood pressure readings over 130/80 mmHg or 140/90 mmHg. This is particularly relevant for patients with hypertension who also have other conditions such as diabetes , coronary heart disease, or renal sickness.
Health authorities' inertia	[16]	Within the healthcare system, three specific types of inertia act as barriers to change: inertia among health authorities, inertia among physicians and inertia among patients.
Patient's inertia	[16]	Three specific types of inertia act as obstacles to change within the healthcare system: inertia of health authorities, inertia of physicians and inertia of patients.
Therapeutic inertia (TI)	Okonufa *et al*.[18]	Therapeutic inertia (TI) is the term used to describe the situation when healthcare providers fail to start new medicines or modify the dosage of existing drugs in response to inaccurate clinical indicators.
Clinical inertia (CI)	Phillips *et al*.[19]	Healthcare practitioners often struggle to initiate or intensify therapy during patient consultations for illnesses such as hypertension, dyslipidemia, and diabetes. Clinical inertia is the condition when persons see a problem but do not take the necessary steps to address it.

of cholesterol guidelines in outpatient cardiology practices in the PINNACLE registry revealed that 33% of patients with proven ASCVD were not being prescribed statin medication over the 14-month follow-up period [47]. This highlights the inadequate implementation of guidelines by physicians. After the subset of patients with ASCVD, a mere one-third of individuals had medication intensification after 45 days of their lipid profiles revealing low-density lipoprotein cholesterol levels below 100 mg/dL[1].

Therapeutic Inertia Effects on Heart Failure: The European Society of Cardiology (ESC) emphasized the importance of therapeutic inertia in heart failure by its participation in two European Surveys[65-67]. Despite the improvements in healthcare quality throughout Europe, a significant portion of patients (specifically 20%) admitted to hospitals for heart failure in 2016 were identified as not receiving treatment that aligned with established clinical guidelines[68]. Furthermore, research carried out in 170 medical facilities in France, including a group of more than 1600 patients who were admitted to the hospital due to heart failure on a certain day, discovered that the medications given upon discharge were seldom delivered at the necessary dosage. Moreover, it was shown that these drug doses remained mostly unchanged after the patients were released[69]. A significant majority of individuals diagnosed with heart failure with reduced ejection fraction (HFrEF) either do not get essential heart failure drugs or are administered inappropriate dosages[70,71]. The latest results from the CHAMP-HF registry reveal that only 1% of patients diagnosed with heart failure with reduced ejection fraction (HFrEF)

Table 2: Research studies investigating strategies to address therapeutic inertia among healthcare provider

Author	No. of participants	Key findings on how to overcome inertia	References
Berlowitz *et al*.	23,291	The research determined that assessing therapeutic inertia may serve as a means to enhance the treatment of type 2 diabetes mellitus by healthcare practitioners.	[29]
Shah *et al*.	2,502	The percentage of patients who received medication intensification was 45.1% among those who received specialist treatment, compared to 37.4% among those who received primary care. Specialist diabetes practitioners exhibit a higher level of assertiveness in commencing insulin treatment compared to primary care clinicians.	[30]
Ziemer *et al.,* 2006, USA,	345	Participants were assigned randomly to either the control group or the group that received computerized reminders, including personalized advice. The results indicated that there was a greater intensification in the groups who received both feedback and reminders, as well as in the group that just received feedback, compared to the groups that only received reminders or were in the control group.	[31]

Table 3: Studies detailing strategies to address therapy inertia at the individual patient level

Author	Number of participants	Key findings on how to overcome inertia	References
Davies *et al.,* 2005, UK,	4,961	Participants were assigned at random to either a patient-led titration group (algorithm 1) or a physician titration group (algorithm 2). Simple titration algorithms led by patients resulted in much larger reductions in HbA1c compared to adjustments of insulin glargine guided by physicians (-1.22% reduction vs -1.08% decrease, p<0.001).	[34]
Greenwood *et al.,* 2015, Canada,	90	Subjects were assigned to either a control group or a telehealth monitoring group, where glucose testing was conducted and people received personalized feedback based on their glucose results. The control group exhibited an average reduction in HbA1c levels of 0.7%, whereas the telehealth monitoring group showed an average reduction of 1.11%.	[35]
Badawy *et al.,* 2017, USA	15 studies	Out of the total of 15 studies included in this systematic review, 7 of them showed a significant improvement in patient adherence when using treatments including text messaging and mobile phone applications.	[36]

Table 4: Studies investigating strategies to address treatment inertia at the systemic level

Author	Number of participants	Key findings on how to overcome inertia	References
Tshi Ananga *et al.,* 2012 USA	34 studies, 5,993 patients	Nurse-led diabetes self-education resulted in a mean decrease of -0.70% in HbA1c, while normal treatment only led to a reduction of -0.21%. Nurse-led teaching also enhanced cardiovascular risk factors.	[40]
Apsey *et al.,* 2014, USA,	-	A nurse practitioner provided instructional sessions and assistance for surgical treatments. During this interventional time, the data was compared to a historical control period, revealing that 32% of intervention instances resulted in the administration of basal-bolus insulin, while only 9% of cases in the control period did so.	[41]
Furler *et al.,* 2017, Australia	266	Patients were divided into two groups: the first group received the Stepping Up model of care, which included theory-based modifications to practice systems and altered responsibilities of healthcare professionals (HCPs), while the second group served as the control. The intervention group exhibited a rise in the commencement of insulin.	[42]

Table 5: NICS choosing the right approach

Identified barrier	Tailored intervention/s
Lack of knowledge	Educational courses Decisional aids
Perception/reality mismatch	Audit and feedback Reminders
Lack of motivation	Incentives/sanctions Leadership
Beliefs/attitudes	Peer influence Opinion leaders
Systems of care	Process re-design

were treated simultaneously with the recommended dosage of mineralocorticoid receptor antagonists (MRA), beta-blockers, angiotensin receptor-neprilysin inhibitors (ARNI), angiotensin receptor blockers (ARB) and angiotensin-converting enzyme inhibitors (ACE-I) [72]. There might be several factors influencing the decision to avoid prescription or increase the dosage of medications recommended by recommendations. Nevertheless, these justifications are often unrecorded or clearly expressed during audits.

Utilizing a multidisciplinary team approach in the management of Heart failure (HF) is recommended due to its proven ability to improve compliance with clinical recommendations, reduce hospitalization rates and minimize healthcare expenses[73-75]. Mobile high-frequency devices are very suitable for effectively managing HF inside hospital settings. Cardiologists who specialize in heart failure (HF) and specialized nurses with competence in HF care are often included in multi disciplinary teams. These teams are capable of assessing and delivering therapeutic counseling inside non-hospitalization facility departments. Patients diagnosed with heart failure with reduced

ejection fraction (HFrEF) are often admitted to non-cardiovascular wards, such as general medicine and geriatrics, for hospitalization[76], whether or not the reason for admission is related to heart failure with HFrEF. Considering the primary focus on heart failure (HF) in these HF units, it is likely that their treatments will improve the quality of healthcare and reduce therapeutic inertia. For example, they may focus their efforts on releasing patients while following the four essential principles of pharmaceutical treatment for HFrEF. Integrating a first post-discharge follow-up visit is a crucial element of the care transition process, as it helps reduce the risk of premature readmission or death[77]. The HF advocate suggests arranging a follow-up consultation between 7-14 days after the patient's discharge from the hospital.

Furthermore, it is recommended to enroll these patients in a Disease Management Program (DMP). Studies have demonstrated that the use of home-visiting programs and multidisciplinary heart failure (HF) clinic therapies can effectively reduce both readmissions for all causes[78] and mortality rates[79]. Specialist nurses play a vital role in the care of heart failure patients, including the administration and adjustment of life-saving HF medications, resulting in a lower probability of hospitalization[80-83].

Overcoming Therapeutic Inertia: The primary objective of the National Institute of Clinical Studies (NICS) is to enhance the integration of therapies that have been shown to enhance patient care and address discrepancies between evidence and practice[2]. To address the resistance to implementing cancer recommendations, the NICS guidelines provide a customized strategy for each identified obstacle[7]. According to the NICS recommendations the most reliable data indicates that using many treatments to address gaps is not any more successful than using a single intervention. Therefore, unless there is a compelling argument connecting interventions to identified obstacles the belief that more is better cannot be supported in terms of resource efficiency. O'Connor *et al*.[7] provide seven recommendations to address therapeutic inertia. Several relate to the NICS treatments listed in Table 2.

The three primary factors that may assist in overcoming therapeutic inertia are diligent research, comprehensive education and awareness and effective collaboration in breaking down barriers.

RESULTS AND DISCUSSIONS

Therapeutic inertia refers to the situation when healthcare professionals fail to begin or enhance the process of treatment when the intended therapeutic results are not attained. It is well-acknowledged as a major causative factor in uncontrolled hypertension[84]. Kamlesh Khunti *et al*. have shown that early attainment of glycemic targets leads to positive outcomes in persons with type 2 diabetes. Nevertheless, it is important to mention that there has been no observable progress in meeting the A1C objectives in the last decade[85]. The research demonstrated a correlation between therapeutic inertia and many illnesses, such as heart failure, type 2 diabetes mellitus, obesity, anti-hypertensive drug use, high blood pressure and atherosclerotic cardiovascular disease (ASCVD), as well as obesity. Karam et al. noted that a substantial majority of persons diagnosed with diabetes do not achieve their individualized treatment objectives. Therapeutic inertia, defined as the inadequate use of effective therapies to avoid important clinical consequences, is a widespread and important factor that contributes to this lack of effectiveness[86].

According to the National Clinical Guideline Centre, the critical importance of the reliability of blood pressure measurement. Within the framework of therapeutic inertia, clinical uncertainty is a distinct element that refers to the physician's doubt about the reliability of the figures, leading to ambiguity about the patient's hypertension status. A diagnosis of hypertension necessitates lifetime medication. The choice to begin or escalate a therapy requires a state of certainty and emergencies are rare occurrences. The first definition does not address whether it is appropriate to have a reasonable delay in order to get a diagnosis using ambulatory measurement. In several studies and polls, this delay was considered to be solely due to inertia. Girerd *et al*.[87] demonstrated that the European Society of Cardiology (ESC) emphasized the importance of therapeutic inertia in heart failure via its participation in two European Surveys[88,89]. A significant proportion of persons diagnosed with HFrEF do not get crucial medications for heart failure or are prescribed doses that are not suitable[90].

CONCLUSION

The concept of therapeutic inertia, as unmasked in the exploration, reveals critical gaps in current treatment strategies across severe diseases. The evaluation of different medical diseases, such as hypertension, highlights the difficulties in attaining the best results because of hesitations in increasing the intensity of therapy. The elements that lead to treatment inertia (TI) include insufficient training and organizational support in implementing the 'treating to target' method, subjective justifications and an exaggerated perception of the quality of care provided. The research indicates that there is substantial evidence linking insulin resistance to the increasing incidence of type 2 diabetic mellitus (T2DM). The recognition of these deficiencies in therapeutic

approaches necessitates a need for significant overhauls. Efforts to tackle therapeutic inertia should include not only medicinal therapies but also structural modifications in healthcare systems. Enhancing education and awareness among healthcare practitioners, following recommendations based on solid data and promoting patient involvement are crucial measures. Revealing therapeutic inertia is not only a theoretical activity, it is a demand for immediate action. The existence of gaps in treatment strategies necessitates a collaborative approach from the healthcare sector. Moving forward, it is crucial to prioritize research, innovation and collaborative efforts to eliminate therapeutic inertia. This will pave the way for a future where optimal treatment outcomes are the standard rather than the exception.

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