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ARTICLE

Therapeutic inertia

SUMMARY

Therapeutic inertia, sometimes referred to as clinical inertia, has been defined as failure to initiate or intensify therapy when therapeutic goals are not reached.

Lack of initiation or intensification of treatment according to clinical guidelines has been linked to suboptimal control of a range of chronic conditions.

Clinician factors contributing to therapeutic inertia include knowledge gaps; discomfort with uncertainty about the diagnosis, therapeutic target, or evidence; concerns about the safety of treatment intensification; and time constraints. Patient characteristics that may be associated with therapeutic inertia include male sex, older age, lower life expectancy, multiple comorbidities and clinical parameters that are close to target.

There may be reasons other than therapeutic inertia that explain apparent undertreatment. Apparent inertia in prescribing may be accompanied by appropriate actions, such as provision of lifestyle advice or interventions to promote adherence to existing medication. Some patients choose not to intensify treatment.

Interventions to reduce therapeutic inertia include access to evidence-based treatment guidelines and point-of-care tools, preferably integrated with clinical record systems; clinician education including educational visits; reminders; clinical audits with feedback and reflection on practice; shared decision-making; prompting by patients; and ambulatory or home monitoring (e.g. ambulatory blood pressure monitoring).

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Introduction

Therapeutic inertia, sometimes referred to as clinical inertia, has been defined as failure to initiate or intensify therapy when therapeutic goals are not reached.[1,2] It is relevant for conditions where therapeutic targets are clearly defined, the benefits of reaching those targets are well established, effective therapies are accessible, and up-to-date clinical guidelines are available.[1]

Examples of therapeutic inertia

Hypertension

Undertreatment of hypertension is well reported in the literature, and therapeutic inertia has been identified as a major contributing factor.[3] An analysis of global data from 1201 population studies conducted between 1990 and 2019, with 104 million participants, found that only 59% of all women with hypertension had been diagnosed, 47% were being treated, and 23% had their blood pressure controlled. In men, the rates were 49% diagnosed, 38% treated and 18% controlled.[4]

A 2018 Australian cross-sectional study, using a large national database of general practice electronic clinical records, found that among patients aged 45 to 74 years with a recorded diagnosis of hypertension who regularly visited their GP, 39% had not been prescribed an antihypertensive drug in the last 6 months.[5] In patients with moderate to high calculated risk of atherosclerotic cardiovascular disease, 40% were not prescribed an antihypertensive drug.

Diabetes

Therapeutic inertia has been identified as a major reason for poor outcomes in diabetes care.[6] A systematic review of 53 studies reported the median time to treatment intensification after a glycated haemoglobin (HbA1c) measurement above target was more than one year in most studies. Some patients did not have their treatment intensified within the study follow-up period (up to 7.2 years). Therapeutic inertia increased as the number of antidiabetic drugs rose and decreased with increasing HbA1c levels.[2]

A multi-centre, cohort study in the United States in 2018 that included 324,706 patients living with type 2 diabetes and atherosclerotic cardiovascular disease found fewer than 5% were receiving all 3 guideline-recommended therapies – a high-intensity statin, an angiotensin converting enzyme inhibitor or angiotensin II receptor blocker, and a sodium-glucose co-transporter 2 inhibitor or glucagon-like peptide-1 receptor agonist.[7]

In a 2018 Australian general practice study involving 101,875 adults with diabetes, fewer than 20% had all of HbA1c, blood pressure and total cholesterol at recommended target.[8]

Hyperlipidaemia

Many patients eligible for lipid-lowering therapy to reduce atherosclerotic cardiovascular disease risk are inadequately treated. A systematic review of 81 European studies found that fewer than 19% of adults at highest risk of cardiovascular disease had achieved recommended lipid targets.[9]

An analysis of 92,766 primary care patient records in a large healthcare system in the United States found that both medication nonadherence and therapeutic inertia contributed to poor disease control for cardiometabolic diseases. Of the two, therapeutic inertia was the greater contributor to poor lipid control.[10]

Similar trends were seen in an analysis of the electronic clinical records of 61,407 Australian patients who attended general practitioners between 2013 and 2019 and were treated with statins. Therapeutic targets (defined in this study as low-density lipoprotein cholesterol less than or equal to 2 mmol/L) were met in only 36% of patients.[11]

Other chronic conditions

There is evidence for the impact of therapeutic inertia on disease control and patient outcomes in a variety of other chronic conditions including asthma, chronic obstructive pulmonary disease, rheumatoid arthritis, multiple sclerosis, chronic kidney disease and heart failure.[12-16]

Factors contributing to therapeutic inertia

Various factors have been identified that may be associated with therapeutic inertia, although the evidence for these is generally weak.[17]

Clinician factors associated with therapeutic inertia include lack of knowledge; discomfort with uncertainty about the diagnosis, therapeutic targets or evidence; and concerns about the safety of indicated treatment intensification.[18-20] Studies have reported associations between therapeutic inertia and patient characteristics that include male sex, older age, lower life expectancy, multiple comorbidities (particularly psychiatric conditions), multiple medications, and clinical parameters that are close to target (e.g. blood pressure values close to normal).[18-21] High patient volume and time constraints in the clinic are also reported associations.[22]

In a focus group study, Australian general practitioners reported barriers to optimal treatment of hypertension, including uncertainty about true underlying blood pressure, distrust of measurement technology, and distrust of the evidence underpinning management.[23] In a Dutch study, when asked why they hadn't intensified treatment for patients with blood pressure above target, general practitioners said they considered office blood pressure measurements as nonrepresentative (27%), they wanted to wait for subsequent blood pressure readings (21%), or they wanted to optimise lifestyle factors first (19%). In addition, some patients did not want to change treatment.[24]

A survey of general practitioners across 29 countries reported patient frailty, and associated concerns about adverse drug reactions such as falls, as a barrier to starting antihypertensive treatment.[25]

Health-system, clinician and patient factors that may contribute to therapeutic inertia are summarised in Box 1.

Box 1 Factors contributing to therapeutic inertia[17-24,26]

Health-system or practice factors

- lack of access to clinical guidelines and decision support, or lack of integration into clinical workflow
- lack of system support for planned, structured patient follow-up to review whether therapeutic goals have been met
- lack of a team-based approach to care (e.g. involving practice nurses and pharmacists)
- time constraints

Clinician factors

- reactive, rather than proactive, approach to care
- knowledge gaps
- difficulty accessing or navigating guidelines
- distrust of evidence and its applicability to an individual patient
- lack of confidence in measurement accuracy (e.g. blood pressure)
- acceptance of test results close to target
- concerns about the safety of treatment intensification
- concerns about polypharmacy, treatment burden and costs of treatment

Patient factors

- lack of awareness or denial of the disease and/or the need for treatment
- low health literacy
- absence of symptoms
- concerns about treatment burden and costs
- concerns about adverse effects
- lack of confidence in the clinician

Other reasons for apparent undertreatment

There may be reasons other than therapeutic inertia that explain apparent undertreatment of chronic disease, or failure to achieve guideline-directed treatment targets in an individual patient. A guideline recommendation may not be applicable to the particular individual (e.g. a person with multiple comorbidities or limited life expectancy), or may not align with their treatment goals and preferences. Clinicians (and patients) may exercise caution in relation to prescribing new drugs, or adding to therapeutic burden and the risk of adverse effects in people with existing polypharmacy. There may also be practical constraints to initiating or intensifying treatment, such as lack of access to monitoring or indicated medications.

Apparent inertia in prescribing may be accompanied by appropriate alternative actions by the clinician, such as provision of lifestyle advice or interventions to promote adherence to existing medication.[27] Also, prescribing should occur within the context of shared decision-making, and while the clinician may recommend treatment initiation or intensification, the patient may choose otherwise.[1]

Addressing therapeutic inertia

Authoritative, evidence-based treatment guidelines are an essential resource in all healthcare systems, defining the standard of care for clinical practice against which therapeutic inertia can be assessed.[26] However, they can be unwieldy and time-consuming to access in a busy clinic. Point-of-care digital resources, such as *HealthPathways* and *Therapeutic Guidelines*, bridge the gap between detailed guidelines and daily practice by providing specific recommendations tailored to the local setting.[28] A survey of health professionals found positive perceptions and impact of the *HealthPathways* resource,[29] but noted lack of integration with clinical software. Fully integrated electronic decision support systems, routinely extracting relevant data from clinical records and elsewhere, and offering evidence-based management advice during the consultation to both clinician and patient, may assist in addressing therapeutic inertia.[30]

A systematic review of randomised controlled trials of interventions aimed at reducing therapeutic inertia in the pharmacological treatment of hypertension examined studies of the effectiveness of physician education and reminders, patient education and reminders, ambulatory blood pressure monitoring, physician peer visits and pharmacist-led care.[22] Physician education and reminders, physician peer visits and ambulatory blood pressure monitoring were effective. The effectiveness of home blood pressure monitoring in addressing therapeutic inertia is supported by another review and meta-analysis, which found that compared with clinic blood pressure monitoring alone, home monitoring was associated with reduced therapeutic inertia and small, but significant, reductions in systolic and diastolic blood pressure.[31]

A systematic review of strategies for overcoming therapeutic inertia in type 2 diabetes concluded that empowering nonphysician providers such as pharmacists, nurses and diabetes educators to initiate and intensify treatment independently, supported by appropriate guidelines, was the most effective approach for mitigating therapeutic inertia and improving blood glucose control.[32]

Clinical audit, with feedback and reflection on practice, is a well-evidenced intervention to enhance health professional adherence to guidelines,[33] and is readily implemented using data from electronic clinical records.[34]

There is interest in the role of fixed-dose combination treatment in the management of hypertension[35] and hyperlipidaemia.[36] In the management of newly diagnosed hypertension, there is evidence that commencing 2 drugs, either individually or as a fixed-dose combination, is associated with reduced therapeutic inertia. A large Italian observational study of patients who started antihypertensive treatment with one drug or a combination of 2 drugs found that the majority of patients prescribed monotherapy did not progress to combination treatment in accordance with guidelines. In contrast, the majority of those prescribed more than one drug initially were likely to remain on multidrug therapy and were less likely to die or be hospitalised for cardiovascular events.[37]

Finally, clinicians may be prompted to initiate or intensify treatment by their patients, when the patient is well informed and has been engaged in the development of their care plan, therapeutic goals and treatment targets (shared decision-making). A systematic review of patient-mediated interventions to improve professional practice concluded that patient knowledge of recommended care may improve the extent to which healthcare professionals follow clinical practice guidelines.[38]

Strategies that have been proposed to reduce therapeutic inertia are summarised in Box 2.

Conclusion

Undertreatment due to therapeutic inertia is a significant contributor to suboptimal control in many chronic conditions. A range of strategies and tools

Box 2 Strategies to reduce therapeutic inertia[17,22,26,28,30-34,38]

Optimise practice

- scheduled review appointments
- reminders in patients' clinical records
- team-based approach to care (e.g. involve practice nurses and pharmacists)
- clinician education, including peer visits (educational visiting)
- clinical record review to identify and follow up patients in whom targets have not been met
- clinical audits and reflective practice

Use tools and technology

- guidelines and electronic decision support systems integrated into clinical workflow
- mobile phone message (SMS) reminders to encourage adherence to treatment, monitoring and follow-up
- smart devices, apps and telemonitoring to assist with monitoring treatment targets
- digital dashboards in electronic clinical record systems to track prescribing and treatment targets

Empower patients

- educate patients about their disease
- engage with patients in developing care plans with agreed therapeutic goals and targets (shared decision-making)
- use ambulatory or home monitoring (e.g. blood pressure, blood glucose concentration) to corroborate in-clinic findings
- recommend strategies and aids to improve treatment adherence and persistence

can be used to reduce therapeutic inertia. Clinicians should agree on therapeutic goals with their patients and be prepared to discuss reasons for and against initiating or intensifying treatment if goals are not met. Patients should feel empowered to discuss progress on therapeutic goals and the need to initiate or intensify treatment with their clinicians. ≺

Conflicts of interest: none declared

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