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Review Article

A narrative review of clinical inertia: focus on hypertension

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Abstract

Clinical practice guidelines report standards of care for the management of medical conditions based on review of evidence-based medicine. The inherent responsibility and challenge for health care providers is devising a patient-specific care plan through adaptations of established treatment recommendations using the latest clinical evidence and clinical decision-making skills. Clinical inertia (CI) is viewed as the failure of health care providers in adherence to or persistence with established treatment recommendations. The ability to implement an appropriate care plan is often limited not by available clinical evidence, but rather by humanistic influences. CI may result from being complacent with moderate to poor control resulting from a multitude of factors. The purpose of this review is to present existing evidence-based literature investigating CI, with an emphasis in hypertension. A literature search was performed using MEDLINE, Embase, and the Cochrane Database of Systematic Reviews. Review of the literature addressing CI finds that many authors offer solutions primarily directed at physician behavior, although it is also influenced by patient- and system-based factors. Programs that increase communication and influence behaviors based on clinical guidelines, such as academic detailing, medication-therapy management, and disease management programs, are warranted to combat CI. J Am Soc Hypertens 2009;3(4):267–276. © 2009 American Society of Hypertension. All rights reserved.

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Introduction

Clinical practice guidelines report standards of care for the management of medical conditions based on review of evidence-based medicine. Evidence supporting best practices in medicine will often associate optimal patient outcomes with using a patient-specific plan. An individualized care plan involves appropriate initiation, modification, and discontinuation of therapy or referral to further medical care. The inherent responsibility and challenge for health care providers is devising a patient-specific care plan through adaptations of established treatment recommendations using the latest clinical evidence and clinical decision-making skills.

Despite advancements in medicine, certain patients still fail to meet therapeutic goals as a consequence of a phenomenon known as *clinical inertia*.[1] Clinical inertia (CI) is defined as the inappropriate management of at least one medical condition for a given patient because of minimal or a lack of appropriate therapeutic interventions.[2,3] Therapeutic inertia, therapeutic momentum, and physician inertia are all terms synonymous with CI.[3–5]

Epidemiologic evidence supporting CI is best reported for chronic conditions, such as diabetes and hypertension, due to well-established therapeutic goals and treatment algorithms.[2,6] However, the impact of CI remains unclear because of the variability in the design of the studies investigating the phenomenon. Nonetheless, the practical significance of CI is accentuated through its correlation to the Institute of Medicine's and the National Coordinating

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Council for Medication Error Reporting and Prevention's definitions of a medication error; both organizations define this error as a failure to act despite recognition of a problem with a known solution.[7,8] Similar to medication errors, recognizing, and preventing CI is critical in promoting overall quality of care.

Traditionally, CI is viewed as the failure of health care providers in adherence to or persistence with established treatment recommendations. The ability to implement an appropriate care plan is often limited not by available clinical evidence but rather by humanistic influences. As suggested by recent literature, CI may also be influenced by patient-related or systematic factors.[9–12] CI may result from being complacent with moderate to poor control resulting from many factors.

The purpose of this review is to present existing evidence-based literature investigating CI, with an emphasis in hypertension. Through this review, associated medical conditions and evidence linked to potential causes and prevention strategies will be elucidated. Seeking to refine or redefine the current definition of CI, the authors will also provide suggestions for increasing the quality of existing interventions.

Methods

Using MEDLINE and Embase, a literature search was conducted using the terms ''clinical inertia,'' ''therapeutic inertia,'' and ''physician inertia'' and later coupled with ''diabetes mellitus (DM),'' ''hypertension,'' ''dyslipidemia,'' and ''renal disease.'' The Cochrane Database of Systematic Reviews was also searched for topics relevant to CI. Searches were limited to human and English language. Articles and studies were excluded if they did not discuss or examine the prevalence of relevant chronic diseases, the existence or prevalence of CI, reasons for or strategies to overcome CI, or CI associated with various chronic disease processes.

Existence of CI

Inadequate control of chronic conditions contributes to increased disease burden and potential long-term complications. These risks highlight the need for tighter disease control and a better understanding of CI and its contributing factors. Existing studies examine the presence of CI in dyslipidemia, renal disease, diabetes, hypertension, and, most often, a combination of these conditions.

Theoretically, the existence of CI is inversely related to therapeutic modifications. In one study, CI is determined by a therapeutic inertia score, which is defined as the difference between expected and observed medication change rates, where a higher score indicates greater CI.[5] Studies reporting poor disease control from CI will often evaluate and define therapeutic modifications as a dose increase, dose reduction, increased number of prescribed drug classes, or a medication switch to another drug class.[13–18]

The likelihood of a therapeutic modification is associated with various factors, though these associations are not always consistent. Predictors of therapeutic interventions may vary according to age, gender, disease state, disease severity, or medical history.[13,14,16–18] In a retrospective cohort of 253,238 patients with poorly controlled diabetes, hypertension and/or dyslipidemia, appropriate therapeutic changes were observed in 71% to 82%, 59%, and 70% of patients with elevated blood pressure (BP), low-density lipoprotein cholesterol (LDL-C), and HbA_{1c}, respectively.[13] Notably, patients with higher baseline levels, one or more of the medical conditions, or previous coronary artery disease (CAD) or target organ damage were generally more likely to receive appropriate care. Older age was associated with appropriate care in response to diastolic blood pressure (DBP) and LDL-C levels, whereas younger age was associated with appropriate care in response to elevated systolic blood pressure (SBP) and HbA_{1c} levels. As demonstrated here, the relationship between factors that may potentially influence CI is complex.

Dyslipidemia

Rodondi et al evaluated a large managed care population of 253,238 patients with poorly controlled diabetes, hypertension, or dyslipidemia. This retrospective cohort study assessed frequency and predictors of therapy modifications, which were defined as either an increase in the number of drug classes, increased dosage of one or more medications, or a switch to another medication in a different class. Three risk categories were also identified: patients with a history of CAD, other target organ damage, or no history of either condition. At 6 months, therapy modifications increased to 64%, 71%, 56%, and 66% for SBP, DBP, LDL-C, and A1C, respectively. ''Appropriate care,'' defined as either therapy modification or return to control, was observed in 71% to 82% of patients with uncontrolled BP, and 59% and 70% of patients with elevated LDL-C and A1C levels, respectively. Notably, patients with higher baseline levels, one or more of the disease states present, or previous CAD or target organ damage were generally more likely to receive ''appropriate care,'' with the exception of patients with diabetes and elevated SBP or elevated A1C and CAD or organ damage. Older age was associated with ''appropriate care'' in response to DBP and LDL-C levels, whereas younger age was associated with ''appropriate care'' in response to elevated SBP and A1C levels. This study not only demonstrates the existence of CI, but that therapy modifications in response to poorly controlled risk factors may be an effective measure of quality of care.[19]

CI has also been identified as a possible reason for gender disparities observed in the treatment of dyslipidemia in patients with type 2 diabetes. Nau et al evaluated the