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Asthma adherence: how can we help our patients do it better?

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Introduction

Asthma is one of the most prevalent chronic diseases in American society, affecting 7.7% of US adults and accounting for 17 million ambulatory visits each year.[1] Adherence to medical therapy or the lack thereof has become a common hurdle in current medical practice, especially in the treatment of chronic illness. Medication nonadherence costs an estimated $100 billion per year in health care costs in the United States and leads to thousands of deaths and serious adverse events each month.[2] Nonadherence to chronic medications, including those for asthma, is a significant contributor to poor health outcomes and failure to reach clinical goals.[3] Increased symptoms, frequent emergency department visits, hospitalizations, and the use of oral steroids have been attributed to nonadherence to asthma controller medication.[4] Less than half of patients with a new prescription for an inhaled corticosteroid actually fill their prescription.[5] It is also alarming that only 8% to 13% of patients continue to refill their inhaled corticosteroid prescriptions after 1 year.[4] Schlender et al[1] estimated that for every 25% increase in asthma adherence, there was an associated 11% decrease in the risk of exacerbation, thus further emphasizing the importance of following the recommended treatment course. Patients who may have difficulty perceiving asthma symptoms face another obstacle for medication adherence. Magadle et al[6] determined that low perception of dyspnea is associated with more severe asthma and increased risk of asthma-related death.

Definition

The World Health Organization defines adherence as "the extent to which a person's behavior including taking medication, following diet plans and executing lifestyle modifications correspond with the agreed recommendations from a health care provider."[7] Compliance is defined as "the extent to which patients follow physician instructions, prescriptions and proscriptions" and implies that the physician alone determines the entire treatment plan. Although similar, the implication is that adherence requires mutual consent to the recommendations by the 2 involved parties, patient and physician.[7] There are many reasons for patient nonadherence, including economics, social and cultural barriers, attitude, and physician behavior. Patient perception, including fear regarding medication interactions, adverse effects, perceived lack of efficacy, misunderstandings regarding necessity of daily medical treatment, or concerns related to costs, are important determinants of adherence. Negative attitudes toward medication also have been shown to decrease adherence.[8,9] Poor health literacy, especially reading comprehension and numerical literacy, has been correlated to low adherence with asthma medications.[10] Patients with difficulty understanding written directives and numerical concepts are less inclined to comply with physician instruction owing to the intricacies of medical prescriptions. Apter et al[9] showed that adherence is more strongly influenced by social disparity, including household income and commercial insurance status, than by race and ethnicity. Although many of the factors that influence adherence cannot be improved in the short term, providers can enhance the quality of their communication with patients and thus promote improved patient adherence to medication.

Identifying the Problem

An assessment of adherence is critical to identify whether a patient's asthma control is due to treatment-refractory asthma or medication nonadherence. Adherence may be measured using different clinical tools, relying on subjective and objective data to provide direct and/or indirect measurements of medication adherence. Self-report diaries are the most commonly used means of evaluating adherence and patients' rationale for nonadherence. Although many patients are frank about their lack of adherence, they often self-inflate and overestimate their rates of adherence in attempts to appease physicians. In studies comparing self-report with more objective measurements, self-report overestimated

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adherence rates by more than 50%.[11] Assessment using pill counts and canister weights also can be used. Although considered the gold standard for measurement of medication adherence, these methods are subject to bias. "Medication dumping," whereby patients dispose of medication immediately before their follow-up appointment, has been observed in several studies on adherence. Physicians also may use other objective data as a surrogate for adherence, including pharmacy refill records or electronically monitored metered dose inhalers.[12]

In addition, patients may have difficulty properly assessing their level of asthma control, as illustrated by the 2009 Asthma Insight and Management Survey. Most patients enrolled in this study believed their asthma was completely or well controlled in the previous month. Patients believed asthma was well controlled if they required only 2 urgent care visits or 1 emergency department visit per year, if they were symptomatic with respiratory complaints less than half the time, and if they experienced fewer than 4 asthma exacerbations each year.[3] In contrast, using the National Asthma Education and Prevention Program control categories to score their actual symptoms, only 29% had well-controlled asthma, 24% had not well-controlled asthma, and 47% had poorly controlled asthma. This survey also showed that many patients misunderstood the role of their asthma medications. Greater than two thirds of patients agreed that the rescue inhaler could be used on a daily basis if needed, with this sentiment more prevalent in patients with poorly controlled asthma. Although 74% agreed that controller medications should be taken daily, 40% stated that controllers were unnecessary when asthma symptoms did not occur regularly.[3] This study illustrates that there is a considerable discrepancy between physician and patient perceptions of disease severity and appropriate therapy. This lack of concordance might be the result of different contributing factors, including patient emotional status,[13] the inability of patients to accurately describe symptoms and feelings,[14] and poor communication between physician and patient. All these factors contribute to poor adherence (Table 1).

The importance of adherence must be discussed within a nonjudgmental, nonthreatening environment. Through this interaction, clinicians and patients may gain valuable insight into the hidden impediments of asthma control.[15] New technology can help physicians with the assessment of adherence and reinforcement of self-management education with electronically metered dose inhalers, interactive voice-messaging systems, text messaging services, and many others. However, there are simple changes physicians can make in their interviewing approach that may have a substantial impact on patients' medical adherence.

Communication

Patients often receive insufficient counseling from health care providers regarding their medications. Physicians frequently fail to review appropriate administration technique and detail the use, duration, and adverse effects of specific medications. In a study performed by Tarn et al,[8] physicians prescribing a new medication stated the name of the drug only 74% of the time and its purpose 87% of time. Adverse effects were addressed for only 35% of medications prescribed and length of treatment was discussed for only 34% of medications. Other studies have shown that physicians provide no verbal directions for 19% to 39% of prescriptions and discuss dosing directions for only 52% to 60% of prescriptions.[8] Patients reporting better physician communication and information regarding their medications are more adherent.[8] Patient-centered approaches and clinical practices have been shown to improve patient outcomes and satisfaction. These strategies encompass a common theme of establishing a trustworthy relationship, identifying motivation for change, and the need for improved communication.

Table 1
Common reasons for patient nonadherence

Social–cultural barriers (insurance status, cultural differences)
Language barriers
Poor health literacy
Patient understanding of disease and treatment regimen
Patient emotional status
Physician attitude and behavior

When patients are confused or do not understand their treatment regimen, they may not adhere to lifesaving or quality-of-life improving medications. Tarn et al[8] developed the Medication Communication Index to assess the quality of physician communication regarding new prescriptions. The Medication Communication Index is a 5-point index giving 1 point each for medication name, medication purpose, medication duration, and adverse effects and a half point for following the number of tablets to be taken and frequency or timing of medication ingestion. Although time consuming in a clinical scenario, it is helpful to reflect on this scoring mechanism to determine which aspects are neglected when describing medication instructions to patients as a means to improve patient communication. In their study, Tarn et al[8] reported that the Medication Communication Index for pulmonary medications was 3.5, with 62% of all necessary elements of new prescription instructions relayed to patients.

Language literacy is another contributing factor to medication nonadherence. Wisnivesky et al[16] illustrated that limited English proficiency can significantly compromise communication between physician and patient, impeding efforts at asthma education and decreasing asthma outcomes. They noted higher rates of heath resource usage in elderly Spanish-speaking patients with asthma. Language barriers exist beyond fluency and affect illiterate English-speaking adults or hearing-impaired elderly patients. Apter et al[10] assessed health literacy as numeracy and print literacy (reading comprehension) and discovered that improved health literacy is related to better adherence and asthma control and enhanced quality of life, despite income and level of education. Discrepant language interferes with effective communication and the development of a relationship between patients and providers. To tackle these obstacles, physicians must effectively identify them and then seek alternative means for communication and interaction, ie translation services, multilingual asthma education programs, and pictorial patient handouts.

Nonverbal communication between physicians and patients also influences the rapport and the healing relationship. Nonverbal interaction is defined as communication without language and includes behaviors such as nodding, eye contact, tone of voice, and speaking time. Research has shown that interpersonal judgments are based on "thin-slices of a dynamic behavior stream" and thus are critical to the formation of one's impression of another individual.[17] Evidence indicative of improved patient satisfaction includes the use of an expressive and nondominant tone of voice with affirmations of patient statements.[17] These factors must be identified and remedied in the clinical scenario to improve medication adherence.

According to social–cognitive theory, individuals with higher self-efficacy and efficiency to perform a certain behavior (ie, take medications) are more likely to repeatedly perform that behavior. Therefore, it is important for asthma physicians to educate patients with asthma on the proper use and administration of their medications, specifically inhalers, which are often intricate in design and function, to improve patient self-confidence and medication adherence. Sleath et al[18] demonstrated this exact notion in their study in pediatric patients with asthma. During this study, patients originally shown and then asked to demonstrate correct inhaler