

Medication Adherence in Inflammatory Bowel Disease

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ABSTRACT

Inflammatory bowel disease is a chronic idiopathic inflammatory condition with intestinal and extra-intestinal features. The key component of treating inflammatory bowel disease is medication. Patients, however, often don't take their medication as directed. Medication adherence is the act of taking a patient's prescribed medications as directed. Average medication non-adherence rates for chronic diseases are 50% in developed nations, and they are even lower in developing nations. Measuring medication adherence can be done in a variety of ways, including direct and indirect methods, each with advantages and disadvantages. The factors influencing medication adherence are multifactorial. Cost, Psychosocial-related and medication-related factors were more important determinants of adherence compared with demographic or clinical variables which will be looked at in this review. Additionally, this review talks about the negative clinical effects of non-adherence to drug therapy. Finally, this review explores different intervention strategies to improve adherence to medications.

Keywords: Inflammatory bowel disease, Medication adherence, Medication non adherence

INTRODUCTION

Inflammatory bowel disease, which includes Ulcerative colitis and Crohn's disease, is a chronic, idiopathic, inflammatory disorder with intestinal and extra-intestinal features that are characterized by relapse and periods

of remission. Drug adherence is important to the efficacy of medical management of IBD since patients normally require long-term maintenance therapies.

The main drugs currently used for IBD treatment consist of 5-aminosalicylates, corticosteroids, immunomodulators, methotrexate, and biological agents, such as anti-tumor necrosis factor, and anti-adhesion molecules. But like other chronic conditions, patient adherence to treatment is frequently low¹

DISCUSSION

MEDICATION ADHERENCE

Adherence to medications is defined as 'the process by which patients take their medications as prescribed'². In developed countries, treatment non-adherence in chronic diseases is about 50%, and it is significantly worse in developing countries³. Based on the study population, delivery method, and adherence measurement techniques, it was discovered that the data on adherence in IBD varied. Oral medication non-adherence ranged from 7% to 72%, according to a systematic review of 17 studies involving 4,322 adult IBD subjects⁴. Adherence rate with biological therapy is higher⁴.

EFFECTS OF NON-ADHERENCE

Nonadherence to IBD is linked with Increased disease activity⁵, relapse^{6,7} loss of response to anti-TNF medications⁸, increased morbidity and mortality like

colorectal cancer, higher healthcare costs⁹, and a lower quality of life^{10,11}. Studies found that non-adherent patients had a recurrence risk that was more than five times higher than adherent patients⁵. Anti-TNF therapy noncompliance may lead to immunogenicity and, consequently, Loss of response to biological therapy⁸.

METHODS OF ADHERENCE MEASUREMENTS

Measurement of medication adherence can be done in different methods. No one technique is considered the gold standard,

methods now available may be divided into direct and indirect approaches. Direct measurements consist of directly observing therapy such as done in tuberculosis treatment and biochemical analysis, such as determining the presence of drug metabolites in blood or urine samples. The objective monitoring of medication usages, such as performing pill counts, pharmacy refills, and electronic monitoring devices, are examples of indirect methods. Subjective reports such as patient-kept diaries, patient interviews, and self-report questionnaires are also useful¹ (Table 1)

Table:1 Summary of Methods of Measuring adherence¹

Test	Example	Strength	Weakness
Direct method			
Measurement of the metabolite level in blood or urine		-Objective -Useful in nonresponse to biological agents	-Whitecoat adherence -Costly -Labor-intensive
Indirect methods			
Pill count		-Simple -Objective -inexpensive	-Could associate with overestimation or underestimation of adherence -Not suitable for medications administered in non-discrete dosages or taken on an as-needed basis
Pharmacy refill	-Medication possession ratio, the proportion of days covered method	-Objective -Relatively easy to obtain data	-Not equivalent to the consumption of medication -Requires a closed pharmacy system
Electronic monitoring device	surveillance System for tracking medication events	-precise -Results are easily quantified	-Expensive system -Requires to return visits of patients
Self-report by patients (such as through self-report questionnaires, interviews, and kept diaries)	MMAS-4,MMAS-8,VAS,MARS-4	-Simple -inexpensive	-Results could be easily manipulated by patients

FACTORS ASSOCIATED WITH NON-ADHERENCE

Factors influencing non-adherence include demographic variables, clinical factors, treatment variables, and psychosocial influences, cost¹². The relative proportion has varied between different populations based on the region, cultural practices, and beliefs. Analyzing these factors would be an effective way to prevent non-adherence and help formulate strategies to improve adherence and clinical outcomes.

Demographic and Clinical Factors Related to Medication Adherence

Different studies have shown inconsistent results with the demographic factors influencing adherence⁴. Among

demographic factors, non-adherence was associated with younger age, employment, and unmarried status in studies reporting significant correlation¹³⁻¹⁶. However, more studies report no significant correlation between the above-mentioned factors with adherence. Studies have shown disagreeing results of gender influence on adherence⁴. Among clinical factors, disease type (Ulcerative colitis vs. Crohn’s disease), disease location, disease duration, and disease activity have been studied in many studies. Ulcerative colitis was a risk factor for nonadherence in 2 studies whereas Crohn’s disease was associated with nonadherence in one study^{14,17,18}. The left-sided disease is associated with nonadherence whereas 4 other studies

reported no association between disease extends and nonadherence. Four studies reported that nonadherence is associated with a shorter duration of disease whereas 1 study reported the contrary^{13,14,15}. Active disease was associated with nonadherence in 3 studies and remission was associated with nonadherence in 3 studies. None of the other clinical factors were significant¹⁵.

Medication-Related Factors for Medication Nonadherence

Among the medication-related factors, concomitant non-IBD medications, high frequency of dosing (>3 times/d), and drug side effects significantly correlated with medication adherence. Type of drug, topical therapy, history of prior intestinal surgery, frequency of hospital visits, and use of complementary/alternate medications were not significantly associated with medication adherence^{16,17,18}.

Psychosocial Variables for Medication Nonadherence

Psychosocial factors such as patients’ beliefs, attitudes toward therapy, and their motivation for the therapy are important yet less commonly studied factors for drug adherence. The psychosocial factors can be broadly divided into illness and medications related beliefs, general psychosocial factors,

and physician-patient interaction⁴. The feeling of not having adequate information about medication is associated with non-adherence. Concerns regarding the efficacy and side effects were also shown to be associated with nonadherence as in other study^{12,15,17,18}. Feeling better was associated with adherence in one study whereas disease in remission was associated with nonadherence in another study¹⁹.

Cost

The high-cost perception was common (70% and 52% in non-adherent and adherent groups, respectively). In the developing world, cost is often considered a major barrier to adherence²⁰. In areas where patients are expected to pay for all, or most, of their medication, it is expected that the cost of medication itself will have an effect on adherence²¹.

Pill burden, depression, and medication-related concerns were more important in this regard²⁰.

INTERVENTIONS TO IMPROVE ADHERENCE

There are various interventions to increase adherence to chronic diseases. They may be educational, behavioral intervention, cognitive behavioral intervention, and multifaceted approach

Table 2: summary of various interventions¹

Intervention	Example	Strength	Weakness
Education		-Most helpful when accidental non-adherence, which results from a misunderstanding of the regimens	The benefit is negligible when used alone.
Behavioral intervention	Dose simplification	-Easy to implement -Low cost	Only oral mesalazine therapy data; uncertain whether the outcome could be extrapolated to other treatment regimens
	Audiovisual reminder system	-Easy to implement -Low costs	It is part of a multifaceted intervention so it does not allow the isolation of individual methods contributing to the benefit
Cognitive behavioral therapy	Problem-solving skill training	Improve adherence and HRQOL in youth with IBD	The small sample size in the RCT limits the generalizability
Multifaceted intervention	Educational, behavioral modification, cognitive behavioral therapy, motivational interviewing, telemedicine	Most beneficial in improving adherence	Differed sample sizes, patient populations, and methods make it difficult to compare among studies;

Educational strategies, dose simplification, and the use of audio-visual reminder

systems have been proven in randomized clinical trials to be efficacious in improving

medication adherence in IBD. They are most likely helpful for patients who unintentionally fail to adhere to treatment because they misunderstand the treatment plan or are overwhelmed by the regimen's complexity. More research is required to determine the effectiveness of cognitive behavioral therapy in adult IBD populations, but it is a promising treatment for pediatric IBD patients. There is more information on multifaceted interventions to improve adherence in IBD, and the combined approach maximizes the potential of each approach to address different adherence barriers. There is more information available on multifaceted interventions to increase adherence in IBD; the combined strategy maximizes the potential of each technique to address various adherence barriers like motivational issues, problematic family functioning patterns, and so on. Identification of individual methods responsible for the improvement in compliance would aid in more resources being allocated to these strategies to benefit patients¹. Table 2 provides an overview of the different interventions.

CONCLUSION

Medication adherence is a significant problem in the management of IBD and could lead to adverse clinical outcomes including an increase in disease activity, relapse, LOR to anti-TNF agents, higher morbidity and mortality, increased health expenditure, disability, and poor QOL. Methods to measure medication adherence is divided into direct and indirect approaches. In addition to cost, psychosocial and medication-related factors were more significant predictors of adherence than demographic or clinical variables, and they should be sought in every IBD patient. Various interventions exist, such as education, dose simplification, the use of audio-visual reminder systems, and multifaceted approach that are found to be efficacious to enhance adherence.

Declaration by Authors

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