

Adherence to inhaler medications in patients treated for Asthma and COPD

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HA conceived idea, planned the study and drafted the manuscript, NJ SI collected data, HA did statistical analysis and interpretation, HA RJF SA critical reviewed manuscript RJF SA approved the final version to be published.

Declaration of conflicting interests

The Authors declares that there is no conflict of interest.

ABSTRACT

Background: Non adherence to inhaler medication is a common therapeutic problem in patients treated for Asthma and COPD. We aimed this study to determine the level of adherence to inhaler medications and to know the frequency of etiologic factors for non-adherence.

Material and Methods: This was a descriptive study conducted at Pulmonology OPD, Khyber teaching hospital Peshawar from 1st Aug 2016 till 31st Jan 2017. All adult patients having Asthma or COPD who were already prescribed at least one regular inhaler for control of their disease were included. Patients with severe exacerbations, unwilling or seriously ill were excluded. After consent, adherence to inhaler medicines was assessed according to Morisky medication adherence scale. The following five reasons for inhaler non-adherence were asked i.e. economic problem, fear of dependence/social stigma, not knowing about un-interrupted use, non-efficacy of inhalers, and adverse effects. The information was collected in a structured proforma and the data was analyzed via spss 19. The results were presented as table/graph.

Results: A total of 120 patients with mean age of 44.9 (± 12.24 SD) were interviewed. Males constituted 37.9%. The medication adherence level was high in 28.45%, medium in 19.82% and low in 51.72%. The main reasons for non-adherence included economic problem (60.68 %), not knowing about the regular use (35.9%), social stigma of inhalers/ fear of dependence (28.21 %), non-efficacy of the drug (11.11%) and side effects of inhalers in (6.83%).

Conclusion: Non adherence to inhaler medication is a common therapeutic problem in our patients with Asthma and COPD and the major reasons for non-adherence include poverty, poor health literacy and social stigma/fear of dependence on inhalers which need to be addressed during management of these chronic disease patients.

Key Words: Adherence; Inhalers; Morisky scale; Prevalence

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Introduction

Adherence to medical therapy is an essential factor in ensuring the desired beneficial effects of the pharmacologic therapy. It is defined as the degree to which patient's behavior coincides with the clinical prescription.¹ As with other chronic treatment regimens, non-adherence to asthma and COPD therapy is widespread and, as such, is a significant risk factor for morbidity and mortality.² Negative consequences of medication non-compliance include poor symptoms control, increase

risk of hospitalization, worsening quality of life, increase health care expenditure and a 2-3 times higher mortality rate according to sub-analysis made in the TORCH study.³

In general, adherence rates are lower for chronic disease compared with acute conditions because adherence decreases over time.⁴ Moreover, asthma and COPD patients have markedly lower rates of adherence as compared with other chronic conditions. A recent study of 750,000 adults, medication possession ratio rates for COPD/asthma were the

lowest (33%) of all the diseases studied compared with diabetes (51%), depression (62%), and >75% for patients with hypertension, hyperlipidemia, osteoporosis, multiple sclerosis, and cancer.⁵

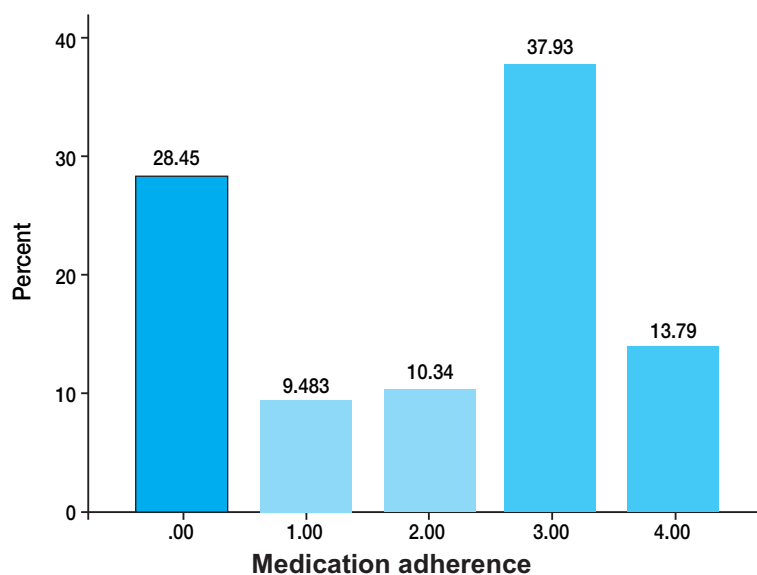
Both Asthma and COPD are chronic diseases and need continuous treatment with inhaled medication as confirmed by numerous clinical trials. However, these inhalational agents are unlikely to exert full effects when treatment compliance is poor. A cross-sectional study of 24,017 adults with chronic disease found that 70% of patients displayed unintentional non-adherence for reasons such as: forgetting to take medication (62%), running out of medication (37%), and being careless about taking medication (23%).⁶

It appears crucial to identify those asthma and COPD patients who are non-compliant with their treatment. In order to assess adherence to the medical therapy, several methods have been proposed, one method is 4-item Morisky Medication Adherence Scale (MMAS-4). Morisky test includes questions about forgetfulness, carelessness, feeling better or feeling worse with prescribed treatment, as reasons for poor drug compliance. Since this scale has been validated in the broadest range of diseases and in patients with low literacy, it is the most widely used scale for research.⁷

We conducted this study to determine the adherence level of our asthma and COPD patients to the prescribed treatment using Morisky scale as no work has been done on this topic in our set up. This may help in better management of the patients by considering this important issue before embarking on stepping up the treatment.

Objective: To determine the level of adherence to inhaler medications and to know the frequency of etiological factors for non-adherence.

Patients and Methods: This was a descriptive study conducted at Pulmonology OPD, Khyber teaching hospital Peshawar from 1st Aug 2016 till 31st Jan 2017. All adult patients already diagnosed as having Asthma or COPD who were prescribed at least one regular inhaled medication for control of their disease were included. Inhaler medicines included long acting beta agonist, corticosteroid and anticholinergic drugs alone or in combination in metered dose or dry powder form. Patients with severe exacerbation, not willing to participate in interview or seriously ill were excluded. Adherence to inhaler medicines was assessed according to Morisky Medication Adherence Scale (MMAS-4) comprising of 4 closed ended questions (by saying yes or no) i.e. whether the patient ever forgets, sometimes careless to use inhalers or stops it when feels better or worse after taking the inhalers medications during the past 2 weeks? Adherence level was interpreted as high (saying no to all 4 questions=0 points), medium (1-2 points) or low (3-4). Those with medium or low adherence were further asked regarding the following common reasons for poor compliance i.e. economic problem (unable to purchase the medicine), health literacy (whether they knew to take medicines regularly or not), social stigma/fear of dependence on inhalers, related to non-efficacy of inhalers and side effects. The information was collected in a structured proforma and the data was analyzed via spss 19. The results were presented as table/graph.



Interpretation: high adherence (00), Medium adherence (1-2), Low adherence (3-4)

Figure 1: Medication adherence according to Morisky medication adherence scale (MMAS-4)

Results

A total of 120 patients with mean age of 44.9 (± 12.24 SD) were interviewed. Males constituted 37.9%. The medication adherence level was high in 28.45%, medium in 19.82% and low in 51.72% (figure 01). The

main reasons for non-adherence included economic problem (60.68 %), not knowing about the regular use (35.9%), social stigma of inhalers/ fear of dependence (28.21 %), non-efficacy of the drug (11.11%) and side effects of inhalers (6.83%) as shown in Table 1.

Table 1: Causes of Non-adherence to inhaler medications

S.No	Causes for non-adherence	Percentage (%)
1	Economic problems	60.68
2	Not knowing about regular use	35.9
3	Social stigma/fear of inhaler dependence	28.21
4	Non efficacy of inhaler	11.11
5	Side effects of inhalers	6.38

Discussion

Non adherence to medical prescriptions is a major problem in patients with chronic diseases. Suboptimal adherence to inhaled form of controller medication in Asthma and COPD has adverse effects on disease control on one hand and treatment cost on the other. Despite the range of inhaler medicines available with proven efficacy for the control of asthma and COPD, many patients don't achieve the treatment goals in part due to low adherence to the prescribed therapy. Impact of non-adherence include poor symptoms control, increase number of relapses, and worsening quality of life. It also increases risk of hospitalization and all-cause mortality according to sub analysis of a landmark study.⁸

The most common type of non-adherence being the under use of medications. We found the high level of adherence in less than one third (28.45%) of our patients where as other studies have reported different ranges from 22% to 78%.⁹ This wide variation in prevalence on non-adherence is probably multifactorial i.e. differences in methodology of different studies, level of health literacy, patient's beliefs, patient-prescriber relationship, socioeconomic factors and healthcare system problems, all of these would affect the medication adherence level.¹⁰

WHO has declared medication non adherence as "new pharmacological problem" and has grouped the reasons for non-compliance into 5 categories, i.e. Economic problems, health care system related, social problems, disease related and lastly patient related issues.¹¹ According to this categorization, our study revealed that more than half (60.68%) of the patients stopped their medicines because of poverty, and nearly one third (35.9%) were not aware of regular/un-interrupted use. Moreover, a quite high percentage of patients (28.21%) considered inhalers

as social stigma and/or were afraid of dependence on inhalers in long run. Interestingly, problems related to efficacy or side effects were not very common.

Economic problem being the most frequent cause of poor drug adherence in our patients, has been shown in literature to be one of the most important determinants of low adherence.¹² Similarly, many of our patients as stated above were not knowing that regular use of medicines is important to control their disease suggesting problem with health literacy and health care system. Studies conducted on medication adherence suggest that 29–39% of patients report receiving no instruction from their providers on how to take new medications while up to 62% receive only dosing directions.^{13, 14} A study from Middle East showed that the most common cause for non-adherence was the patients' fear that using inhalers would be habit forming, and would be associated with a social stigma.¹⁵ Another study has reported the common reasons for non-adherence as inhaler cost (30%), and concerns about habit formation (12.7%) and fear of side effects (38%). The same study showed non-adherence to be significantly higher in low-income and lower education groups and adherence was higher when physician was directly involved in asthma education and inhaler technique demonstration compared to other health professionals/non-medical persons ($p=0.004$).¹⁶

Simplification of dosing regimens by reducing dose frequencies has been associated with an increase in medication adherence in chronic disease.¹⁷ Prescribing combination inhaled drugs, drugs with infrequent dosing, and affordable ones have been shown to be the most common interventions aimed at improving adherence provided by respondents.¹⁸ Moreover, selecting inhaler type that patients find easier to use, increase in patient's understanding of the disease, ensuring proper inhaler technique, and

improving social support are also related to improved adherence.¹⁹

Conclusion

Non adherence to inhaler medication is a common pharmacological problem in our patients with Asthma and COPD and the major reasons for non-adherence include poverty, poor health literacy and social stigma/fear of dependence on inhalers which need to be addressed during management of these chronically ill patients.

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