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Research Article

MEDICATION ADHERENCE BEHAVIOR IN CHRONIC DISEASES LIKE ASTHMA AND DIABETES MELLITUS

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ABSTRACT

Chronic disease patients have the problem of non-adherence to their medications due to many factors. Successful management of a treatment depends on adequate self-care and knowledge of patients to their disease and medications which indirectly affects medication adherence behavior. The main objective of the present study is to assess the medication adherence in chronic diseases like asthma and diabetes mellitus. Prospective observational study was carried out in rural tertiary care hospital. Based on the inclusion and exclusion criteria patients were enrolled into the study. A total of 212 patients were enrolled out of which diabetes mellitus dominated over asthma patients. Questionnaire based medication adherence tool was used to assess the medication adherence behavior. The mean adherence score in diabetes mellitus was found to be 1.76 ± 0.66 and in asthma patients was 4.62 ± 1.63. Level of adherence was also categorized where the diabetes mellitus patients were more adhere to medications when compared to asthma patients.

Keywords: Medication adherence, Diabetes mellitus, Asthma

INTRODUCTION

Asthma is a very common disorder and it is estimated that 2 to 4% of the adult population in India is affected by it. A recent ICMR sponsored study showed that 3.47% of the adults in Bangalore suffer from asthma.[1] Asthma being a chronic inflammatory disorder of the airways, anti-inflammatory agents like inhaled steroids, leukotriene antagonists etc are the mainstay of its management. But underutilization of these agents and reliance on reliever medication has been reported in the Western literature.[2-3] In India, there is a paucity of data regarding the knowledge of asthmatics about different medications. The prevalence of asthma worldwide is around 200 million with a mortality of around 0.2 million per year.[4]

In many countries, the prevalence of asthma has increased in recent decades.[5] Bronchial asthma is one of most common chronic respiratory disorder among all age groups with a reported prevalence of 5 to 10%.[6] During the last decades studies from different countries keeping appropriate statistics have reported a significant rise in asthma morbidity and mortality.[7]

Prevalence of diabetes worldwide in the year 2000 was 171,000,000 and predicted 366,000,000 at end of the year 2030. [8]The prevalence of diabetics in Indian adults was found to be 2.4% in rural and 4-11.6% in urban dwellers.[9]India with its dubious distinction of being called "the diabetic capital of the world" is presently estimated to have 41 million individuals affected by this deadly disease, with every fifth diabetic in the world being an Indian. [10, 11]

A national survey of the US non institutionalized adult population indicated that more than 40% of persons 65 years or older use 5 or more different medication use per week and 12% use 10 or more different medications. Levels of medication use are even higher among elderly persons residing in assisted living and nursing home setting. [12] Diabetes mellitus is a chronic incurable disease whose prevalence is growing worldwide. Patient s adherence to diabetes regimen is the one of the barriers to ideal management of diabetes. [13]

A number of reasons have been proposed including:

- Poor knowledge of the disease by patients.
- Negative attitude towards the disease.
- Bad practice in the management of disease.

One of the most challenging areas in clinical management of chronic respiratory conditions is patient adherence to treatment recommendations. The more acceptable term today is adherence, which means, "sticking to a plan" for perceived benefit. This concept implies that the patient has adopted and integrated a plan given by a clinician. The notion that an individual will stick to a plan implies a sincere desire for the promised beneficial outcome but ignores the behavior necessary to achieve it. Estimates suggest that 30% to 60% of patients with chronic illnesses fail to adhere to prescribed therapy. Approximately 10% of all hospital admissions are estimated to be due to medication nonadherence.[14]

Poor or low levels of adherence to therapeutic treatments and recommendations are reported across all disease conditions, all treatments, and all ages. Only about one-half of the people who are prescribed medications actually take enough doses to achieve a therapeutic effect. This often results in prescription of increased doses and the addition of more medications by clinicians caring for these patients. Research shows that many social factors interfere with adherence. They include multiple life stresses such as poverty, social conflicts, job loss, homelessness; fears and concerns that are not addressed; complex job and family responsibilities; and misunderstanding, language barriers, and literacy factors.[15]

Similarly, variables such as age, gender, education, race, and ethnic culture may influence learning, communication, and social ability, resulting in problems following a prescribed treatment plan. Approximately 50% of patients are unable to achieve full compliance, and nearly 33% never take the prescribed medicine at all.[16]Adherence is higher for short-term, self-administered treatments, estimated at about 65% to 75% but falls to less than 25% for long-term therapies.[17] Other important causes of non-adherence are lack of confidence in the treatment plan, lack of ability for adjusting medications, lack of skills in using inhalers and devices, lack of awareness of deteriorating lung function, poor skills in self-assessment, forgetting, misunderstanding, health beliefs, and attitudes toward disease and treatment.[18]

Barriers to adherence:

1. Fear of adverse effects of medication.

2. Belief that the medication does not help or is not necessary.

3. Sense of only an intermittent need for medication.

4. Inconvenience of medication use.

5. Cost of medication.

6. Dislike of provider.

Some of the less common reasons for non-adherence were:

7. Stigmatization.

8. Inadequate knowledge.

9. Forgetfulness.

10. Belief that their asthma is not serious.

11. Worry about diminishing effectiveness of medication over time.

12. Fear of addiction/dependence.

13. Lack of social support.

Pharmacist can improve the adherence by giving advice to the patient regarding the medication use and advising doctors on the simplification of drug regimen, providing patients with medication alert cards which may help to medication non adherence. Hence the present study was aimed to assess the medication adherence behavior in patients with asthma and diabetes mellitus.

MATERIALS AND METHODS

Study design: Prospective observational study

Place of study: The study was conducted at tertiary care teaching hospital in a rural setup.

Duration of the study: The study was conducted over a period of 9 months.

A cross sectional observational study was carried out among patients suffering from the chronic disease like asthma and diabetes mellitus. Inclusion criteria was those who are willing to give their consent having asthma/diabetes mellitus with one or two co-morbidities and exclusion criteria was those having less than 18 years of age and not willing to participating the study.

Patients who are admitted as out or in patients to medicine department were reviewed on daily basis and those patients who met the study criteria were interviewed. Face to face interview was carried out for collecting data by using questionnaires. MMAS-4 and MMAS-8 was used to assess the Medication Adherence in Diabetes Mellitus and Asthma respectively. Questionnaire was used in English and Kannada based on the patient preference. Ethical clearance was obtained from the institutional ethical committee of the hospital.

Analysis of data: The collected data was transferred to a Microsoft Excel worksheet to obtain the result which has been expressed as percentage and mean value scores with their standard deviations.

RESULTS

A total of two hundred and twelve patients were enrolled after considering the inclusion and exclusion criteria. Out of 212 patients 113 patients were diabetes mellitus and 99 patients were suffering from asthma. The Baseline demographic details show the 61-70 years age group with 28.32% having diabetes mellitus and 25.25% of patients having asthma and other demographic details are shown in table 1.

Table 1: Shows demographic details of the patients

Variables	Percentage (%) wise distribution in Diabetes mellitus	Percentage (%) wise distribution in Asthma
Gender		
Males	60.18	54.55
Females	39.82	45.45
Age in years		
< 30	00	13.13
31-40	13.27	24.78
41-50	27.43	25.25
51-60	23.89	17.17
61-70	28.32	9.09
>70	7.08	10.10
Education		
No formal education	24.78	15.15
Primary school	21.24	36.36
High School	30.97	22.22
Pre University	15.04	22.22
Degree	7.96	4.04
Smoking		
Yes	26.55	44.44
No	73.45	55.56
Alcoholic		
Yes	32.74	35.35
No	67.26	64.65

Assessment of adherence

Medication adherence of the enrolled patients were assessed by using MMAS-4 and MMAS-8 where MMAS-4 consists of 4 questions with a score range of 0-4 and in MMAS- 8 consists of 8 questions with score range of 0-8. Table 2 shows the average mean score of the different group of patients with their standard deviation. The level of adherence with 4 item scale was those having the score range between 3-4 was considered as low adherence, 1-2 score as medium adherence and 0 with high adherence. In MMAS-8 <6 score considered as low adherence, 6-<8 as medium adherence and equal to 8 considered as high adherence. Table 3 shows the level of adherence of enrolled patients with medication adherence scale.

Table 2: Shows the medication adherence scores of two chronic disease patients

Scale	Disease	Mean total scores and standard deviation
MMAS- 4	Diabetes mellitus (n=113)	1.76 ± 0.66
MMAS - 8	Asthma (n=99)	4.62 ± 1.63

Table 3: Shows the level of adherence among the patients based on their scores

Type of disease	Level of adherence	Number of patients in (%)	
		Males	Females
In Asthma Patients (n=99)	Low adherence (<6)	74.1	82.2
	Medium adherence (6to<8)	24.1	15.5
	High adherence (=8)	1.9	2.2
In Diabetes Mellitus Patients (n=113)	Low adherence (3-4)	11.76	4.44
	Medium adherence (1-2)	88.24	91.12
	High Adherence (=0)	00.00	4.44

DISCUSSION

Adherence requires improved self-management behavior as well as knowledge. One report suggested that morbidity and mortality of asthma could be markedly reduced or eliminated with effective education programs that improve adherence.[19] The success of any medical regimen prescribed for a particular patient often depends, in large part, on three factors: (a) the patient's attitude toward the illness, including his or her willingness to work with the physician to manage the disorder; (b) the patient's confidence in his or her ability to contribute to the management of the illness; and (c) the patient's knowledge regarding the illness, which enables him/her to take appropriate action to control particular symptoms.

These three factors interact to contribute to patients' compliance with treatment regimens and the extent to which they will get involved and participate in their own treatment. This is particularly true for any chronic disease. Onset of asthma can occur at any age

but is usually seen in children and young adults, the majority was middle aged (41-50 years) 25.25%.The self-perception of people with asthma/ diabetes mellitus influences their adherence. Low adherence was found with 74.1 % in males and 82.2 % in females of asthma patients this may be lack of education on medication and disease management. Only 1.9% males and 2.2 females' patients of asthma had high adherence. In diabetes group only female 4.44 % of patients showed high adherence this may be due to regular intake of medicine as prescribed, medium adherence patients was high when compared to the low adherence patients. Some of the reasons were identified for non- adherence in the patients were due to missing the dose, forgetfulness, poly pharmacy, high cost, when patient feels better discontinue the therapy. Thus in the present study shows most of the patients are poor adherence to medicines and lack of knowledge on their disease. Hence pharmacist as a health care professional can involve in improving the adherence of the patients by some interventions and as follows;

Patient education, Patient reminders/alarms, More frequent clinical visits, Written educational materials, Telephonic follow ups, Simplified dosing, Encouraging patient involvement, Prescription refill reminders. Many studies have shown the positive impact of pharmacist provided patient education on medication adherence. [20, 21,22,23,24]

CONCLUSION

Hence we conclude that low medication adherence was observed, very low in Asthma when compare to Diabetes Mellitus due to many factors, so it is very much essential to educate and counsel the patients regarding their medications to improve their knowledge about the medications and thus in turn improves the adherence.

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