ORIGINAL ARTICLE

Treatment adherence among asthma patients attending a hospital of Ahmedabad.

Nency Sunilkumar Patel[1], Donald Shailendra Christian[2], Deepali Jayul Kamdar[3], Khushbu Rajesh Patel[4]

[1]Student, GCS Medical College, Hospital & Research Centre, Ahmedabad, Gujarat, India; [2]Assistant Professor, Department of Community Medicine, GCS Medical College, Hospital & Research Centre, Ahmedabad, Gujarat, India; [3]Ex-Associate Professor, Department of Chest Medicine, GCS Medical College, Hospital & Research Centre, Ahmedabad, Gujarat, India; [4]Observer, Pulmonary and Internal Medicine Associates, Medical Park Plaza Hospital, Houston, Texas, United States

Corresponding Author

Address for Correspondence: Dr. Donald S Christian, Assistant Professor, Department of Community Medicine, GCS Medical College, Hospital & Research Centre, Ahmedabad, Gujarat, India
E Mail ID: donald_christian2002@yahoo.com

Citation

Patel NS, Christian DS, Kamdar DJ, Patel KR. Treatment adherence related to asthma patients of a tertiary care institute. Indian J Comm Health. 2018; 30, 2: 127-132.

Source of Funding: Indian Council of Medical Research, New Delhi **Conflict of Interest:** None declared

Article Cycle

Received: 25/04/2018; **Revision:** 20/05/2018; **Accepted:** 24/06/2018; **Published:** 30/06/2018

Abstract

Background: The success of treatment in asthma requires long term commitment, adherence and a good self-management. **Objectives**: To study attitude and behavior related to adherence to medication by patients of asthma in a tertiary care institute and to assess their treatment seeking behavior. **Study Settings**: Tertiary care institute, Chest Medicine department, **Design**: Hospital based study. **Materials and Methods**: All the diagnosed asthma patients (N=100) were enrolled in the defined study period. Structured interviews were done of the diagnosed asthma patients using a predesigned questionnaire. The questions were related to the attitude and behavior towards medications, treatment seeking behavior of the patients and their adherence to treatment. **Results:** The study shows that out of 100 respondents, sixty (60%) of the respondents had experienced the symptoms for more than 6 weeks before going to hospital. About half (49%) had learned the use of inhaler from their doctor. Sixty-one (61%) had rated their asthma as “well controlled”. The commonest reason (n=79) for missing dose was “symptoms were relived & it was not necessary to continue treatment”. **Conclusion**: It could be seen that patient-side delays proved important determinant for treatment of Asthma. The commonest reason for missing dose was temporary relief of symptoms.

Keywords

Asthma; Self-management; Treatment adherence; Treatment behavior

Introduction

The World Health Organization (WHO) estimates that about 358 million people currently suffer from Asthma. (1) Despite of better modalities of cure, the trends of sufferings and deaths from asthma have gone up. (2,3). Researchers have found that the reasons behind non-adherence to asthma medications are complex. (4) Education and behaviour change are the key strategies to improve adherence. (5) In most countries, inadequate control remains a noticeable hurdle for patients and the health systems. (6) It is to be noted here that understanding of the regimen is necessary, but not

enough, to ensure patient adherence. (7) Non-adherence to asthma treatment has led to increased incidences of exacerbation of asthma. (8) Several of the studies in countries Northern America and Europe have showed that around 75% of the total costs of asthma, were a result of poorly control and non-adherence. (9,10) Educational and behavioral strategies and self-management will play very crucial role. (11,12) It must be emphasized that several patient related factors are required to be studied. (13)

Aims & Objectives

a) To study attitude and behavior related to adherence to medication by patients of asthma in a tertiary care institute.
b) To assess the treatment seeking behavior of patients with asthma.

Material & Methods

The study was done in a tertiary health care institute of Ahmedabad city, Gujarat among the asthma patients attending the outpatient unit of the Chest Medicine department. In the present study all the diagnosed Asthma (new or old) patients were interviewed during the period of 2 months. The exclusion criteria were: very severely ill persons (unable to respond to questions) and the patients who doesn't give consent for the participation. Taking a prevalence of about 12% Asthma for adults in India for hospital admissions, it could be estimated that about 2930 sample size should be taken into account. (14) The formula applied was $SS= 4p (1-p)/L^2$. (p= prevalence, L=maximum allowable error). Considering the limited locality as well as the time period for the collection of data. About three percent of the estimated sample size was taken (N=100). A non-response rate of about 10% was considered. A questionnaire related to the attitude and behavior towards medications in Asthma was devised and used for the survey. The questionnaire was first converted in local language and then it was again back translated to maintain the content validity. The study protocol was sent for approval by the institutional ethical committee. A pre-test was performed taking about 10% of samples to get an idea about the feasibility of the tool. The data were collected by the investigator student from outpatient department of Chest Medicine units. Informed consent was obtained from participants before initiation of the data collection. Taking into consideration of the variable literacy status, a structured interview was performed to fill up the survey tool for each of the patient. Information on treatment-seeking behavior as well as existing morbidity was also noted. Data entry and analysis were done with Statistical Package for Social Sciences (Version 16 –Evaluation (Trial) version) (SPSS Inc. USA) software. An appropriate statistical methodology like percentages, student's t-test and chi-square test were utilized for data analysis.

Results

Social and demographic characteristics:

The mean age of the enrolled patients was 42.99 (12.63-73.35) years. The study shows that among all the respondents 43% (n=43) were male & 57% (n=57) were female. Most of them (n=73, 73%) were Hindu by religion and the rest of them were others like Muslim (n=24, 24%), Christian (n=1, 1%), Jain (n=1, 1%) and Sindhi (n=1, 1%) communities. Most of the subject (n=87, 87%) were married. The study shows that 45% (n=45) respondents had an education up to primary level while 19% (n=19) of the patients were totally illiterate. The commonest occupation was “housewife (n=46)”, followed by “Private” work (n=16)”. Among the total enrolled subjects, 25% (n=25) belonged to families having five members, followed by 22% (n=22) having 4 family members and 16% (n=16) having 6 family members. Most of the enrolled subjects (n=86) did not have any present addiction and very few 6% (n=6) had addiction of chewing tobacco while only 6% (n=6) had an addiction of smoking. I was also noted that 21% (n=21) respondents were passive smoker. The study revealed that 65% (n=65) of the patients did not have any present co-morbid illness.

The study shows that fifty-nine respondents (49%) believed that the cause of their condition is pollution; followed by 23% (n=23) of those who believed that it is hereditary. In contrast to that eighteen (18%) of the enrolled subjects believed that the disease is due to environmental factors. The study showed that the enrolled patients of asthma shows multiple symptoms and the commonest symptom was shortness of breath (91%, n=91), followed by coughing (75%, n=75), wheezing (63%, n=63) and tightness of chest (52%, n=52). The present study shows that around half of the enrolled subjects (n=49) started their treatment within 1 week of their diagnosis of the disease, which was followed by 32% (n=32) respondents who started their treatment between 1-2 weeks of the diagnosis.

The study shows only 38% (n=38) of the subjects actually were aware about the severity of their illness by the physician.

Table 1 shows the associations of the socio-demographic characteristics with some of the responses related to their treatment behavior and treatment adherence.

Treatment seeking behavior:

It was further evaluated that there wasn't any significance difference for male or female sex for "getting treatment immediately" or not. (p=0.61) Being "illiterate "also did not form significant association for getting immediate treatment among the enrolled subjects. (p=0.83). Table 1. The present study also shows that only 37% (n=37) of the enrolled patients had taken lung function test only once till date, followed by 21% (n=21) who had taken the lung function test twice. The study shows that only few respondents (n=19) were told by their treating physician that how long their treatment would be continued. The study observes that around half (49%, n=49) had learned techniques to utilize inhaler from their doctor; followed by from other clinical staff (41%, n=41). Among the respondents, 37% (n=37) didn't know any self-regulation method. The present study notes that 29% (n=29) of the enrolled subjects had attended a patient education program for asthmatics in any point of time of their illness.)

Adherence to medication:

Among all the respondents 61% (n=61) patients had rated their asthma as "well controlled", followed immediately by only 21% (n=21) of the respondents who rated it as "poorly controlled". The present study reveals that 57% (n=57) of the respondents had not had any side effects from medicines. According the results, it is also evident that 54% (n=54) of the enrolled subjects were taking medicines for asthma for more than 12 months; followed by 37% (n=37) who were taking medicine for 6 months or less. The present research depicts that twenty nine percent (n=29) of the patients had missed their doses of medicines for 10 times or more during last 3 months. This observation was followed by the fact that 20% (n=20) of the enrolled subjects missed their doses between 1-5 times; followed by 16% (n=16) who had missed their doses between 6-10 times. The study shows that 35% (n=35) respondents had answered not missing any dose during the past three months. Among the study subjects who missed any dose, majority of patients had answered reason for missing dose was "symptoms were relieved and did not want to continue treatment" (n=79, 79%).

Discussion

The present study shows that the average age of the asthma patients was 42.99 (± 30.36) years. Sicras-Mainar A *et al*, in their research in 2017 had showed an average age of about 48.6 years among the study subjects having asthma. (10) Thus, the average age is comparable with the recent research. The average age is also a significant parameter to consider for differentiating childhood asthma from adult one. This is because at the ages of six to seven years, the prevalence of the disease is found to be from 4% to 32%; while the prevalence among the adult population is lesser than that, which is about 2% to 12%. (3) In the current study, it could be emphasized that occupations types and the distribution of the religion were also quite representative. One important observations of the current study was that only about one third (n=38) of the subjects actually were aware about the severity of their illness by the physician. In a work done by Lawani *et al*, it was seen that a good perception regarding the disease severity was a prominent indicator for higher drug adherence. (14) In the present study, it was surprising to know that only around half of the subjects (n=49) started their treatment within the first week of their diagnosis of the disease and rest did not. It was also noted that about 14% of the enrolled subjects had not gone for any pulmonary function tests (PFTs) so far; possibly due to unawareness about the degree of the disease. The present study reveals the fact that only few respondents (n=19) were told by their doctor that how long their treatment would be continued.

In this study, most of the subjects (90%) had learned using inhaled medication from either clinicians (49%) or other health staff (41%) which is very positive finding as far as treatment adherence is concerned. Various factors are implicated in non-adherence to effective inhaled medicines globally. (4) Because of poor learning of the techniques for using the devices like spacers or inhalers, patients are more likely to interrupt the therapy in between the course. Technical difficulties as well as absence of motivations are the two reasons non-compliance to inhaled medicaments in asthma. The present study also reveals that nearly one fourth (28%) of the

enrolled subjects felt their asthma was either "poorly controlled" or "not controlled." The lower proportions of the "poorly controlled" or "un-controlled" in the present study could be because of the less numbers of respondents. Previous research shows that increased patient satisfaction has led to lower exacerbations in asthma and COPD (Chronic Obstructive Pulmonary Disease). (15) In the current study, it was observed that significant number of the patients (37%) were not using any self-regulation method for preventing exposure to possible air-pollution. Good self-management is crucial not only for dealing with symptoms but also for preventing acute exacerbations of the disease and related complications. (16) The study shows that the perceived adherence was about 72%. That means, seventy-two respondents replied they would adhere to the treatment advised by the clinician. In a recent past study, it was also noticed that the treatment adherence was 43% by single question method. (14) This could be attributed possibly to more numbers of respondents and the low social profiles of the enrolled subjects. In contrast, in a previous recent study, the adherence rate was 51% among the pediatric asthma patients. This difference might be due to high number of participants in the later and the difference in the age criteria (15 years or more) among the subjects. (10) When considering the duration of the treatment, it was revealed that more than half of the patients were on the treatment adherence is concerned. In the present study 35% of the total enrolled subjects had not missed more than 1 dose during the past three months. On asking further about the probable reason for the missed doses, it was found out that more than average number of the patients had answered reason for missing dose was "symptoms were relieved and they did not feel any necessity to continue treatment" (79%). From the various studies it is seen that, apart from various motivations, things like reinforcements and reminders are also needed for controlling asthma. (8)

Conclusion

The aspects of treatment seeking behavior and adherence were evaluated. The readiness and promptness for seeking immediate medical attention were lacking in most of the respondents. It was also seen that only around half of the respondents actually practiced long term care for their current asthma. Majority of the respondents tended to miss higher doses of asthma medications within the recent past. Self-regulating asthma and going for patient education programs were not priorities for majority of the current asthma patients.

Recommendation

Regular counselling sessions by the physicians and the paramedical staff could become an important aspect for the treatment of asthma. The physicians should try to organize such separate sessions specifically for asthma patients to know their concerns and difficulties related to the long term treatment and the technicalities of the mode of therapy. Family members should be encouraged to clarify the doubts, especially for the follow-up schedules of the patients and the importance of regular doses taken at home. The importance of self-control should be emphasized with the use of Health Education materials for the patients as well as the care takers at home for enhancing the compliance to the therapy. Formal feedback mechanisms through the use of charts can be of help.

Limitation of the study

The current study is hospital based so the findings are likely to be influenced by the admission rates, patient flow as well the characteristics of the population who are more likely to visit the hospital. It is also not possible to ascertain the exact social characteristics of the respondents.

Relevance of the study

In India, Asthma has been a major respiratory illness which contributes significantly to death. For asthma, a good self-management, treatment behavior and adherence is crucial not only for dealing with symptoms, but also for preventing asthma attacks, complications and deaths. So, a study in this respect would be fruitful taking local context into account.

Authors Contribution

Each author has made substantial contribution towards concept, designs, drafting the article, data acquisition, manuscript preparation, editing, critical reviewing and revisions.

Acknowledgement

The authors would especially like to thank the department of Chest Medicine for allowing to interact with asthma patients. The authors are grateful to the study respondents for providing their valuable time and for keeping the faith and the patience.

References

1. WHO | Asthma [Internet]. WHO. World Health Organization; 2016 [accessed on Jan 15, 2018]. Available from: http://www.who.int/mediacentre/factsheets/fs307/en/
2. Koul PA, Patel D. Indian guidelines for asthma: Adherence is the key. Lung India. 2015 Apr;32(Suppl 1):S1-2. doi: 10.4103/0970-2113.154511. PubMed PMID: 25948888; PubMed Central PMCID: PMC4405918.[PubMed].
3. Cavkaytar O, Sekerel BE. Baseline management of asthma control. Allergol Immunopathol (Madr). 2014 Mar-Apr;42(2):162-8. doi: 10.1016/j.aller.2012.10.004. Epub 2012 Dec 21. Review. PubMed PMID: 23265257.[PubMed]
4. Normansell R, Kew KM, Stovold E. Interventions to improve adherence to inhaled steroids for asthma. Cochrane Database Syst Rev. 2017 Apr 18;4:CD012226. doi: 10.1002/14651858.CD012226.pub2. Review. PubMed PMID: 28417456.[PubMed].
5. Haynes RB, Montague P, Oliver T, McKibbon KA, Brouwers MC, Kanani R. Interventions for helping patients to follow prescriptions for medications. Cochrane Database Syst Rev. 2000;(2):CD000011. Review. Update in: Cochrane Database Syst Rev. 2002;(2):CD000011. PubMed PMID: 10796686.[PubMed].
6. Horne R, Price D, Cleland J, Costa R, Covey D, Gruffydd-Jones K, Haughney J, Henrichsen SH, Kaplan A, Langhammer A, Østrem A, Thomas M, van der Molen T, Virchow JC, Williams S. Can asthma control be improved by understanding the patient's perspective? BMC Pulm Med. 2007 May 22;7:8. Review. PubMed PMID: 17518999; PubMed Central PMCID: PMC1894634.[PubMed].
7. Hall JA, Roter DL, Milburn MA, Daltroy LH. Patients' health as a predictor of physician and patient behavior in medical visits. A synthesis of four studies. Med Care. 1996 Dec;34(12):1205-18. PubMed PMID: 8962587.[PubMed].
8. DNA Daily News and Analysis| 1 May 2011-03:19pm, Ahmedabad, DNA|Ahmedabad ranks 7th in number of asthmatics in country | Latest News & amp; Updates at Daily News & Analysis [Internet]. Available from: http://www.dnaindia.com/india/report-ahmedabad-ranks-7th-in-number-of-asthmatics-in-country-1538228 (last accessed on Jan 18, 2018)
9. Barnes PJ, Jonsson B, Klim JB: The costs of asthma. European Respiratory Journal. 1996, 9 (4): 636-642. 10.1183/09031936.96.09040636.
10. Sicras-Mainar A, Huerta A, Sánchez D, Navarro-Artieda R., Use of resources and costs associated with non-adherence to inhaled corticosteroid treatment in asthma, Semergen. 2017 Apr 26. pii: S1138-3593(17)30086-2. doi: 10.1016.
11. Foster JM, Smith L, Usherwood T, Sawyer SM, Rand CS, Reddel HK. The reliability and patient acceptability of the SmartTrack device: a new electronic monitor and reminder device for metered dose inhalers. J Asthma. 2012 Aug;49(6):657-62. doi: 10.3109/02770903.2012.684253. Epub 2012 Jun 28. PubMed PMID: 22741746.[PubMed].
12. WHO-World Health Organization, Adherence to long term therapies- Evidence for action, Essential Medicines and Health Product Information portal. http://apps.who.int/medicinedocs/en/d/Js4883e/8.1.9.html (last accessed on Aug 24, 2017).
13. Molimard M, Le Gros V. Impact of patient-related factors on asthma control. J Asthma. 2008 Mar;45(2):109-13. doi: 10.1080/02770900701815727. PubMed PMID: 18350401.[PubMed].
14. Lawani MA, Zongo F, Breton MC, Moisan J, Grégoire JP, Dorval E, Boulet LP, Jobin FM, Guénette L, Factors associated with adherence to asthma treatment with inhaled corticosteroids: a cross-sectional exploratory study, J Asthma. 2017 May 4:0. doi: 10.1080/02770903.2017.1326131.
15. Chrystyna H, Small M, Higgins V,.GarciaGil E,Estruch J, Impact of patients' satisfaction with their inhalers on treatment compliance and health status in COPD, Respiratory Medicine, February 2014, 108 (2), 358-365.
16. Horne R. & Weinman J., Essential Readings in Health Psychology - Ogden, Jane - Google Books [Internet]. (Last accessed on Jan 17, 2017). Available from: https://books.google.co.in/books?hl=en&lr=&id=wWn4AAAAQBAJ&oi=fnd&pg=PA281&dq=self+regulation+and+self+management+in+asthma&ots=IThuosjRqI&sig=dHU1Ctoc3y90AknVSdHas2goA0g#v=onepage&q=self regulation and self-management in asthma&f=false

Tables

TABLE 1 DISTRIBUTION OF THE RESPONSES OF THE PATIETS TOWARDS ADHERENCE AND TREATMENT BEHAVIOR ACCORDING TO THEIR SOCIO-DEMOGRAPHIC CHARACTERISTICS.(N=100).

Responses for attributes- Yes		Seeking immediate treatment	Duration of asthma symptoms of less than 3 weeks	Have undergone Lung Function Tests	Having attended any patient education program for asthma	Well controlled asthma	Use of medicine for more than a year	Have missed less than 1 dose in the last 3 months
Variable	Criteria							
Age	< 35	12	8	23	7	18	13	13
	≥ 35	27	16	63	22	44	41	22
	Chi-square value	0.461	0.634	0.20	0.17	0.342	0.510	2.811
	p value	0.497	0.423	0.886	0.680	0.539	0.475	0.094

Sex	Male	18	8	37	13	23	28	13
	Female	21	16	49	16	39	26	22
	Chi-square value	0.259	1.204	0.00	0.056	1.32	3.75	0.754
	p value	0.610	0.273	0.991	0.813	0.128	0.053	0.385
Religion	Hindu	29	18	62	22	46	36	27
	Others	10	6	24	7	26	18	8
	Chi-square value	0.06	0.064	0.256	0.170	0.118	2.389	0.469
	p value	0.807	0.800	0.613	0.680	0.731	0.122	0.493
Education	Illiterate	7	5	19	5	12	11	6
	Literate	32	19	67	24	50	43	29
	Chi-square value	0.046	0.069	3.819	0.082	0.013	0.143	0.121
	p value	0.830	0.793	0.051	0.774	0.908	0.705	0.728
Marital status	Currently married	32	20	75	24	54	49	28
	Others	7	4	11	5	8	5	7
	Chi-square value	1.384	0.375	0.024	0.650	0.001	1.452	2.333
	p value	0.239	0.540	0.877	0.420	0.971	0.228	0.127
Occupation	Housework	15	13	38	13	33	24	16
	Others	24	11	48	16	29	30	19
	Chi-square value	1.463	0.848	0.814	0.023	3.429	0.114	0.002
	p value	0.227	0.357	0.367	0.880	0.064	0.735	0.966
Number of family members	≤ 4	11	7	30	12	19	19	13
	> 4	28	17	56	17	43	35	22
	Chi-square value	0.957	0.329	0.214	0.991	0.818	0.073	0.237
	p value	0.328	0.566	0.644	0.319	0.366	0.786	0.626