RESEARCH ARTICLE

EVALUATION OF CONTROL THERAPY AND DRUG UTILIZATION IN ASTHMA PATIENTS IN A MULTISPECIALITY HOSPITAL

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ABSTRACT

BACK GROUND: There was no detailed information on control therapy assessment and drug utilization in Asthma patients in South India.

OBJECTIVE: Evaluation of Asthma control therapy and drug utilization pattern in Asthma patients

METHODS: The study was conducted at the CO- OPERATIVE Hospital, located in Thalipparamba village, kannor. This is a questionnaire based prospective study over a period of 9 months. The clinical outcomes, the therapy & the control of asthma from the given therapy were recorded with the demographic details by an interview.

RESULTS: 200 adult patients participated, out of which 53% were women and 47% were men. Spirometric study showed that out of 200 patients 31.5% had mild Asthma and 41% had moderate Asthma and the remaining 27.5% hadsevere Asthma. Based on the questionnaire

survey most of the people faced the different symptomsof Asthmalike,various morning disturbances (87.5%), Limitation of activities(96%), Sleep disturbances (14%).Out of 200 people 87.5 % people felt frustrated. 93.5 % people wheeze &92 % were in different stages of chest tightness.

CONCLUSION: The study concluded that most of the patients do not have the knowledge about Asthma, presentation measures, and risk factors, the therapy methods to reduce the risk factors.The severity of asthma among the total population of 200 asthmatic patients showed that 27.5% of them had severe FEV1. 14% of people were unable to sleep because of asthma trouble during the night hours. 1% of asthmatic patient showed totally limited and 2% of people wheezed all the time. The drug utilization in that total asthmatic patients showed that 46% of people used inhalers out of that 5.5% of them took more than 2 puffs a d. The drug therapy regimen in this study revealed that 47.5% of patients treated with more than two drugs and it reveals that asthma in such patients was not controlled by a single drug therapy.

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INTRODUCTION

Asthma is one of the common non-communicable diseases.It is the 14th most important disorder in the world in terms of extent and duration of disability. The most recent revised global estimate of Asthma suggested that as many as 334 million people hadAsthma[1]. Out of that 14 % were children. 8.6 % of the young adults (aged 18-45) experiencedAsthma symptoms. Out of that 4.5 % had been diagnosed with Asthma and treated. Asthma was troublesome for children between age group of 10-14 as well as elderly people with age between 75-79. Asthma can be easily diagnosed and treated. It creates substantial problem to individuals and families and often restricts individual activities throughout the life. The appropriate management of Asthma enable people to enjoy a good quality of life[2].The attempt had been made to evaluate the patients to controlAsthmaand the treatment with drug utilization. The study was conducted in kannor CO-OPERATIVE Hospital Thalipparamba village, Kerala during 2014 to 2015. A set of 200 patients with the symptoms of Asthma were selected for the survey using the specially prepared questionnaires. The study was aimed to the evaluation of Asthma control therapy assessment and drug utilization.

The triggering factors that can contribute to Asthma may include any of the following:

- Viral respiratory infections
- Exercise; hyperventilation
- Use of beta-adrenergic receptor blocker (including ophthalmic preparations)
- Obesity
- Aspirin or non-steroidal anti-inflammatory drug hypersensitivity, sulfate sensitivity
- Environmental allergens (house dust , animal allergens , and fungi)
- Environmental pollutants , tobacco smoke
- Allergic reaction to some foods, such as peanuts or shellfish
- Irritant such as household sprays and paint fumes
- Physical activity (exercise induced Asthma)
- Cold air
- Air pollutants and irritants, such as smoke
- Strong emotions and stress
- Respiratory infection, such as the common cold
- Parental factors like prematurity and increased maternal age increase the risk of Asthma.

AIM AND OBJECTIVES OF THE STUDY:-

AIM

The study focuses to the evaluation of Asthma control therapy and drug utilization in Asthma patients in a multi-specialty hospital.

OBJECTIVE

- To find out the severity of Asthma in patients
- To assess the medication use in the patients suffering fromAsthma
- To assess the Asthma control in patients

METHODOLOGY: Institutes Ethics Committee approved study and informed consent was taken before starting the observations.

STUDY SITE:

The patients were analyzed from the outpatient and inpatient department of the Co-operative hospital, manna, located in Thalipparamba village, Kannor.

This hospital was known to provide Modern and Efficient Asthmatic care in Kerala.

STUDY DESIGN:

This was a prospective questionnaire based study.

STUDY PERIOD:

Nine months prospective observational study.

TOTAL NO. OF POPULATION:

Total no. of patients   : 200 patients

Female   : 94

Male   : 106

STUDY CRITERIA:

INCLUSION CRITERIA:

- ➢ Patients of either sex of age group 18 to above 65 years.
- ➢ Individuals with current diagnosis of Asthma
- ➢ Who were with the history of Asthma
- ➢ Individuals withatleast 3 months of duration of breathing illness

EXCLUSION CRITERIA:

- ➢ Mentally retarded patients
- ➢ Patients who had multiple illnesses
- ➢ Pregnant and lactating women
- ➢ Patients who were having other pulmonary complaints like TB

SOURCE OF DATA:

The patient's clinical data therapeutic data and allother relevant and necessary data were collected from:-

- ➢ Patient case note
- ➢ Interview with the patients
- ➢ Patient spirometry chart
- ➢ KAP Questionnaire

STUDY PROCEDURE:

The study was conducted by using standardquestionnaire. All necessary information were collectedusing "Patient data collection form"(Basically a KAP questionnaire) which includedpatients details, signs and symptoms,Spirometric test results etc., The questionnaire also included questions on recent past history of asthma in the last w, disturbances in night, disturbances in morning, limitation of activities,shortness of breath because of Asthma etc.

Ethical approval for the study was obtained from the institutional ethics committee. Confidentiality and anonymity of the patient information was maintained during and after the study period. The patients were asked for verbal consent to participate in the study before fillingthe informed consent form.

RESULTS AND DISCUSSION

Gender wise distribution:-

From the questionnaire Out of 200 Asthmatic patients 106 (53%) female and 94(47%) male were interviewed. Comparing sex wise distribution female Asthmatic patients were found more than male Asthmatic patients.

Table 1. Gender wise distribution

Gender	No. of patient (N=200)	Percentage (%)
Female	106	53
Male	94	47

FEV1% PREDICTED WISE DISTRIBUTION:-

The Spirometric study shows that out of 200 cases 63(31.5%) had mild FEV1% predicted,82(41%) patients had moderate FEV1% predicted, and 55 (27.5%) had severe FEV1% predicted.

Table 2. FEV1 % predicted distribution

% Predicted	No. of patients(N=200)	Percentage(%)
Mild(A)	63	31.5
Moderate(B)	82	41
Severe(C)	55	27.5

ASTHMA CONTROL QUESTIONNAIRE:-

THE AVERAGE EFFECT OF ASTHMA DURING THE PAST WEEK AND HOW OFTEN THE PATIENTS WAKEUP BY ASTHMA TROUBLE DURING THE NIGHT HOURS:-

Among the study of 200 patients 14% of people were unable to sleep because of Asthma, 56% of people were affected by sleep disturbance but 2.5% did not have any disturbance at night.13.5% were disturbed several times, 6% weredisturbed many times, 13% were disturbed few times.

Table 3. Average effect of Asthma on sleep.

Patient response	No. Of patients(N=200)	Percentage%
Never hardly ever	5	2.5
Only at few times	112	56
Several time	27	13.5

Many times	12	6
So many times	26	13
Unable to sleep because of Asthma	18	14

THE AFTER EFFECTS OF ASTHMA ON THE PATIENTS AT RISE:-

12.5 % of people did not have any morning disturbance, 26.5%   had very mild symptoms, and   21% had the mild symptoms and 15% people had   moderate symptoms ,14.5% had severe symptoms and 1% had very moderate symptoms. This research reveals that out of 200 patients 87.5%   of people faced different type of morning sickness due to Asthma.

Table 4.Average effect of Asthma on morning effects.

Patient response	No. Of patients(N=200)	Percentage (%)
Without symptoms	25	12.5
Very mild symptoms	53	26.5
Mild symptoms	42	21
Moderate symptoms	30	15
Quite severe symptoms	19	9.5
Severe symptoms	29	14.5
Very severe symptoms	2	1

LIMITATION OF NORMAL ACTIVITIES DUE TO ASTHMA:-

In the survey out of 200 people 96% of people had different type of limitation of activities the other 4% of patient did not have **any limitations. Out of total 96%of patients** 45.5% felt very slightly limited, 29.5% felt slightly limited, 7.5% expressed moderate limitation, 9.5% very limited, 3% extremely limited and the balance 1% were not able to do even the normal activities because of Asthma.
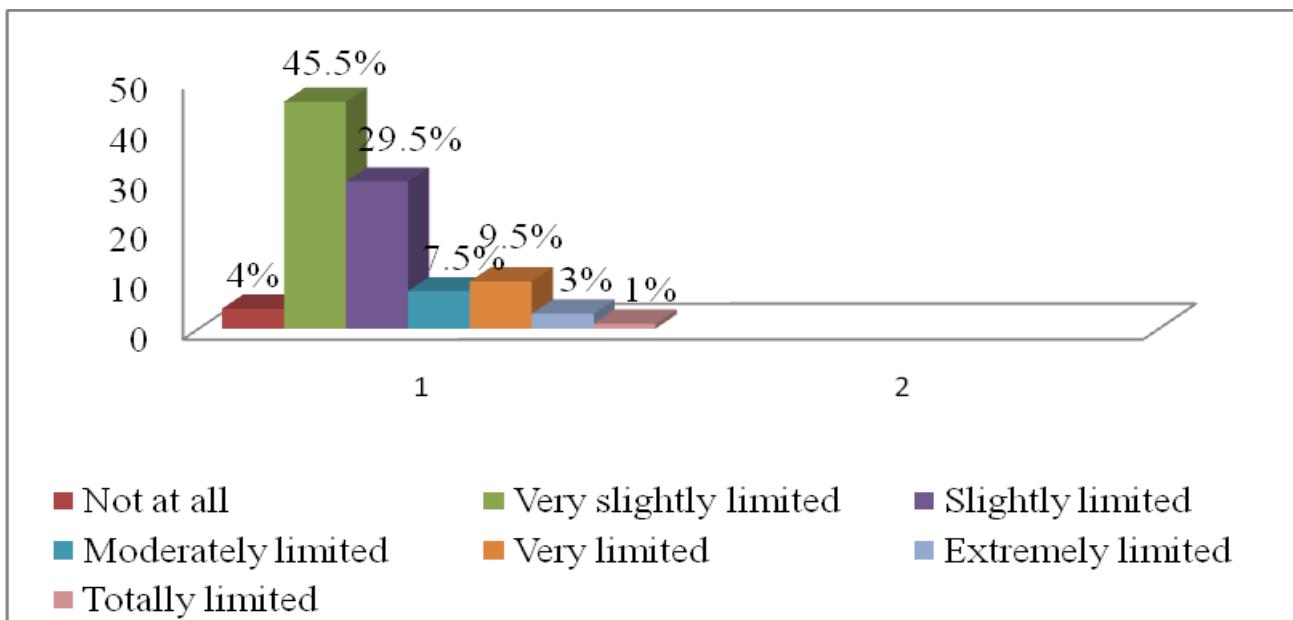
Fig.1 Limitation of normal activities due to Asthma.

THE EFFECT OF BREATHING INCONVENIENCE DUE TO ASTHMA:-

In this study 4.5% of people were not affected by breathing difficulties. The other 54.5% felt it very little, 21.5% felt it little, 6.5% felt it moderate, 5.5% felt quite a lot of inconvenience, 2.5% felt that a great deal of inconvenience and the other 5% were affected a lot. Out of 200 patients 95.5% patients were affected by the shortness of breath in different levels.

Type of answer
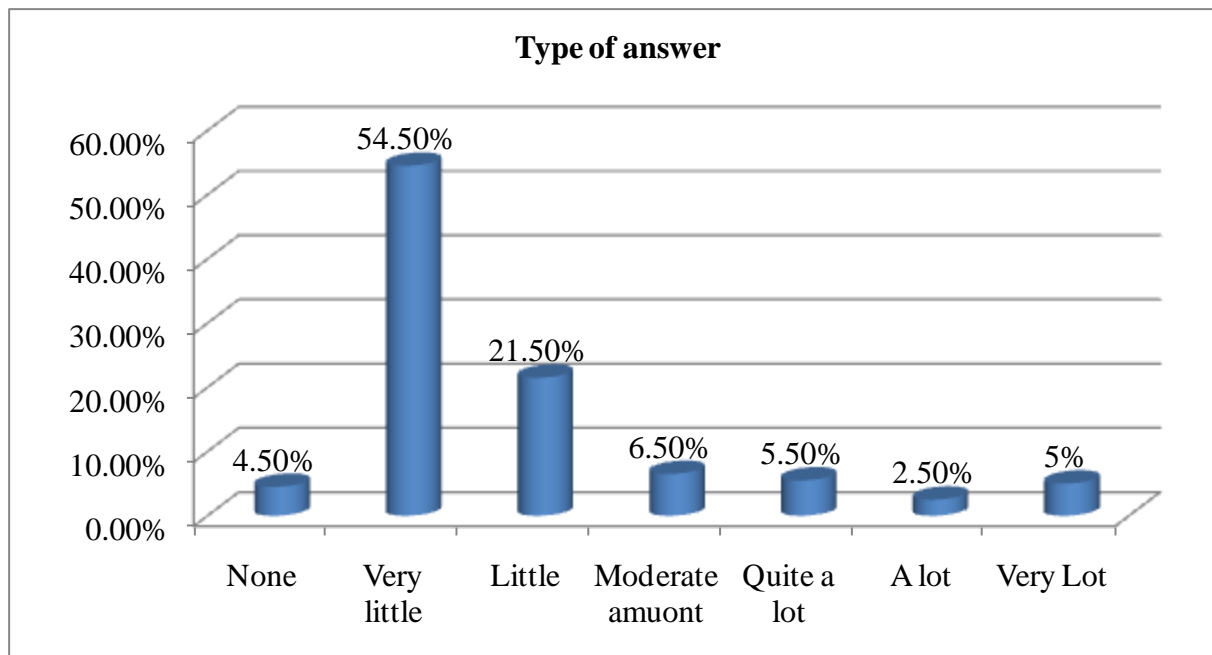
Fig 2:The effect of breathing inconvenience due to Asthma.

FRUSTRUATION DUE TOASTHMA:-

In this survey out of 200 people 22.5 % of people were not feeling frustrated. The remaining 19.5% felt very little, 25% felt little, 10% felt moderate,15.5% quite a lot, 7% felt a lotand the other5 % felt very lot. This study reveals that77.5% patients felt frustration.

Table 5. Frustruation due toAsthma.

| Patient response	No. Of patient(N=200)	Percentage (%)
None	45	22.5
Very little	39	19.5

Little	50	25
Moderate amount	20	10
Quite a lot	31	15.5
A lot	14	7
Very lot	1	5

THE EFFECT OF WHEEZING:-

In this study 6.5 % of people did not wheeze but the other 45% were felt hardly any of the time,2% a little of the time, 20.5% wheeze some of the time,6.5% wheeze a lot of the time, 7.5 most of the time and the remaining 2% wheeze all the time.This surveyrevealed that out of 93.5% patients had some or other wheezing troubles.
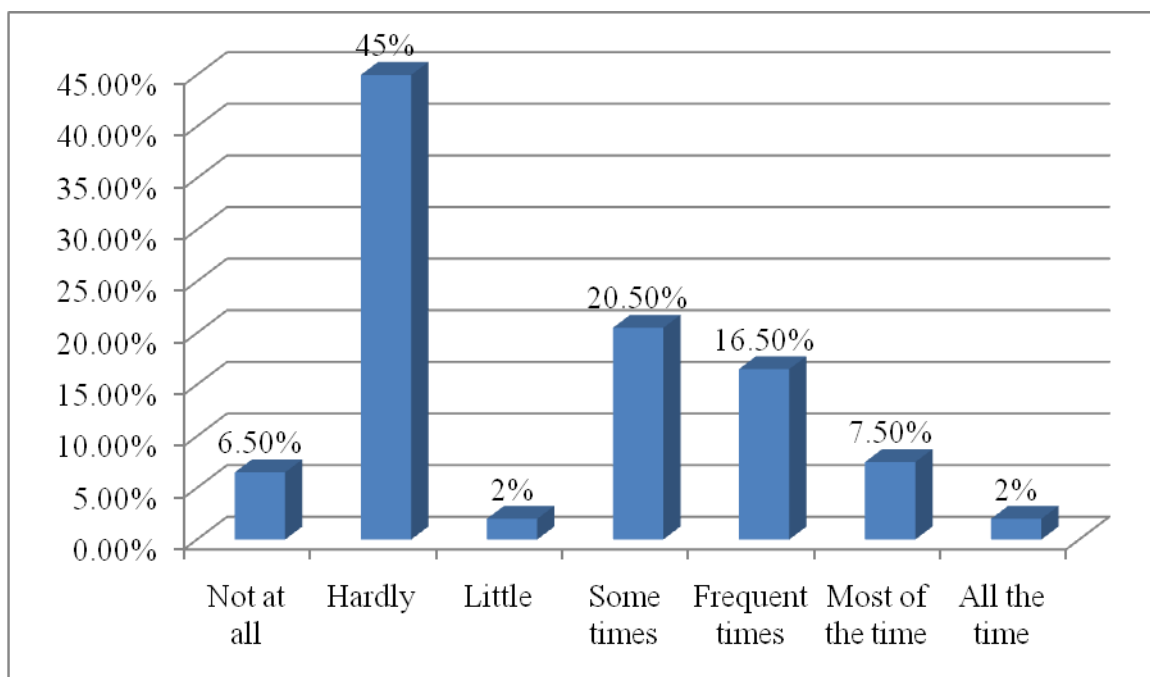
Fig 3 :The effect of wheezing

THE EFFECT OF CHEST TIGHTNESS CAUSED BY ASTHMA:-

In total, 92 % of the study population felt chest tightness. 44% experienced chest

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tightness hardly, 12% suffered little, 13.5% felt sometimes and 19% experienced tightness of chest frequently and 1.5% were affected by chest tightness all the time

Table 6 : The effect of chest tightness caused by Asthma

Types	No. of patients(N=200)	Percentage(%)
Not at all	16	8
Hardly	88	44
Little	24	12
Some times	27	13.5
Frequent times	38	19
Most of the time	4	2
All the time	3	1.5

THE EFFECT OF SHORT ACTING BRONCHODILATORS DUE TO ASTHMA:-

The survey reveals that most of the patients does not use inhaler before the first visit. 100 patients (66.5%) did not use an

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inhaler. The remaining 28% used one or two puffsall the day. The remaining 5.5% of patients took more than two puffs a day
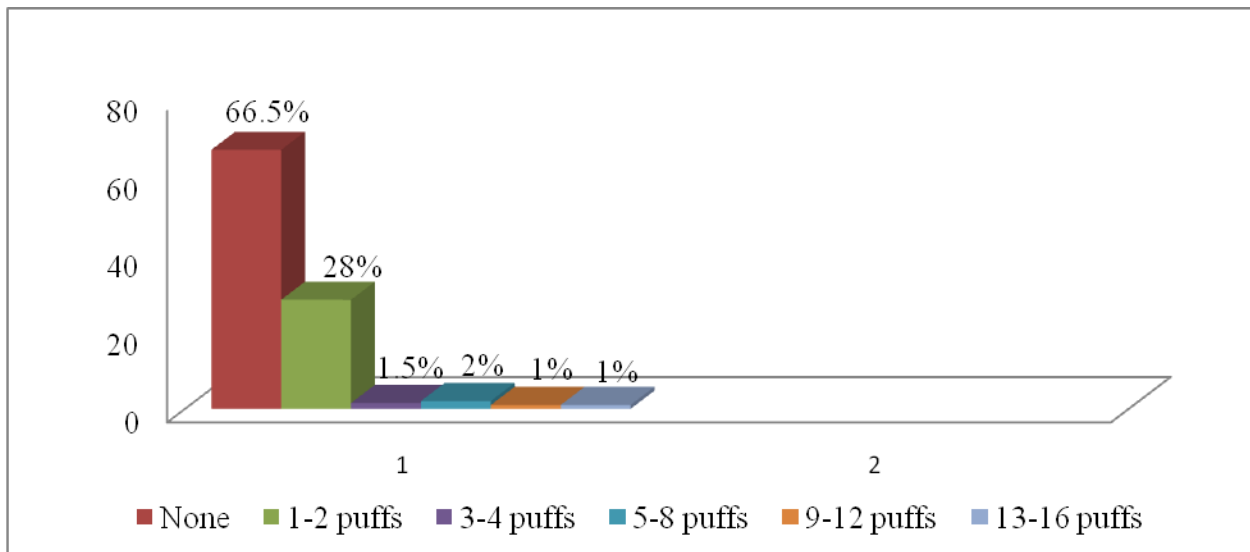
Fig 4.The effect of short acting bronchodilators due to Asthma

DRUG THERAPY REGIMEN:-

The method of treating the patients were classified into three types based on the usage of drugs as single, double and more than two

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drugs. The result of this study reveals that 47.5% weretreated with more than two drugs compared to doubledrug(35.5%) and single drugs (17%).Usage of single drugs were limited

Table : 7 drug therapy regimen.

Patient response	No . of patients (N=200)	Percentage(%)
Single drug	34	17
Double drug	71	35.5
More than two drugs	95	47.5

DRUGS USED FOR TREATING ASTHMA:-

This study revealed that 35% were using beta agonist,25% were using corticosteroids,10% were using methylxanthine,

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11.5% of patients were using antibiotics,5% were using antihistamines

Table: 8. Primarily drugs used for treating Asthma

Category	Name of the drugs	Drug utilization(N=200)	Percentage (%)
Beta agonist	Salbutamol, Terbutaline,Formetrol	75	35
Corticosteroids	Beclomethasone,Budisonide ,Prednisolone	50	25
Methylxanthine	Theophylline, Etophylline	20	10
Antibiotics	Tetracycline,Floroquinolone	23	11.5
Antitussive	Mucolytics, Cough Suppressant	15	7.5
Anti histamines	Loratidine, Cetrizine,	10	5
Anticholinergics	IpratropiumBromide	7	3.5

ADOLESCENT ASTHMA THERAPY ASSESSMENT QUESTIONNAIRE:-

Asthma therapy assessment questionnaire helped us to collect the information of Asthmaanalysis. 78% had not felt any difficulty by doing heavy exercises, 11.5% felt some difficulties and 4.4% did not.

Wheezing during the day when not exercising 200 people answer that 92 % did not feel any symptoms and 3.5% felt some and 4.5% people never felt breathing trouble due to

wheezing out of 200 people answered 73 % did not feel any and 9.5%were felt it, 19% wereunsure. The survey asked questions to job

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going people 78.5% were not troubled by Asthma and 11% were disturbed in job and 10.5% told that no issue due to this trouble

Table 9 : Adolescent Asthma therapy assessment questionnaire

Patient response	NO (N=0)	Percentage (%)	YES (Y=1)	Percentage (%)	UNSURE (U=1)	Percentage (%)
Difficulty felt when doing exercise	156	78	23	11.5	23	4.5
Wheezing during the day when no exercise	184	92	7	3.5	9	4.5
Night difficulty in breathing /wheezing	145	72.5	19	9.5	38	19
Missing jobs /class	157	78.5	22	11	21	10.5
Missing any daily activities	158	78	21	10.5	21	10.5
Discomfort due to Asthma	159	78.5	24	12	14	7

THERAPY METHODS TO CONTROL ASTHMA:-

Analysis of the survey found that out of 200 patients 42% of patients did not use quick relief medicines and the remaining 58 % used the quick relief medicines. Out of this 58%, 17.5% using it every day and 14% patients using it when they had trouble, 26% of patientswereusingthe drugs only when needed.

Table 10.Therapy methods to control Asthma.

Patient response	No. of patients(N=200)	Percentage(%)
Every day dose	35	17.5
Dose when they had symptoms	28	14
Only on needed	52	26
Never	74	37
If necessary	10	5

USAGE OF INHALER OR NEBULIZER FOR TREATING ASTHMA:-

Inhaler usage data revealed that out of 200 patients 29.5% did not use an inhaler,46% used it one or two times a day,15% used five to six times a day,9.5% used more than 6 times
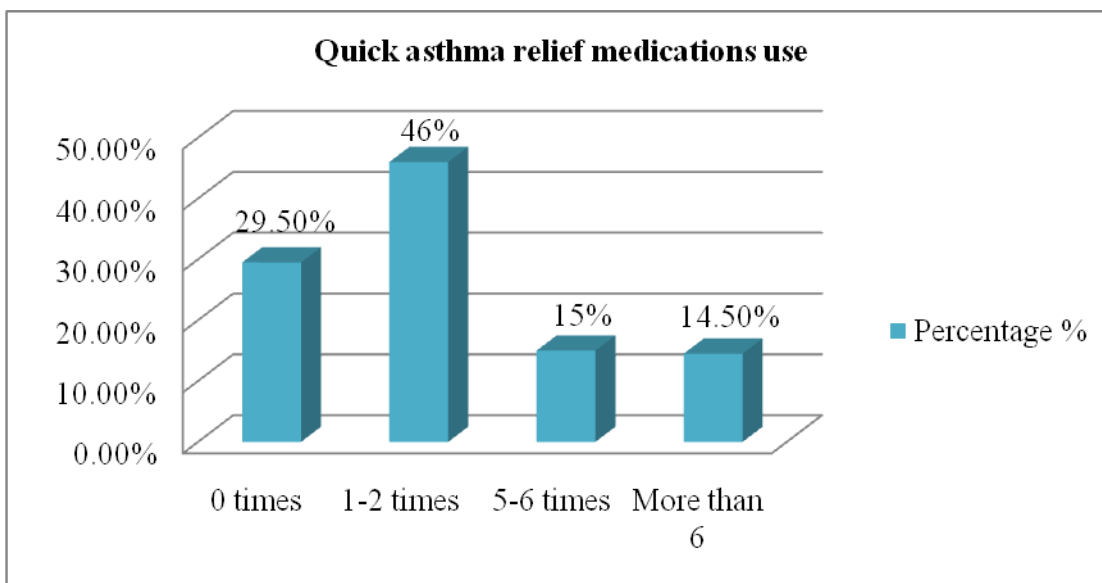
Fig 5 :Usage of inhaler or nebulizer for treating Asthma

THE MEDICATION ADVISE DURING WORKING PERIODS:-

Out of 200 patients 51.5% discussed with the doctor about the various drugs availability to control Asthma, and other 17.5 % discuss about various treatment options and 19% wantedto take oral medicines as their preferred treatment.

Table 11:The medication advise during working periods.

Questions	No. of patients	Percentage
Different drugs available to control Asthma	103	51.5
Asthma treatment options	35	17.5
Preference to take medicines	38	19
Other issues	24	12

BELIEF OF PEOPLE IN CONTROLLING THE DISEASE:-

From this study the patients attitudetowards the treatment was analyzed.Out of 200 patients 140 patients had the better outcome and other 36 patient didnot behave positively, remaining 24 were unsure. From this survey of 200 patients we can understand that 171 patients were takingAsthma medicines as directed by the physician. Other 14 peoples did not take the medicines as directed by the doctors. The remaining 15 werein dilemma.

This survey of 146 patients out of 200,revealed that the medicineswere very useful to control Asthma. The remaining 10 patients did not have belief. The other 44 people wereun sure that these medicines were worthy or not.According to the survey we analysedthat most of the patients take the drugs as directed by the doctors and they had good belief in recovery.

Table 12 :Belief of people in controlling the disease.

	YES (Y=1)	NO (N=0)	UNSURE (U=1)
During analysis period of Asthma	140	36	24
During medication of Asthma	171	14	15
Controlling Asthma by medication	146	10	44

CONCLUSION

The main understanding about the illness and the change in attitude and practice would in turn result in a better therapeutic outcome our study revealed that most of the patients had lack of knowledge about thedisease, and the risk factors, preventive measures, drug therapyto be taken during the disease that leads to compromised quality of life. The severity of asthma among the total population of 200 patients showed that 27.5% of them had severe FEV1. 14% of people were unable to sleep because of asthma trouble during the night hours and 87.5 % of people faced different types of morning sickness. The analysis of limitation of normal activities in the total population showed that 1% of asthmatic patient showed totally limited and 2% of people wheezed all the time.

The drug utilization in that total asthmatic patients showed that 46% of people used inhalers out of that 5.5% of them took more than 2 puffs a day. The drug therapy regimen in this study revealed that 47.5% of patients treated with more than two drugs. 35% of asthmatic patients used beta agonists, which had been observed to be the primary drug used for treating asthma.The proper control therapy, drug utilization, and counseling of Asthma resulted in better outcome of the analyzed patients.

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