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KNOWLEDGE REGARDING RISK FACTORS & BREATHING EXERCISE OF BRONCHIAL ASTHMA; DOES IT ASSOCIATE WITH DEMOGRAPHIC FACTORS OF ADULT PATIENTS IN NORTH-WEST INDIA?

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ABSTRACT

Background: Asthma is one of the most common chronic diseases worldwide. Despite advancement in science and technology and pharmacological revolutions, worldwide asthma prevalence is uncontrolled, morbidity and mortality from asthma. The most common reasons are non-adherence to treatment, inadequate knowledge and skills in disease management. **MATERIALS AND METHODS:** This was a cross-sectional, observational, questionnaire and hospital-based study in a tertiary care teaching hospital at SMS Medical College, Jaipur for two months. The data was collected by face to face interview of out-patients and inpatients of Medicine departments by administering the questionnaires for the assessment of knowledge towards the bronchial asthma disease and breathing exercise and association with demographic factors. **RESULTS:** A total of 60 patients with a confirmed diagnosis of bronchial asthma were included in this study, out of which male patients were 37(62%) and female patients 23(38%). Out of 60 patients, knowledge of the breathing exercise of Bronchial asthma patients. The knowledge score was assessed in two areas such as knowledge on Asthma and knowledge on breathing exercise with test items of 12 & 9 in each. The mean knowledge of Asthma was 7.6 with SD 2.42. The mean score percent was computed, and it was found to be 38%. The mean score was little higher in the area of knowledge on Breathing exercise, i.e. mean, 4.08 with SD 1.31. Mean score percent 34%. Overall, there were not any statistical association were found between knowledge of asthma and Breathing exercise and demographic factors. **CONCLUSION:** the right level of knowledge about asthma and better practices are rigorously essential to prevent asthma exacerbations. More comprehensive, regular and patient-centred counselling programs will be beneficial in improving awareness of asthma. Further, special attention should be paid on patient characteristics mainly age, gender and education level in planning such programs in future.

Keywords: asthma, Breathing exercise, patient-centred counselling.

INTRODUCTION

Asthma is one of the most common chronic diseases in the world, resulting in a substantial worldwide burden of disease **(1)**. The temporal trend of the increasing prevalence of asthma over the past 60 years is likely to continue as transitional communities progressively adopt lifestyles of high-income countries and become

urbanised **(2)**. Over recent decades the public health priority has been to improve the assessment and management of asthma **(3)**, resulting in a 42% reduction in age-standardised asthma death rates worldwide between 1990 and 2013 **(4)**. However, as no therapeutic regimen can cure asthma, such approaches will always have their limitations. As a result, it is necessary to gain a better understanding of the factors that cause asthma and to develop alternative public health and pharmacological primary preventive measures that are effective in reducing the prevalence of asthma worldwide.

Bronchial asthma is that most common chronic respiratory disorder among all age groups with a prevalence of 5 to 10 percent. The disease affects 155 million individual in the world. Currently, there is no cure for asthma, which is a significant problem of public health **(5)**.

Asthma is one of the most widespread chronic health problems in India, India has an estimated 15-20 million asthmatics **(6)**, and prevalence is increasing worldwide and especially in India. Asthma is one of the leading causes of hospitalisation and school absenteeism of children in India and is prevalent in all age groups.

Risk factors for childhood asthma include changes in maternal diet, increased fetal growth, reduced family size, reduced prevalence of infant infection, increased use of antibiotics, and increased immunizations; however, none of the aforementioned factors can, in and of itself, explain the increased prevalence of childhood asthma.4 It is likely that those as mentioned above socioeconomic and environmental changes have caused the infant immune system to be shifted toward a Th2 immune response, which is observed in atopic individuals.**(7-8)**

However, Asthma is treatable if better diagnosed; a team effort between patients, doctors, nurses and all health professionals with a written Asthma action plan will help effective asthma management. Up to 60% of Asthma deaths may be associated with avoidable factors. Asthma is not a condition merely causing acute attacks of wheeze and troublesome breathing. It is a chronic condition due to persistent abnormalities of the airway passages requiring long term attention. (Ashi jas 2000)

Given that risk factors play an essential role in the prevalence of asthma, the objective of the present study was to evaluate knowledge regarding risk factors associated with asthma & breathing exercise symptoms in bronchial asthma patients, in order to propose measures to reduce the risk of asthma or reduce asthma morbidity in this population.

METHODOLOGY

The research design selected for the present study was a cross-sectional design. The study was conducted in the SMS hospital Jaipur and target population of the study is selected bronchial asthma patient admitted in the general ward or visited OPD in the SMS hospitals as available at the time of conducted study during May – June 2010. In the present study, 60 bronchial asthma patients between 20-60 years age group were included. Convenient sampling technique, which is a non-probability judgment sampling, was used to select the sample for the study. The bronchial asthma patients who are critically ill were excluded.

Cases having other significant broncho-pulmonary diseases associated with asthma, for example, tuberculosis, bronchiectasis, viral infections, bronchiolitis, and patients not willing to participate in the study were excluded from the study.

Diagnosis of asthma in selected was based upon GINA Guidelines **(7)**. Wheezing, high pitched whistling sound when breathing out with the history of any of the following: Course worse particularly at night, recurrent wheeze, recurrent difficult breathing, recurrent chest tightness, family history of any allergy or bronchial asthma. The patients were evaluated for confirmation of the diagnosis of bronchial asthma with the help of history, examination, and spirometry before and after bronchodilators inhalation.

The Questioning technique was selected for the study to asses the knowledge of bronchial asthma patients regarding bronchial asthma & breathing exercises. It is considered the most appropriate tool to elicit a response from the patients. The tool was developed by the investigator with his personal and professional experience and with the related review of literature, like books. Journals, periodicals, and published research studies and mass education media and the developed tool was refined and validated by the subject's experts.

The instrument used for this study was the knowledge questionnaire consists of demographic variables and Knowledge questionnaire regarding Asthma and breathing exercise. Information regarding demographic data was collected from selected patients on six variables based upon their answers a tick mark (✓) is put for the appropriate option of each item. The knowledge and breathing exercise related part has had a total of 21 statements; each correct responses carried score one, and each wrong response scored zero. The cut-off level of < 50% was inadequate knowledge, 51-75% was Moderately adequate knowledge and > 75% was considered adequate knowledge about asthma & breathing exercise.

A pre-test was done to establish the reliability and to determine the language clarity and using split-half method with accessed feasibility of the tool. Reliability of the tool for knowledge statement was found to 0.92 means r=0.92.

The proposed study was conducted after the approval of the research committee of the college Permission was obtained from the concerned authority of the SMS hospital. The oral consent of each was obtained before data collection. Assurance was given to the study participants regarding the confidentiality of the data collected.

RESULTS

Table-1 shows that the selected Bronchial asthma patients were more (41.7%) in the age group of 50-60 yrs. A majority, 61.7% was found to be male Bronchial asthma patients. The frequency and percent of study subjects according to their educational status, nearly one third (30%) of the subjects were illiterates, and 70% were educated.

A majority, 55% was found to be Bronchial asthma patients are vegetarians and 38.3% were having monthly income of below 4500 Rs. / month. Overall they were earning poor income per month, & distribution of subjects by their occupation.

Concerning the overall knowledge regarding identifying measures taken to avoid triggers 28 (48.33%) have below average level of knowledge, 37 (61.67%) have an average level of knowledge, and none of them has above average level of knowledge.

About the knowledge regarding identifying the warning signs of asthma and measures taken to prevent an acute attack of asthma 44 patients (77.33%) have below average level of knowledge, 14 (23.33%) have an average level of knowledge, 2 (3.33%) have above average level of knowledge. With regard to knowledge regarding regular medications, 37 (61.67%) patients have below average level of knowledge, 21 (35.0%) have an average level of knowledge, 1 (3.33%) have above average level of knowledge. About overall knowledge regarding home management of asthma, 35 (58.33%) patients have below average level of knowledge, 23 (38.33%) have an average level of knowledge, and two of them have above average level of knowledge.

Table-1: Distribution of subjects by Demographic characteristics

S.No.	Demographic characteristics	Frequency	%
1	**Age(yrs)**		
1.1	20 – 30	7	11.7
1.2.	31 – 40	10	16.6
1.3.	41 – 50	18	30
1..4	51 – 60	25	41.7
2	**Sex**		
2.1	Male	37	62
2.2	Female	23	38
3	**Education**		
3.1	Illiterate	18	30
3.2	Primary school	9	15
3.3	Middle school	13	21.7
3.4	High school	9	15
3.5	Degree & above	11	18.3
4	**Diet**		
4.1	Vegetarian	33	55
4.2	Non-vegetarian	27	45
5	**Monthly family income**		
5.1	<4500	23	38.3
5.2	4501-6500	16	26.6
5.3	6501-8500	13	21.7
5.4	8501-10500	4	6.7
5.5	>10500	4	6.7
6	**Occupation**		
6.1	Industry worker	17	28.3
6.2	House-wife	13	21.7
6.3	Agriculture	7	11.7
6.4	Business	9	15
6.5	Govt job	12	20
6.6	Others	2	3.3

Table-2: Mean, SD and mean score percent of knowledge score

S. No.	Knowledge	Max possible score	Mean	SD	Mean score %
1	Asthma	12	7.6	2.42	38
2	Breathing	9	0.08	1.31	34
	exercise	21	5.84	1.87	36
3	Overall				

Table 2 showed the summary of statistical outcomes of knowledge on breathing exercise of Bronchial asthma patients. The knowledge score was assessed in two areas such as knowledge on Asthma and knowledge on breathing exercise with test items of 12 & 9 in each. The mean knowledge of Asthma was 7.6 with SD 2.42. The mean score percent was computed, and it was found to be 38%. The mean score was little higher in the area of knowledge on Breathing exercise, i.e. mean, 4.08 with SD 1.31. Mean score percent 34%. The overall knowledge on asthma and Breathing exercise resulted with mean 5.84, SD 1.87 out of 21 with mean score percent 36%. On average the sampled subjects had poor knowledge of breathing exercise.

Table-5: Association between Demographic factors and knowledge on asthma breathing exercises

S.No	**Age (yrs)**	**Knowledge**						**Chi-square value**	**Result**
		Median		**Median**		**Total**			
		No. (36)	%	**No (24)**	**%**	**No. (60)**	**%**		
1	20– 30	4	11.1	5	20.8	9	15		
2	30– 40	8	22.2	6	25	14	23.3		
3	40-50	23	63.9	6	25	29	48.3	12.98	P>0.05
4	50-60	1	2.8	7	29.2	8	13.4		N.S
S.No	**Age (yrs)**	**Knowledge**						**Chi-square value**	**Result**
		Median		**Median**		**Total**			
		No. (36)	%	**No (24)**	**%**	**No. (60)**	**%**		
1	20– 30	4	11.1	5	20.8	9	15		
2	30– 40	8	22.2	6	25	14	23.3		
3	40-50	23	63.9	6	25	29	48.3	12.98	P>0.05
4	50-60	1	2.8	7	29.2	8	13.4		N.S
S.No.	**Education**	**Knowledge**						**Chi-square value**	**Result**
		Median		**Median**		**Total**			
		No.(35)	**%**	**No.(25)**	**%**	**No.(60)**	**%**		
1	Illiterate	16	45.7	2	8	18	30		
2	Primary school	7	20	2	8	9	15		
3	Middle	7	20	6	24	13	21.7		P>0.05
4	High school	3	8.6	6	24	9	15	17.93	N.S
5	Degree & above	2	5.7	9	36	11	18.3		

S.No.	Occupation	Knowledge						Chi-square value	Result
		Median		Median		Total			
		No. (36)	%	No. (24)	%	No. (60)	%		
1	Industry worker	13	36.1	4	16.7	17	28.3		
2	Housewife	9	25	4	16.7	13	21.7		
3	Agriculture	6	16.7	1	4.1	7	11.7		
4	Business	5	13.9	4	16.7	9	15		P>0.05
5	Govt.	2	5.6	10	41.7	12	20	13.27	N.S
6	Employee	1	2.7	1	4.1	2	3.3		
	Others								

S. No.	Monthly Income	Knowledge						Chi-square value	Result
		Median		Median		Total			
		No.(35)	%	No. (25)	%	No. (60)	%		
1	≤2500	16	45.7	7	28	23	38.3		
2	2501–5000	8	22.9	8	32	16	26.7	3.5142	p>0.05
3	5001–7500	8	22.9	5	20	13	21.6		N.S
4	7501-10000	2	5.7	2	8	4	6.7		
5	>10000	1	2.9	3	12	4	6.7		

S. No.	Personal habits	Knowledge						Chi-square value	Result
		Median		Median		Total			
		No. (33)	%	No.(27)	%	No.(60)	%		
1	Veg	18	54.5	15	55.6	33	55		P>0.05
2	Non-veg	15	45.5	12	44.4	27	45	3.91	N.S

The above table 2 described the outcomes of Chi-square test. An attempt of determined the association between the age sex, education, occupation, monthly income, personal habits and knowledge on Asthma & breathing exercise, the 4x2 contingency table was prepared, and suitably the chi-square analysis was carried out. However, the test resulted in being statistically not significant at 5% level (i.e., P>0.05). So, it may be observed that there is no statistical evidence to say that the demographic factors and knowledge on asthma & breathing exercise.

DISCUSSION

Numerous studies have revealed that knowledge of patients regarding their illness are potent contributing factors of disease management **(9-14)**. Asthma is a chronic disease which a patient's good behaviours and practices are more significant in controlling the disease. This study was conducted to assess the level of knowledge of adult patients with asthma in a tertiary care setting in India. The questionnaire was based on knowledge about underlying pathophysiology of the disease, symptoms, triggering factors, precipitating factors, medication and management of asthma which is

essential to know by patients with chronic asthma. Apart from that, it also assessed knowledge regarding breathing exercise.

The knowledge level concerning asthma and its medication is not at a satisfactory level in the majority of asthma patients. Further patient education level could have made a direct impact on their knowledge. It is suggested because around half of the participants of this study had not completed their secondary education. On the other hand, patients who had educated above grade 10 had significantly higher knowledge about their disease and medication. Our results confirm the findings of parallel studies that higher asthma knowledge significantly correlates with a higher level of education **(13,15-17)**.

The paucity in education may result in poor asthma awareness as it could reduce the motivation to reach information sources such as books, posters, patient information leaflets and other educational material. Similar to this survey, previous studies had reported a shallow level of asthma knowledge among study samples. Sharifi et al. **(13)** observed that only 7.5% of Iranian asthma patients were knowledgeable about their disease while it was 10% among Indians **(12)**. In a multi-centred study in China; evaluating KAP of parents of children with asthma exhibited a low level of disease-related awareness with a poor understanding of asthma clinical manifestations and indicators of acute attack **(9)**. In the same way, insufficient knowledge levels were concluded by Merghani et al. **(18)** and Cassia et al. **(19)**. In Sri Lanka, the leading source that patients receive knowledge about their disease and medication is via doctors and the involvement of other health care professionals is minimal. The statistics of this study shows that majority of the patients (78.2%) were educated only from the physician during their clinic visits which are similar to the findings of Sodhi et al. **(20)**. However, due to lack of facilities and excess workload, doctors may not be able to allocate sufficient time on patient education. This arises the need for other health care professionals such as pharmacists and nurses in improving patient knowledge. Further, continuous communication and partnership with health care providers are mandatory to achieve optimum disease management by increasing medication compliance, motivating patients and refining patient's day to day behaviours.

In conclusion, a good level of knowledge about asthma and better practices are rigorously essential to prevent asthma exacerbations. More comprehensive, regular and patient-centred counselling programs will be beneficial in improving awareness of asthma. Further, special attention should be paid on patient characteristics mainly age, gender and education level in planning such programs in future.

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