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Prevalence of bronchial asthma and risk factors: A clinical study

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Abstract

Background: There has been a noticeable increase in the healthcare burden due to asthma globally. The prevalence of asthma varies widely in populations residing in different geographical areas and among different ethnic communities. The present study was aimed to evaluate the prevalence of asthma and its risk factors.

Materials & Methods: The present study was conducted in the year 2016 which included 160 patients. Patients were informed regarding the study and written consent was taken. Patient data such as name, age, sex, occupation and income, education dietary habit, family history, atopic dermatitis, smoking and alcoholic habit, diabetes and type of cooking fuel were taken. The questionnaire was prepared and response was taken regarding demographical and environmental exposure factors which influence the prevalence of asthma. The general physical and medical examination was done in all patients.

Results: The present study consisted of males (120) and females (40). Maximum patients were seen in age group 31-40 (males- 44, females-15), followed by 41-50 (males-28, females- 10), 21-30 (males- 21, females- 7), 51-60 (males- 17, females- 4) and 61-70 (males- 10, females- 4). The difference among different age groups was significant. Type of cooking fuel used by patients was LPG (132) and biofuel (28). 110 patients were urban and 50 were rural. Type of occupation was labour (90), housewife (40) and business (30). 96 patients were illiterate and 64 were literate. 120 patients were low income and 40 with high income. 32 patients were vegetarians and 128 were non vegetarians. 35 patients were smokers, 37 were alcoholics and 62 were diabetics. Smokers were 21%, alcoholics were 23% and diabetics were 38% of asthmatics. In 96 patients, the family history was positive while in 64 patients, the family history was negative. Cough type asthma was seen in 80 patients, nocturnal type (3), allergic type (32) and occupational (18). The difference was significant (P-0.01).

Conclusion: Author concluded that the increased number of asthmatic patients may be due to the environmental pollution such as establishment of more industries and pollution caused by vehicles. So it is necessary to decrease the pollution which may decrease the number of asthmatics.

Keywords: Bronchial asthma, diabetes, smokers

1. Introduction

The prevalence of asthma is increasing day by day and this disease has become the disease of high mortality. There has been a noticeable increase in the healthcare burden due to asthma globally. This increase in the prevalence of Asthma is rather global in nature, a difference does exist between the epidemiology, clinical spectrum and the management practices in India and those in west. The prevalence of asthma varies widely in populations residing in different geographical areas and among different ethnic communities [1]. Indians in the UK have been reported to have higher rates of asthma than white Caucasians, although other reports have also indicated a lower or similar prevalence. Bronchial Asthma is a chronic inflammatory disorder of the airways associated with airway hyper responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment [2].

There is a complex interaction of hereditary and environmental factors that play important role in development of asthma. Various risk factors are genetic predisposition (family history of atopy or asthma); perinatal factors (low birth weight, prematurity); exposure to allergens; infections (respiratory infections, especially those caused by respiratory syncytial virus); environmental air pollution; tobacco smoke; diet and obesity. The review of literature shows a large variation in data with respect to the prevalence of asthma. Exposure to indoor pollutants represents a potentially modifiable cause of allergic sensitization and asthma [3].

There is much evidence to indicate that environmental factors are the major cause of variation in the prevalence of asthma among different population groups. A western lifestyle, urban living, and higher material standards of living appear to be associated with a higher prevalence of asthma.

The present study was aimed to evaluate the prevalence of asthma and its risk factors.

2. Materials & Methods

The present study was conducted in the year 2016 which included 160 patients. Patients were informed regarding the study and written consent was taken. Patient data such as name, age, sex, occupation and income, education dietary habit, family history, atopic dermatitis, smoking and alcoholic habit, diabetes and type of cooking fuel were taken. The questionnaire was prepared and response was taken regarding demographical and environmental exposure factors which influence the prevalence of asthma. The general physical and medical examination was done in all patients. Results thus

obtained were subjected to statistical analysis for correct inference. P value <0.05 was considered significant.

3. Results

The present study consisted of males (120) and females (40). The difference was statistical significant (0.02) (Table 1). Table 2 shows distribution of patients in different age groups. Maximum patients were seen in age group 31-40 (males- 44, females-15), followed by 41-50 (males-28, females- 10), 21-30 (males- 21, females- 7), 51-60 (males- 17, females- 4) and 61-70 (males- 10, females- 4). The difference among different age groups was significant.

Type of cooking fuel used by patients was LPG (132) and biofuel (28). 110 patients were urban and 50 were rural. Type of occupation was labour (90), housewife (40) and business (30). 96 patients were illiterate and 64 were literate. 120 patients were low income and 40 with high income. 32 patients were vegetarians and 128 were non vegetarians (Table 3). Graph I shows 35 patients were smokers, 37 were alcoholics and 62 were diabetics. Smokers were 21%, alcoholics were 23% and diabetics were 38% of asthmatics. Graph II shows that in 96 patients, the family history was positive while in 64 patients, the family history was negative. Cough type asthma was seen in 80 patients, nocturnal type (3), allergic type (32) and occupational (18). The difference was significant (P-0.01) (Graph III).

Table 1: Distribution of patients

Total- 160		
Male	Female	P value
120	40	0.02

Table 2: Age distribution of patients

Age group (Years)	Male	Female	P value
21-30	21	7	0.05
31-40	44	15	0.01
41-50	28	10	0.02
51-60	17	4	0.01
61-70	10	4	0.4
Total	120	40	

Table 3: Different parameters in patients

Parameters	Number	
Type of cooking fuel		
Biofuel	28	0.01
LPG	132	
Locality		
Urban	110	0.02
Rural	50	
Occupation		
Labour	90	0.2
Housewife	40	
Business	30	
Education		
Literate	64	0.05
Illiterate	96	
Income		
Low	120	0.01
High	40	
Diet		
Veg	32	0.01
Non veg	128	

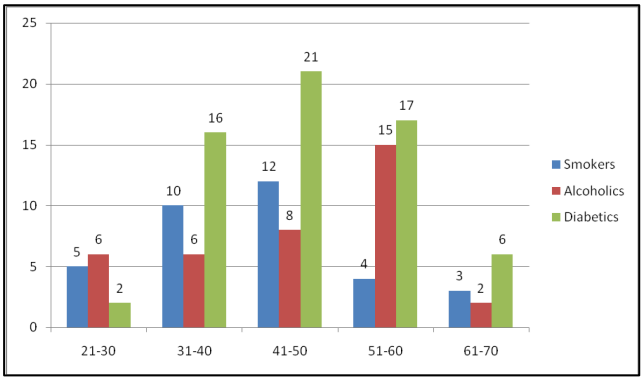

Fig 1: Prevalence of smokers, alcoholics and diabetic in Asthmatics

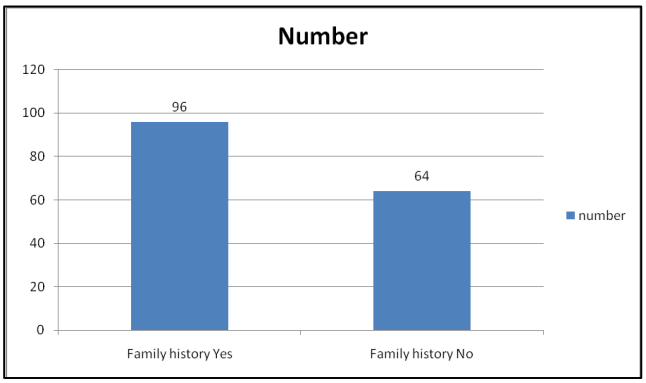

Fig 2: Inheritance of bronchial asthma

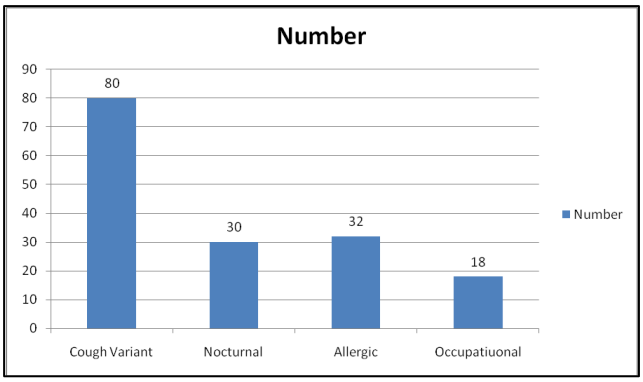

Fig 3: Type of asthma

4. Discussion

The prevalence and morbidity of asthma vary greatly among different ethnic communities and geographical locations, but the roles of environmental and genetic factors are not fully understood.

In present study, we evaluated 160 subjects with positive history of asthma and risk factors in them. This study comprised of males (120) and females (40). Our results are in agreement with Alderson *et al*. The male predominance may be related to a greater degree of bronchial lability in males. However, according to Kaur *et al* [4] and Mansi *et al* [5], female predominance was found which was attributed to the fact that use of cow-dung cakes as fuel for cooking lead to airway inflammation and asthma. Maximum patients were seen in age group 31-40 years (males- 44, females-15). Bracken [6] in his study stated that it is the disease of third and fourth decade.

We found that most of our patients were from urban area this may be due to fact that urban person are more exposed to environmental pollutants. Kaur *et al* [4] found similar results.
Most of the patients were labourer which shows that this occupation is more prone to dust, other irritants present in soil. Ortega [7] found similar results in his study.
We found that low income patients were mostly involved. Prasad *et al* [8] in their study concluded that this is the disease of low socio economic status. In present study we found that there was positive correlation of asthma and family history. Aggrawal [8] found similar results in his study. Most of our patients were diabetics and that too was seen in age group 41-50. Our results are in agreement with Clark *et al*. [9] Rogala [10] in his study found positive correlation of smoking and asthma. However in our study, we found that 21% patients were smokers.

5. Conclusion

Author concluded that the increased number of asthmatic patients may be due to the environmental pollution such as establishment of more industries and pollution caused by vehicles. So it is necessary to decrease the pollution which may decrease the number of asthmatics.

6. References

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