A MULTIFACTORIAL STUDY ON PATIENTS OF BRONCHIAL ASTHMA

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Abstract:

Introduction- Bronchial asthma is a chronic disease; many factors were involved in its pathogenesis and prognosis. The present study was aimed to study various aspects associated with bronchial asthma.

Material & method- Total 80 individuals with bronchial asthma participated in the study. The detailed history regarding age, gender, locality type, education, occupation, socio economic status, dietary habit, family history, smoking and alcoholic habit, etc were noted from each patient.

Result- Majority of patients from the age group of 31-40 were found, incidence of asthma were more common in male than women. Urban, educated and profession peoples were mostly affected. Cough & nasal allergy were associated with asthma & winter and rainy season aggravates the diseases. Maternal family history was found in many cases.

Conclusion- The present study showed that there are multiple factors aggravating factors that are associated to chronic disease condition like bronchial asthma.

Keywords- Associated Factors, Bronchial Asthma, Demographic Profile, Socioeconomic Status

Introduction

The word Asthma is derived from Greek word meaning short drawn breath, panting or laboured breathing. Bronchial Asthma is diffused involvement of bronchial system due to variety of influences resulting in chronic respiratory disability.[1,2] In other words, it is difficulty in breathing due to narrowing of air passage, particularly in expiration associated with bronchial spasm. It has been identified as one of the five most pressing global lung problems.[3] The prevalence of asthma is rising and 5-9% of general population in India is suffering from Bronchial asthma.[4] There has been a noticeable increase in the healthcare burden due to asthma globally. The risks for developing asthma depend on a complex interaction of hereditary and environmental factors. 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.5 Primary prevention includes creation of a productive environmental situation, leading healthy life-style, elimination of environmental factors or pollution. Asthma continues to place a heavy burden on patients and their families as well as the health-care system. The overall burden of Asthma in India is estimated at more than 15 million.[6]

In the clinical setting, asthma is diagnosed based on history, physical examination, and physiological testing (which most commonly includes, but is not limited to, spirometry and bronchodilator reversibility testing). Epidemiological studies on prevalence of asthma, therefore, often suffer from a lack of definite criteria for diagnosis of disease and a standardized methodology.[7] The present study was conducted to investigate different aspects of bronchial asthma and define their risk with age, gender, locality type, education, occupation, Socio economic status, dietary habit, family history, smoking and alcoholic habit, etc.

Material & Method

The present study was carried out in medical outdoors, asthma camp, and various medical wards of S.G.M. Hospital, Rewa. Total 80 patients of bronchial asthma were randomly selected. The age of the subjects ranged from 18 years to 72 years. The male-female ration was 60:40. These selected patients had been diagnosed to have bronchial asthma, but showed no evidence of complicating coronary artery disease, valvular disease, hypertension, diabetes mellitus and any other systemic illness. Before starting the study permission was taken from, institutional ethical committee and consent were taken from each participant.

Patient data was obtained by interviewing the patient using detailed questionnaire and by examination of the patient's medical record. Detailed history, careful physical examination and were conducted in the entire participant. The data of the patient includes age, gender, locality type, education, occupation, Socio economic status, dietary habit, family history, smoking and alcoholic habit and various factors related to asthma (associated symptoms, history of allergy and precipitating season). Statistical assessments were done with SPSS Version 17. The data was analyzed using descriptive statistics.

Result

Table no 1-
Demographic profiles with other aspects in patients with bronchial asthma

Factors	Category	No. of Cases	(%)
Age	Upto 20	07	8.75
	21-30	17	21.25
	31-40	25	31.25
	41-50	09	11.25
	51-60	09	11.25
	61-70	08	10.00
	71 and above	05	6.25
Sex	Male	48	60
	Female	32	40
Locality	Urban	47	58.75
	Rural	33	41.25
Education	Educated	63	78.75
	Uneducated	17	21.25
Socio Economic Status	APL	71	88.75
	BPL	09	11.25
Primary Diet	Vegetarian	59	73.75
	Non-Vegetarian	11	13.75
	Mixed		12.5

The age range found in present study was between 18-72 yrs. 60% male and 40% female were participated in the study. In the study 47out of 80 (58.75%) belonged to urban area while 33 cases (41.25%) cases belonged to rural area. Out of 80 patients, maximum 63 (78.75%) belonged to the educated class while 17 (21.25%) belonged to the uneducated class. Out of 80 cases, most i.e.71 (88.75%) belonged to above poverty line economic status while 9 (11.25%) belonged to below poverty line status. Out of 80 cases, maximum 59 (73.75) cases belonged to the vegetarian class.

Figure 1-
Different occupational status of asthmatic participants
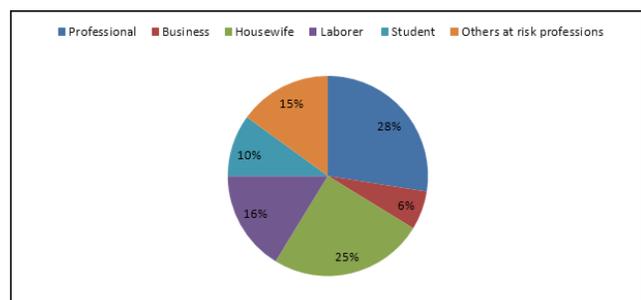
Asthma found In the present study to be more common in cases belonging to professionals (27.5%) and housewives

(25%) category while least commonly observed in business class (6.25%).

Table 2-
Showing various factors related to Asthma

Factors	Criteria	No. of Cases	(%)
Associated Symptoms	Cough	80	100
	Expectoration	52	65
	Wheeze	43	53.75
	Night Awakening	25	31.25
	Chest Pain	18	22.5
	Chest tightness	13	16.25
	Cold (Rhinitis)	31	38.75
History of Allergy	Nasal Allergy	39	48.75
	Nasal + Food Allergy	07	8.75
	No History of Allergy	34	42.5
Precipitating Season	Winter	29	36.25
	Rain	01	1.25
	Summer	00	00
	Winter + Rain	34	42.5
	Winter + Summer	02	2.5
	Summer + Rain	01	1.25
	Change of Weather	04	5.0
	No Seasonal Variation	09	11.25

In the present study all the cases showed the history of cough while least no. i.e. 13 (16.25%) cases showed history of chest tightness. Out of 80 cases, most i.e.39 (48.75%) cases showed history of nasal allergy to various agents, while 34 (42.5%) cases showed no history of allergy. Out of 80 cases, 30 (42.5%) cases showed history of seasonal precipitation in winter + Rainy season, while none of them showed history of precipitation during summer season.

Table 3-
Showing family history & Addiction type in asthmatic patients

		No. of Cases	(%)
Family History	Father	9	11.25
	Mother	16	20
	Brother	4	5
	Sister	4	5
	Nil	47	58.75
Addiction type	Tobacco chewing alone	10	12.5
	Tobacco chewing + Smoking	3	3.75
	Tobacco chewing + Alcohol	5	6.25
	Smoking + Alcohol	2	2.5
	Tobacco chewing + Smoking +Alcohol	2	2.5
	Tob. chewing + Smoking +Alco.+ Others	2	2.5
	No Addiction	56	70

No family history of asthma was found in 47 out of 80 cases (58.75%) while 41.25% cases had family history of asthma. In maximum 16 (20%) cases history of asthma in mother was found while least number of cases i.e. 4 (5%) showed family history of asthma in either brother or sister. No history of addiction was found in 56 out of 80 patients (70%) while 10 (12.5%) cases showed addiction to tobacco alone & 2(2.5%) cases showed addiction to all agents including others like Ganja, Bhang etc.

Discussion

Asthma is a chronic inflammatory disease of the airways of the lung. In the clinical setting, asthma is diagnosed based on history, physical examination, and physiological testing (which most commonly includes, but is not limited to, spirometry and bronchodilator reversibility testing). Multiple studies have been carried out to investigate the causes and risk factors of developing asthma. The present study showed significant relation between the age and disease.[8] (r=-0.4366.) In the study the incidence of asthma was somewhat more common amongst males. The majority of male may be related to a greater degree of bronchial liability in males.[9,10] There was urban predominance in study subjects it was as because urban subjects were more exposed to various environmental allergens and pollutants.[8] It was found that the people living in congested and crowded urban areas were more affected, where as in rural areas people living with dumpy habitat and unhygienic environment were more affected. Socio-economic status (SES) of an individual is an environmental factor that has been identified as an important determinant of human health.[10] It was observed that patients with high SES were more likely to have a family history of asthma, independent of age, sex, asthma severity and smoking status.[11,12]

A family history of asthma is considered as one of the most important risk factors for developing the disease.[13] The findings of our study are concurrent with the well documented strong association of family history with the prevalence of asthma.[8,11,12] Tobacco -asthma association merely worsen the under laying asthma Smoking emerged as a significant risk factor for asthma.[14] It was found that the incidence of the disease was highest among non smokers fallowed by Ex-smokers. As smokers have continuous exposure to smoke, this might have developed immunity to smoke allergy as compared to non-smokers so it may be concluded that the non-smokers have high incidence

of Bronchial Asthma.[7] The incidence of asthma was seen more in educated people and profession occupation rate the more than housewife, laborer and other at risk professions. Asthmatic people with Vegetarian diet habit were more than nonveg or mixed veg. The allergens present on vegetables was might be suspected to stimulate asthmatic condition. Moisten and cold winter & winter + rain condition promote more asthmatic attack. In the study Cough, Expectoration, Wheeze was found to be the mostly associated with asthma. In the study, nasal allergy was found to be related with asthma but on the contrary, many patients show no history of allergy. This increased prevalence of chronic bronchitis was attributed to exposure to domestic smoke pollution, lower poor housing conditions and overcrowding and indoor allergens.[15] Several risk factors that have been investigated in asthma include gender, age, cigarette smoking, SES and having family history of asthma.[16] It has been suggested that interactions among multiple genes and environmental factors increase asthma susceptibility.[17]

Conclusion

We conclude that multiple factors were found to be related to the asthma such as age, gender, locality type, education, occupation socioeconomic status, dietary habit, family history, smoking and alcoholic habit, etc. Primary prevention was achieved with change in life style and by due protection against aggravating factors which are associated to chronic disease condition like bronchial asthma.

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Conflicts Of Interest - None

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