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Evaluation of Risk Factors and Prevalence of Bronchial Asthma in Children of North Karnataka Population

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Abstract

Ninety eight (98) school going children of both sexes (56 boys and 42 girls) aged between 6 to 14 years. 5(5%) were 6 years, 7 (7.1%) were 7 years. 8 (8.1%) were 8 years, 10 (10.2%) were 9 years, 12 (12.2%) were 10 years, 11 (11.2%) were 11 year 14 (14.1%) were 12 years. 13 (13.3%) were 13 years 18 (18.3%) were 14 years. The clinical manifestation was 11(11.2%) were asthmatic with obesity 13 (13.2%), had onset of asthma more than 2 years, 11 (11.2%) had relief with bronchodilators, 9 (9.1%) had nocturnal exacerbation of asthma, 13 (13.2%) had seasonal exacerbation, 8 (8.1%) had exercise induced asthma, 12 (12.2%) had trigger induced attacks, 11 (11.2%), a febrile episode 10 (10.2%), had family history asthma / atophy. The risk factors of prevalence of bronchial asthma 3 (3.06%), was cat 5 (5.10%), was dog 10 (10.2%) both (cat and dog), 80 (81.6%), had none. 38 (38.7%) had Smoke exposure, 60 (61.2%) had Dust exposure, 19 (19.3%) used electricity for cooking, 47 (47.9%) used LPG gas for cooking, 32 (32.6%) used open? for cooking. 38 (38.7%) were staying in open atmosphere, 60 (61.2%) were staying in crowd area, 20 (20.4%) were upper, 35 (35.7%) middle, 43 (43.8%) had lower socio-economic status. The study of bronchial asthma in children with different age group and different socio-economic status will certainly help the pediatrician to evaluate the different causes, risk factors and treat efficiently to prevent morbidity of mortality

Keywords: Bronchial; Pediatric; Genetic; Environmental; Asthma.

Introduction

Bronchial asthma is a major public health problem worldwide with wide differences in prevalence and severity throughout the world. Significant increases in the prevalence and severity has been noticed globally over the past few decades in certain geographical regions. Changes in the environmental factors, life style, genetic factors play vital role in the prevalence and aggravation of the symptoms [1,2]. As asthma is a chronic inflammatory disease of the airways causing episodes of airway obstruction this chronic inflammation increases airways hyper responsiveness to stimulants [3]. Asthma not only leads to hospitalization but also an important chronic condition causing school absenteeism. Asthma is generally considered a disease of developed countries and affluent societies in developing countries. But there is little information about the epidemiological trends of asthma in urban India especially in the middle and lower middle class society of India. Hence, attempt is made to study the children of different ages of middle and lower class of socio-economic status with respect to various clinical manifestations, aggravating factors, and to evaluate the risk factors of asthma.

Material and method

Ninety eight (98) school going children of both sexes 56 boys and 42 girls aged between 6 to 14 years attending the outpatient pediatric department of KBN Hospital, Kalburagi, Karnataka were selected

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for study. Majority of the children belonged to middle class socio - economically. The radiological, bio-chemical, pathology test were carried out to confirm the diagnose of bronchial asthma.

Pulmonary function test (spirometry) was done only in doubtful cases to confirm bronchial asthma. The patients were classified as per their age, sex and as per their risk factors. The duration of the study was about 2 years (2015 to 2017).

Tuberculosis, chronic lung diseases (bronchiectasis, interstitial lung diseases, preterms, congenital heart disease) children were excluded from the study.

Observation and Results

Table 1- Age wise distribution study among children with bronchial asthma. 5 (5%) children were 6 years old, 7 (7%) were 7 years old, 8 (8.1%) were 8 years old 10 (10.2%) were 9 years old, 12 (12.2%) were 10 years old, 11 (11.2%) were 11 years old, 14 (14.2%) were 12 years old, 13.(13.2%) were 13 years old, 18(18.3%) were 14 years old.

Table 2- Gender wise classification of bronchial asthma in children was Boys 56 (57.1%), girls 42 (42.8%)

Table 3- clinical manifestation of bronchial asthma in children was 11 (11.2%) had asthma with obesity, 13 (13.2%) had onset of asthma more than 2 years, 11 (11.2%) had relief with bronchodilators, 9 (9.1%) had nocturnal exacerbations 13 (13.2%) had seasonal exacerbation 8 (8.1%) had exercised induced asthma, 12 (12.2%) had trigger induced attacks. 11 (11.2%) had Afebrile episodes, 10 (10.2%) had family history of asthma/atophy.

Table 1: Age wise distribution of children with bronchial asthma

(Total No of patients- 98)

Sl no	Age	Number	Percentage
1	6	5	5.1
2	7	7	7.1
3	8	8	8.1
4	9	10	10.2
5	10	12	12.2
6	11	11	14.2
7	12	14	14
8	13	13	13.2
9	14	18	18.3

Table 2: Gender-wise distribution of children with bronchial Asthma

(Total No of patients- 98)

Sl no	Particulars	Number	Percentage
1	Boys suffering with bronchial asthma	56	57.1
2	Girls suffering with bronchial asthma	42	42.8

Table 3: Clinical manifestation of bronchial asthma children

(Total No of patients- 98)

Sl no	Presentation	Number	Percentage
1	Asthma with obesity	11	11.2
2	Age of onset >2 years	13	13.2
3	Relief with bronchodilators	11	11.2
4	Nocturnal exacerbations	9	9.1
5	Seasonal exacerbation	13	13.2
6	Exercise induced	8	801
7	Trigger induced attacks	12	12.2
8	Afebrile episode	11	11.2
9	Family history of asthma / atophy	10	10.2

Table 4: Risk factors for prevalence of bronchial asthma among children

(Total No of patients 98)

Risk factors	Particulars	Number	Percentage
1 pet	a-cat	3	3.06
	b-Dog	5	5.06
	c-both	10	10.2
	d-None	80	81.6
2 Exposure	Smoke	38	38.7
	Dust	60	61.2
3 fuel used for cooking	Electricity	19	19.3
	LPG gas	47	47.9
	Open fire	32	32.6
4 location	Open	38	38.7
	Crowd	60	61.2
5 socio economic status	Upper	20	20.4
	Middle	35	35.7
	Lower	43	43.8

Table 4- Risk factors for prevalence of bronchial asthma in 1-3 (3.06%) children were cat, 5 (5.10%) were dogs, 10 (10.2%) were both cats and dogs.

2- Risk factors of exposure to smoke in 38 (387), 60 (61.2%) were dust.

3- risk factors of bronchial asthma due to fuel used for cooking 19 (19.3%) was electricity 47 (47.9%) was gas (LPG), 32 (32.6%) was open fire.

4- Location of residency – 38 (38.7%) was open, 60(61.2%) was crowded location.

5- socio- economic status - 20 (20.4%) were upper social society 35 (35.7%) were middle, 43 (43.8%) were lower social status children.

Discussion

The present study of risk factors for bronchial asthma in children of north Karnataka population 5 (5.1%) were 6 years age, 7 (7.1%) were 7 years age, 8 (8.1%) 8 years age 10 (10.2%) 9 years age, 12 (12.2%) were 10 years age, 11 (11.2%) were 11 years age 14 (14.2%) were 12 years age 13(13.2%) were 13 years age 18 (18.3%) were 14 years age (Table 1) 56 (57.1%) boys, 42 (42.8%) were girls suffering with bronchial asthma (Table 2) The clinical manifestation of bronchial asthma. 11 (11.2%) children were obese, 13 (13.2%) had on set of asthma, more than 2 years, 11 (11.2%) got relief with bronchodilators 9 (9.1%) nocturnal exacerbation of asthma, 13 (13.2%) had seasonal exacerbation 8 (8.1%) had exercised induced asthma, 12 (12.2%) had trigger induced attacks, 11 (11.2%) had febrile episode, 10 (10.2%) had family history or atophy. These findings were more or less in agreement with previous studies [4,5,6]. Common asthmatic symptoms are wheezing, recurrent coughing, breathlessness [7,8]. It is reported that overcrowding, pollution, poverty, passive (secondhand) smoking, lack of awareness and proper facilities, poor perception of symptoms, social stigmatization, are the factors for prevalence and aggravating factors [9]. Moreover, genetic factors and nutritional status of the children also play a vital role in prevalence of bronchial asthma [10]. Because asthma develops due to interaction between gene and environment hence, parental history of atopy is an index of susceptibility to asthma. A good nutritional status creates immunity which prevents the risk of severity, morbidity and mortality of asthmatic patients.

Summary and Conclusion

The present study of prevalence and assessment of risk factors of bronchial asthma in children of north Karnataka population has encompassed various factors of prevalence and aggravating factors for bronchial asthma in both sexes of different ages in the children. Apart from medication, hygienic atmosphere, nutritious diet is must to overcome the severity and exacerbation of asthma. This study will be quite useful to pediatrician to treat such children with various clinical manifestation but this study demands further genetic, nutritional, patho-physiological, bio-mechanical study to know the mechanism of alveoli and surfactant cells, and broncho-alveolar functions because little is known about the causes of bronchial asthma.

This research paper is approved by ethical committee of KBN institute of medical sciences kalaburgi-585102 (Karnataka).

Conflict of Interest: No

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