FAMILY HISTORY AND SEX INCIDENCE AND RELATION TO SEVERITY IN CHILDHOOD ASTHMA

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Abstract

Background: Asthma is the most common chronic illness in children and its still raising a lot of concern regarding mortality and morbidity which are still high regardless of the advance of management. Family history of asthma and sex incidence is an interesting issue to be discussed.

Aim: Aim of the study is to measure the percentages of positive and negative family history of asthma, sex incidence of asthmatic children and the relation of those two factors to severity.

Patients & Method: A total number of 110 patients subjected to study about their family history of asthma and sex of patient and assessment of severity of the attacks of asthma according to specific clinical criteria.

Results: The results show that 52.7% were male and 47.2% were female with male/female ratio of 1.115 and there is an increase in moderate to sever asthma in male. Also the results show that 61.8% of patients gave family history of asthma and other allergies and there is no relation between severity and family history of asthma.

Conclusion: The prevalence of asthma is more in males and they are more liable for more sever attacks. The asthmatic patients usually have positive family history of asthma but this history does not reflect on severity of asthma.

Key words: Asthma, Family History, Sex, Severity

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Introduction

The lighted candle respires and we call it flame and the body respires and we call it life and asthma in Latin means difficult respiration so it may lead to difficult life[1].

Asthma is a leading cause of chronic illness in childhood and its responsible for significant proportion of school days lost because of chronic illness[2,3]. Asthma is the most frequent admitting diagnosis in children hospital[2,3].

Data on inheritance of asthma are most compatible with polygenic or multifactorial determinants, a child with one affected parent has abut 25% risk of having asthma , the risk increases to about 50% if both parents are asthmatic, however asthma is not universally present among monozygotic twin. The liability of bronchoconstriction with exercise is concordant in identical twins but not in dizygotic twin. Bronchial liability in response to exercise testing also has been demonstrated in healthy relatives of asthmatic children[2,3].

A genetic predisposition combined with environmental factors may explain most cases of asthma[3]. The family history of asthma, hay fever, atopic dermatitis and eczema in parents or siblings is important predictors of subsequent obstructive airways problems.

Airway obstruction in asthma is due to bronchoconstruction, hypersecretion of mucous and mucosal edema due to inflammatory cells. Various allergic and non-specific stimuli and wide variation of factors can cause bronchoconstrition leading to asthmatic attack[4].

Patients & Methods

A total number of 110 asthmatic patients were interviewed in out patient clinic and in pediatrics ward of Al-Kadhymia Teaching Hospital and subjected to cross sectional study since February 2001 to February 2002.

Questionnaire about their sex and family history of asthma and /or other allergies (hay fever, a topic dermatitis and eczema).

These patients also subjected to study to asses the severity of their asthma, whether mild, moderate or sever according to the following parameters.

Mild asthma:

Children with mild asthma have less frequency of attacks good exercise tolerance, good school attendance, little on no interruption of sleep and good response to treatment. They have normal chest X-ray and no hyperinflation of the chest

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and patient is symptoms free between the attacks[3].

Moderate Asthma:

Children of moderate asthma have more frequent attacks than the mild disease and often have cough and mild wheezing between more sever exacerbations, school attendance may be impaired, exercise tolerance will be diminished and child may generally lose sleep at night during attacks. Such children will generally require continuous rather than intermittent bronchodilator therapy and sometimes steroid to control the symptoms. Hyperinflation may be evident clinically and roentgenoggraphically[3].

Sever asthma:

Children with sever asthma may have daily wheezing and more frequent and more sever exacerbation and require recurrent hospitalization which is rarely required for mild or moderate asthma. They miss significant days of school have their sleep interrupted by asthma and have poor exercise tolerance. They have chest deformity as a result of chronic hyperinflation. Bronchodilator is required continuously and steroid regularly[3].

The number and percentage of male and female patients was recorded and the patients classified according to the mentioned parameters as mild, moderate or sever asthmatic.

Also the severity of asthma in patient with positive family history was assessed, compared with patients with negative family history. These data statistically analyzed by chi-square and P value was estimated.

Results

The results shows that 58 patients (52.72%) are male and 52 (47.27%) are female patients (Figure 1), with male to female ratio of 1.115. Fourteen patients (24.14%) of male patients were found to be sever asthmatic in comparison with 4 (7.69%) of female patient (Figure 2, Table 1). Also 14 (24.14%) of male patients were mild asthmatic in comparison with 32 (61.5%) of female patients as shown in figure 2 and table 1. Also 30 (51.7%) of male patients found to be of moderate asthma compared with 16 (30.76%) of female patients (Figures 2, Table 1).

These results showed that the increased percentage of moderate to sever asthma in male patients more than female patients (P value less than 0.05). The data show 68 (61.8%) of patients with positive family history of asthma and other allergies of 42 (38.2%) of patients with negative family history (Figure 3).

The results show that 27 (39.7%) of patients with positive family history found to be of mild asthma compared with 17 (40.47%) with negative family history (Figure 4, Table 2).

Also 12 (17.65%) patients with positive family history presented with sever asthma compared with 5 (11.9%) of patients with negative family history (Figure 4, Table 2), the P value > 0.05 (not significant). These results show that there is no relation of positive family history of asthma and other allergies to severity of asthma in contrary to sex.

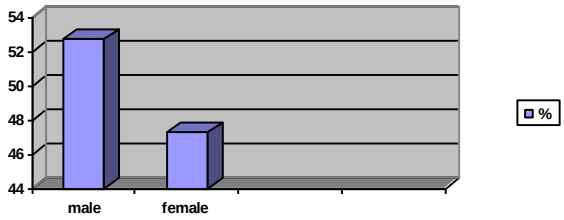

Figure 1:- Sex prevalence of asthmatic patient

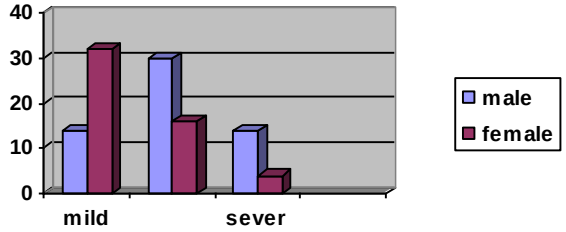

Figure 2:- Severity of asthma in male and female patient
No =number

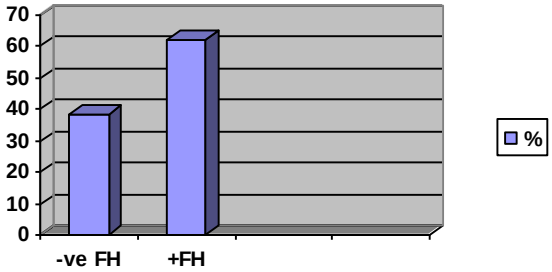

Figure 3:- Percentage of positive and negative family history of asthma
FH =Family history

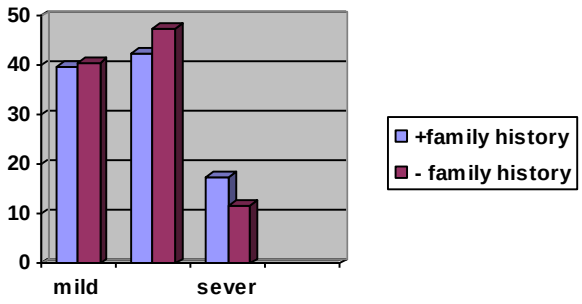

Figure 4:- Severity of asthma in patient with positive and negative family history

Table 1: Severity of asthma in relation to age

Severity	Male %	Female %
Mild	14 (24%)	32 (61.5%)
Moderate	30 (50.7%)	16 (30.76%)
Severe	14 (24%)	4 (7.69%)

Table 2: Severity of asthma and family history of asthma

Severity	+ve family history %	-ve family history %
Mild	27 (39.7%)	17 (40.47%)
Moderate	29 (42.64%)	20 (47.6%)
Severe	12 (17.65%)	5 (11.5%)

Discussion

The estimation of severity of asthma is best completed by pulmonary function test (PFT) which is difficult to be done for most of our patients in our circumstances because of the need for cooperation of patients which is difficult in younger patients and also the poor compliance of patients and the technical difficulties because the spirometer available is for adult patients.

Tuchinda[5] study estimated that more prevalence in boys and 25 % of patients have family history of asthma. Skogen and Slodrohl study[6] shows 71% of asthmatic patients have positive family history and 69% were male.

Gniazdowska[7] estimated that there is an increase of severity of disease in patients with positive family history in contrary to our study. Matodancy study[8] estimated male/female ratio of 1.36/1 and 95.2 % with positive family history of atopy. Younng study[9] estimated that there is relationship between positive family history of asthma and the severity.

Mercer and Vas-Niekerk study estimated that there is male predominance in asthma and there is 90% positive family history of asthma[10]. Inove *et al* study[11] shows male/female ratio of 1.4 /1 of 20 % has positive family history.

Roorda *et al* study[12] estimated 62% of asthmatic patients with positive family history and no effect of family history on severity which goes with our study. The asthmatic patients who are admitted usually get moderate to sever asthma which may give statistical bias so we depend more on outpatients.

The clinical criteria for the assessment of severity are rough and not accurate as pulmonary function test results; this fact also may give some bias because there are no sharp lines for assessment of severity.

Conclusions

1. The prevalence of asthma is more male than female.
2. The male asthmatic patients are more liable for moderate to sever attacks.
3. The asthmatic patients usually have positive family history of asthma and/or atopy.
4. There is no correlation between the severity of asthma and the family history of asthma.

Recommendations

1. The assessment of severity is of vital important for asthmatic patient because it guide the treatment and follows up and especially for severe asthma.
2. The clinical criteria and pulmonary function test are the best method for assessment of severity and we recommend distribution of pediatric spirometer in every health center for optimal assessment.
3. The questionnaire in the family history should include the family history of atopy and not only asthma because usually the parents denied such a history.

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