Risk factors of bronchial asthma among adults in Basrah

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Objective: **To study the risk factors aggravating bronchial asthmatic attacks among adult patients in Basrah**

Methods: **Ninety six asthmatic patients, their ages ranged from 15 to 47 with a mean ages 29.66±7.37 years and a mean weight of 70.15 ± 12.74, were studied prospectively from January 2015to April 2016 from two consultation clinics. It was a paper questionnaire based study, the questions and answers were completed by the patients and sometimes with help of close relative, if necessary. Because of the increasing number of aggravating factors in modern life and the pollutions of community, the patients were classified into three groups according to number of triggering factors.**

Results: **Atopic individual was more liable to multiple allergens in comparison to non-atopic individual with 95% CI (.051-0.424) and a value (0.010). The commonest risk factors that had been found aggravating attacks of bronchial asthma in the presence of history of atopy was upper respiratory tract infection with 95% CI (0.099-0.441), humidity(95%CI of 0.054-0.414), seasonal allergy (95%CI of 0.008-0.474), spicy food intake with 95% CI of 0.256-0.277, perfumes (odorous) with 95% CI 0f (0.197-0.568), Low corticosteroid medications with 95% CI OF (0.069-0.433) and dusty environments with 95% CI of (0.133-0.490). Asthma was more common at younger age group and older age group constitutes only 11.4%.**

Conclusion: **In allergic individuals in Basrah, respiratory tract infection, humidity, seasonal changes, indoor perfumes, spicy food diet, low dose of cortico steroid, dusty environments, all are common association with asthma symptoms in atopic individual.**

Key Words: **Bronchial asthma, risk factors, Basrah**

العوامل المثيرة للربو القصبي بين البالغين في مدينة البصرة.

الهدف: دراسة عوامل الخطر المشتركة المشددة لنوبات الربو الشعب الهوائية بين المرضى الكبار في البصرة.

العينة والطريقةِ: ستة وتسعون ممن يعانون من مرضى الربو القصبي من الفئة العمرية من ١٥ إلى ٤٧ مع متوسط العمر ٢٩.٦٦ ± ٧.٣٧ سنة ومتوسط وزن الجسم للعينةِ هو ٧٠.١٥ ± ١٢.٧٤كيلو غرام ،وكانت الدراسة مستقبلية للفترة من كانون الثاني/ يناير ٢٠١٥ إلى نيسان / أبريل عام ٢٠١٦ في عيادتين استشاريتين في مدينة البصرة جنوبي العراق. وتمت الدراسة بتوزيع استبيان على أساس ورقة، ونوع من الأسئلة والأجوبة، وأكملت من قبل المريض وفي بعض الأحيان بمساعدة ذويه إن لزم الأمر. وبسبب العدد الكبير للعوامل المثيرة لنوبات الربو في الحياة الحديثة، والتلوث من المجتمع والتلوث في البيئةِ قمنا بتصنيف المرض إلى ثلاث مجموعات وفقا لعدد العوامل المثيرة لحدوث النوبة.

النتائج: الأفراد المصابون بالحساسية أكثر عرضة للعوامل المثيرة للنوبة بالمقارنة بالأفراد الغير مصابين مع % CI (0.424-.051) ٩٥ وقيمة (٠.٠١٠) عوامل الخطر الأكثر شيوعاً التي قد تم العثور على تفاقم نوبات الربو القصبي.حلت عدوى الجهاز التنفسي العلوي مع ٩٥(0.441-0.099) CI%،الرطوبة 95% CI) من ٠.٠٥٤ إلى ٠.٤١٤)، الحساسية الموسمية 95% CI) من ٠.٠٠٨ إلى ٠.٤٧٤)، وتناول الطعام حار الموئل مع فاصل الثقة ٩٥% من ٠.٢٥٦- إلى ٠.٢٧٧، الروائح والعطور (مع ٩٥0.197 CI% إلى) 0.568- ومنخفضة أدوية الكورتيزون مع فاصل الثقة ٩٥% من (٠.٠٦٩- إلى٠.٤٣٣) والبيئات المتربة مع فاصل الثقة ٩٥% من (٠.١٣٣-الى٠.٤٩٠). والربو أكثر شيوعاً في الفئة العمرية من الشباب وكبار السن من الفئة العمرية يشكل ١١.٤ في المائة فقط.

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الاستنتاج: عند الأفراد الذين يعانون من الحساسية ،عدوى الجهاز التنفسي، والرطوبة، والتغيرات الموسمية، الروائح والعطور، الوجبة الغذائية الغنية بالتوابل، تقليل جرعة الستيرويدات، البيئات المُترية، جميع هذه العوامل المشتركة مع أعراض الربو في الأفراد الذين يعانون من فرط الحساسية.

الكلمات المفتاحية: الربو القصبي، العوامل المثيرة، مدينة البصرة.

INTRODUCTION

Bronchial asthma is a complex syndrome with several clinical types in both adults and children. Its major characteristics include a variable degree of airflow obstruction, bronchial hyper-responsiveness, and airway inflammation. Both genetic factors (atopy) and environmental factors (viruses, allergens, and occupational exposures) contribute to its initiation and progression.[1] The prevalence of bronchial asthma has been rising during the past four decades. [2] Uncontrolled bronchial asthma is present all over the world. Prevalence of uncontrolled asthma in developed countries may reach 50.4%which decreases quality of life and the reason for more expenditure which burden family and health authority from medical and non-medical cost and more days of sick leaves and more limitations of activity and productivity. This means that control of asthma have remarkable effects on patient life, less hospitalization and use of healthcare resources.[3-5] Indoor and outdoor allergens play a significant role in the development of asthma. These factors increase with an increased risk of childhood asthma.[3,5,6] In Iraq, asthma is a common disease, particularly among primary school children.[7] Unfortunately, no national database could be obtained, in spite of the increasing burden of this health problem that was observed during our clinical work. In order to manage the breathless, wheezy patients nowadays, contamination of environments, western lifestyle and urbanization should be considered seriously. The presence of other associated factors like obesity, smoking, occupation, chronic rhinitis or sinusitis and gastro esophageal reflux disease may also increase risk of poor asthma control.[5,6,8] A common type of asthma is an atopic, which may be defined as the state of having IgE antibodies to specific allergens. Some atopic individuals may have different allergic diseases. They may begin with atopic dermatitis in infancy and childhood, followed by the onset of allergic rhinitis and then asthma during later childhood and adolescent. [8] The aim of this study is to know whether dealing with the multirisk factors and aggravating factors are related to initiate the attacks of bronchial asthma in Basrah and to show it's associations with number of allergens.

PATIENTS AND METHODS

Ninety six patients with history and physical findings suggestive of bronchial asthma were studied prospectively in two consultation clinics in Basrah, southern of Iraq during the period from January 2015- to March 2016. Sixty (62.5%) were females and Thirty six (37.5%) were males. their ages range from 15 to 47 years and their mean ages 29.66 ± 7.37 years and their mean weight 70.15 ± 12.74 kilograms. Patients were divided into three age groups: the first group from 15-29 years, the second group from 30-44 years and the third group from 45 years and above. A written questioner was given to each patient, who involves questions regarding the identity of patients including age, gender, weight (measured by standard method). and fifteen risk factors that aggravate the attacks of asthma, in addition to the non-modifiable risk of age and gender and family history of asthma. Because of the increasing number of allergens, risk factors in modern life and the pollution of community, patients were classified into three groups. [10] According to the fact that multiple

risk factors are implicated in the aggravation of bronchial asthma, indoor and outdoor factors of which some are non-modifiable.[11]

Group one: those who exposed to five and less risk factors

Group two: those who exposed to ten risk factors

Group three: those who exposed to fifteen risk factors

The informed consent was taken from all patients for their participants in the study. Approval of this study was taken from department of medicine, college of medicine, university of Basrah.

Data collected and fed to the analytic statistic (SPSS) version 20, frequency of variable measured frequency test, descriptive statistic calculated by means and St. deviations ,one way ANOVA Test for more than two variable and Pearson Correlation, Sig. (2-tailed) measured and the p value of less than 0.05 consider abnormal

RESULTS

(Table-1), show both males and females were affected although females were predominate. 60(62.5%) patients were females and 36(37.5%) were males, but both gender having similar number of allergens among the three groups. Group 2 and 3 had more than five risk factors and strong family history of allergy than group one with less number of risk factors and less family history of allergy with P-value 0.031.

Table1. Demographic distribution of patients.

Group		One	Two	Three	Total	P value
Age		30.00 ± 6.87	29.27 ± 7.73	31.85 ± 6.41	29.66 ± 7.37	0.730
Body Weight		69.0 ±13.05	69.72 ± 11.71	78.42 ± 18.69	70.15 ± 12.74	0.691
Gender	***Female***	18(18.8%)	38 (39.6%)	4 (4.2%)	60 (62.5%)	0.850
	Male	9 (9.4%)	24 (25.0%)	3 (3.1%)	36 (37.5%)	
Atopic History	***Negative***	19(19.8%)	27 (28.1%)	2 (2.1%)	48 (50.00%)	0.031
	Positive	8(8.3%)	35 (36.5%)	5 (5.2%)	48 (50.00%)	

(Table-2), Shows distribution of age of asthmatic patients. Age group of 15-29 and 30-44 constitute 43.8 % and 45.8% respectively. While ages equal and more than 45 constitute only 11.4%. Younger age group most frequently affected and more frequently subjected to trigger factors in comparisons to older age group (P-value 0.730).

Table 2. Distribution of age in the studied group.

Age group in years	Number of risk factors			
	Less than 5	***5-10***	***11-15***	***Total***
15-29	13 (13.5 %.)	26 (27.1%)	3 (3.1%)	42(43.8%)
30-44	11(11.5%)	29(30.2%)	4 (4.2%)	44(45.8%)
45	3 (3.1%)	7(7.3%)	0(0.0%)	10 (11.4%)
Total	27(28.1%)	62 (64.6%)	7(7.3%)	96 (100.00%)

P- value 0.730 not significant

Figure-1, show an association between family history of bronchial asthma and triggering factors. Chest infection, humidity, change of seasons, eating spicy foods, perfumes and odors, low corticosteroids and dusty environments are positively significantly associated with the increase number of triggering factors in those with positive family history of bronchial asthma, while symptoms of gastroesophageal reflux disease (GERD), industrial, animal and drugs exposure are positively associated in the presence of negative family history of allergy of asthma. Smokings, sex, history of sinusitis and rhinitis have no effect in either direction.

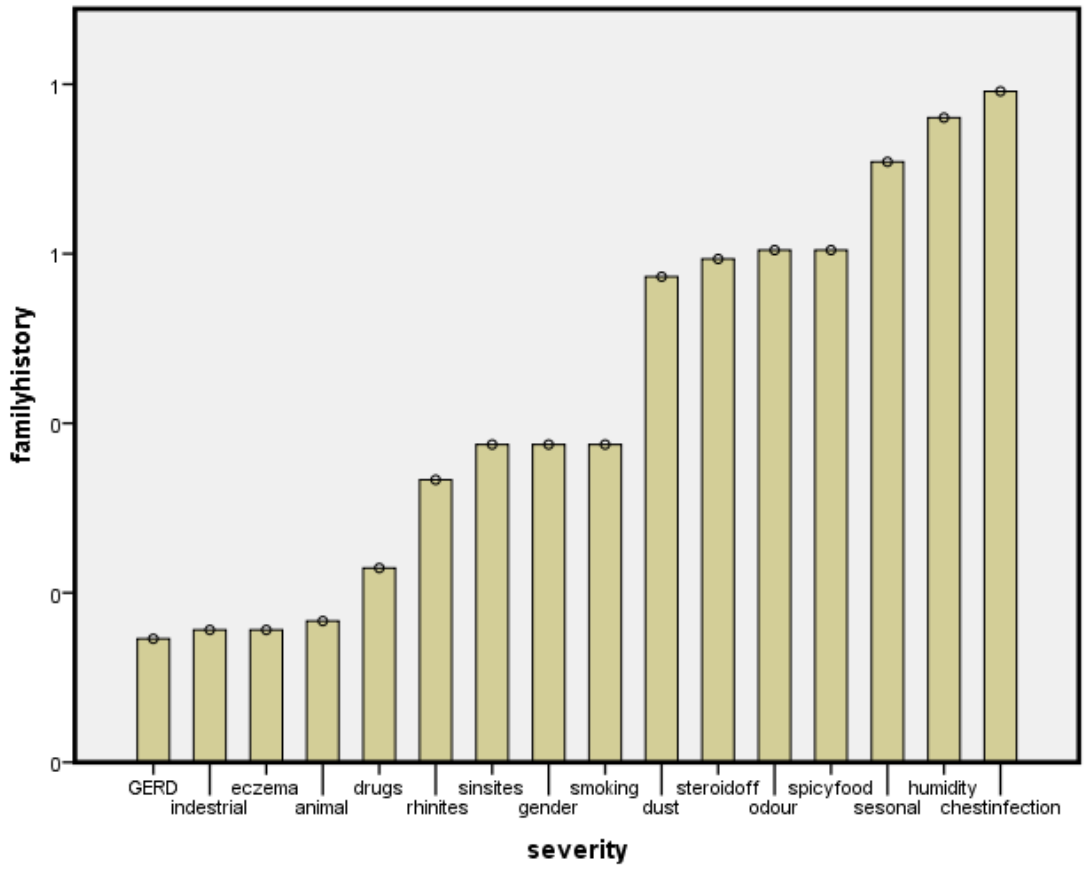

Fig 1. Association between family history of bronchial asthma and triggering factors.

DISCUSSION

In this study most of patients reported allergy to multiple triggering factors for their asthmatic attacks, no single factor was reported as the only triggering for the attacks the vast majority reported up to ten triggers that initiate the attack, hence the difficulty in prevention and the requirement of prolong duration of therapy and at the same time the absences from work and the complications of treatment given to the patients. Risk factors for bronchial asthma were present in both gender although it was slightly more common in females, no significant difference was found between both groups with types of aggravating factors, though women was slightly more allergic than men and this was similar to Australian study.[12] The most common risk factors in this study were seasonal allergy, chest infection, and lower number of patient on steroid therapy, perfumes; dust and spicy food meal habit were the main risk in atopic individuals that point to diversity of factors that trigger asthmatic attack. this may

explain why it is difficult to vaccinate or desensitize asthmatic patients against allergens in this area, and the difficulty in controlling the attack of asthma. Smoking and obesity were not significant important associated risk factors if compared in both atopic and non-atopic groups, even though smoking is a powerful factor in bronchial hyper responsiveness.[13] Environmental factors in the form of humidity and dust in Basrah was the most important precipitating factors that aggravate bronchial asthma. This might also reflect that environmental pollution and high percentage of humidity both an important problem in this area. The physiological effect of it is not clear, rhinitis which commonly associated with bronchial asthma, this study shows more association of rhinitis with negative history of asthma, that differ from an Indian study.[14] The study shows clearly that bronchial asthma was common at younger age group and decreased at older age group, this may be explained by the poor control of asthma and reduce life expectancy probably due to failure of recognizing and avoiding of triggering factors at earlier age. The rate of deterioration in lung function with age was greater in adults with asthma than in those without asthma, and the ability to reverse the changes in pulmonary function in many patients with asthma, depends on the early recognition and treatment of the condition, [15] hence searching for and managing provoking factors to decline the changes which might occur with time in advancing age. Significant number of patients in this study had food factors as triggering of bronchial asthmatic attacks. Dietary habits are major newly emerging factors in increasing of asthma attacks, westernization of dietary meal including fast food probably play a major role in asthmatic attacks. This study shows significant associations of spicy food as a strong risk factor, this finding is similar to other international study of asthma and diet.[16]

In conclusion, the study for risk factors in bronchial asthma is a simple and noninvasive measure and can be applied in all clinics. Most of patients in this study present with multiple triggering than single factor and actually no single factor for attack of shortness of breath and wheeze was found. Effort must be done for education of patients about the value of using steroid inhaler and the technique how to use different types of inhalers and treatments of aggravating factors.

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