Prevalence of Allergic Rhinitis and it's Risk Factors Among An-Najah University Students - Nablus, Pakistan

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Key Words: allergic rhinitis, prevalence, Palestine

Abstract

Background: Inhalant allergic conditions such as seasonal and perennial allergic rhinitis are becoming quite common. The effect of allergy on an individual's quality of life and the extent to which it may restrict daily activities is often overlooked.

Controlling allergies can significantly decrease health care cost. The purpose of this study is to estimate the prevalence of allergic rhinitis among young adults in Palestine represented by An- Najah University students.

Methods: The study sample consisted of around 1000 (52% females, & 48% males) randomly selected students from all colleges of the University. Data were collected through structured interview including questionnaire filling. All data were analysed using SPSS program applying Chi-square test, with 95 % level of significant (P value = 0.05).

Results: Allergic rhinitis prevalence rate was 3.1 and the percentage of patients who reported to have allergic rhinitis was 38.1%; there was no statistically significant association between allergic rhinitis and gender, smoking, place of living, and other housing conditions. On the other hand the relationship between allergic rhinitis and weight loss, deep sleeping, chronic respiratory infections, nasal polyps, anxiety, and sleep apnoea was a statistically significant relationship (p value < 0.05). The triggers that have a large effect on the health of the population sample for allergic rhinitis were respiratory infections, tyre burning and war gases, house dust, strong odours, auto exhaust, smoke and weather changes (49.7%, 49 .1 %, 46.7%, 40.6 %, 33.9%, 33.8%, 34.2%), respectively.

Conclusion: Results show relatively lower allergic rhinitis prevalence in Palestine compared to some neighbouring countries, but were consistent with studies done in Turkey. The results confirmed the strong relationship of Allergic Rhinitis and respiratory infections and Asthma.

Introduction

With the explicit stretching of health services in Jordan provided by different health provisions, one expects an escalated risk of drug poisoning due to increased availability (1), A rich medical literature surrounding this issue is found.

Poisoning per se is considered to be a common medical emergency in childhood particularly in the preschool age group worldwide (2); the severity and frequency of poisoning is reduced by different preventive measures, however, we still need more effective and safer means of prevention as well as treatment (3).

Given the lack of poisoning incidents registry in this hospital, the author retrospectively collected and reviewed all medical records of children who were diagnosed and admitted as cases of drug poisoning to princess Haya military hospital in Aqaba - a city south of Jordan, with a population of around 200,000 - during the period from February 2004 to February 2006. All cases were admitted to the pediatric ward or intensive care unit.

Age, sex, type of drug ingested, and history of the circumstances that lead to poisoning were recorded. Toxicological screenings of blood or urine were not executed. The study excluded cases of poisoning caused by all other substances. Munchausen's by proxy syndrome and subjects above 14 years of age were also excluded (hospital policy regards pediatric age group as up to 14 year of age).

Methodology

Nablus district is located in the northern part of the West bank. It is bounded by Jenin from the north; Tulkarm from the west; Ramallah and Jericho from the south and the Jordan river from the east 10.The geographical position of Nablus district in the northern part of west bank gives it a comparatively low temperature range. Located in Nablus, An-Najah National University is currently the largest University in the West Bank, with 16 colleges and around 13,000 enrolled students (11).

Population of the Study

The study population was chosen from An-Najah university in Nablus. The study sample consisted of a total 1000 randomly selected students from all colleges of the University whether scientific, humanitarian, or community college. The percentage of students in the sample was representing the percentage of students in each college. The age of the students was at range of (18-27). Both males and females were included in almost equal percentages.

Data Collection

Data were collected during the period of the first of September 2004 to the end of December 2004, using a structured interview. A questionnaire was designed, evaluated, and reviewed by an expert statistician. A pilot test was carried out on 30 students to find the capacity of students to understand the questionnaire wording, then the questionnaire layout was modified accordingly. A total of 1116 questionnaire forms were distributed; the total response rate in this study was 90 %; (1007) Questionnaires were returned.

Questionnaire Component

The questionnaire sheed light on several aspects that play an important role in triggering allergy. The following are important components of the questionnaire:

Sociodemographic factors including age, sex, college, weight, sport, and smoking.

Environmental history including residence, trees, allergens, inside the home,

type of cooling, type of heating, indoor animal and type of pillow.

Triggers that cause or worsen the subject's symptoms including exercise, respiratory infections, weather changes, foods. The symptoms included nasal, sinus, eyes, chest, eczema, asthma and allergy problem (frequency and severity), and health problems other than asthma and allergy.

Data Analysis

All data of questionnaire for 1007students sample were entered into the computer and computed using SPSS program and applying Chi - square test, with a 95 % level of significance (P value = 0.05).

Analysis of Descriptive Studies

Tables containing descriptive studies were obtained, such as sex, age, residence, environmental, social and living factors.

Analysis of Relationship

Relationship between risk factors, triggers, and some disease with allergic rhinitis among An-Najah University students was obtained, also relationship between sex, age, residence, smoking, sport practicing and allergic rhinitis was obtained.

Results

Table 1 describes the demographic and anthropometric characteristics of The study sample. Males and females were almost equal. Most of the study sample were single (94.9%), not working (93.6%), and non smokers (81.1%).

Table (2) describes the place of living, whether it is dormitory or own house, also describes some environmental factors of the place of residence. More than half the sample live in the city, and about half live in the university dormitory. 60% live in relatively new houses, which were either stone buildings or brick buildings. Using a fan was the major cooling method, with only 1.3% using air conditioning.

Table 3 shows the prevalence rate of allergic rhinitis in this study and the distribution of allergic rhinitis according to gender and place of residence.Prevalence rate of allergic rhinitis was calculated as follows:

P = Number of people with the disease or condition at a specific time (×10) n

Number of people in the population at risk at the specified time*

*The number of An-Najah University students in the year 2004 was 12,500 students.

Table 4 shows the percentage of triggers in relation to allergic rhinitis in our study sample. The triggers that have a large effect on health of the population sample for rhinitis were respiratory infections (49.7%), tyre burning and war gases 49.1%, house dust 46.7%, strong odours 40.6%, auto exhaust 33.9%, smoke 33.8%, weather changes 34.2%, grass and trees 20.9%, and cosmetics 20.1%. All other triggers appear to have less effect.

Table 5 shows that there was a statistically significant relationship (p value < 0.05) between allergic rhinitis and weight loss, deep sleeping, chronic respiratory infections, chronic abdominal pain, nasal polyps, anxiety, sleep apnoea, chronic diarrh0ea, migraines and anaemia. However there was no statistically significant relationship (p value > 0.05) between allergic rhinitis and gender, smoking, smoker at home, living place, the tree and grass around the house, kind of building, kind of heating source, kind of cooling source, kind of animals in house, kind of animal around the house, kind of pillow, practice of sports, heart problems, diabetes, thyroid disorder, skin allergy, and glaucoma.

Discussion

Table 1 gives a comprehensive demographic and anthropometric description of the study sample .Our study sample, represents the typical profile of university students in Palestine, where we have a fair mix of males and females, most of the males were single and around 20 years of age. All colleges of the university were well represented in this study sample.

Exposure to smoking whether directly and indirectly affects more than half of the sample study, and about half of this sample practices sports. When the target population were distributed according to their residence, 46.1% of the target population were living in dormitories, which can be explained by the political situation after AL Aqsa Intifada in which closure and checkpoints make transportation between Palestinian cities very difficult. In regards to house conditions, the results show that the majority of students live in relatively new stone buildings with quiet lay

out in the city. Although the percentage of asbestos buildings was low, it indicates an important need for raising awareness among students about asbestos and its hazardous effects on the lungs.

The triggers that have a large effect on the health of population study sample for allergic rhinitis were respiratory infections, tyre burning and war gases, house dust, strong odours, auto exhaust, smoke and weather changes (Table 4)These results indicate that war gases and tyre burning play an important role in worsening allergic rhinitis symptoms which points the effect of political conflict and the use of war gases and tyre burning on the health of Palestinian society.

Further more our results indicate that triggers in this study are mainly non allergic in nature. Previous studies show that, AR triggers can be allergic or non allergic in nature 12, the allergic triggers are house dust mite, pollen, animals, such as dogs and cats, fungal spores and cockroach, particles; the non-allergic triggers include smoke and pollution from cooking fuels, wood smoke, smog, viral respiratory tract infections and weather changes. All the above triggers are found in urban, camp and rural environmental albeit to different extents12.

Our results show a statistically significant relationship between allergic rhinitis and weight loss, deep sleeping, chronic respiratory infections, chronic abdominal pain, nasal polyps, anxiety, sleep apnoea, chronic diarrhoea and migraines at p value < 0.05 (Table 5).

Several studies in other parts of the world have shown similar relationship results 13,14 The gender relationship with allergic rhinitis was not statistically significant in our study (Table 5). A Swedish study also did not find difference between men and women in the general population regarding allergic rhinitis 15 . However a study in Tehran, found a significant relationship between gender and allergic rhinitis 16.The same study in Tehran and another study in Finland 17 also found that environmental and social factors are important risk factors in the incidence of allergic rhinitis 16. On the contrary this relationship in our study was not statistically significant, (Table 5).

This difference in prevalence, triggers and risk factors for allergic rhinitis among different countries has been demonstrated repeatedly in the epidemiological studies. The international study of asthma and allergies in childhood (ISAAC) 18 steering committee, which conducted a study to investigate worldwide prevalence of asthma, allergic rhino conjunctivitis, and atopic eczema was a very obvious example.The multifactorial factors and the presence of several types of allergic rhinitis are possible explanations.

Conclusion

Palestine, as a country in transition, shifting from traditional to a modern society, has several unique features that put the population at risk of developing allergic conditions.This is the first study to determine the prevalence of allergic rhinitis and its risk factors among young adults in Palestine. Our results show relatively lower allergic rhinitis prevalence in Palestine compared to some neighbouring countries, but were consistent with studies done in Turkey.The results also show statistically significant relationship between allergic rhinitis and weight loss, deep sleep, chronic respiratory infections, nasal polyps, anxiety, sleep apnoea, migraines but neither gender nor residence and environmental factors have a statistically significant relationship with allergic rhinitis.

References

1. *Lundback B. Epidemiology of rhinitis and asthma. Clin Exp Allergy 1998;28LSuppl.2): 3-10.*
2. *Butland BK, Strachan DP, Lewis S, Bynner J, Butler N, Britton J. Investigation into the increase in hay fever and eczema at age 16 observed between the 1958 and 1970 British birth cohorts. BMJ 1997; 315:717-721.*
3. *Wüthrich B, Schindler C, Leuenberger P, Ackermann-Liebrich U. Prevalence of atopy and pollinosis in the adult population of Switzerland (SAPALDIA study). Int Arch Allergy Immunol 1995; 106:149-156.*
4. *Wright AL, Holberg CJ, Martinez FD, Halonen M, Morgan W, Taussig LM. Epidemiology of physician-diagnosed allergic rhinitis in childhood. Pediatrics 1994; 94:895-901.*
5. *Sullivan SD, Weiss KB. Assessing cost-effectiveness in asthma care: building an economic model to study the impact of alternative intervention strategies. Allergy 1993; 48:146-152.*
6. *Mygind N, Dahl R. Epidemiology of allergic rhinitis. Pediatr Allergy Immunol 1996;7:57-62.*
7. *Nayak, A.The asthma and allergic rhinitis link. allergy asthma proc 2003; 24: 595 - 602.*
8. *Asthma UK, "report on word asthma day", living on knife-edge; highlighting the impact of severe asthma on people's lives, 2004.*
9. *CDC. fast stats A-Z, advanced data from vital and health statistics, no .346, table 13. august 26, 2004, web: http://www.cdc.gov\nchs \fastats\ allergies.htm*
10. *Environmental profiles of the West Bank, Volume V, Nablus District, Applied Research Institute Jerusalem 1996*
11. *An-najah University facts book, 2005/ 2006;3*
12. *MacKay, I. and Durham, S. ABC of Allergies Perennial Rhinitis BMJ 1998; 316: 843*
13. *Salzano et al. "Allergic rhinoconjunctivitis: diagnosis and clinical assessment". Rhinology 1992; 30 (4): 265-75.*
14. *Akcakaya et al. prevalence of bronchial asthma, allergic rhinitis in Istanbul school children. Eur J Epidemol 2000; 16 (8): 693-9.*
15. *Druce IIM. In: Middleton E, Reed CHE, Ellis EF, Adkinson NF, editors. Allergy Principles and Practice USA: Mosby, 1998:1005-16.*
16. *B. Mirsaid Ghazi et al."Frequency of allergic Rhinitis in School-age Children (7-18 Years) in Tehran". Iranian Journal of Allergy and Immunology 2003; 2, (4): 181-184*
17. *Kilpelainen, M. Terho, E, Koskenvuo, M: home dampness current allergic disease, and respiratory infections among young adults, thorax 2001; 56: 462 - 467.*
18. *International Study of Asthma and Allergies in Childhood (ISAAC) Steering Committee. "Worldwide variation in prevalence of symptoms of asthma, allergic rhino conjunctivitis, and a topic eczema": ISSAC. Lancet 1998; 351: 1225-32.*

Table 1. Demographic and Anthropometric characteristics of study sample

Gender	***Frequency***	***Percent%***
Male	448	44.8
Female	511	51.1
Missing system	41	4.1
Total	1000	100
Age	***Frequency***	***Percent %***
17.5-20	546	54.6
20.5-22	333	33.3
22.5-24	66	6.6
More than 24	25	2.5
Missing system	30	3
Total	1000	100
College	***Frequency***	***Percent%***
Scientific	348	34.8
Humanitarian	649	64.9
Missing system	3	0. 3
Total	1000	100
Sport practice	***Frequency***	***Percent%***
Yes	514	51.4
No	428	42.8
Missing system	58	5.8
Total	1000	100
M. Status	***Frequency***	***Percent%***
Married	43	4.3
Single	949	94.9
Missing system	8	0.8
Total	1000	100
Job	***Frequency***	***Percent%***
Employed	18	1.8
Worker	10	1
Not working	936	93.6
Missing system	36	3.6
Total	1000	100
Smoker	***Frequency***	***Percent%***
Yes	176	17.6
No	811	81.1
Missing system	13	1.3
Total	1000	100
Smoker in house	***Frequency***	***Percent%***
Yes	554	55.4
No	366	36.6
Missing system	80	8
Total	1000	100