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Prevalence and risk factors for allergic rhinitis and asthma in geriatric outpatients in three big cities of Turkey

Asli Kilavuz[1], Hacer Dogan Varan[2], Hakan Yavuzer[3], Nil Tekin[4], Eftal Erduran[5], Alper Doventas[3], Mustafa Cankurtaran[2], Selahattin Fehmi Akcicek[1], Ali Kokuludag[6]

[1]Ege University Faculty of Medicine, Department of Internal Medicine, Division of Geriatrics, Bornova, Izmir, Turkey
[2]Hacettepe University Faculty of Medicine, Department of Internal Medicine, Division of Geriatrics, Ankara, Turkey
[3]Istanbul University Cerrahpasa, Faculty of Medicine, Department of Internal Medicine, Division of Geriatrics, Istanbul, Turkey
[4]Narlıdere Residential and Nursing Home, Izmir, Turkey
[5]Zubeyde Hanim Residential and Nursing Home, Izmir, Turkey
[6]Ege University Faculty of Medicine, Department of Internal Medicine, Division of Allergy and Immunology, Izmir, Turkey

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Abstract

This study aimed to investigate the lifetime prevalence and risk factors for allergic rhinitis and asthma in geriatric outpatients in three big cities of our country. Elderly patients visiting geriatric outpatient clinics at university hospitals were included in this study. Two questionnaires were completed by trained investigators in face-to-face interviews of 236 people aged 65–100 years. The median age was 73.71±7.09 year, and 63% participants were female. The prevalence of allergic rhinitis and asthma was found 15.3 % (n=36) and 10.2 % (n=24), respectively. The frequency of allergic rhinitis and asthma was high in females, in those with low education levels, in city, in persons having family history of atopy and in smokers, but it wasn't statistically significant. Allergic diseases affect the elderly as well as young people. Female sex, low educational level, smoking, and living in a city are among the important risk factors for allergic rhinitis and asthma in the elderly.

Keywords: Elderly, allergic rhinitis, asthma

Introduction

Many people, regardless of age, sex, race or socioeconomic status, have allergies. In general, allergic conditions, such as allergic asthma and allergic rhinitis (AR) are observed in children and adolescents. However, they may develop at any age, and the prevalence appears to be increasing [1]. Among adolescents, the lifetime prevalence of asthma and allergic rhinitis reportedly ranges from 3 to 13% and 2% to 21%, respectively [2]. The prevalence of these respective conditions is 5.5% and 8.3% among the elderly. The prevalence of allergies is generally higher in industrialised countries, Eastern Europe and developing countries [3]. Despite the fact that allergists frequently care for elderly people with allergic conditions, very few studies have addressed the prevalence of atopy and allergic diseases in adults, especially in the elderly. The reason for this is likely the presence in elderly individuals of multiple comorbidities as well as the physiologic functional decline that comes with ageing. In these circumstances, characteristic symptoms of allergy cannot be easily distinguished from those of other conditions. For instance, typical symptoms of asthma, such as dyspnea, chest tightness and cough, are also associated with a number of other conditions that affect the elderly [4].

In addition to genetic susceptibility, various socio-demographic and environmental factors also constitute significant risk factors for allergic conditions. These include childhood infections, exposure to allergens, socioeconomic conditions, a Western life style and environmental contamination [5]. However, very few studies have investigated risk factors for allergic diseases in the elderly [3].

This study aimed to investigate the lifetime prevalence and risk factors for allergic rhinitis and asthma in geriatric outpatients in three big cities of Turkey.

***Coresponding Author:** Asli Kilavuz, Ege University Faculty of Medicine, Department of Internal Medicine, Division of Geriatrics, Bornova, Izmir, Turkey, E-mail: asli.kilavuz@ege.edu.tr

Materials and Methods

Study population

The study was conducted from August 2015 to October 2015 among individuals aged ≥65 years who were visiting the geriatric outpatient clinics of three university hospitals in Istanbul, Izmir and Ankara. In total, 236 individuals (n=149, 63% female) without mental or cognitive disorders that would prevent answering the survey questions agreed to participate in the study. The study was approved by the local ethics committee (Number: 25.07.2014/14-7/9), and all investigations were performed in accordance with the principles of the Declaration of Helsinki.

Data Collection

The participants were interviewed in a face-to-face meeting with physicians trained in the survey technique. The questionnaires comprised a section on socio-demographic information and one on allergy history using the European Community Respiratory Health Survey (ECRHS). Socio-demographic data included age, sex, educational background (low educated, including only illiterate, literate, primary school or lower secondary school, or high educated, including high school, university or above), profession, residential location (in a rural area, including village and town, or city), history of having a pet, smoking, and a family history of asthma or allergic rhinitis. Participants were considered to have allergic rhinitis according to positive answer to at least 2 points of the following questions 1 or 2 (Table 1) [6].

Individuals were considered to have asthma if they indicated having had an asthma crisis or if they used asthma medications at any time in their lives [7].

Table 1. Nasal symptoms

1		
Do you usually have problems with sneezing, and an itchy nose?	Yes	No
Do you usually have a runny nose when you do not have a cold or the flu?	Yes	No
Do you usually have a blocked nose for more than one whole hour?	Yes	No
2		
Have you had problems with sneezing, and an itchy nose in the last 12 months?	Yes	No
Have you had a runny nose when you do not have a cold or the flu in the last 12 months?	Yes	No
Have you had a blocked nose for more than one whole hour in the last 12 months?	Yes	No

Statistical Methods

All statistical analyses were performed using SPSS software version 18.0 (SPSS Inc., IL, USA). The variables were analysed using descriptive statistics methods. Relationships between independent variables and symptoms of allergic rhinitis and asthma were assessed with a chi-square test, and fisher's exact test. A value of $p < 0.05$ was accepted as indicating statistical significance.

Results

Of the 236 elderly participants included in the study, 63% (n = 155) were female. The median age was 73.71±7.09 years (65-100), and 61% participants were 65–74 years old, 29% were 75–84 years old and 10% were ≥85 years old. Sixty-eight percent of the participants were low-educated; 85% lived in a city and 15% lived in a rural area. Further, 57% of participants had a history of having a pet. The professions of participants varied widely, as did the occupational risk for allergic diseases; therefore, these factors were not analysed.

A family history of atopy was reported by 27.5% of participants. The prevalence of allergic rhinitis and asthma was found 15.3 % and 10.2%, respectively.

Socio-demographic characteristics of the study population, the prevalence of allergic rhinitis and asthma and risk factors are presented in table 2. The prevalence of allergic rhinitis and asthma was higher in females (17.4%), in city (16%), in persons having family history of atopy and in smokers (23.1%), but it wasn't statistically significant.

Table 2. Sociodemographical characters, risk factors and prevalence of allergic rhinitis and asthma

Characteristic	Total n (%)	Allergic rhinitis n (%)	Asthma n (%)
Sex			
Male	87 (37)	10 (11.5)	8 (87)
Female	155 (63)	26 (17.4)	16 (10.7)
Age (years)			
65-74	144 (61)	19 (13.2)	17 (11.8)
75-84	69 (29)	14 (20.3)	6 (8.7)
85-100	56 (10)	3 (13)	1 (4.3)
Educational level			
Low	161 (68)	26 (16)	15 (9.3)
High	155 (32)	10 (13)	9 (12)
Residence			
Rural	36 (15)	4 (11.1)	1 (6.3)
City	200 (85)	32 (16)	23 (11.5)
History of having a pet			
Yes	135 (57)	20 (14.8)	16 (11.9)
No	101 (43)	16 (15.8)	8 (7.9)
Smoking			
Non-smoker	184(78)	24 (13)	15 (8.2)
Smoker	52(22)	12 (23.1)	9 (17.3)
Family history of atopy			
Yes	65 (27.5)	13 (20)	9 (13.8)
No	171 (72.5)	23 (13.5)	15 (8.8)

Discussion

This study involving 236 elderly people older than 65 years attending geriatric outpatient clinics in Izmir, Istanbul and Ankara is the first multi-centre study assessing the prevalence of and risk factors for allergic diseases among elderly individuals in Turkey. This is in contrast to similar survey that have been limited to children, adolescents or young adults. The prevalence of allergic conditions varies by geographic regions, environmental conditions and genetic factors. The ECRHS survey has generally been self-administered, but in our study, the survey was completed by physicians in face-to-face meetings who explained the medical terms to the participants.

Allergic rhinitis is the most frequently encountered type of allergic disease, reportedly occurring in 10%–40% of people [8]. In our study, the prevalence of allergic rhinitis was 15.3 %. Few studies have reported the prevalence of allergic rhinitis in the elderly. In subgroup analyses of general epidemiologic studies, allergic rhinitis reportedly occurs in 16.1%–25.9% of elderly subjects [6]. Reported prevalence rates of allergic rhinitis among adults in our country vary between 8.9% and 27.7% [9]. These differences may arise from different study selection criteria and definitions of rhinitis.

We found a higher frequency of allergic rhinitis among smokers (23.1%) more than non-smokers (13%). This accords with a study finding that smokers are significantly more likely to have allergic rhinitis [10]. Wolkewitz et al. found that individuals with a family history of atopy are at high risk of allergic diseases and that allergic rhinitis is more prevalent in female [3]. In our study, allergic rhinitis was observed more frequently in persons having family history of atopy (20%) and in female (17.4%).

Living in the city has been noted as a risk factor for allergic rhinitis by some investigators [11]. This seemed to be the case in our study as well, with those living in cities having a higher rate of allergic rhinitis than those living in rural areas (32% vs. 25%), but the difference was not statistically significant ($p = 0.92$).

In this study, the prevalence of asthma was 10.2%. Asthma prevalence rates reported in adults in ECRHS-based surveys have differed by country, with rates of 2%–11.9% in Germany [12] and 2.4% in Greece [13]. Asthma prevalence previously reported from different cities of our country has ranged from 1.2% to 3.5% [14,15]. The higher rates in our study may be related to the interview technique or to environmental factors in metropolitan areas, such as environmental and air pollution from factories and industrial zones, as well as traffic density.

Although rate of asthma was found to be higher in male sex, smokers, people with a history of having a pet, people having family history of atopy, and people living in cities, this rate was not statistically significant.

There are some limitations to this survey-based study. Despite good response to the survey, data may have been incomplete because of poor memory or a longer time since the last symptom was noticed, introducing possible information bias. Specific measures that some participants might have taken to reduce allergic reactions, such as purposely avoiding smoking or removing carpets and plants, were not assessed. Our findings lead us to consider that home- and country-specific environmental factors aren't likely related to high risks of asthma and allergic rhinitis among the elderly population in Turkey. Certain actions specific to the risk factors for each country or population should be taken to prevent allergic diseases. People with allergic conditions should be warned to avoid smoking.

Conclusion

Allergic diseases affect elderly patients as much as they affect younger individuals. In assessing the elderly, special points related to diagnosis should be taken into consideration. A detailed history of allergy is very important, as the symptoms of allergic rhinitis are quite similar to those of other types of rhinitis. Asthma affects the elderly as it affects other age groups, but mortality rates are higher.

Competing interests
The authors declare that they have no competing interest.

Financial Disclosure
All authors declare no financial support..

Ethical approval
Ethic approval was received from Ege University Faculty of Medicine Ethics Committee (Number: 25.07.2014/14-7/9)

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