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Assessment of Quality of Life and Coexistent Allergic Conjunctivitis in Patients with Allergic Rhinitis in Van Province

Original Investigation

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Abstract

Objective: In this study, we aimed to evaluate coexistent allergic conjunctivitis with allergic rhinitis in Van province and the patients' quality of life in this region.

Methods: A total of 94 patients who were admitted to the Otorhinolaryngology Clinics of Van Province Training and Research Hospital and Erciş State Hospital were included in this study. All patients underwent an ophthalmologic evaluation for coexistent allergic conjunctivitis. Moreover, allergic rhinitis and conjunctivitis symptom scoring was applied to all patients. The rhinoconjunctivitis quality-of-life scale (RQLQ) was used to assess quality of life in all patients.

Results: Mean total symptom score was found to be 12.1±4.2. In 37.2% of patients, coexistent allergic conjunctivitis was diagnosed. Scores of RQLQ sleep, non-hay fever complaints, nasal and ophthalmic complaints, and restricted activities were significantly higher in the group with coexistent allergic conjunctivitis than in the group with no allergic conjunctivitis.

Conclusion: Patients with allergic rhinitis must be evaluated by taking the places where they live into account. It is crucial that the treatment procedures of particularly patients with ophthalmic complaints should be planned after they are examined by an ophthalmologist. It should be kept in mind that patients with allergic rhinitis must also be examined by a psychiatrist when necessary.

Key Words: Allergic rhinitis, allergic conjunctivitis, quality of life, Van

Introduction

Allergic rhinitis (AR) is an inflammatory disease that may affect the upper respiratory tract, nasal cavity, and eyes, and it is common approximately in 20% of society in Europe and the United States of America (1). When an allergen that enters the body through inhalation comes across mast cells, it leads to the release of many mediators via sensitive IgE. These mediators increase vascular permeability and cause watery nasal secretion and edema in the nasal cavity, nasal congestion, and increased mucous secretion. Moreover, sensitive nerve endings are stimulated, and nasal itching and sneezing occur (2).

Allergic rhinitis is also a condition that may affect a patient's quality of life, daily performance, and productivity by leading to attention deficit, sleep disorders, and decrease in work and school success (3, 4).

The relationship between allergic rhinitis and other allergic diseases, like allergic conjunctivitis (AC), has been reported (3, 5, 6). In Europe, almost 71% of AR patients have both nasal and ophthalmic complaints. AR findings with accompanying ophthalmic findings affect patients' quality of life in a negative way and make their daily performance worse (5).

The factors causing the occurrence of allergic diseases differ among countries or among the regions of a country, depending on climatic, geographic, cultural, and various social conditions (7). Regional studies are important for analyzing the disease with accurate data. The province of Van has vegetation, including a great variety of weeds, plants, and trees, which are known to cause allergic diseases. The native population of Van earns their living from livestock, and humidity in the region establishes an appropriate ground for mites to live in.

In our study, we aimed to evaluate the demographic features of AR patients in the province of Van and coexistent AC and quality of life in AR patients.

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Methods

In this study, 128 patients who presented with allergic symptoms to the Otorhinolaryngology Clinics of Van Province Training and Research Hospital and Erciş State Hospital between October 2013 and January 2014 were evaluated. Of these patients, 109 patients who had been clinically diagnosed with persistent allergic rhinitis through history taking, anterior rhinoscopy, and endoscopic nasal examination and who had displayed 3 and more positive (+++) reactions to at least one allergen in the skin prick test were included. Skin prick test was performed on the interior surface of the forearm by using a test panel, including standard allergens (Stallergenes, Antony Cedex, France). Saline was used as a negative control, and histamine was used as a positive control.

Demographic features of patients were recorded in terms of gender, age, smoking, education, place of residence, type of disease, and duration of symptoms. Patients who had taken antihistaminic, anti-inflammatory, topical or systemic steroid, immunosuppressive, antidepressant, or antihypertensive drugs within the last 20 days were excluded from the study. Moreover, patients with nasal pathology, such as chronic sinusitis, septal deviation, concha hypertrophy, and nasal polyposis, except allergic rhinitis, and with coexistent systemic diseases were also ruled out. Fifteen patients who did not fit into the study, did not come for the controls, and did not accept to participate in the study were eliminated, and the study continued with 94 patients. All patients were informed in detail, and written informed consent forms were obtained from the patients. The study was approved by the ethics committee of Van Province Training and Research Hospital (Approval Date: November 26, 2013; Approval No: 2013/4).

An ophthalmologic consultation was requested for all patients, and the presence of accompanying AC was recorded. The diagnosis of AC was established for patients who had ophthalmologic complaints and who presented with the findings of conjunctival hyperemia, edema, palpebral edema, and/or papillary reaction in the examination. Furthermore, all patients underwent allergic rhinitis and conjunctivitis symptom scoring, including 7 parameters (4 nasal and 3 ophthalmologic parameters), which were nasal secretion, nasal itching, nasal obstruction, sneezing, burning and itching eyes, eye redness, and watery eyes. They were asked to score the items between 0 and 3 [(0- no complaint, 1- mild (feeling a little), 2- moderate (feeling during daytime), and 3- severe (feeling as much as it affects daily life)].

For evaluating quality of life in patients with allergic rhinitis, the rhinoconjunctivitis quality-of-life scale (RQLQ), which consisted of 28 questions under 7 main headings (sleep, non-hay fever complaints, practical issues, nasal complaints, ophthalmic complaints, activities, and emotionality), was used. All patients were requested to answer the questions as 0- "not disturbed" and 6- "too much disturbed." Also, 3 daily activities restricted due to the disease were recorded.

Statistical Analysis

Mean, standard deviation, minimum-maximum, median, ratio, and frequency values were used for descriptive analysis of the data. The distribution of variables was controlled with Kolmogorov-Simonov test. Independent-samples t-test was employed for analyzing quantitative data. Chi-square test was used for analyzing qualitative data. For the analysis of correlation, Pearson/Spearman correlation analysis was utilized. In all evaluations, the value of $p<0.05$ was accepted as statistically significant. Statistical Package for the Social Sciences (SPSS) 21.0 was used for the analyses.

Results

The mean age of the 94 patients (50 females, 44 males) involved in the study was 27.2 years. Of the patients, 53% were secondary school graduates, and 19% lived in the countryside. The mean time for symptoms was found to be 5.9 years. The patients' age, gender, smoking, education, residence, allergic rhinitis type, and duration of symptoms are shown in Table 1.

In the evaluation of the data obtained from the allergic rhinitis and conjunctivitis symptom scoring, the mean total symptom score was found to be 12.1±4.2. When RQLQ scores were evaluated, it was detected that the scores under the heading of practical issues were higher (Table 2).

In the evaluation of the 94 patients' restricted activities, 15 activities that influenced the daily lives of the patients due to illness were identified from 282 responses. The most commonly affected activities were talking in a community, sleeping, eating, and school life. The activity for which patients complained more severely due to illness was found to be school life (Table 3).

Coexistent allergic conjunctivitis was found in 37.2% of patients. For AC and non-AC patients, the rates of smoking, distribution of educational status, distribution of residence, and duration of symptoms were significantly different. Of patients with perennial allergic rhinitis (PAR), 55.5% was diagnosed with AC, and 20.4% of patients with seasonal allergic rhinitis (SAR) had coexistent AC. Nasal symptom score, ocular symptom score, and total symptom score were higher in the group with coexistent AC than in the group without AC ($p<0.05$). In the group with coexistent AC, RQLQ scores of sleep, non-hay fever complaints, nasal complaints, ophthalmic complaints, and restricted activities were significantly higher compared to the group without AC (Table 4) ($p<0.05$).

Table 1. Sociodemographic data

		Mean± S.D	
Age		27.2±11.5	
Symptom duration (Year)		5.9±4.1	
		n	%
Gender	Female	50	53
	Male	44	47
Smoking		25	27
Educational status	Primary School	25	27
	Secondary School	50	53
	University	19	20
Place of Residence	City	76	81
	Rural area	18	19
Type of Allergic Rhinitis	PAR	45	48
	SAR	49	53

S.D: standard deviation; PAR: perennial allergic rhinitis; SAR: seasonal allergic rhinitis

Table 2. Data obtained from allergic rhinitis and conjunctivitis symptom scoring and rhinoconjunctivitis quality-of-life scale (RQLQ)

Allergic Rhinitis and Conjunctivitis Symptom Scoring	
	Mean± S.D
Nasal Symptom Score	8.4±1.8
Ocular Symptom Score	3.7±3.1
Total Symptom Score	12.1±4.2
RQLQ Scoring	
	Mean± S.D
Sleep	3.3±1.5
Non-Hay Fever Complaints	3.3±0.7
Practical Issues	4.4±0.7
Nasal Complaints	3.9±0.9
Ophthalmic Complaints	1.9±1.2
Restricted Activities	4.0±0.9
Emotionality	3.2±0.6

S.D: standard deviation; RQLQ: rhinoconjunctivitis quality-of-life scale

In terms of the relationship between symptom scores and RQLQ scores, a positive significant correlation was found between the scores of nasal symptom, ocular symptom, and total symptom and the RQLQ scores of sleep, non-hay fever complaint, nasal complaint, ophthalmic complaint, and restricted activities (Table 5) ($p<0.05$).

Discussion

Allergic rhinitis is a chronic disease that is quite common around the world and leads to a significant decrease in quality of life. Since epidemiological data, humidity rate, vegetation, and allergens differ in countries and even in regions of a country, regional studies are important for analyzing the disease with accurate data. The ratio of AR was found to be 11.4% in Aydın in the study of Başak et al. (8), while it was 30% in Eskişehir in the study of Cingi et al. (9). This study and similar ones in the literature provide evidence for the fact that the data for AR patients and the frequency of the disease may differ depending on the regions.

Table 3. Distribution of restricted activities and symptom scores

Restricted Activities	n	Mean Symptom Score
Talking in a community	51	4.4±1.1
Sleep	31	3.9±1.0
Eating	29	3.8±1.0
School Life	28	5.0±0.8
Working Life	20	4.5±1.1
Reading book	20	3.8±1.1
House-cleaning	19	3.4±1.0
Shopping	19	3.5±1.0
Studying	19	4.6±0.8
Driving	17	3.2±1.2
Childcare	15	3.3±0.9
Traveling	5	2.8±0.8
Worship	5	3.0±0.6
Sports	3	4.3±0.5
Washing up	1	4.0±0.0

The incidence rate of allergic rhinitis is higher in populations living in city centers than in populations living in rural areas. In the study conducted by Topal et al. (10), it was reported that 66.2% of the patients in the region of Konya lived in the city center. In our case, only 19% of patients lived in the rural areas.

Min et al. (11) stated that the incidence rate of AR was higher for individuals having a high educational level. This can be associated with the fact that patients with a higher socio-cultural level can express themselves better, and the rate of seeking medical advice is higher among them. In our study, 53% of patients were secondary school graduates, but only 20% was a university student or graduate, which was inconsistent with the literature. These results can be explained with the educational conditions of the region, the population's attitude toward education, and low rate of literacy.

Allergic conjunctivitis is a comorbid condition that is frequently seen in AR and asthma patients. In the study conducted by Almaliotis et al. (12), AC was detected in 40.11% of 1239 AR patients. Patients with ophthalmic allergy symptoms were diagnosed with conjunctivitis by an ophthalmologist in this study.

Table 4. Comparison of groups with and without coexistent allergic conjunctivitis

		Group without allergic conjunctivitis		Group with allergic conjunctivitis		
		n	%	n	%	p
Type of Allergic Rhinitis	PAR	20	34%	25	71%	0.000
	SAR	39	66%	10	29%	
Allergic Rhinitis and Conjunctivitis Symptom Scoring		**Mean± S.D**		**Mean± S.D**		
Nasal Symptom Score		7.9±1.7		9.3±1.7		0.000
Ocular Symptom Score		1.6±1.6		7.2±1.5		0.000
Total Symptom Score		9.5±2.2		16.6±2.7		0.000
RQLQ Scoring		**Mean± S.D**		**Mean± S.D**		
Sleep		2.8±1.5		4.2±1.0		0.000
Non-Hay Fever Complaints		3.1±0.6		3.7±0.5		0.000
Practical Issues		4.4±0.7		4.4±0.8		0.883
Nasal Complaints		3.7±0.8		4.2±0.8		0.006
Ophthalmic Complaints		1.4±0.9		2.8±1.1		0.000
Restricted Activities		3.8±0.9		4.3±0.7		0.002
Emotionality		3.3±0.6		3.1±0.6		0.278

Independent-samples test/chi-square test
S.D: Standard Deviation; RQLQ: Rhinoconjunctivitis Quality-of-Life Scale

Table 5. Correlation between allergic rhinitis and conjunctivitis symptom scores and RQLQ scores

		RQLQ Scoring						
		Sleep	Non-Hay Fever Complaints	Practical Issues	Nasal Complaints	Ophthalmic Complaints	Restricted Activities	Emotionality
Nasal	r	0.469	0.459	0.086	0.896	0.563	0.266	-0.138
Symptom Score	p	0.000	0.000	0.407	0.000	0.000	0.010	0.185
Ocular	r	0.583	0.637	0.069	0.268	0.660	0.401	-0.157
Symptom Score	p	0.000	0.000	0.509	0.009	0.000	0.000	0.132
Total Symptom	r	0.644	0.661	0.076	0.612	0.748	0.415	-0.169
Score	p	0.000	0.000	0.466	0.000	0.000	0.000	0.103

Pearson/Spearman Correlation
RQLQ: Rhinoconjunctivitis quality-of-life scale

In our study, during the examination of AR patients by an ophthalmologist, AC was observed in 37.2% of patients, which was consistent with the literature.

Nasal and ocular symptoms that occur in allergic rhinitis can cause concentration impairments during the daytime and also sleep disorders during night. The outcomes of this condition, including chronic fatigue, poor appetite, low level of school success, and unemployment, impair the quality of life prominently (13, 14). Bousquet et al. (15) convincingly suggested that allergic rhinitis could be too disturbing and lead to impaired quality of life in terms of health. In their study, overall quality of life was evaluated in 227 patients by using SF-36, and it was found that the values for 8 of 9 concepts were worse in AR patients than in normal individuals. In the study conducted using SF-36 and RQLQ by Meltzer et al. (16), they revealed all RQLQ scores to be higher in the control group. In our study, RQLQ scores were higher in consistency with the literature, and the most disturbing parameters were found to be practical issues, restricted activities, and nasal complaints.

Juniper et al. (17) determined a relationship between daily practical problems and AR symptoms in their study. Also, in other studies in the literature, a mild-moderate correlation was observed between the severity of AR symptom and the quality of life (18, 19). Since RQLQ is more of a symptom-based questionnaire, the presence of a correlation with symptom score is an expected result. In our study, for all headings except practical issues and emotionality, a correlation was found with symptom score.

Conclusion

Allergic rhinitis can differ depending on a region's vegetation, climate, and socioeconomic status. We evaluated the demographic features of patients in the region of Van, the presence of comorbid AC, and their quality of life, and we observed that AR could lead to severe impairment in quality of life. The data obtained in our study should be supported with more extensive research. In the light of this study, it can be suggested that AR patients should be evaluated considering the regions in which they live. It should be especially kept in mind that treatment planning for patients with ophthalmic complaints should be carried out after they are examined by an ophthalmologist. Moreover, the fact that this chronic disease can impair the patients' quality of life should be taken into consideration. Patients should be evaluated in cooperation with a psychiatry clinic when necessary. In conclusion, although AR patients often apply to the outpatient clinic of otorhinolaryngology, it should be remembered that a multidisciplinary approach is needed for the diagnosis and treatment of the disease.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Van Training and Research Hospital (26.11.2013/4).

Informed Consent: Written informed consent was obtained from patients who participated in this case.

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