Research Article / Araştırma Makalesi

Comparison of Allergic Diseases in terms of Anxiety, Depression and Quality of Life

Alerjik Hastalıkların Anksiyete, Depresyon ve Yaşam Kalitesi Açısından Karşılaştırılması

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Abstract: Studies have shown the frequency of anxiety and depression and decreased quality of life (QoL) in patients with allergic diseases. The aim of this study was to evaluate anxiety and depression symptoms and QoL in patients with asthma, allergic rhinitis (AR), urticaria/angioedema (U/A) and drug allergy without any psychiatric diagnosis and to compare these four diseases in these respects. In this cross-sectional study demographic and clinical characteristics were collected from patients'records. Hospital Anxiety and Depression Scale (HADS) and Short Form 36 (SF-36) were used to assess anxiety and depression symptoms and QoL. A total of 159 patients were included in the study and grouped as asthma (n=43, 27.1%), AR (n=45, 28.3%), U/A (n=44, 27.7%) and drug allergy (n=27, 17%). There was a significant difference in HADS anxiety score and SF-36 physical functioning subscore (p<0.001 and p=0.001, respectively). HADS anxiety score was higher in the U/A group and SF-36 physical functioning was lower in asthma group. Among asthmatics, SF-36 subscores of physical role functioning, emotional role functioning, social role functioning were lower in the patients at step 4 and 5 (n=22, 51.2%) than in those at step 2 and 3 (n=21, 48.8%) (p=0.001, p=0.031 and p=0.005, recpectively). In the U/A group, there was a positive moderate correlation between the urticaria activity score 7 and the HADS anxiety score (r:0.579, p<0.001). Our study showed that U/A patients had more anxiety symptoms comparing to other allergic diseases. Disease activity and severity had a significant relationship with anxiety level in U/A patients and with QoL in asthmatics.
Keywords: Anxiety, Depression, Quality Of Life, Allergic Diseases, Urticaria, Asthma

Özet: Alerjik hastalıklarda anksiyete ve depresyonun sık olduğu ve yaşam kalitesinin bozulduğu farklı çalışmalarda gösterilmiştir. Bu çalışmanın amacı, herhangi bir psikiyatrik tanısı olmayan astım, alerjik rinit (AR), ürtiker/anjioödem (Ü/A) ve ilaç alerjisi olan hastalarda anksiyete ve depresyon semptomlarını ve yaşam kalitesini değerlendirmek ve bu dört hastalık grubunu bu açılardan karşılaştırmaktı. Kesitsel nitelikte olan bu çalışmada hastaların sosyodemografik ve klinik özelliklerine ait veriler hasta kayıtlarından elde edildi. Anksiyete ve depresyon belirtilerini ve yaşam kalitesini ölçmek için Hastane Anksiyete Depresyon Ölçeği (HADS) ve Kısa Form 36 (SF-36) kullanıldı. Toplam 159 hasta çalışmaya dahil edildi. Hastalar astım (n=43, %27,1), AR (n=45, %28,3), Ü/A (n=44, %27,7) ve ilaç alerjisi (n=27, %17) olmak üzere dört gruba ayrıldı. Gruplar arasında, HADS anksiyete skoru ve SF-36 fiziksel fonksiyon alt skoru açısından anlamlı farklılık vardı (sırasıyla; p<0.001 ve p=0.001); HADS anksiyete skoru Ü/A grubunda anlamlı daha yüksekti ve SF-36 fiziksel fonksiyon alt skoru astımlı hastalarda daha düşüktü. Basamak 4 ve 5 tedavi alan astımlıların (n=22, %51,2) SF-36'nın fiziksel rol güçlüğü, emosyonel rol güçlüğü, sosyal işlevsellik alt skorları basamak 2 ve 3 tedavi alanlarınkine (n=21, %48,8) göre daha düşüktü (sırasıyla; p=0.001, p=0.031 ve p=0.005). Ürtiker/anjioödem grubunda, ürtiker aktivite skoru 7 ile HADS anksiyete skoru arasında pozitif bir korelasyon vardı (r:0.579, p<0.001) ve hafif (n=16, %36,4), orta (n=12, %27,3) ve ağır (n=16, %36,4) gruplar arasında HADS anksiyet skoru açısından farklılık vardı (p=0.002). Çalışmamız Ü/A hastalarının diğer alerjik hastalalıklara göre daha fazla anksiyete belirtilerine sahip olduğunu gösterdi. Hastalık aktivitesi ve ağırlığı ürtikerli hastalarda artmış ankiyete düzeyi ile astımlı hastalarda ise düşük yaşam kalitesi ile ilişkiliydi.
Anahtar Kelimeler: Anksiyete, Depresyon, Yaşam Kalitesi, Alerjik Hastalıklar, Ürtiker, Astım

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1. Introduction

The burden of allergic diseases due to significant morbidity and socioeconomic costs has been becoming a huge issue in this century. One of the reasons is the increased prevalence of allergic diseases (1). They also have significant adverse effects on quality of life as a result of physical discomfort and impairment as well as the physical effects of their presence. Impaired quality of life in many allergic diseases, including asthma, allergic rhinitis (AR) , urticaria, atopic dermatitis, food allergy, and drug allergy has been shown in various studies by way of social, emotional, physical, and occupational impacts (2-6). However, emotional impact and mental health take a different place in allergic diseases due to bidirectional causal connection. Mood and anxiety or depressive disorders was found common in allergic diseases in the studies. On the other hand, negative effect of these psychiatric disorders on the perception and management of the allergic diseases was shown. In one of the studies, psychiatric disorders were found in high rate among asthma patients and associated with uncontrolled asthma (7). Likewise, a similar result was obtained in adolescents with asthma in another study (8). Depression and anxiety was found to be associated with AR significantly (6, 9). Some studies have shown that psychiatric diseases is frequently associated with chronic urticaria and poor disease control (10-12). However, the number of studies indicating the frequency of anxiety and depression symptoms and risk factors in allergic diseases is limited. Additionally, there is little data showing which allergic disease is more likely to suffer from negative mental emotions.

In our study, we aimed to evaluate the anxiety and depression symptoms and the quality of life in patients with asthma, allergic rhinitis, urticaria and drug allergy, which are among the most common allergic diseases encountered in the daily practice of adult allergy outpatient clinic. In particular, we planned to reveal whether there were differences between these four diseases in terms of anxiety and depression symptoms and quality of life parameters. Moreover, we aimed to find factors associated with increased depression and anxiety symptoms and decreased quality of life for each disease.

2. Materials and Method

2.1. Study design and study population

This cross-sectional study was conducted between December 2022 and August 2023 in our tertiary care hospital. The study protocol was in accordance with the Declaration of Helsinki and approved by Bolu Abant Izzet Baysal University Ethics Committee (Cod: 2024/48)

Patients who met all of the following criteria were eligible to participate; being 18 years and older, applied to our allergy-immunology clinic between December 2022 and August 2023, having at least one of the diagnosis of allergic rhinitis, asthma, chronic urticaria +/- angioedema and drug allergy and agreeing to participate in the study. Patients were ineligible to participate if they had systemic comorbidity or psychiatric diagnosis. The files and hospital records of patients who met the inclusion criteria were evaluated retrospectively. Sociodemographic and clinical data regarding the patients' diseases and clinical assessment parameters related to disease control, diseases activity, quality of life and mood were analyzed (Figure 1).

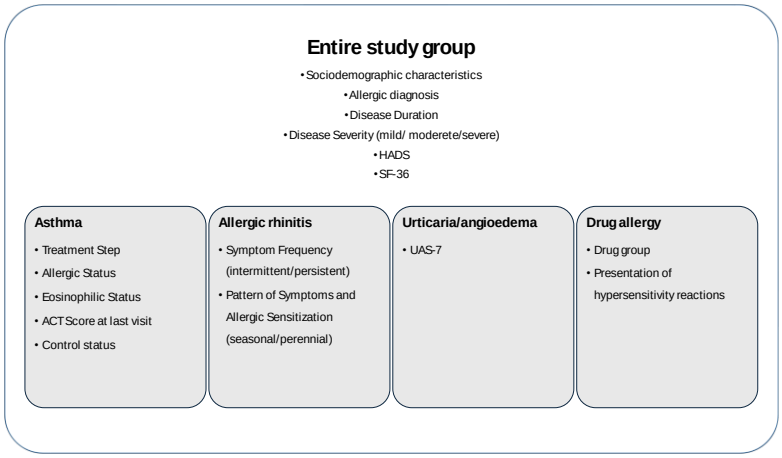

Figure 1. Patient Assessment Flow Chart. ACT; Asthma Control Test, HADS; Hospital Anxiety Depression Scale, SF-36; Short-Form (SF) 36, UAS-7; Urticaria Activity Score

2.2.Classifications

Allergic Rhinitis

Patients with AR were grouped as perennial and seasonal groups according to the seasonality of their symptoms and allergic sensitization. Skin prick test with house dust mite (Dermatophagoides pteronyssinus, Dermatophagoides farinea), molds (Alternaria alternata, Aspergillus fumigatus), animal epithelia (dog and cat), latex and pollens (grass, tree, and cereal) were performed and/or sp IgE was measured for these common aeroallergens. Patients in the perennial group had symptoms all over the year and were sensitized to dust mites, molds, animal epithelia or latex. Patients in the seasonal group had symptoms limited to pollen season and sensitized to pollen (13).

Patients with AR were also classified as intermittent or persistent depending on the symptom frequency and severity (either mild or moderate-severe) according to ARIA classification (14).

Asthma

Patients with absolute eosinophil count of 300/µL or higher at least twice during the oral corticosteroid free period or 150/µL or higher under steroid treatment were accepted as eosinophilic (15).

Allergic status was defined based on compatible history and sensitivity to at least one aeroallergen determined by skin prick test and/or sp IgE (15).

Asthma control assessment was performed according to Asthma Control Test (ACT); scores of 20-25 were classified as well-controlled, 16-19 as partial controlled and 5-15 as uncontrolled (15).

Urticaria

Disease severity of activity were defined using Urticaria Activity Score (UAS7) system; score of 0 was classified as complete response, scores of 1-6 were classified as well-controlled activity, 7-15 as mild activity, 16-27 as moderate activity and 28–42 as severe activity (16).

Drug allergy

The Brown grading scale was used for classifying the severity of reactions to drugs. Accordingly, if the patient experienced skin and subcutaneous tissues only it was classified as mild, if there were features suggesting respiratory, cardiovascular, or gastrointestinal involvement, it was classified as moderete and if hypoxia, hypotension, or neurologic compromise was present, it was graded as severe (17).

2.3.Measurements

Hospital Anxiety Depression Scale (HADS)

The Hospital Anxiety Depression Scale (HADS), whose Turkish adaptation and validity and reliability study was conducted by Aydemir et al., was used to measure anxiety and depression symptoms (18). HADS is a self-report screening scale including 14 items. The purpose of the scale is not to make a diagnosis, but to measure the psychological states of patients. Out of 14, 7 items include the anxiety questions, and the other 7 items measure the symptoms of depression with a score ranging from 0 to 21. A HADS score ≥ 8 is considered the standard cut-off for the indication of anxiety or depression (19).

Short-Form (SF) 36

The Turkish version of the SF-36 questionnaire was used to evaluate the patients' quality of life (20). The SF-36 survey form consists of 8 subheadings and 36 questions: physical functions, physical role difficulty, pain, general health, vitality (energy), social functions, emotional role difficulty, mental health. Positive and negative aspects of health status can be evaluated by obtaining separate scores for each subscale. Subscale scores range from 0 to 100, with a high score indicating good health status.

2.4.Statistical analysis

We used the Statistical Package for the Social Sciences (IBM Corporation, Armonk, NY, USA), version 22 for Windows for statistical analysis. Categorical variables were expressed as n (%). For continuous variable data, we used mean and standard deviation. We evaluated whether continuous variables were normally distributed using the Shapiro-Wilk test. Since the data were normally distributed, one-way ANOVA was used for comparison of 3 or more independent groups and student-t test was used for pairwise comparisons. Chi-test analysis was used to compare categorical variables. We used Pearson Correlation test to test the correlation between variables. $p<0.05$ was considered statistically significant.

3. Results

A total of 159 patients were enrolled during the study period. The mean age of the patients was 36.59±14.20 years. Of all the patients, 32 (20.1%) were male and 127 (79.9%) were female (Table 1). Among 159 patients, 43 (27.1%) had asthma; 10 of them had only asthma, and 33 of them had asthma accompanied by allergic rhinitis. Allergic rhinitis was present in a total of 78 (49.1%) patients, but since 33 of them had asthma, these 33 patients were evaluated in the "asthma group" during four-group comparison, the remaining 45 (28.3%) patients were evaluated in the "allergic rhinitis group". Also, in the study population, 44 (27.7%) patients had urticaria/ angioedema and 27 (17%) drug allergy (Figure 2). Forty seven (29.6%) patients graduated from university, 69 (43.4%) from high school, 41 (25.8%) from primary school and 2 (1.3%) could read and write. In the study group, 32 (20.1%) were students, 49 (30.8%) were housewives, 61 (38.4%) were employee, 3 (1.9%) retired and 14 (8.8%) were unemployee. There was no statistically significant difference among four groups in terms of age, education level and employment status (Table 1).

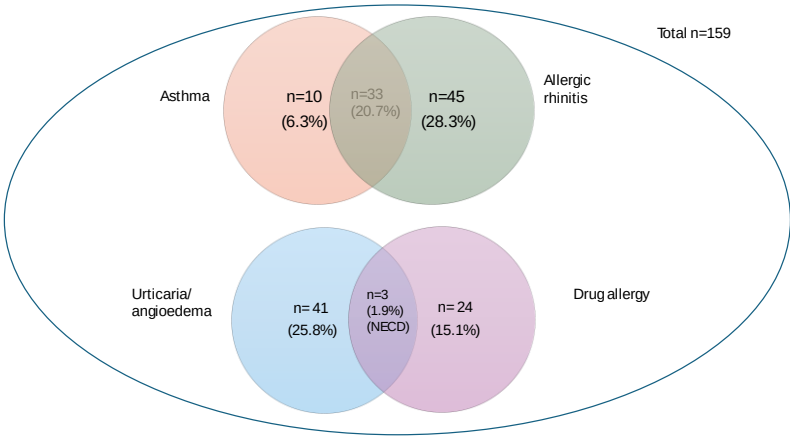

Figure 2. Distribution of the allergic diseases in the study group

When the four groups were compared in terms of HADS and SF-36 subscores, a significant difference was found in HADS anxiety score and SF-36 physical functioning subscore ($p<0.001$ and $p=0.001$, respectively). In the post hoc analyses, there was no difference between the urticaria group and the asthma group in terms of HADS anxiety scores ($p=0.075$), while mean HADS anxiety score was statistically higher in the urticaria group than the AR and drug allergy groups ($p<0.001$ and $p=0.001$, respectively). In the post hoc analysis of SF-36 physical functioning, we found a statistically significant increase in the AR compared to the asthma group ($p<0.001$) (Table 2).

In the asthma group, when patients compared according to control status, there was no significant differences in terms of HADS scores and SF-36 subscores between well-controlled (n=31, 71.1%), partial controlled (n=10, 23.3%) and uncontrolled (n=2, 4.7%) patients ($p>0.05$). Among all asthmatics, there was no difference in HADS and SF-36 scores between the eosinophilic (n=27, 62.8%) and non-eosinophilic (n=16, 37.2%) groups ($p>0.05$) and between atopic (n=37, 86.0%) and nonatopic (n=6, 14.0%) groups ($p>0.05$). When asthmatics were compared acording to treatment step, SF-36 subscores of physical role functioning, emotional role functioning, social role functioning were lower in the patients at step 4 and 5 (n=22, 51.2%) than in those at step 2 and 3 (n=21, 48.8%) ($p= 0.001$, $p=0.031$ and $p=0.005$, recpectively) (Table 3). The mean of ACT scores at the last visit was 21.11±3.15 (min-max: 14-25). There was no statistically significant correlation between ACT scores and HADS and SF-36 subscores ($p>0.05$).

Seventy eight patients diagnosed with AR were divided into 2 groups as seasonal (n=34, 43.6%) and perinneal (n=44, 56.4%), and no statistically significant difference was found between groups in terms of HADS scores and SF-36 subscores ($p>0.05$). In addition, when compared in terms of disease severity, SF-36 social role functioning subscore was lower in the patients with modarete-severe AR (n=64, 82.1%) than those with mild AR (n=14, 17.9%) ($p=0.020$). When the patients with AR were divided into 2 groups as intermittent (n=30, 38.5%) and persistent (n=48, 61.5%), statistically significant differences were found in SF-36 physical role functioning, social role functioning, vitality and pain subscores ($p=0.018$, $p=0.004$, $p=0.041$ and $p=0.045$, respectively) (Table 4).

There were a total of 44 patients in the urticaria/angioedema group. The mean UAS-7 score of the group was 21.55±12.08 (min-max: 3-42). When the correlation between UAS-7 scores and HADS scores and SF-36 subscores was analyzed, a statistically significant positive moderate correlation was found between the UAS-7 score and the HADS anxiety score ($r:0.579$, $p<0.001$) (Figure 3). No significant correlation was found in other scores ($p>0.05$). Comparing the patients in urticaria/angioedema group according to disease severity, there was a

significant difference only in HADS anxiety score (p=0.002). The patients in mild subgroup (n=16, 36.4%) had a mean HADS anxiety score of 7.12±4.75, those in moderete group (n=12, 27.3%) had a score of 9.66±3.31 and the patients in severe group (n=16, 36.4%) 16.81±4.46.

Table 1. Demographic Features of the Patients

		Asthma group (n:43)	Allergic rhinitis group (n:45)	Urticaria/ angioedema group (n:44)	Drug allergy group (n:27)	p
Age mean±SD (years)		39.72±14.70	35.40±12.40	35.43±14.34	40.48±14.54	0.083
Gender n (%)	Female	39 (90.7)	33 (73.3)	37 (84.1)	18 (66.7)	0.063
	Male	4 (9.3)	12 (26.7)	7 (15.9)	9 (33.3)	
Educational status n (%)	<8 years	15 (41.9)	4 (8.9)	16 (36.4)	8 (29.6)	0.070
	>8 years	28 (58.1)	41 (91.1)	28 (63.6)	19 (70.4)	
Employment, n (%)	Student	6 (14.0)	11 (24.4)	13 (29.5)	2 (7.4)	0.544
	Housewife	16 (37.2)	7 (15.6)	17 (38.6)	9 (33.3)	
	Employee	17 (39.5)	21 (46.7)	12 (27.3)	11 (40.7)	
	Retired	1 (2.3)	0 (0)	0 (0)	2 (7.4)	
	Unemployed	3 (7.0)	6(13.3)	2 (4.5)	3 (11.1)	

Table 2. Comparison of groups in terms of anxiety, depression scores, and quality of life subscales scores

	Asthma group (n=43)	**Allergic rhinitis group (n=45)**	**Urticaria/ angioedema group (n=44)**	**Drug allergy group (n=27)**	**F**	**P**	**Post hoc analysis**
HADS depression score	6.21±3.45	5.49±3.24	6.77±3.76	5.70±3.74	1.103	0.350	
HADS anxiety score	7.77±4.17	6.18±3.29	**9.89±4.87**	5.93±3.57	8.041	**<0.001**	U/A>AR and U/A>DA
SF-36 physical functioning	**72.56±24.48**	89.89±14.48	82.27±19.12	83.52±18.44	5.871	**0.001**	AR>Asthma
SF-36 physical role functioning	58.14±35.41	65.67±33.38	70.91±31.90	70.37±35.38	1.230	0.301	
SF-36 emotional role functioning	62.54±35.26	62.50±36.08	67.18±37.91	70.35±37.37	0.379	0.769	
SF-36 vitality	53.96±17.11	53.45±18.81	53.75±21.84	52.78±16.13	0.024	0.995	
SF-36 mental health	61.44±13.84	61.58±16.57	59.46±18.24	60.30±16.86	0.162	0.922	
SF-36 social role functioning	63.37±22.47	67.94±22.89	69.38±23.00	64.80±18.68	0.649	0.585	
SF-36 bodily pain	62.97±35.51	70.06±21.64	65.06±26.42	65.09±24.28	0.663	0.576	
SF-36 general health perceptions	50.38±17.78	58.67±15.57	52.49±20.91	55.35±18.02	1.704	0.168	

AR: Allergic rhinitis; U/A: Urticaria/ angioedema; DA: Drug allergy; HADS: Hospital Anxiety and Depression Scale; SF: Short form

Table 3. Comparison of asthmatic patients according to treatment steps in terms of anxiety, depression and quality of life subscale scores

	Step 2 and 3 (n=21)	Step 4 and 5 (n=22)	P
HADS depression score	5.24±2.84	7.14±3.78	0.070
HADS anxiety score	7.38±4.02	8.14±4.37	0.559
SF-36 physical functioning	77.86±25.96	67.50±22.40	0.168
SF-36 physical role functioning	75.24±31.08	41.82±31.87	**0.001**
SF-36 emotional role functioning	74.27±33.61	51.38±21.02	**0.031**
SF-36 vitality	56.67±11.65	51.38±21.02	0.316
SF-36 mental health	61.10±9.76	61.77±17.09	0.875
SF-36 social role functioning	72.86±19.85	54.32±21.41	**0.005**
SF-36 bodily pain	67.86±22.78	58.30±27.57	0.223
SF-36 general health perceptions	51.71±15.61	49.11±19.92	0.637

HADS: Hospital Anxiety and Depression Scale; SF: Short form

Table 4. Comparison of subgroups of allergic rhinitis in terms of anxiety, depression and quality of life subscale scores

	Intermittant (n=30)	Persistant (n=48)	P	Seasonal (n=34)	Perinneal (n=44)	P	Mild (n=14)	Moderete-severe (n=64)	P
HADS depression score	5.03±3.18	6.71±3.45	0.067	5.29±2.59	6.66±3.88	0.067	4.93±3.36	6.31±3.41	0.172
HADS anxiety score	6.03±3.68	7.60±4.01	0.087	6.06±3.40	7.73±4.21	0.063	5.14±3.03	7.41±4.02	0.051
SF-36 physical functioning	84.83±21.35	81.88±21.45	0.555	87.50±14.94	79.55±24.80	0.083	86.79±18.97	82.19±21.86	0.469
SF-36 physical role functioning	73.33±31.71	54.48±34.68	**0.018**	62.06±33.58	61.48±35.77	0.942	63.93±36.12	61.25±34.55	0.795
SF-36 emotional role functioning	69.54±34.81	58.73±39.10	0.196	61.95±37.16	63.62±35.09	0.840	61.41±37.07	63.21±35.78	0.866
SF-36 vitality	57.92±14.62	49.83±19.58	**0.041**	54.86±19.08	51.45±17.52	0.415	55.54±17.33	52.37±18.44	0.559
SF-36 mental health	62.73±11.74	58.98±16.43	0.280	61.74±18.32	59.41±11.57	0.520	63.50±12.13	59.97±15.41	0.566
SF-36 social role functioning	75.33±22.35	60.42±21.00	**0.004**	71.10±22.25	62.33±22.36	0.089	78.75±21.50	63.40±22.04	**0.020**
SF-36 bodily pain	73.17±22.37	61.88±24.68	**0.045**	70.07±23.03	63.24±25.09	0.220	69.64±24.37	65.47±24.42	0.564
SF-36 general health perceptions	56.67±17.43	53.86±15.51	0.462	58.32±15.92	52.33±15.15	0.106	54.64±19.56	55.01±15.58	0.940

HADS: Hospital Anxiety and Depression Scale; SF: Short form

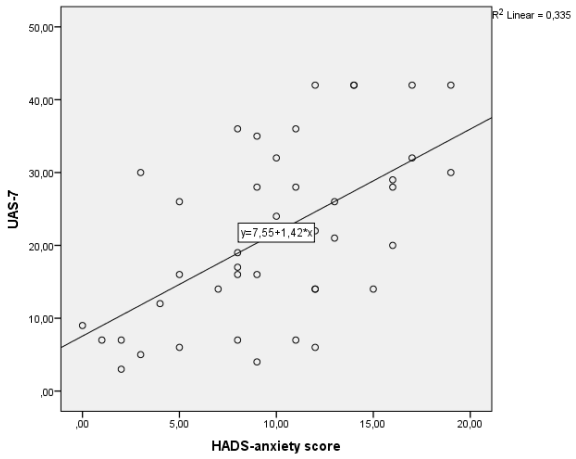

Figure 3. Correlation between data obtained from the HADS anxiety score and UAS-7

Of the patients with drug allergy (n=27, 17%), 11 (40.7%) patients were allergic to beta-lactam antibiotics, 7 (25.9%) patients to non-steroidal anti-inflammatory drugs (NSAID), 3 (11.1%) patients to non-betalactam antibiotics, 2 (7.4%) to local anesthetics and 4 patients were allegic to other drug groups. Comparing the patients in terms of the severity of drug hypersensitivity reactions experienced, there was no difference in HADS and SF-36 scores between mild (n=11, 40.7%), moderate (n=9, 33.3%) and severe (n=7, 25.9%) (p>0.05).

4. Discussion

Our study showed that urticaria/angioedema patients had more anxiety symptoms comparing to other allergic diseases, and that disease activity and severity had a significant relationship with anxiety level in patients with urticaria. In addition, most of the quality of life subscores were low in the entire study group, but in intergroup comparisons, the SF-36 physical functioning subscore was lower in asthmatics than in AR patients. In asthmatic patients, as the treatment step increased, physical role functioning, emotional role functioning, and social role functioning decreased. In patients with allergic rhinitis, severe and persistent disease was associated with lower quality of life.

The relationship between urticaria and depression-anxiety has been studied in many studies. However, it has not been clarified which is the cause and which is the result. Some studies have shown that depression, and especially anxiety, may cause and exacerbate urticaria (12, 21, 22). On the other hand, some studies have shown that urticaria affects daily life greatly, causes sleep disorders, causes depression and anxiety due to the desire to withdraw from society caused by constant itching, and fatigue and sedation caused by antihistamines (23, 24). In our study, the mean HADS anxiety score in patients with urticaria/angioedema was above the cut-off value and was significantly higher than other allergic diseases. Moreover, as the urticaria activity and severity increased, the anxiety level increased. This was consistent with the results of previous studies with a similar design (24-26). When combined with literature data, our study once again emphasized the importance of psychiatric evaluation and, if necessary, treatment in a patient with urticaria in order to break the vicious circle of cause and effect.

In our all study group consist of four allergic diseases, the quality of life parameters were lower than norm values of SF-36 for Turkish society (27). This finding was important because it showed that the quality of life was significantly impaired in allergic diseases, not only the limitations due to physical problems but also the difficulties in daily life due to emotional problems and the deterioration of the general perception of health.

Asthmatic patients had lower SF-36 physical functioning subscore, which explains limitation in daily activities, than other allergic diseases, especially significantly than

AR. In asthma, the presence of systemic inflammation and the fact that shortness of breath and the resulting immobility can lead to deconditioning of peripheral muscles may explain this result (28, 29). In addition, in our study, as the asthma treatment step increased, that is, as the severity of the disease increased, difficulties in social functioning and emotional as well as physical functions also increased. Similar to ours, other studies has also shown that more severe asthma is associated with worse quality of life (30, 31).

Our results showed that seasonality had no effect on the quality of life in patients with allergic rhinitis, whereas the severity and persistence of symptoms negatively affected more the social functioning domain of quality of life, causing restrictions in social activities such as meeting friends. The results of a large cohort were partially consistent with ours. Accordingly; similiar to ours, patients with AR in the study population had impaired quality of life independent of seasonality, however, contrary to ours, there was no difference between intermittant/persistant and mild /moderete/ severe groups in terms of quality of life (32). In parallel to our result, in another study, the quality of life of patients with moderate/severe allergic rhinitis was more impaired (33).

Our study has some strengths and limitations. To the best of our knowledge, this is one of the limited number of studies comparing allergic diseases in terms of depression, anxiety and quality of life. It is also important in terms of showing the close relationship between urticaria activity and anxiety level. The cross-sectional pattern of study and so insufficiency to show a cause-effect relationship was the first limitation. Even though the patients with high depression and anxiety scores were referred to a psychiatrist, the results relation to depression and anxiety presented were based on a self-report questionnaire.

In conclusion, patients with urticaria/angioedema showed the highest association with anxiety symptoms. The quality of life of the patients with asthma, allergic rhinitis, urticaria and drug allergy decreased, but the group whose physical functioning were most affected were asthmatics. In patients with asthma and allergic rhinitis, the quality of life decreased as the severity of the disease increased, similar to the increase in the level of anxiety as the severity of the disease increased in patients with urticaria.

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Ethics

Ethics Committee Approval: The study was approved by Bolu ;Abant İzzet Baysal University Noninterventional Clinical Research Ethical Committee (Decision no: 2024/48, Date: 05.03.2024).

Informed Consent: The authors declared that it was not considered necessary to get consent from the patients because the study was a retrospective data analysis.

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