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Retrospective Evaluation of Patients Referred to Allergy and Clinical Immunology Outpatient Clinics with Isolated Pruritus: A Single Center Experience

Begum GORGULU AKIN[1], Betul OZDEL OZTURK[1], Iclal HOCANLI[1], Sadan SOYYIGIT[2]

[1] Department of Immunology and Allergic Diseases, Ankara Bilkent City Hospital, Ankara, Türkiye
[2] Department of Immunology and Allergic Diseases, Ankara Bilkent City Hospital, Ankara Yildirim Beyazit University, School of Medicine, Ankara, Türkiye

Corresponding Author: Begum Gorgulu Akin ✉ drbegumgorgulu@gmail.com

ABSTRACT

Objective: Many causes such as allergic diseases (ADs), systemic diseases (SDs), dermatologic diseases (DDs), infections, cancers, dry skin, psychological problems, and aging can cause pruritus. We aimed to determine the diagnoses of patients who were referred to our clinic from other specialties because of pruritus.

Materials and Methods: Sociodemographic characteristics, clinical features, blood, urine, stool and skin prick test (SPT) results of all patients presenting to our allergy and clinical immunology clinics with isolated pruritus between 2021 and 2024 were retrospectively evaluated.

Results: A total of 18,695 patients were examined between 2021 and 2024: 276 patients had isolated pruritus, 75 of whom had acute pruritus (AP) and 201 had chronic pruritus (CP). The median (min-max) age was 33 (18-81) years and 43 (18-97) years in patients with AP and CP, respectively.

Infection and drug-related pruritus were more frequent in patients with AP (p=0.002, p=0.001), and the frequency of CP was higher in patients with pruritus increased by inhaled allergens (p=0.001). Leukocyturia was more frequent in patients with CP compared to those with AP (p=0.018), and SPT positivity and low ferritin were more frequent in patients with CP (p=0.004, p=0.045).

The most common cause in the study population was ADs (n=77, 28%), followed by SDs (n=74, 27%). The frequency of DDs (n=24, 32%) and SDs (n=16, 21%) was higher in patients with AP, whereas ADs (n=62, 31%) and SDs (n=58, 29%) were more common in patients with CP.

Iron deficiency anemia (IDA) was the most common SD (n=41, 55%), followed by thyroid disease (n=14, 19%). The most common DD was dry skin (n=31, 46%), followed by scabies (n=28, 41%).

Conclusion: Pruritus is an important problem for both patients and physicians. When pruritus is mentioned by physicians, ADs come to mind first. However, SDs, especially IDA, should not be forgotten.

Keywords: Allergy, anemia, dry skin, pruritus, systemic diseases

INTRODUCTION

Pruritus is a symptom that develops by stimulating the nerves in the skin with the release of histamine and many mediators (1,2). The stimulus that starts in the skin is transmitted to the relevant centers in the brain via the nerve pathway and causes a pruritus sensation. Acetylcholine is a neurotransmitter that can cause pruritus (2), and many additional substances and receptors are implicated in the phenomenon of pruritus (3).

ORCID Begum Gorgulu Akin / 0000-0002-6200-0909, Betul Ozdel Ozturk / 0000-0001-8653-3497, Iclal Hocanli / 0000-0003-3283-9639, Sadan Soyyigit / 0000-0003-3270-5884

Numerous causes such as allergic diseases, skin diseases, detergents and some plants, parasitic infections, pregnancy, liver and kidney diseases, some cancers and treatments, diabetes, dry skin, psychological problems, and the effects of ageing can cause pruritus (4,5). If itching persists for less than 6 weeks, it is regarded as acute pruritus (AP). Allergic diseases, insect bites, and infections can cause AP. Conversely, if itching lasts for more than 6 weeks, it is classified as chronic pruritus (CP) (3,4,6). In approximately 60% of cases, CP is caused by inflammation, which may be the result of eczema, psoriasis, or seborrheic dermatitis. Chronic pruritus is associated with adverse outcomes, including impaired sleep and reduced quality of life (6). It is recommend in guidelines to order complete blood cell counts (CBC), complete metabolic panels (CMP), and thyroid function testing (TFT) to determine the cause of pruritus (7) .

In AP, removal of the current cause of pruritus and antihistamine treatment is usually sufficient, whereas in CP, treatment of the underlying disease, topical treatment modalities, symptomatic antipruritic treatment, ultraviolet phototherapy, and systemic treatments are required (4,8).

In this study, we aimed to determine the demographic characteristics, examination results, and diagnoses of patients admitted to the Allergy and Clinical Immunology outpatient clinic with isolated pruritus over the past 3 years.

MATERIALS and METHODS

Study Design

A total of 18,695 patients were examined in the allergy and clinical immunology outpatient clinics between July 2021 and July 2024. The medical records of the patients who presented with a primary symptom of pruritus were retrospectively evaluated through the hospital information management system. Patients with maculopapular skin rash, urticaria/angioedema, and dermatitis were excluded from the study. Only 276 patients with isolated pruritus were included in the study, in accordance with the tenets of the Declaration of Helsinki after receiving approval from the local ethics committee of Ankara Bilkent City Hospital (Approval number: TABED 2-24-406).

Clinical and Laboratory Evaluation

Patients' detailed histories and demographic and clinical characteristics were recorded. In addition, CBCs, CMPs, TFT, erythrocyte sedimentation rate (ESR), complete urinalysis and stool examinations for parasites were routinely requested in all patients with CP. C-reactive protein (CRP), anti-thyroid peroxidase immunoglobulin G (anti-TPO Ig G), Helicobacter pylori stool antigens (HpSA), anti-nuclear antibody (ANA), total immunoglobulin E (IgE), allergen-specific IgE (sIgE), skin prick tests (SPTs), and patch testing were performed according to the patient's history and symptoms. If these tests were previously conducted, we also recorded them. Laboratory values from our hospital were used as reference values for the test results. A visual analog scale (VAS) was used to determine the severity of pruritus.

Statistical Analysis

Data analysis was performed using the SPSS 11.5 for Windows software package (SPSS Inc., Chicago, IL, USA). Descriptive statistics for nominal data are presented as counts and percentages, and quantitative data are presented either as mean ± standard deviations or medians and minimum-maximum depending on assumptions of normality based on visual (histograms and probability graphs) and analytical methods (Kolmogorov-Smirnov and Shapiro-Wilk tests). The Chi-square or Fisher's exact test was used to compare categorical variables, as appropriate. Values below 0.05 were considered significant for all p-values.

RESULTS

General Specialties of the Study Population

A total of 18,695 patients were examined between 2021 and 2024: 276 patients had isolated pruritus, 75 of whom had AP and 201 had CP. The median (min-max) age was 33 (18-81) years in patients with AP and 43 (18-97) years in patients with CP. There was no statistically significant difference in the median age of patients with AP and CP (p=0.224). The female/male ratio was 46/29 in patients with AP and 135/66 in patients with CP. In our study, as in many studies conducted in allergic diseases, female sex dominance was observed.

Housewives were more common among patients with CP, whereas civil servants were more common among patients with AP. There was no statistically significant difference between the occupational groups of patients with AP and CP (p=0.639). The median (min-max) duration of pruritus was 2 (1-6) weeks in patients with AP and 144 (7-1440) weeks in patients with CP. In both groups, most

patients had itching both in the daytime and at night. The general characteristics of the patients are detailed in Table I.

Evaluation of the Trigger Factors of Pruritus

Among the patients who described drug-related pruritus (DRP), 69.2% (n=9) had AP and 30.8% (n=4) had CP. DRP was more frequent in patients with AP (p=0.001). Beta lactam antibiotics were most frequently responsible for DRP (n=5), followed by statin group cholesterol drugs (n=3). In patients who we thought had DRP, the current medication was discontinued and treating their primary disease with an alternative medication was recommended. In patients whose pruritus decreased or improved after the medication was discontinued, we decided that the pruritus was drug related. We did not perform any diagnostic drug provocation tests.

In 38 of 276 patients, pruritus increased after food consumption. Of these patients, 10 (26.3%) had AP and 28 (73.7%) had CP. In terms of food-related pruritus (FRP), prick-to-prick testing was performed with suspicious foods. Patients who were found to be positive after SPT and had pruritus with elimination were evaluated as having FRP. Direct FRP was found in one patient after eating peanuts and in five patients after eating eggs. Patients who described pruritus with other bitter and spicy foods and whose pruritus decreased or improved with the elimination diet were considered to have FRP.

Table I: Comparison of patients with AP and CP in terms of demographic and clinical characteristics

	Patients with AP (n=75)	Patients with CP (n=201)	p-value
Age (years) [median (min-max)]	33 (18-81)	43 (18-97)	0.224
Sex, n (%)			
Female	46 (25.4)	135 (76.4)	0.221
Male	29 (30.5)	66 (69.5)	
Occupation, n (%)			
Housewife	18 (21.4)	66 (78.6)	
Civil servant	22 (32.8)	45 (67.2)	
Employee	7 (28)	18 (72)	0.639
Retired	15 (27.8)	39 (72.2)	
Student	13 (28.3)	33 (71.7)	
Smoking history, n (%)	21 (33.3)	42 (66.7)	0.256
Using alcohol, n (%)	7 (29.2)	17 (70.8)	0.492
How many weeks ago did pruritus start? n (%)	2 (1-6)	144 (7-1440)	**<0.001**
Time of occurrence of pruritus, n (%)			
Daytime	5 (17.9)	23 (82.1)	
Night	21 (35)	39 (65)	0.200
Both day and night	49 (26.1)	139 (73.9)	
Pruritus related to drug, n (%)	9 (69.2)	4 (30.8)	**0.001**
Pruritus related to food, n (%)	10 (26.3)	28 (73.7)	0.999
Pruritus related to stress, n (%)	11 (22.4)	38 (77.6)	0.481
Pruritus related to infectious disease, n (%)	11 (61.1)	7 (38.9)	**0.002**
Pruritus related to respiratory allergens, n (%)	3 (6.5)	43 (93.5)	**0.001**
Pruritus related to dry skin, n (%)	27 (22.1)	95 (77.9)	0.103
History of allergic disease, n (%)	6 (14.6)	35 (85.4)	0.057
Accompanied by redness? n (%)	28 (24.6)	86 (75.4)	0.492
Suspicion of scabies, n (%)	15 (46.9)	17 (53.1)	**0.011**
Baseline VAS score [median (min-max)]	6 (3-10)	6 (3-9)	0.898

p<0.05 was considered significant. **AP:** Acute Pruritus, **CP:** Chronic pruritus, **VAS:** Visual analog scale.

Forty-nine out of 276 patients reported an increase in itching during periods of stress; 22.4% of patients with psychological pruritus presented with AP, and 77.6% presented with CP. However, no statistically significant difference was found between patients with AP and those with CP (p=0.481). In a total of 28 patients, pruritus was triggered by an infectious disease, and 61.1% of these patients presented with AP and 38.9% with CP. Infection-related pruritus was statistically significantly higher in patients with AP (p=0.002).

In 46 patients, pruritus increased after contact with respiratory allergens. Chronic pruritus was statistically significantly more frequent in those with increased pruritus with respiratory allergen (p=0.001). Forty-one of 276 patients had a history of allergic disease. In 32 patients, scabies was suspected on examination, and 53.1% of those with suspected scabies presented with CP.

The baseline median VAS scores (min-max) of patients with AP and CP were 6 (3-10) and 6 (3-9), respectively. There was no statistically significant difference in VAS scores in either group (p=0.898). Detailed information about the trigger factors of pruritus is given in Table I.

Evaluation of Laboratory and Allergy Test Results of Patients Presenting with Pruritus

The CBCs and CMPs of patients with AP and CP were compared. No statistically significant difference was found between the groups. However, elevated urea in blood was more frequent in patients with AP compared with patients with CP (p=0.046). It was thought that systemic diseases causing AP, in particular, triggered pruritus by increasing urea levels. Ferritin, an important parameter for the evaluation of iron deficiency anemia (IDA), was statistically significantly lower in patients with CP (p=0.045). Leukocyturia in urine was more frequent in patients with CP compared with patients with AP (p=0.018). Urine cultures were performed on patients presenting with leukocyturia and symptoms suggestive of a urinary tract infection. However, if there were no symptoms of infection despite leukocyturia (especially in female patients), we did not request routine urine cultures. In our study, we requested urine cultures from 20 of 31 patients with leukocyturia and 12 had bacterial growth in their culture results.

Another important result was that 88.9% (n=56) of patients with positive SPTs presented with CP. SPT positivity was statistically significantly more frequent in patients with CP (p=0.004). Grass pollen sensitization was found in 29 patients with CP and was the most common sensitization. Cat allergy was found in 11 patients with CP and house dust mite allergy in 10 patients with CP. No statistically significant difference was found between patients with AP and those with CP for anti-TPO IgG, ANA, parasite examinations for parasites, and HpSA in stool. Only 17 of 276 (6.7%) patients had the European standard series (ESS) patch test, and the patch test results were positive in 10 patients. Eight of 10 patients had CP. Nickel sensitization was detected in all eight patients. The comparison of laboratory results between patients with AP and CP is shown in Table II.

Clinical Assessment, Diagnosis, and Treatment of Pruritus

The patients' medical histories were recorded, physical examinations were performed, and the results of laboratory and allergy tests were evaluated. Afterwards, the etiologies causing the patients' pruritus were determined. The most common cause in the study population was allergic diseases (n=77, 28%), followed by systemic diseases (n=74, 27%) (Figure 1). Allergic rhinitis was found in 31 of 77 patients with allergic disease. Pollen-associated allergic rhinitis was most frequently associated with pruritus and followed by cat allergen-associated pruritus. Infectious diseases (n=28) were the least common causes of pruritus. After the exclusion of allergic, systemic and dermatologic diseases, patients who described an increase in pruritus due to stress were referred to psychiatrists and it was decided that 29 patients had psychogenic pruritus; eight already had depression, seven had panic disorder, and

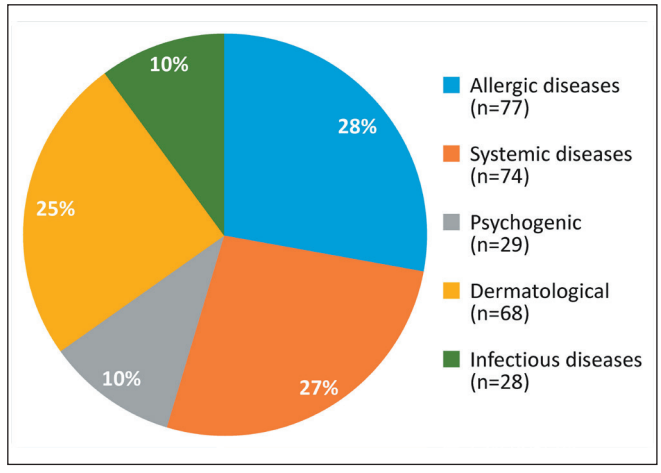

Figure 1. Causes of isolated pruritus.

Table II: Comparison of patients with AP and CP in terms of laboratory and allergy test results

Parameters		Patients with AP (n=75)	Patients with CP (n=201)	p-value
CBC	Hemoglobin (g/dL) *	13.9 (8-17)	13.5 (8.5-17)	0.073
	HCT (%)*	42.7 (26-52)	42 (29-50.3)	0.102
	Platelet (x10^9/L) *	236 (122-477)	254 (105-603)	0.406
	White blood cell (cells/mm^3)*	7580 (3500-15,300)	7200 (3600-14,500)	0.246
	Eosinophil (cells/mm^3)*	155 (20-1720)	160 (10-890)	0.617
	Basophil (cells/mm^3)*	30 (10-100)	30 (5-180)	0.914
	Neutrophil (cells/mm^3) *	4240 (1115-11,830)	4180 (700-10,690)	0.310
	Lymphocyte (cells/mm^3) *	2205 (1000-4200)	2145 (1000-4440)	0.651
CMP	CRP (mg/L) *	1 (0.5-39)	1 (0.5-40)	0.980
	ESR (mm/hour) *	12 (5-30)	12 (3-45)	0.772
	Creatinine (mg/dL) *	0.8 (0.48-1.4)	0.75 (0.3-1.65)	0.297)
	Urea (mg/dL) *	28 (10-81)	26 (10-64)	**0.046**
	Uric acid (mg/dL) *	5 (1.8-8.5)	4.9 (2.3-11)	0.462
	AST (U/L) *	18 (2-310)	16 (2-70)	0.086
	ALT (U/L) *	21 (7-430)	21 (8-227)	0.171
	LDH (U/L) *	208 (112-381)	200 (136-408)	0.075
	GGT (U/L) *	16 (4-210)	15 (2-162)	0.585
	ALP (U/L) *	71 (47-124)	73 (17-238)	0.971
	Total bilirubin (mg/dL) *	0.6 (0.2-1.8)	0.6 (0.2-3.5)	0.902
	Direct bilirubin (mg/dL) *	0.2 (0.1-1.5)	0.2 (0.1-1.1)	0.384
	Vitamin D (nmol/L) *	29 (8-68)	36 (1.3-327)	0.261
	TSH (mU/L) *	1.88 (0.1-6.07)	2.14 (0.43-9.55)	0.432
	Free T4 (ng/dl) *	1.1 (0.83-2.4)	1.15 (0.4-2.4)	0.057
	Ferritin (µg/L) *	33 (1-290)	24 (2-349)	**0.045**
	HbA1c (electrophoresis, %) *	5 (4.3-9.9)	5.1 (4-9.3)	0.998
Total IgE (IU/ml) *		45.4 (2-600)	48 (2-6135)	0.109
Anti TPO IgG positivity **		5 (23.8)	16 (76.2)	0.498
ANA positivity **		2 (22.2)	7 (77.8)	0.497
Stool examinations for parasites positivity **		0	3 (100)	0.385
Helicobacter pylori stool antigen positivity **		1 (11.1)	8 (88.9)	0.244
Leukocyturia positivity **		14 (45.2)	17 (54.8)	**0.018**
Skin prick test positivity **		7 (11.1)	56 (88.9)	**0.004**

Values (*) are presented as median (minimum-maximum); Values (**) are presented as number (%); p<0.05 was considered significant.

AP: Acute pruritus, **ALT:** Alanine aminotransferase, **ALP:** Alkaline phosphatase, **ANA:** Anti-nuclear antibody, **anti-TPO IgG:** Anti-thyroid peroxidase immunoglobulin G, **AST:** Aspartate aminotransferase, **CP:** Chronic pruritus, **CBC:** Complete blood cell counts, **CMP:** Complete metabolic panel, **CRP:** C-reactive protein, **ESR:** Erythrocyte sedimentation rate, **GGT:** Gamma-Glutamyl transpeptidase, **IgE:** Immunoglobulin E, **HCT:** Hematocrit, **LDH:** Lactate dehydrogenase, **HbA1c:** Glycated hemoglobin, **TSH:** Thyroid-stimulating hormone, **T4:** Thyroxine 4

three had generalized anxiety disorder. The remaining 11 patients were not diagnosed as having a psychological disorder. According to the evaluation of the psychiatrist, their itching was believed to be related to stress and they were followed up. The causes of pruritus in 276 patients referred to Allergy and Clinical Immunology Outpatient Clinics with isolated pruritus are shown in detail in Figure 1.

The frequency of dermatologic diseases (n=24, 32%) and systemic diseases (n=16, 21%) was higher in patients with AP, whereas allergic diseases (n=62, 31%) and systemic diseases (n=58, 29%) were more common in patients with CP. Psychogenic causes (n=8, 11%) were the least common in patients with AP, and infectious diseases (n=16, 8%) were the least common in patients with CP. The causes of pruritus in patients presenting with isolated AP (Figure 2A) and CP (Figure 2B) are shown in detail in the figures.

IDA was the most common systemic disease (n=41, 55%), followed by thyroid disease (n=14, 19%). In six patients, pruritus was thought to be related to uncontrolled diabetes mellitus. In four patients, pruritus was found to be associated with old age. Systemic diseases causing pruritus are shown in detail in Figure 3A.

Dermatologic diseases were found to be important causes of pruritus. Dry skin (n=31, 46%) was the most common skin problem, followed by scabies. The other nine patients were referred to us for investigation of the etiology of pruritus and allergy testing but were found to have various dermatologic diseases as a result of biopsies. Although the symptoms of these patients initially started with isolated pruritus, it was observed that inflammatory skin lesions developed in the progressive process. Dermatologic diseases causing pruritus are shown in detail in Figure 3B.

After the patients were evaluated, they were referred to the relevant clinics for the identified cause and appropriate treatment was given. The most common treatment given to our patients for pruritus was skin moisturizing and oral second-generation antihistamine treatment (n=109,

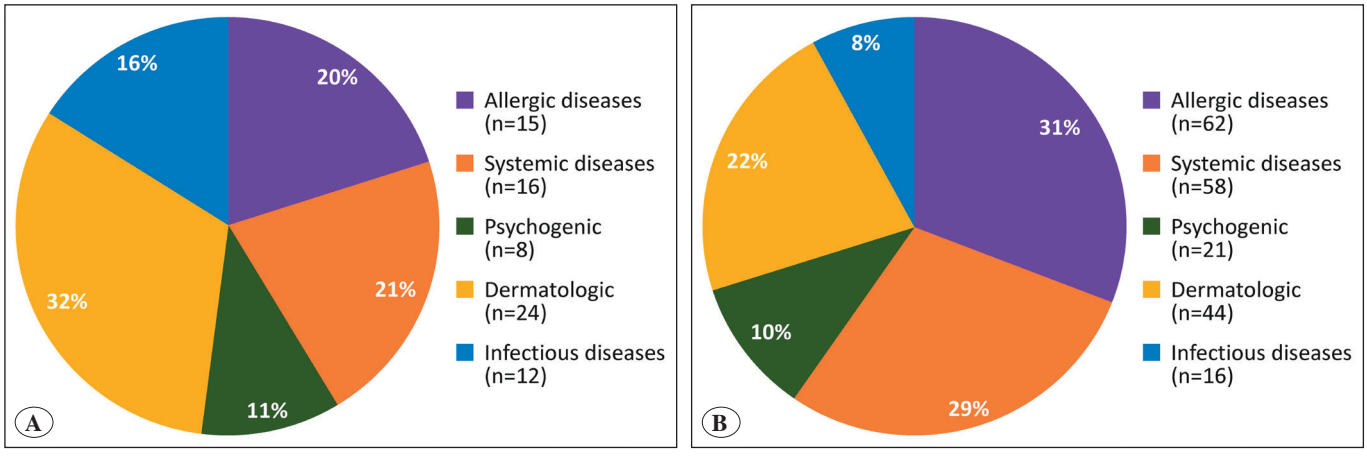

Figure 2. A,B) Causes of pruritus in patients presenting with isolated AP and CP.

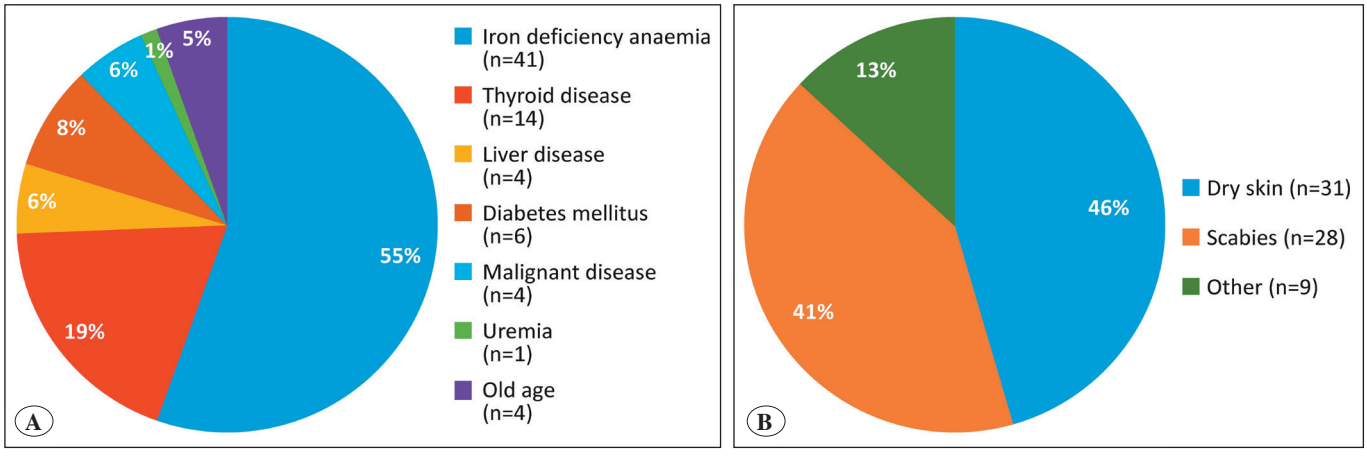

Figure 3. A,B) Systemic diseases and dermatologic diseases causing pruritus.

39.5%). We started antihistamines as a single dose per day for all patients. We increased antihistamine doses up to 4 times per day according to the patient's needs. The duration and dosage of antihistamines varied according to the characteristics of the patients. Some 67.4% (n=186) of the 276 patients had partial benefit from the medical treatment, and only 1.8% (n=5) had no benefit.

DISCUSSION

Although there are many studies showing the presence of pruritus in many different diseases, our study is the first to investigate etiologic causes in adult patients presenting to the allergy clinic with isolated AP and CP (5,9-15).

In our study, isolated pruritus occurred mostly in women and in young to middle-aged patients. As in many studies conducted in allergic diseases, female sex dominance was observed (16-18). Dry skin was the most common trigger in our patients with both AP and CP. Studies have shown that dry skin is associated with somatosensory pruritus sensation, especially CP (19). Dry skin with CP represents the most prevalent clinical presentation of dermatoses, including xerosis, atopic dermatitis, and psoriasis. It is also a common cutaneous manifestation in pruritic systemic diseases, such as chronic kidney disease, chronic liver disease, and diabetes mellitus (20).

Stress was found to be another important trigger factor for pruritus, predominantly in CP, in our study. It has been established that stress is a significant factor in the exacerbation of pruritus in several dermatologic conditions. In a study conducted on Chinese patients with atopic dermatitis, 71% of participants reported that stress increased the severity of pruritus (21). In other studies, the prevalence of idiopathic pruritus was observed in 36-42% of psychiatric inpatients (22,23).

In this study, it was shown that pruritus was associated with respiratory allergens, especially in patients with CP. The association between respiratory allergens and atopic dermatitis has long been recognized (24,25). However, recent studies have shown that even in idiopathic chronic urticaria, respiratory allergens may play a role and there is a distinct phenotype characterized by atopy (26-28). Pollen-associated allergic rhinitis, followed by cat allergy, was most frequently associated with pruritus. This study has shown that respiratory allergens can cause nasal and eye itching and isolated CP. Cat allergy, which is a perennial allergen, has increased considerably in recent years and can cause rhinitis, asthma, urticaria, and pruritus (29, 30). In most cases, distancing patients from cats will reduce the pruritus. Eight patients with CP had nickel sensitization in the ESS patch test in our study. These patients had benefited from a low-nickel diet. There are reports that oral nickel exposure both increases dermatitis and may cause type 1 hypersensitivity reactions (31,32). In another study, the authors suggested that patients with idiopathic urticaria and other allergic-like, non-IgE-mediated dermatitis syndromes should be patch tested in routine clinical practice and, if nickel-positive, placed on a low-nickel diet (32).

DRP was more frequent in patients with AP. Beta lactam antibiotics and statins were most frequently responsible for DRP in our study. Patients developing pruritus after the use of statin group cholesterol drugs have been reported in previous case reports and studies (33,34). In a study by Huang et al., the highest incidence of pruritus was observed in patients receiving heparin (1.11%), trimethoprim-sulfamethoxazole (1.06%), and calcium channel blockers (0.92%) (35). In our study, infections were found to be another important trigger in patients with pruritus and leukocyturia was more frequent in patients with CP. In a study conducted in patients with acute urticaria, infections were found to be the most common triggers (36). It is known that genitourinary system infections may cause pruritus in the genital area and sometimes trigger widespread pruritus in the body (37,38).

Many patients with pruritus mistakenly think that their symptoms are related to food. However, in some cases, pruritus may occur after consumption of specific foods. Direct FRP was found in one patient after eating peanuts and in five patients after eating eggs in our study. The most common type of itch provoked by food often occurs via the classic IgE-mediated pathway. Other mechanisms include non-IgE-mediated, mixed (IgE-mediated and non-IgE-mediated), T-cell-mediated, and nonimmune reactions (7). In addition, pruritus in the body can often be seen in histamine intolerance, which is a condition of high histamine levels in the blood and inadequate functioning of diamine oxidase. In these patients, itching may increase when foods are consumed with high histamine content (e.g., hot, spicy foods, aubergine, tomato) and they may benefit from elimination diets (7,39). In our study, the most common foods causing pruritus were bitter and spicy foods. We do not know how many of our patients had histamine intolerance because histamine and diamine oxidase levels are not routinely tested in our hospital.

Dermatologic diseases and systemic diseases were more frequently seen in patients with AP, whereas allergic diseases and systemic diseases were more common in patients with CP. Ferritin was lower in patients with CP. Anemia was the most common systemic disease, followed by thyroid disease. Anemia is a prevalent global health concern, with an estimated prevalence of 32.9% in 2010 (40). Iron deficiency is regarded as a significant global contributor to the prevalence of anemia. The dermatologic manifestations of anemia are numerous and encompass both the skin and its appendages (41). Pruritus associated with anemia was reported as generalized in several studies. It has been shown that pruritus may decrease after iron treatment (42,43). In our study, IDA was found to be an important health problem in patients presenting to allergy outpatient clinics with pruritus. Another important systemic disease group in terms of pruritus is endocrine disorders. It is established that thyroid disease and uncontrolled diabetes are associated with an increased prevalence of pruritus (44). In a Turkish study (n=300), 20.9% and 26.8% of patients with hypo- and hyperthyroidism, respectively, were affected by pruritus (45). The prevalence of pruritus in people with diabetes ranges from 15.6% to 60.2% (46). Diabetes was identified as the cause in 12.5% of 49 patients with generalized pruritus in a prospective study (15).

In our study, the other causes of pruritus secondary to systemic disease were malignancy and liver disease. In a cohort of 1631 patients with liver disease, pruritus affected 40.3% of subjects (47). In another study, 17.2% of subjects with CP developed malignancy and the most common malignancies included hematologic disease (15). Pruritus is common in uremic pruritus (48,49), but we had only one patient with this condition. We think that this is because physicians do not refer to the allergy clinic because of the high awareness of pruritus in uremia.

In this study, dry skin was the most common dermatologic problem, followed by scabies. We found that patients with scabies presented with isolated pruritus, particularly in the acute phase of the disease, and other scabies-specific symptoms were observed as the disease progressed. It is estimated that there are about 300 million scabies cases worldwide annually. There may be diagnostic difficulties due to the complexity in detecting the agent and the atypical clinical presentation (50,51).

This study presents several strengths, including a comprehensive dataset derived from 276 patients specifically presenting with isolated pruritus, which enhances the reliability and validity of the findings. The thorough clinical and laboratory evaluations conducted by allergy and clinical immunology specialists provide important insights into the diverse etiologies of pruritus, highlighting the multifaceted nature of this symptom that goes beyond allergic and dermatologic conditions through the inclusion of systemic and psychological factors. Furthermore, the study offers practical recommendations for clinical practice and paves the way for future research in this area.

This study has some limitations that should be acknowledged. First, the retrospective design of the study may introduce bias because it relies on the accuracy and completeness of the medical records available in the hospital information management system, which could impact the overall findings and interpretations. Although the patient cohort is relatively large for a specialized clinic, the findings may not be generalizable to other clinical settings or populations with different demographics or underlying conditions. The study focused on patients who were referred to an Allergy and Clinical Immunology outpatient clinic, which may result in selection bias. Patients with pruritus of various etiologies who do not seek specialized care or who are managed by primary care physicians may not have been included, potentially affecting the prevalence and types of emerging causes of pruritus. Additionally, although laboratory and allergy test results were analyzed, certain diagnostic evaluations, such as histamine levels or diamine oxidase activity, were not routinely tested, limiting the ability to explore potential FRP or histamine intolerance-related causes of pruritus. A further limitation of this study is the absence of a standardized protocol for the treatment of pruritus. The treatment approach varies from physician to physician and from patient to patient.

To conclude, pruritus is an important problem for both patients and physicians. When pruritus is mentioned by physicians, allergic and dermatologic diseases come to mind first. However, systemic diseases, especially IDA, should not be forgotten. All patients with pruritus should be evaluated in detail to determine the underlying etiology.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Author Contributions

Concept: **Begum Gorgulu Akin, Betul Ozdel Ozturk, Iclal Hocanlı, Sadan Soyyiğit,** Design: **Begum Gorgulu Akin, Betul Ozdel Ozturk, Iclal Hocanlı, Sadan Soyyiğit,** Data collection or processing: **Begum Gorgulu Akin, Betul Ozdel Ozturk, Iclal Hocanlı, Sadan Soyyiğit,** Analysis or Interpretation: **Begum Gorgulu Akin, Betul Ozdel Ozturk, Iclal Hocanlı, Sadan Soyyiğit,** Literature search: **Begum Gorgulu Akin, Betul Ozdel Ozturk, Iclal Hocanlı, Sadan Soyyiğit,** Writing: **Begum Gorgulu Akin, Betul Ozdel Ozturk, Iclal Hocanlı, Sadan Soyyiğit,** Approval: **Begum Gorgulu Akin, Betul Ozdel Ozturk, Iclal Hocanlı, Sadan Soyyiğit.**

Data Availability Statement

The authors declare that they have followed the protocols of their work center on the publication of patient data in the study. All data generated or analyzed during this study are included in this article. The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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