

## ORIGINAL ARTICLE

# Evaluation of urticaria patients before and during the period of the COVID-19 pandemic: A retrospective study

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**Abstract**

The COVID-19 pandemic is the most serious health crisis facing the modern world; hospital admissions have risen dramatically. Urticaria is characterized by itchy edematous papules/plaques, angioedema, and involvement of one or both of the deep dermis or subcutis. We investigated the effect of the COVID-19 pandemic on the incidence of acute and chronic urticaria, the proportions of urticaria patients among all dermatology patients before and after the onset of the pandemic, and age and sex characteristics. About 57 patients diagnosed with urticaria before the onset of the COVID-19 pandemic in December 2019 and January and February 2020 at the Dermatology Polyclinic of Beyşehir State Hospital, and 25 patients diagnosed within 3 months (March-May 2020) after the onset of the pandemic, were included. We retrospectively recorded age, sex, and the duration of the disease. Patients were divided into those with acute and chronic urticaria using the EAACI/GA(2)/LEN/EDF/WAO guidelines and data obtained before and after the onset of the pandemic were compared. Fifty-one (62.2%) patients were female and the mean patient age was  $40.88 \pm 17.38$  years. We found no significant difference in the mean age or sex distribution before and after the onset of the pandemic ( $P = .341$ ;  $P = .604$ ). The proportion of urticaria patients (1.6%) among all dermatology patients treated in a 3-month period after the onset of the pandemic was higher than that before the pandemic (1.19%;  $P < .001$ ). During the pandemic, the acute urticaria rate was significantly higher than before the pandemic ( $P = .002$ ). The urticaria rate (particularly that of acute disease) increased during the COVID-19 pandemic. Dermatologists should consider whether patients with urticaria might be infected with COVID-19.

**KEYWORDS**

urticaria, acute urticaria, COVID-19 pandemic

## 1 | INTRODUCTION

On 11 March 2020, the World Health Organization (WHO) declared that Coronavirus Disease-2019 (COVID-19) constituted a pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The pandemic is the most serious health crisis faced by the modern world.<sup>1,2</sup> Lifestyles and medical priorities have changed

greatly. Urticaria is characterized by the formation of itchy and edematous plaques/wheals termed “urtica”, angioedema, and deep dermal and/or subcutis involvement. Disease persisting for <6 weeks is termed acute urticaria (AU) and disease of longer duration chronic urticaria (CU).<sup>3</sup> Here, we investigate the effect of the COVID-19 pandemic on the admission of acute and chronic urticaria patients to dermatology outpatient clinics, the proportions of urticaria among all

dermatological conditions before and after the onset of the pandemic, and the age and sex characteristics of patients.

## 2 | MATERIALS AND METHODS

We included 57 patients diagnosed with urticaria at the Dermatology Polyclinic of Beysehir State Hospital before the onset of the COVID-19 pandemic in December 2019 and January and February 2020, and 25 patients diagnosed in March 2020 and April 2020 and May 2020 after the pandemic onset. Age, sex, and disease duration were retrospectively retrieved from the files. Urticaria was classified as acute or chronic according to the EAACI/GA(2)/LEN/EDF/WAO guideline,<sup>3</sup> and data obtained before and after the onset of the pandemic were compared.

We identified those with COVID-19 among urticaria patients, classified them as acute and chronic urticaria, and recorded their age and gender. The Ethics Committee on Human Research of Aksaray University approved the study (approval no. 2020/09-09 dated October 21, 2020).

## 3 | STATISTICAL ANALYSES

All statistical evaluations employed SPSS ver. 22.0 software. We calculated percentages and means. The chi-squared and Mann-Whitney *U*-tests were used as appropriate. We present means with standard deviations (SDs). A *P* value <.05 was considered to reflect statistical significance.

## 4 | RESULTS

Fifty-one (62.2%) patients were female and 31 (37.8%) male, with a mean age of  $40.88 \pm 17.38$  years (range 13-87 years). Before the onset of the pandemic, the mean age was  $42.16 \pm 17.30$  years (range 17-87 years). After the onset of the pandemic the mean age was  $37.96 \pm 17.56$  years (range 13-74 years), thus, not significantly different (*P* = .341, Mann-Whitney *U* test; Table 1). The sex distribution also did not differ significantly before and after the onset of the pandemic (*P* = .604, Yates chi-square test; Table 1).

**TABLE 1** Age and sex distribution of urticaria patients

	Age (mean $\pm$ SD)	Sex (n, %)	
		Female	Male
Before the COVID-19 pandemic	$42.16 \pm 17.30$	37	20
During the COVID-19 pandemic	$37.96 \pm 17.56$	14	11
<i>P</i>	.341 <sup>a</sup>	.604 <sup>b</sup>	

<sup>a</sup>Mann-Whitney *U* test.

<sup>b</sup>Yates Chi-square test.

**TABLE 2** Distribution of urticaria patients among all dermatology patients

	Urticaria patients n (%)	All dermatology patients
Before the COVID-19 pandemic	57 (1.19%)	4754
During the COVID-19 pandemic	25 (1.6%)	1564
<i>P</i>	<.01 <sup>a</sup>	

<sup>a</sup>McNemar's chi-square test.

The proportion of urticaria patients among all dermatology patients in the 3 months before the onset of the pandemic was 1.19%, and that in the 3 months after the onset of the pandemic 1.6%, thus, significantly higher than before the pandemic (*P* < .001; Table 2). Of the 82 patients, 43(52.4%) had acute (<6 weeks) and 39 (47.6%) chronic urticaria (>6 weeks); the rate of acute urticaria during the pandemic was significantly higher than before the pandemic (*P* = .002, Yates Chi-square test; Table 3).

## 5 | DISCUSSION

The global COVID-19 pandemic has changed daily lives and medical practices. The operations of outpatient clinics, the performance of invasive and non-invasive procedures, and the modes of consultation have changed greatly.<sup>4</sup> It has been recommended that nonurgent diagnostic and therapeutic dermatological procedures should be postponed; if that is not possible, physicians should wear personal protective equipment and patients (in particular) should wear masks. Fewer elective patients now present to dermatology outpatient clinics.<sup>5</sup> We found that the number of patients admitted to hospital with dermatological complaints decreased significantly after the onset of the pandemic. Worldwide, urticaria is most common in individuals aged 20 to 40 years and is twice as common in women as in men, affecting approximately 1% of all people (0.5%-5%), of whom 50% to 75%. Between 66% to 93% of patients have chronic urticaria and approximately 33% physical (inducible) urticaria.<sup>6-8</sup> The mean age of our urticaria patients was  $40.88 \pm 17.38$  years; 43 of 82 (52.4%) had acute and 39 (47.6%) chronic urticaria. In this study, we determined that the

**TABLE 3** Acute and chronic urticaria patient rates before the COVID-19 pandemic and during the COVID-19 pandemic

	Acute urticaria n (%)	Chronic urticaria n (%)
Before the COVID-19 Pandemic	23 (40.4%)	34 (59.6%)
During the COVID-19 Pandemic	20 (80%)	5 (20%)
P	.002 <sup>a</sup>	

<sup>a</sup>Yates chi-square test.

rate of acute urticaria increased after the onset of the pandemic. Casas et al<sup>9</sup> performed the first prospective study to classify the skin manifestations of COVID-19 into five major groups, including pseudo-chilblains (19%), other vesicular eruptions (9%), and urticarial lesions (19%). Acute urticaria (a dermatological emergency) has been associated with the COVID-19 pandemic.<sup>10</sup> Our results confirm this. Damme et al<sup>11</sup> reported a 71-year-old male and a 39-year-old female who experienced fever, weakness, and acute urticaria before definitive diagnosis of COVID-19. The epidemiological data on urticaria are inconsistent, perhaps reflecting genetic, geographical, and regional differences; variations in study methodology; and the urticaria definitions used (idiopathic, physical, or inducible).<sup>6,12</sup> Few data are available on the association between urticaria and COVID-19. It has been suggested that urticaria patients may be prone to COVID-19, and viral symptoms (fever, cough, shortness of breath, and myalgia) should be explored in patients with suspicious skin findings.<sup>9</sup> In a study on 140 COVID-19 cases in Wuhan, two had chronic urticaria but none acute urticaria.<sup>13</sup> In a later publication from Italy, 20% of 88 patients with COVID-19 infections who had received no new medications over the prior 15 days developed skin problems, three of which were urticaria.<sup>14</sup> In a study from Belgium, increases in the incidence of urticaria and urticarial vasculitis were evident in dermatology patients presenting during the COVID-19 pandemic, but no correlation between viral infection and urticaria severity was noted.<sup>15</sup> Henry et al<sup>16</sup> presented a COVID-19 case initially presenting with urticaria only. The patient (who had no history of urticaria) was appropriately treated, but fever and chest pain developed 2 days later and SARS-CoV-2 was detected via polymerase chain reaction (PCR). Among the urticaria patients included in our study within 3 months of the onset of the pandemic, a 42-year-old woman had a history of COVID-19 infection 2 weeks ago; acute urticaria developed later. A 66-year-old male with a 10-year history of Type 2 diabetes mellitus developed extensive acute urticaria, a fever, weakness, and a cough. SARS-CoV-2 was not detected via PCR. The urticaria plaques regressed within 1 week when we prescribed an antihistamine. After the pandemic commenced, our chronic urticaria patients lacked any history of COVID-19 and did not show any specific infective symptom. Seasonal variation in the prevalence and incidence of urticaria can be observed.<sup>17</sup> As a limited aspect of our study, we think that the comparison of urticaria patients in different months may have affected the incidence.

## 6 | CONCLUSION

Covid 19 pandemic may cause an increase in the incidence of urticaria. Larger studies enrolling more patients with acute and chronic urticaria are needed.

### CONFLICT OF INTEREST

The authors declare no conflict of interest.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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