

have significantly different mortality rates compared to those without these conditions (Table 1).

Further analysis of the populations on targeted therapies revealed no significant associations in both the COVID-19 infection rates or hospitalization rates of women with acne, PCOS, or hirsutism on spironolactone, estradiol, or metformin ($P > 0.05$) (Table 2).

Our results suggest that there is no evidence for an increased risk of COVID-19 infection, hospitalization, or mortality in women with acne vulgaris, PCOS, or hirsutism. Additionally, management with common medications was not associated with COVID-19 infection risk. In particular, spironolactone, which was speculated early in the pandemic to increase the risk of COVID-19 infection by increasing circulating angiotensin converting enzyme (ACE), did not appear to influence infection risk in our patients. The lower COVID-19 rates of infection and hospitalization among women with acne were possibly related to the younger average age (acne: 33 years vs. non-acne: 35 years). Still, these data are all suggestive, as serum hormone levels were not collected in these women, and thus there is no direct evidence of the impact of androgens. Limitations include the use of a database reflective of tertiary care facilities, low case frequency, and lack of clinical details due to the de-identified database.

While androgens likely play a role in COVID-19 outcomes, there are several other sex differences to account for, like varying immune response and the potential protective effect of estrogens/progesterone.⁴ Results from ongoing trials with TMPRSS2 inhibitors and anti-androgen therapy may elucidate the impact of androgens in both sexes and have a potential role in future COVID-19 management.⁵ Insight on the role of sex hormones on disease incidence and severity will contribute to better understanding of at-risk populations.

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The frequency and characteristics of itching in severe COVID-19 patients: first report

Dear Editor,

Coronavirus continues to spread without slowing down, and the number of infected people has recently passed 90 million across the world. As of January 21, 2021, the COVID-19 pandemic has resulted in 1,954,336 deaths in 220 countries.¹ There are numerous reports regarding the dermatologic manifestations of COVID-19.^{2,3} However, to the best of our knowledge, there is no adequate information about the frequency and characteristics of itching in COVID-19. We investigated the frequency and characteristics of itching in patients with severe COVID-19 at Uşak Training and Research Hospital. Severe COVID-19 was determined according to the Turkish COVID-19 guidelines.⁴

A total of 168 adult patients who had lung involvement and were hospitalized because of COVID-19 were recruited into this study. The onset of pruritus was defined no more than 3 days

before admission to the hospital. Thirty-three patients receiving medications, having itching-related systemic diseases, scabies, dermatitis, xerosis cutis, or with a prior history of itching were excluded. Sixty-one patients (45.2%) of 135 were females, and 74 (54.8%) were males. The mean age of the patients was 66.83 ± 13.09 years. There was no other cutaneous manifestation of COVID-19 in the patients. The itching was seen in 10 (7.4%) patients. The average time for itching was 1.80 ± 2.39 days. The characteristics of the patients with itching symptoms are shown in Table 1. There was no statistically significant difference in the frequency of itching between females (6.6%) and males (8.1%) ($P = 0.732$). The mean age of patients with itching was 72 ± 11.68 years, while the mean age of those without itching was 66.42 ± 13.16 years. There was no statistically significant difference between the mean age of patients with and without itching ($P = 0.128$). Six (60%) of 10 patients had generalized itching while four had localized itching. The involvement sites of localized itching were hand, arm, shoulder, and scalp. Since all the patients had mild courses of pruritus, we took a wait-and-see approach for the management of pruritus. None of the patients required systemic antihistamine medication or any other treatment agents for pruritus.


The itching is associated with certain mediators such as histamine, leukotriene B4 (LTB4) which is a derivative of arachidonic acid, and cytokines including IL-2, IL-4, and IL-13 and especially IL-31. IL-31 is one of the main cytokines in the pruritus that is produced by CD4 + T helper cells in the setting of IL-4 secretion. In addition, IL-31 is known as the part of the IL-6 family that has both inflammatory and neuropathic properties.⁵

In this study, we included COVID-19 patients who had lung involvement and found the frequency of itching as 7.4% of patients. It is well known that numerous cytokines, such as IL-2, IFN γ , IL-6, and IL-10, increase in patients with COVID-19, especially in those who have severe lung involvement.⁶ Although IL-31 is not among cornerstone cytokines in COVID-19, increasing of other cytokines, such as IL-2, IL-6, and IFN- γ , may induce itching. Furthermore, secretion of arachidonic acids

Table 1 The characteristics of itching symptoms in patients with severe COVID-19

Number	Age (years)	Gender	Localization	Duration (day)
1	79	Female	Hands	<1
2	71	Female	Shoulders	<1
3	60	Female	Generalized	7
4	74	Female	Generalized	2
5	46	Male	Arm	<1
6	72	Male	Scalp	<1
7	80	Male	Generalized	2
8	87	Male	Generalized	1
9	80	Male	Generalized	1
10	71	Male	Generalized	5

from lung cells, which results in the release of LTB4, may also contribute to the formation of itching. According to this study, although not statistically significant, itching was more common in older age and men compared to younger age and women. These properties are similar to the clinical characteristics of severe COVID-19. In this context, it can be speculated that the itching in COVID-19 may give some hints about the severity of the disease. However, itching in severe COVID-19 had a mild course. Further studies are required in order to detect the properties of itching in COVID-19.

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Traumatized genitalia in a child: sexual abuse or maybe not?

Dear Editor,

Differential diagnosis of genital diseases in children is often challenging.^{1–5} We report a case of factitious skin disorder (FSD) involving the vulvar area in a child that was misdiagnosed as sexual abuse (SA) and lichen sclerosus (LS).