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DERMATOLOGIC THERAPY WILEY

LETTER

Wood's lamp examination of hair and nails related to COVID-19 treatment

Dear Editor,

Favipiravir, (6-fluoro-3-hydroxy-2-pyrazine carboxamide) the drug which is being used in the treatment of COVID-19 is a broad-spectrum antiviral agent. The drug is converted to its active phosphorylated form in the cells, and it inhibits viral RNA polymerase activity.[1] The main organs that favipiravir being distributed are the lungs, kidneys, spleen, and brain.[2] Among the cutaneous side-effects of the various drugs used in the treatment of COVID-19 are acute generalized pustular eruptions, morbiliform drug eruptions, vasculitis, DRESS syndrome, and urticarial vasculitis.[3] Animal studies have reported a yellow discoloration of the claws, fur, and pads under pale UV light.[4] Guder et al. reported a fluorescent appearance in the nails of COVID-19 patients in a Wood's lamp examination.[5] Kayiran et al. also reported a fluorescent appearance in the nails and hairs of the COVID-19 patients receiving favipiravir therapy.[6] Gulseren et al. reported yellow-white fluorescence in the nails of the patients with COVID-19 and they attributed this appearance to the drugs used in the treatment of COVID-19 through as yet unclear mechanisms.[7] The current study presents Wood's lamp examination images of hair and nails of patients who presented to dermatology outpatient clinic for various reasons and who had received favipiravir therapy for COVID-19.

The demographic characteristics and nail findings of the patients are presented in Table S1. The Wood's lamp examination revealed green fluorescence in the hair and in the proximal nail plate of the patient-1, normal appearance in the hairs but green fluorescence at the midline of proximal nail plate in the patient-2, and normal appearance in the hair but white fluorescence in the distal nail plate in the patient-3. The examination showed white fluorescence in the proximal nail plate in the patients 4–6 and white fluorescence at the midline in the nail plate of the patient-7 (Figure 1).

The patients presented here experienced green and white fluorescence in their nails and green fluorescence in their hairs. Fluorescence image may have been obtained due to the “fluoro” in the favipiravir formulation. Additionally the intensity of the melanin pigment in the hairs or the thickness difference in the nail plate of the patients may explain difference in the color of the fluorescent reflection. All patients in the current study used 1600 mg bid on the first day followed by 600 mg po bid, reaching a total 8000 mg/5 days dose of favipiravir. Therefore, it is difficult to detect a possible relationship between the cumulative dose/duration of therapy and the fluorescent images. However, in a study of 275 patients undergoing favipiravir treatment, the fluorescence positivity rate of which was related to the cumulative dose, while the fluorescence intensity was independent of the cumulative dose and was negatively correlated with the time since the last dose. It was reported that fluorescence may be a phototoxic side effect of favipiravir.[8] Since favipiravir is thought to be phototoxic, it may be necessary to avoid UV exposure during the period until the drug is eliminated from the body.

The drug concentrations that the patient has exposed can be detected for months after drug administration by toxicological analysis of hair and nail matrix. It is difficult to detect the drug simultaneously both in the hair and nails.[9] No nail and hair samples could be taken from the patients, since it is an invasive method and due to cosmetic concerns.

The distal part of the patient 3's fingernail was sampled, in which no favipiravir could be detected in a toxicological examination, although it was believed an analysis of more samples could change this. The current study was published to support other previously published studies.

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

AUTHOR CONTRIBUTIONS

Analysis of patient data, writing the manuscript and making revisions: Betul Demir. *Preparation of manuscript plan and consultancy*: Demet Cicek. *Collection of patient data and making revisions*: Sedatcan Turkoglu. *Collection of patient data*: Neslihan Yuksel Bozdemir. *Collection of patient data*: Furkan Sarikurt. *Toxicological analysis*: Erden Banoglu.

PATIENT CONSENT STATEMENT

Written consent was obtained from all patients prior to this submission.

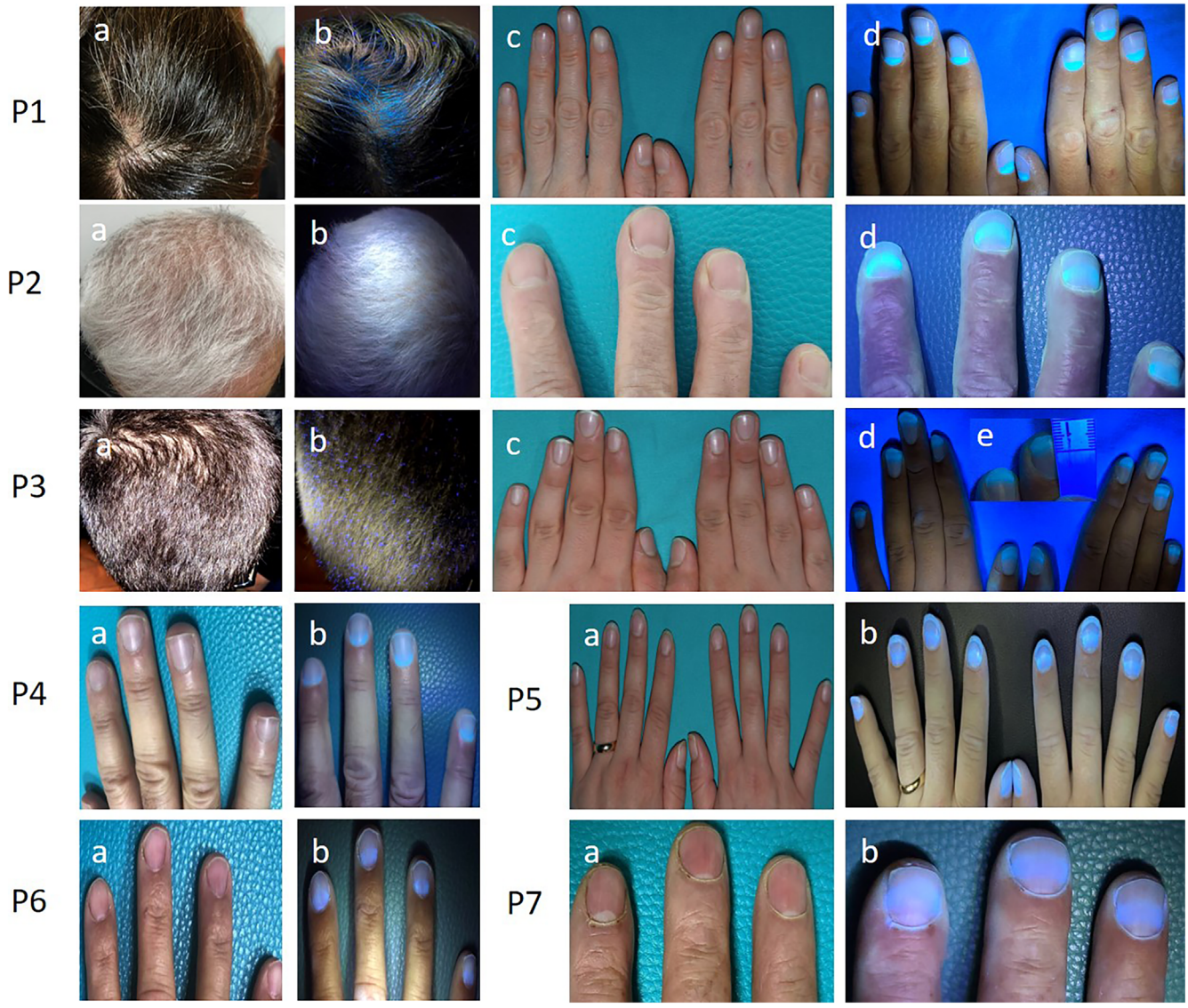

FIGURE 1 Clinical examination and Wood's lamp examination of the hair and nails of the patients 1–7. P1: F, 36 Y, TD: Total 8000 mg/5 days, D: 21 days ago, DE: Clinically normal appearance in the hairs and nails (A,C), green fluorescence in the hair and in the proximal nail plate of Wood's lamp examination (B,D). P2: M, 69 Y, TD: Total 8000 mg/5 days D: 69 days ago, DE: Clinically normal appearance in the hairs and nails (A,C), green fluorescence at the midline in proximal nail plate of Wood's lamp examination (D). P3: M, 17 Y, TD: Total 8000 mg/5 days, D: 120 days ago, DE: Clinically normal appearance in the hairs and nails (A,C), white fluorescence in the distal nail plate of Wood's lamp examination (D,E). P4: M, 45 Y, TD: Total 8000 mg/5 days, D: 57 days ago, DE: Clinically normal appearance in the nails (A), white fluorescence in the proximal nail plate of Wood's lamp examination (B). P5: F, 27 Y, TD: Total 8000 mg/5 days, D: 75 days ago, DE: Clinically normal appearance in the nails (A), white fluorescence in the proximal nail plate of Wood's lamp examination (B). P6: F, 50 Y, TD: Total 8000 mg/5 days, D: 90 days ago, DE: Clinically normal appearance in the nails (A), white fluorescence in the proximal nail plate of Wood's lamp examination (B). P7: M, 55 Y, TD: Total 8000 mg/5 days, D: 71 days ago, DE: Clinically normal appearance in the nails (A), white fluorescence at the midline in nail plate of Wood's lamp examination (B). D, COVID-19 diagnosis date (duration of favipiravir received at the time of examination); DE, dermatological examination; F, female; M, male; P, patient; TD, total dose of favipiravir received at the time of examination; Y, years

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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