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National Psoriasis Foundation COVID-19 Task Force Guidance for Management of Psoriatic Disease During the Pandemic: Version 1

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Objective: To provide guidance about management of psoriatic disease during the coronavirus disease 2019 (COVID-19) pandemic.

Study design: A task force (TF) of 18 physician voting members with expertise in dermatology, rheumatology, epidemiology, infectious diseases, and critical care was convened. The TF was supplemented by nonvoting members, which included fellows and National Psoriasis Foundation (NPF) staff. Clinical questions relevant to the psoriatic disease community were informed by questions received by the NPF. A Delphi process was conducted.

Results: The TF approved 22 guidance statements. The average of the votes was within the category of agreement for all statements. All guidance statements proposed were recommended, 9 with high consensus and 13 with moderate consensus.

Limitations: The evidence behind many guidance statements is limited in quality.

Conclusion: These statements provide guidance for the management of patients with psoriatic disease on topics ranging from how the disease and its treatments impact COVID-19 risk and outcome, how medical care can be optimized during the pandemic, what patients should do to lower their risk of getting infected with severe acute respiratory syndrome coronavirus 2 and what they should do if they develop COVID-19. The guidance is intended to be a living document that will be updated by the TF as data emerge. (J Am Acad Dermatol 2020;83:1704-16.)

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Key words: biologics; COVID-19; psoriasis; psoriatic arthritis; SARS-CoV-2.

CAPSULE SUMMARY

- The National Psoriasis Foundation Coronavirus Disease-19 Task Force produced 22 guidance statements to promote optimal management of psoriatic disease during the pandemic.
- Shared decision making is recommended as is adherence to evidence-based recommendations when available. The guidance statements will be updated when necessary in accordance with rapidly evolving science of coronavirus disease 2019.

Severe acute respiratory coronavirus 2 (SARS-CoV-2), a single-stranded RNA virus that binds to the angiotensin-converting enzyme 2 receptor and causes the illness called coronavirus disease 2019 (COVID-19), has precipitated devastating personal, economic, and societal repercussions worldwide.[1-4] SARS-CoV-2 usually causes a mild, self-limited illness, but approximately 15% of affected individuals have a more severe, sometimes life-threatening course, with the risk of poor outcomes increasing with age and comorbidities.[5-7] Diffuse alveolar damage and acute respiratory distress syndrome are the most common presentations in severe COVID-19. Additionally, thromboembolic events, along with direct and indirect viral-induced injury, may target the skin, gastrointestinal tract, kidney, heart, and brain, with devastating consequences.[8-10]

The type 1 interferon response, which is required to clear the virus, is often insufficient in the early phase of SARS-CoV-2 infection, but a delayed persistent elevation may develop as the illness progresses.[11] Profound dysregulation of innate and acquired immunity can occur with more severe COVID-19, including significant lymphopenia as a direct result of viral-induced apoptosis and necrosis of lymphocytes in the spleen and lymph nodes.[12] The persistent interferon response can result in systemic hyperinflammation, also known as cytokine storm.[13,14] Several of the cytokines elevated in severe COVID-19 patients (tumor necrosis factor [TNF], interleukin 6, and interleukin 17) are also elevated in patients with psoriatic disease.[15-17]

The current model of COVID-19 is that immune suppression in early infection may be harmful by allowing uncontrolled SARS-CoV-2 replication and dissemination but may be helpful in severe illness by limiting organ damage from a dysregulated hyperimmune response.[18] Many treatments used for psoriatic disease directly or indirectly impact immune pathways involved in COVID-19.[19-22] Patients and

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Abbreviations used:

CDC:	Centers for Disease Control and Prevention
COVID-19:	coronavirus disease 2019
NPF:	National Psoriasis Foundation
SARS COV-2:	severe acute respiratory coronavirus 2
TF:	task force
TNF:	tumor necrosis factor

providers are concerned about the safety of immunomodulating agents in the setting of the COVID-19 pandemic. These concerns are particularly relevant given that many of the comorbidities associated with psoriasis and psoriatic arthritis, including obesity, diabetes, and cardiovascular disease, are risk factors for the development of severe COVID-19.[23,24] To address the questions posed by patients and providers, the National Psoriasis Foundation (NPF) commissioned a COVID-19 task force (TF) to develop scientifically based guidance that promotes optimal management of psoriatic disease during the pandemic.

METHODS

See the Online Supplement for detailed methods, available via Mendeley Data, V2, at https://doi.org/10.17632/x4mxnjmc76.

Establishment of the TF

The COVID-19 TF includes 18 physicians with a variety of expertise relevant to decision making in the pandemic from different geographic areas within the United States and Canada, many of whom have frontline experience managing a surge of COVID-19 patients (Supplemental E-Table I, available via Mendeley Data, V1, at https://doi.org/10.17632/2cbs7r7z72.1). The TF was supplemented by nonvoting members, which included 4 trainees in dermatology, rheumatology, and infectious diseases, 1 postdoctoral fellow in epidemiology, as well as senior staff from the NPF.

Evidence synthesis

The TF co-chairs completed weekly literature searches for COVID-19 in relation to psoriatic disease. TF members also recommended papers of broad importance to COVID-19 related to its basic biology, epidemiology, and treatment. Additional sources of data were obtained from the Centers for Disease Control and Prevention (CDC), World Health Organization, the United States Food and Drug Administration, and the National Institutes of Health.

Development of clinical questions

The TF met every 2 weeks to discuss the developments in the literature and clinical experience. Clinical questions relevant to the psoriatic disease community were iterated and informed by questions received by the NPF from the broader patient and clinical community. The questions were subdivided into 5 categories, and work groups with balanced expertise were formed. Each TF work group convened to draft responses to the clinical questions

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based on the available evidence. These responses were reviewed and drafted into guidance statements.

Modified Delphi process

The guidance statements were presented to the 18 TF members using a modified Delphi process, including 2 rounds of voting with discussion in between. The Delphi approach was based on the RAND appropriateness method, which has been extensively validated.[25-31]

TF members were asked to report their level of agreement anonymously with each guidance statement on a scale of 1 to 9. A rating of 1 corresponded to "complete disagreement," 5 corresponded to "uncertain or neutral," and 9 corresponded to "complete agreement." The members were able to provide anonymous written comments. Median vote ratings of 1 to 3, 4 to 6, and 7 to 9 were defined a priori as disagreement, uncertainty/neutral, and agreement, respectively. Panel consensus was determined to be "low" when ≥5 votes fell into the 1 to 3 rating range with ≥5 votes concurrently falling into the 7 to 9 rating range. Consensus was interpreted as "high" if all 18 votes fell within a single tertile, with all other combinations considered as "moderate" levels of consensus. The results were analyzed by the NPF along with an independent analysis of the data by a nonvoting member of the TF, which yielded identical results.

RESULTS

The NPF COVD-19 TF Delphi was completed over a 2-week period (Supplemental E-Table II, available via Mendeley Data, V1, at https://doi.org/10.17632/2cbs7r7z72). Five categories of questions were explored (Supplemental E-Table III, available via Mendeley Data, V1, at https://doi.org/10.17632/2cbs7r7z72) with 100% complete voting on 22 guidance statements (Table I[32] and Supplemental E-Table IV, available via Mendeley Data, V2, at https://doi.org/10.17632/n78m9f3cpr). The median was within the category of agreement for all statements, with the number of votes outside the range of agreement being only 1 or 2 for statements where agreement was not unanimous. All guidance statements were recommended, 9 with high consensus, and the remainder with moderate consensus.

Category 1: What are the effects of psoriatic disease itself on SARS-CoV-2 infection and COVID-19 illness?

Patients with psoriatic disease appear to have similar rates of infection with SARS-CoV-2 and COVID-19 outcomes[33-37] as the general population (Guidance 1.1). However, uncertainty remains regarding this question. First, a few reports suggest that patients with psoriasis may be more prone to infection with COVID-19 or have worse outcomes.[38-40] For example, a United Kingdom study with more than 17 million patients found a small but statistically increased risk of death from COVID-19 (fully adjusted hazards ratio, 1.19; 95% confidence interval, 1.11-1.27) in individuals with psoriasis, rheumatoid arthritis, or lupus.[39] It is unknown from this study the degree to which the observed finding is driven by psoriasis, its severity, or treatment. Additionally, patients with psoriatic disease may be prone to thrombotic complications that can also occur in COVID-19.[41-55] There was unanimous agreement that severity of COVID-19 is driven by risk factors such as older age and comorbidities (Guidance 1.2).[33,36,37,39,56-59] Psoriatic disease—particularly severe psoriasis—is associated with many of the comorbidities that drive COVID-19 mortality.[45,49,60]

Category 2: What are the effects of psoriasis or psoriatic arthritis treatment on SARS-CoV-2 infection and COVID-19 illness?

The existing literature suggests that treatments for psoriasis or psoriatic arthritis, or both, do not meaningfully alter the risk of acquiring SARS-CoV-2 infection or having worse COVID-19 outcomes (Guidance 2.1).[34,36,37,61-85] Cyclosporine, the most broadly immunosuppressive of psoriasis treatments, was not found to alter the risk of COVID-19 in 130 patients in Italy with psoriasis or atopic dermatitis (2 became infected with SARS-CoV-2 and recovered without hospitalization).[70] This study lacked a comparison group and was too small to reach definitive conclusions. One study suggested that patients with psoriasis on biologics were more likely to be hospitalized for COVID-19 but did not adjust for risk factors known to drive poor COVID-19 outcomes.[86]

The rheumatology literature also suggests that treatments used for psoriatic disease, such as TNF inhibitors and methotrexate, do not negatively impact COVID-19,[87-90] with 1 large registry (600 case reports from 40 countries) finding that TNF inhibitors are associated with a reduced adjusted odds of COVID-19 hospitalization compared with patients with rheumatic conditions not treated with TNF inhibitors.[90] Similarly, adverse effects of TNF inhibitors on COVID-19 were not observed in large registries of patients with inflammatory bowel disease.[91,92] Small case series have reported poor COVID-19 outcomes in patients on Janus kinase inhibitors for psoriatic arthritis[93] and secukinumab for ankylosing spondylitis[89]; however, these isolated reports could be due to selection bias, chance, or underlying comorbidity. By contrast, an analysis of approximately 1400 patients from the

Table I. National Psoriasis Foundation COVID-19 Task Force Guidance for Management of Psoriatic Disease During the Pandemic: Version 1

Guidance #	Guidance statement	Level of consensus
1.1	It is not known with certainty whether having psoriatic disease meaningfully alters the risks of contracting SARS-CoV-2 (the virus that causes COVID-19 illness) or having a worse course of COVID-19 illness. Existing data, with some exceptions, generally suggest that patients with psoriasis and/or psoriatic arthritis have similar rates of SARS-CoV-2 infection and COVID-19 outcomes as the general population.	Moderate
1.2	The likelihood of poor outcomes from COVID-19 is driven by risk factors such as older age and comorbidities, such as chronic heart, lung, or kidney disease, and metabolic disorders such as diabetes and obesity. Patients with psoriatic disease are more prone to these comorbidities, particularly in those with more severe disease.	High
2.1	It is not known with certainty whether treatments for psoriasis and/or psoriatic arthritis meaningfully alter the risks of contracting SARS-CoV-2 (the virus that causes COVID-19 illness) or having a worse course of COVID-19 illness. Existing data generally suggest that treatments for psoriasis and/or psoriatic arthritis do not meaningfully alter the risk of acquiring SARS-CoV-2 infection or having worse COVID-19 outcomes.	Moderate
2.2	It is recommended that patients who are not infected with SARS-CoV-2 continue their biologic or oral therapies for psoriasis and/or psoriatic arthritis in most cases. Shared decision making between clinician and patient is recommended to guide discussions about use of systemic therapies during the pandemic (see Guidance 2.5 for the definition of shared decision making).	High
2.3	Chronic systemic corticosteroids should be avoided if possible for the management of psoriatic arthritis. If patients require chronic systemic corticosteroids for management of psoriatic arthritis, the dose should be tapered to the lowest dose necessary to achieve the desired therapeutic effect. Chronic systemic corticosteroid use for the treatment of psoriatic disease at the time of acute infection with SARS-CoV-2 may be associated with worse outcomes from COVID-19 illness. It is important to note, however, that corticosteroids may improve outcomes for COVID-19 when initiated in hospitalized patients requiring oxygen treatment.	High
2.4	Individuals newly diagnosed with psoriasis and/or psoriatic arthritis or who are currently not receiving treatment should be aware that untreated psoriatic disease is associated with serious impact on physical and emotional health and, in the case of psoriatic arthritis, can lead to permanent joint damage and disability. Shared decision making between clinician and patient is recommended to guide discussions about use of systemic therapies during the pandemic (see Guidance 2.5 for shared decision making).	High
2.5	Providers recommend shared decision making with patients. Shared decision making between clinician and patient should be guided by several factors, including the potential benefits of treatment, the activity of skin and/or joint disease, and response to previous therapies, as well as the patient's underlying risk for poor COVID-19 outcomes and ability to maintain measures to prevent infection with SARS-CoV-2, such as hand hygiene, wearing of masks, and physical distancing, as required by pandemic conditions. A review of known benefits of treatment accompanied by acknowledgment of the uncertainty related to the COVID-19 pandemic and a discussion of a patient's individual circumstances and preferences should guide decision making.	Moderate
3.1	Telemedicine should be offered to manage patients wherever possible when local restrictions or pandemic conditions limit the ability for in-person visits. The following patients can be managed with telemedicine: Patients who are clinically stable and previously started on psoriatic disease treatment. Patients requiring a follow-up visit and refills for medication. New patients without timely access to in-person visits. Patients diagnosed with COVID-19 who are experiencing a significant flare. If telemedicine visits become inadequate to monitor patients' disease progress or manage new or evolving symptoms or signs of skin and joint disease, clinicians and patients should consider in-person visits.	Moderate
3.2	The following patients should be considered for in-person care if pandemic conditions allow (ie, the clinical practice is open to see patients in person): Patients at risk for melanoma and nonmelanoma skin cancer should be seen in person at a frequency consistent with standard of care for a full skin examination. New patients establishing care. Patients experiencing unstable psoriatic disease/flares. Patients requiring a thorough skin/or joint examination and a full physical examination for rheumatology patients.	Moderate

Continued

Table I. Cont'd

Guidance #	Guidance statement	Level of consensus
3.3	Providers recommend the recent guidelines published by Lim et al[33] on how to optimize safety of office phototherapy for the patients and staff in the setting of the pandemic. See Table II for details.	High
4.1	Patients should be advised to follow measures that prevent infection with SARS-CoV-2. These preventative measures include to practice good hand hygiene, to maintain physical distancing from nonhousehold members, and to wear a face covering of the nose and mouth when indoors (except in their own home), and when outdoors but unable to maintain physical distancing. Face coverings should not be used in children under 2 years old due to risk of suffocation. See Supplemental E-Table VI for details.	High
4.2	Patients with psoriatic disease should follow measures to prevent infection with SARS-CoV-2 in the work place. If the work place environment does not allow for maintenance of prevention measures, a shared decision-making process between the patient and his/her clinician is recommended to determine whether specific accommodations are medically necessary, especially for individuals who, due to age or underlying health conditions, are at especially high risk for poor COVID-19 outcomes.	Moderate
4.3	Youth with psoriatic disease should follow measures to prevent infection with SARS-CoV-2 while at school. These measures include maintaining 6 feet of physical distancing, consistently wearing masks if over the age of 2 years, and washing hands frequently. If the school environment is unable to ensure these prevention measures or families believe their child may not be able to adhere to these practices, we encourage discussion with the patient, caregivers, and his/her clinician to collectively develop a learning plan in the best interest and safety of the child.	High
4.4.	Patients with psoriatic disease should receive the seasonal inactivated (eg, killed) influenza vaccine when it becomes available. While this vaccine will not protect against SARS-CoV-2, influenza vaccine lowers the risk of infection from seasonal influenza, which is of special importance to individual and public health during the COVID-19 pandemic. Patients taking systemic medications for psoriasis or psoriatic arthritis should discuss the timing of the influenza vaccination with respect to their systemic psoriatic medications with their health care provider in order to optimize the response to the influenza vaccine.	High
5.1	Patients with psoriatic disease who become infected with SARS-CoV-2 should monitor their symptoms and discuss the management of their treatments with their health care providers.	Moderate
5.2	Patients with psoriatic disease who become infected with SARS-CoV-2 should be prescribed and adhere to evidence-based COVID-19 therapies. Evidence-based therapies should be used, currently including supportive care for patients with mild disease, as well as dexamethasone (systemic corticosteroids) and remdesivir treatment, if available, for hospitalized patients requiring supplemental oxygen. The care of the hospitalized patient should include consultation with rheumatologists, dermatologists, and/or infectious disease specialists as medically necessary.	Moderate
5.3	Systemic corticosteroids for the management of COVID-19 in patients with psoriatic disease are not contraindicated and should not be withheld due to the concern of potentially flaring psoriasis upon withdrawal of corticosteroids when evidence demonstrates the effectiveness for treating COVID-19 illness.	Moderate
5.4	Hydroxychloroquine or chloroquine are not recommended for the prevention or treatment of COVID-19 in patients with psoriatic disease outside of a clinical trial. Cases of psoriasis flare have been reported in patients on antimalarial medications, but the clinical significance is not well understood.	High
5.5	Resumption of psoriasis and/or psoriatic arthritis treatments held during SARS-CoV-2 infection should be decided on a case-by-case basis. Most patients can restart psoriasis and/or psoriatic arthritis treatments after complete resolution of COVID-19 symptoms. In those who have had a severe hospital course, shared decision making made on a case-by-case basis is recommended.	Moderate
5.6	Patients with psoriatic disease should be aware that infection with SARS-CoV-2 may result in a flare of psoriasis based on case reports. The clinical significance of the risk of COVID-19 flaring psoriasis is not known.	Moderate

Continued

Table I. Cont'd

Guidance #	Guidance statement	Level of consensus
5.7	Patients with psoriatic disease who become infected with SARS-CoV-2 should follow CDC guidance on home isolation and discuss with their health care providers when they can end home isolation. We recommend waiting a minimum of 10 days after COVID-19 symptom onset, along with fever resolution for 24 hours, without antipyretics, and improvement in other symptoms before ending home isolation and returning to work, as patients are unlikely to be infectious after this point. In patients with severe cases of COVID-19 or when patients with psoriasis are on medications with immunosuppressive effects, we recommend a case-by-case approach to determining the length of home isolation.	Moderate
5.8	Patients with close contact to someone with SARS-CoV-2 infection should quarantine themselves for 14 days after the last contact and discuss the management of their psoriatic disease treatment with their medical provider(s).	Moderate

CDC, Centers for Disease Control and Prevention; *COVID-19*, coronavirus disease 2019; *SARS-Cov-2*, severe acute respiratory syndrome coronavirus 2.

rheumatology, gastroenterology, and dermatology literature concluded that biologic or targeted synthetic disease-modifying antirheumatic drug therapy has not been associated with more severe COVID-19 outcomes.[33]

Given these data, patients who are not infected with SARS-CoV-2 should continue their biologic or oral therapies for psoriasis or psoriatic arthritis in most cases (Guidance 2.2). Nevertheless, the existing literature is largely based on small case series or large registries of spontaneous reports, and therefore, shared decision-making between clinician and patient is recommended (Guidance 2.2, 2.4, and 2.5). By contrast, studies in the rheumatology and gastroenterology literature have observed that long-term use of oral corticosteroids is associated with worse COVID-19 outcomes (ie, hospitalization or a composite outcome of any or all of intensive care unit admission, ventilator use, or death).[33,90,91] Chronic systemic corticosteroids should be avoided, if possible, for the management of psoriatic arthritis (Guidance 2.3).[19]

Category 3: How should medical care be delivered to patients with psoriatic disease to lower their risk of infection with SARS-CoV-2 while still ensuring quality of care?

The pandemic has disrupted the ability of patients and providers ability to meet in person due to personal protective equipment shortages, measures implemented to lower risk of SARS-CoV-2 transmission, and patients' personal and economic hardships.[94-97] Patients express concern about being exposed to SARS-CoV-2 in the clinical setting either directly or indirectly (ie, on public transportation). Telemedicine can achieve similar outcomes for psoriasis patients compared with in-person care with a dermatologist[98-100]; however, limited information is available on the management of psoriatic arthritis with telemedicine.[32,101] Telemedicine should be considered when pandemic conditions limit in-person visits (Guidance 3.1).[102] However, there are limitations of telemedicine, and therefore, some patients should be evaluated in person (Guidance 3.2). Office-based phototherapy remains an important option for patients with psoriasis (Guidance 3.3, Table II).[103,104]

Category 4: What should patients with psoriatic disease do to protect themselves from becoming infected with SARS-CoV-2?

Patients should be advised to follow measures that prevent infection with SARS-CoV-2 (Guidance 4.1; E-Table VI, available via Mendeley Data, V2, at https://doi.org/10.17632/w5m8jf94m8).[105] These prevention measures should be followed at work (Guidance 4.2) and school (Guidance 4.3). In cases where measures to prevent transmission of SARS-CoV-2 at work or school cannot be maintained, shared decision making is recommended to determine whether specific accommodations are medically necessary (Guidance 4.2 and 4.3). Psoriasis, even when involving the face or hands, is not a contraindication to face coverings and hand washing, respectively, and a variety of approaches can be applied to mitigate skin irritation (E-Table VII, available via Mendeley Data, V2, at https://doi.org/10.17632/w5m8jf94m8).[106-108] Patients with psoriatic disease should receive the seasonal inactivated (eg, killed) influenza vaccine, which is of special importance to individual and public health during the COVID-19 pandemic (Guidance 4.4). Providers may consider temporary discontinuation of methotrexate for 2 weeks after the influenza immunization to

Table II. Methods to reduce risk of SARS-CoV-2 transmission during delivery of office-based phototherapy*

Patient protocol	Staff protocol
• Screened for signs and symptoms of COVID-19 before entering the unit, understanding that treatment will be denied to symptomatic patients. • Attend the phototherapy appointment alone. Minors can be accompanied by a guardian, given all safety protocols are observed • Apply hand sanitizer upon entering and leaving the unit • Patient provided with goggles must sanitize them thoroughly, according to the manufacturer's instruction • Wear a mask, unless phototherapy treatment of the face is required • Practice physical distancing	• Schedule patients approximately 30 minutes apart per booth • Practice physical distancing, particularly in waiting area, with seats 6 feet apart. • Wear a mask, eye protection, and apply hand sanitizer before and after each patient encounter. • Avoid turning on the fan of the phototherapy unit if possible; if need be, treatment can be fractionated to avoid excessive heat build-up in the unit • Disinfect high-touch surfaces in the changing area after each patient • Disinfect high-touch area of the phototherapy equipment in between patients • Provide patients with disposable bags to store personal items • Provide goggles to patients if need be; ensuring they are sanitized thoroughly and stored in an individual bag

COVID-19, Coronavirus disease 2019; *SARS-Cov-2*, severe acute respiratory syndrome coronavirus 2.
*Adapted from Lim et al.[103]

improve the immunogenicity of the seasonal influenza vaccine.[109]

Category 5: What should patients with psoriatic disease do if they become infected with SARS-CoV-2?

Patients with psoriatic disease who become infected with SARS-CoV-2 should monitor their symptoms (Supplemental E-Table VIII), discuss management of their psoriatic disease treatments with their health care providers, and should be prescribed and adhere to evidence-based COVID-19 treatments, if available (Guidance 5.1 and 5.2).[85,110-112] The mortality benefit of initiation of corticosteroids in patients with severe COVID-19 outweighs the risks of potentially precipitating a psoriasis flare, and therefore, acute systemic corticosteroids are not contraindicated for the management of COVID-19 in patients with psoriatic disease (Guidance 5.3).[112,113] On the basis of limited available data, and to be consistent with prescribing information, it may be prudent to hold treatments that target the immune system in the setting of suspected or confirmed SARS-CoV-2 infection, but the final decision needs to be determined on a case-by-case basis.

Consistent with guidance from the Food and Drug Administration and the American College of Physicians, the use of hydroxychloroquine or chloroquine is not recommended to prevent or treat COVID-19 in patients with psoriatic disease outside of a clinical trial (guidance 5.4).[114-126] Patients with psoriatic disease should be aware that infection with SARS-CoV-2 may result in a flare of psoriasis, which may occur due to discontinuation of psoriasis treatments, treatment of COVID-19 with antimalarial drugs, or due to triggering of inflammation as part of COVID-19 illness (Guidance 5.6).[125,127-129]

Patients with psoriatic disease who become infected with SARS-CoV-2 should follow CDC guidance[130-133] on home isolation and discuss with their health care providers when they can end home quarantine (Guidance 5.7; Supplemental E-Table IX).[130,134,135] In the event someone with psoriatic disease has close contact (Supplemental E-Table X) with an individual with suspected or confirmed SARS-CoV-2 infection, they should quarantine for 14 days after the last contact, according to CDC guidelines (Guidance 5.8).[136] The decision regarding continuing or holding psoriasis treatments during a period of quarantine should be individualized on a case-by-case basis between patient and provider.

Resumption of psoriasis or psoriatic arthritis treatments held during SARS-CoV-2 infection should be decided on a case-by-case basis (Guidance 5.5). The persistence of 1 or more symptoms of COVID-19, such as fatigue or joint pain, beyond the acute phase of the illness can occur[137] and may complicate the decision to restart psoriasis or psoriatic arthritis medications. Therefore, shared decision making is recommended (Guidance 2.5).

DISCUSSION

The NPF COVID-19 TF guidance statements serve to promote optimal management of psoriatic disease

during the pandemic. There are several strengths to the approach taken. First, the TF assembled is a geographically diverse team that has expertise in adult and pediatric dermatology, rheumatology, critical care, infectious diseases, epidemiology, and basic and translational immunology, with experience managing surges in COVID-19. The TF also includes trainees in dermatology, rheumatology, and infectious disease, who are on the frontlines managing patients with COVID-19, as well as senior staff from the NPF who are in touch daily with patients and providers worldwide whose questions are brought to the TF.

Second, we have established a robust process for staying up-to-date with the latest literature relevant to COVID-19 and the management of psoriatic disease resulting in the dissemination and evaluation of hundreds of peer reviewed publications by the TF.

Third, a validated Delphi approach enabled transparency and reproducibility of our process for evaluating consensus statements.[25-31]

Several limitations are acknowledged. First, the TF did not formally grade the strength of our recommendations.[138] With the exception of guidance statements 4.4, 5.2, and 5.4, which are based on large-scale randomized controlled trials, the evidence behind many of the guidance statements was often limited in quality. For example, studies evaluating the safety of treatments for psoriasis and psoriatic arthritis in the setting of COVID-19 involve small case series or large collections of case reports and thus should be considered preliminary. Large-scale, longer-term, population-based studies with appropriate comparator groups, adjustment for relevant confounding variables, and complete ascertainment of clinically important COVID-19 outcomes are urgently needed.

Second, the guidance is not intended to be proscriptive or comprehensive. The ultimate judgment regarding how these recommendations should be followed is best left with the treating clinician and the patient in light of the circumstances presented by the individual patient and the variability and biologic behavior of the disease and therapeutics.

Third, the TF does not have global representation of experts or direct inclusion of patients.

The guidance statements are intended to be part of a "living" document that will be updated and amended when necessary by the rapidly evolving science of COVID-19. Readers are encouraged to visit https://www.psoriasis.org/covid-19-resource-center regularly for the latest guidance from the TF in order to promote optimal care and outcomes for patients with psoriatic disease during the pandemic.

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