doi:10.36849/JDD.2020.5155

 BRIEF COMMUNICATION Journal of Drugs in Dermatology

Considerations of Managing Lichen Planopilaris With Hydroxychloroquine During the COVID-19 Pandemic

Sahar Dadkhahfar MD,[a] Farnaz Araghi MD,[a] Mohammadreza Tabary MD,[b] Hamideh Moravvej MD[a]

[a]Skin Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

[b]School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

INTRODUCTION

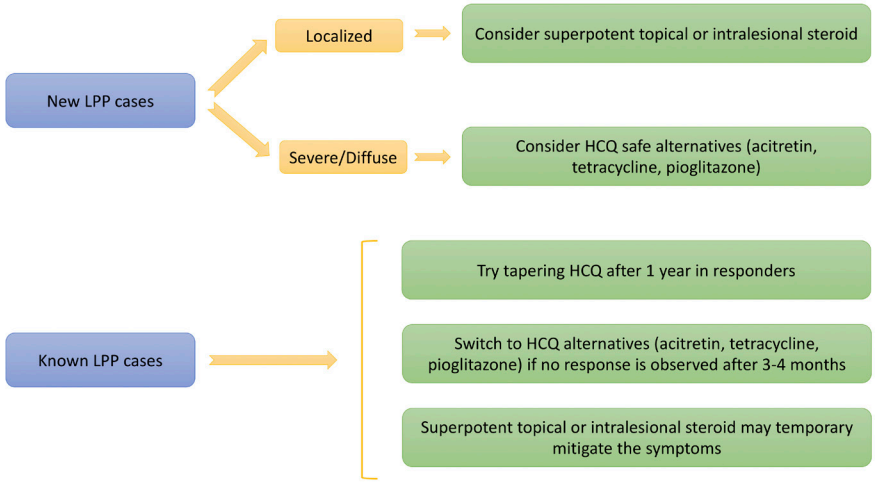
Chloroquine (CQ) and hydroxychloroquine (HCQ), two well-known drugs among dermatologists, have shown their efficacy in the inhibition of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) replication.[1,2] HCQ is found to possess a better clinical safety profile, more potency, and fewer drug–drug interactions compared to chloroquine.[3] HCQ has been reported to exert efficacy in the inhibition of SARS-CoV-2 in vitro replication through diverse mechanisms. First, it interferes with the glycosylation of angiotensin-converting enzyme 2 (ACE2), resulting in a subsequent reduction in the binding efficacy between ACE2 on host cells and the SARS-CoV-2 spike protein. Second, it blocks the fusion of the virus to the host cell. Finally, it suppresses the "cytokine storm" accountable for the disease progression to acute respiratory distress syndrome (ARDS). Although studies are underway to confirm the in vivo effectiveness of HCQ in the SARS-CoV-2 infection, promising primary results have led to a shortage of the drug for dermatologic purposes, which is a real concern in the current pandemic.[1]

Lichen planopilaris is a form of primary cicatricial alopecia caused by lymphocyte infiltration obscuring the interface between the follicular epithelium and the dermis in the upper portion of the hair follicle.[4] In later stages, perifollicular fibrosis and chronic inflammation (without interface changes) may also be observed. Ultimately, sebaceous glands and then follicles are entirely destroyed.[4] Without treatment, LPP may cause significant hair loss with prominent psychological burden. The main goal of the treatment is to cease or reduce hair loss, control the symptoms (i.e., itching, burning, and tenderness), and mitigate the clinical signs of inflammation.[4] To be effective, treatment should be started as soon as possible.[5]

Hydroxychloroquine (6.5 mg/kg/day or 200 mg twice daily) is considered an effective treatment in LPP, since it prevents antigen presentation by suppressing the interaction between the antigenic peptides and the class II molecules of the major histocompatibility complex (MHC), leading to a decreased cytokine production and inflammatory responses.[6] It is commonly used as the first-line systemic therapy in LPP with some improvement in 55% of the patients.[5,7]

It may take 2–3 months to observe the primary clinical response with HCQ in LPP and 6–12 months to notice the maximal clinical effect of the drug.[8] Partial response is a reasonable goal in patients with LPP. In spite of mitigating the inflammation and pruritus and negative pull test, hair count may continue to decrease due to subclinical hair loss.[9]

FIGURE 1. Recommendations for the treatment of lichen planopilaris during COVID-19 infection. LPP: lichen planopilaris; HCQ: hydroxychloroquine



While we are amid a pandemic with the possible shortage of HCQ, dermatologists should be reminded that:

- The anti-inflammatory effect of HCQ may improve the clinical signs of LPP; however, administration of this drug is insufficient to prevent the subclinical disease progression.[9] Dermatologists may discontinue the use of HCQ in responders after 1 year with monitoring the patients for recurrence or relapse.[5]
- Topical and intralesional super potent corticosteroids are recommended as the first-line treatment in localized LPP.[4]
- Oral cyclosporine followed by systemic corticosteroid may be the most effective medications in LPP; however, disease relapse may be detected.[10] Mycophenolate mofetil has a more favorable safety profile compared to cyclosporine[11] but the immunosuppressive nature of these medications necessitates extreme caution toward their administration during COVID-19 pandemic.[12]
- Acitretin (25 mg/day) may be an appropriate alternative since it has shown improvement in 66% of patients.[7]
- Pioglitazone (hypoglycemic drug, 15–30 mg/day) has shown some efficacy in the treatment of LPP and can be considered as an alternative to HCQ.[4]
- Tetracyclines antibiotics can also be considered as an alternative due to favorable outcomes in previous studies.[13]

In summary, lichen planopilaris is a primary cicatricial alopecia with irreversible sequels if left untreated. Psychosocial support of patients, raising their awareness of HCQ shortage during COVID-19 pandemic, and offering available and safe alternatives, may prevent anxiety as well as disease flare up.

REFERENCES

1. Jakhar D, Kaur I. Potential of chloroquine and hydroxychloroquine to treat COVID-19 causes fears of shortages among people with systemic lupus erythematosus. *Nat Med.* 2020.
2. Fernandez AP. Updated recommendations on the use of hydroxychloroquine in dermatologic practice. *J Am Acad Dermatol.* 2017;76(6):1176-1182.
3. Zhou D, Dai S-M, Tong Q. COVID-19: a recommendation to examine the effect of hydroxychloroquine in preventing infection and progression. *J Antimicrob Chemother.* 2020.
4. Bolduc C, Sperling LC, Shapiro J. Primary cicatricial alopecia: Lymphocytic primary cicatricial alopecias, including chronic cutaneous lupus erythematosus, lichen planopilaris, frontal fibrosing alopecia, and Graham-Little syndrome. *J Am Acad Dermatol.* 2016;75(6):1081-1099.
5. Chiang C, Sah D, Cho BK, Ochoa BE, Price VH. Hydroxychloroquine and lichen planopilaris: efficacy and introduction of Lichen planopilaris activity index scoring system. *J Am Acad Dermatol.* 2010;62(3):387-392.
6. Rodriguez-Caruncho C, Marsol IB. Antimalarials in dermatology: mechanism of action, indications, and side effects. *Actas Dermo-Sifiliográficas (English Edition).* 2014;105(3):243-252.
7. Spencer LA, Hawryluk EB, English JC. Lichen planopilaris: retrospective study and stepwise therapeutic approach. *Arch Dermatol.* 2009;145(3):333-334.
8. Van Beek MJ, Piette WW. Antimalarials. *Dermatol Clin.* 2001;19(1):147-160.
9. Donati A, Assouly P, Matard B, Jouanique C, Reygagne P. Clinical and photographic assessment of lichen planopilaris treatment efficacy. *J Am Acad Dermatol.* 2011;64(3):597-598.
10. Rácz E, Gho C, Moorman P, Noordhoek Hegt V, Neumann H. Treatment of frontal fibrosing alopecia and lichen planopilaris: a systematic review. *J Eur Acad Dermatol Venereol.* 2013;27(12):1461-1470.
11. Assouly P, Reygagne P. Lichen planopilaris: update on diagnosis and treatment. Paper presented at: Seminars in cutaneous medicine and surgery 2009.
12. Mehta P, McAuley DF, Brown M, Sanchez E, Tattersall RS, Manson JJ. COVID-19: consider cytokine storm syndromes and immunosuppression. *Lancet.*
13. Cevasco NC, Bergfeld WF, Remzi BK, de Knott HR. A case-series of 29 patients with lichen planopilaris: the Cleveland Clinic Foundation experience on evaluation, diagnosis, and treatment. *J Am Acad Dermatol.* 2007;57(1):47-53.

AUTHOR CORRESPONDENCE

Hamideh Moravvej MD
E-mail:..... Hamideh_moravvej@yahoo.com