COMPELLING COMMENTS

At-Home Microneedling of Acral Skin to Increase Percutaneous Absorption of Imiquimod

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CLINICAL PROBLEM

Increased thickness of acral skin can reduce percutaneous absorption of topical imiquimod and hinder development of desired inflammatory response,[1] presenting a challenge to its efficacy in treating acral skin malignancies.

PRACTICE PEARL

An 85-year-old female patient with a history of 1.3mm Breslow depth, non-ulcerated, acral lentiginous melanoma of the left plantar foot declined standard-of-care surgical re-excision of persistent malignant melanoma in situ (MMIS) at the margins after three prior excisions (**Figure 1A**). As an alternative, she underwent a 3-month course of off-label topical imiquimod 5% applied 5x weekly per Pandit et al.'s protocol.[2]

The patient previously received a course of imiquimod with tretinoin for residual MMIS prior to the most recent surgical excision; however, desired inflammatory and disease response was not achieved. This time, multiple steps were taken to increase absorption of imiquimod. First, curettage of the positive margin was performed in office to remove hyperkeratotic stratum corneum. Additionally, the patient was instructed to purchase an at-home microneedling kit and use the device in 3 directions along the positive margin for 1 minute prior to each imiquimod application. She was also directed to occlude the area with plastic wrap following application. After the 3-month treatment course, no residual pigmentation was present. At 12-month follow-up, the patient remained without evidence of disease (**Figure 1B**).

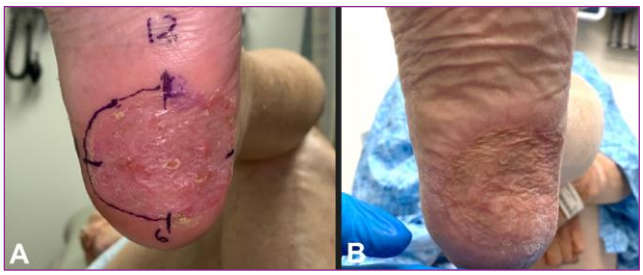

Figure 1. (A) Left plantar foot site of previous invasive melanoma status post 3 surgical excisions with persistent residual MMIS at the 6-9-12 o'clock (medial) margin before imiquimod treatment with microneedling. **(B)** Left plantar foot with sustained absence of residual pigmentation at 12-month follow-up from completion of imiquimod therapy with microneedling.

CONCLUSION

While microneedling has been demonstrated to improve intradermal penetration of imiquimod *in vitro*,[3] it is not always feasible for patients to undergo microneedling in clinic before each topical therapy application. Although at-home microneedling devices are unregulated and pose a risk of infection when not properly sanitized, risks can be minimized with healthcare provider oversight. We have found that at-home microneedling can be safely performed under physician direction and may improve efficacy of imiquimod in treating malignancies of acral skin.

Conflict of Interest Disclosures: J.S.Z. has advisory board relationships and has received fees from with Merck, Novartis, Philogen, Castle Biosciences, Pfizer and Sun Pharma. He also received research funding from Amgen, Delcath Systems, Philogen, Provectus and Novartis. He serves on the medical advisory board for Delcath Systems. L.M.C. is a consultant for Accutec and a consultant and researcher for Novartis Pharmaceutical. She also serves on the Advisory Board for the Jacinto Convit World Organization and the Dermatology Advisory Council for Melanoma Research Foundation. J.M.G is a consultant for Galileo Group and Canfield Scientific and serves on Skin Advisory Board for Regeneron and Dermatology Advisory Council for Melanoma Research Foundation. He has received clinical trial support from Novartis, Eli Lilly, Dermira, Elorac, Boehringer and Amgen.

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