

Number of Affected Nails Is the Primary Determinant of Efinaconazole 10% Solution Usage for Onychomycosis

Steven R. Feldman MD PhD,^a Tracey C. Vlahovic DPM,^b Warren S. Joseph DPM,^c C. Ralph Daniel MD,^d Boni Elewski MD,^e Phoebe Rich MD,^f Shari R. Lipner MD PhD^g

^aWake Forest School of Medicine, Winston-Salem, NC

^bTemple University School of Podiatric Medicine, Philadelphia, PA

^cArizona College of Podiatric Medicine, Midwestern University, Glendale, AZ

^dUniversity of Mississippi Medical Center, Jackson, MS

^eUniversity of Alabama at Birmingham School of Medicine, Birmingham, AL

^fOregon Health and Science University, Portland, OR

^gWeill Cornell Medicine, New York, NY

ABSTRACT

Good adherence to treatment is necessary for the successful treatment of onychomycosis and requires that an appropriate amount of medication be prescribed. Most prescriptions for efinaconazole 10% solution, a topical azole antifungal, are for 4 mL per month but there are no data on patient factors or disease characteristics that impact how much medication is needed. Data from two phase 3 studies of efinaconazole 10% solution for the treatment of toenail onychomycosis were pooled and analyzed to determine monthly medication usage based on the number of affected toenails, percent involvement of the target toenail, body mass index (BMI), and sex. Participants with two or more affected nails required, on average, >4 mL of efinaconazole per month, with increasing amounts needed based on the number of nails with onychomycosis (mean: 4.39 mL for 2 nails; 6.36 mL for 6 nails). In contrast, usage was not greatly impacted by target toenail involvement, BMI, or sex. Together, these data indicate that the number of affected nails should be the major consideration when determining the monthly efinaconazole quantity to prescribe.

J Drugs Dermatol. 2024;23(2):110-112. doi:10.36849/JDD.7676

INTRODUCTION

Topical onychomycosis therapies require extended treatment durations, and incomplete treatment can contribute to high relapse rates.¹ Excellent treatment adherence is vital to optimize outcomes² and requires that an adequate quantity of medication is prescribed. Efinaconazole 10% topical solution, an azole antifungal indicated to treat onychomycosis in patients aged 6 years and older, is available in 4 or 8 mL bottles. Perhaps because published data are lacking on factors impacting quantity of efinaconazole needed, 87% of efinaconazole prescriptions in 2022 were for one 4 mL bottle/month.³ Using clinical data, we analyzed the quantity of efinaconazole used by baseline patient demographics and clinical characteristics to estimate drug quantity to be prescribed for a given patient.

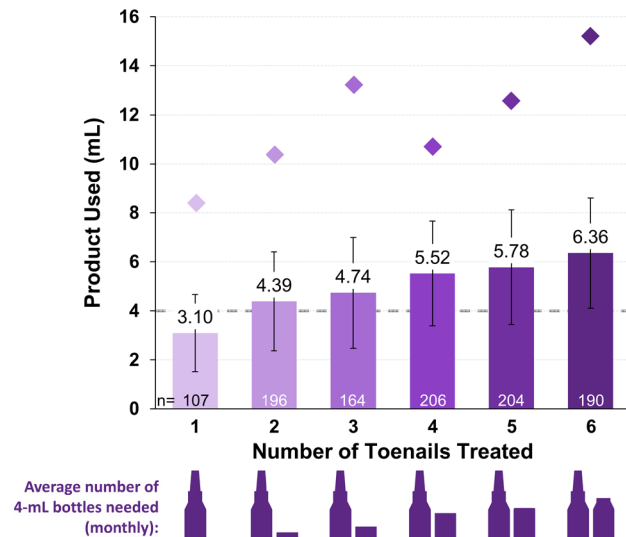
MATERIALS AND METHODS

In two identical, double-blind, phase 3 studies (NCT01008033; NCT01007708), adult participants (18 to 70 years; N=1655) with mild-to-moderate distal lateral subungual onychomycosis affecting 20% to 50% of ≥ 1 great (target) toenail were randomized 3:1 to treatment with efinaconazole 10% solution or vehicle, self-applied once daily for 48 weeks.⁴ Studies were

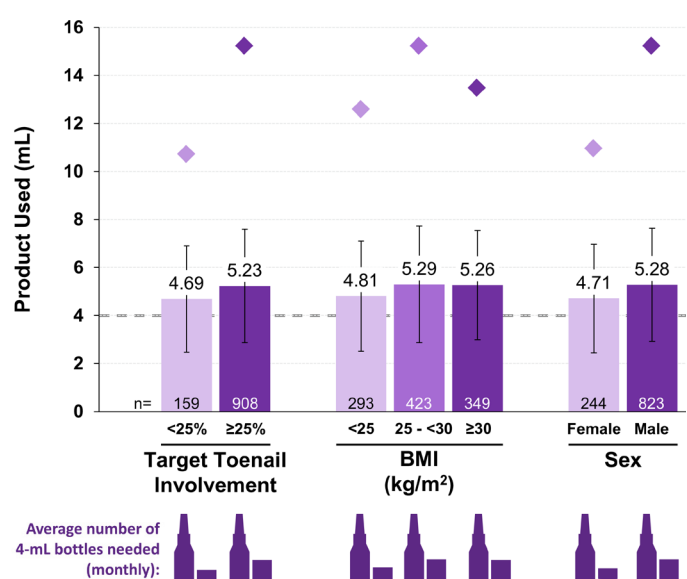
conducted according to international scientific/ethical standards and all participants and/or legal guardians provided informed consent. Bottles of study product (10 mL) were weighed upon dispensation at each study visit (every 4 weeks) and upon return at the following visit. Monthly medication use was calculated (mean daily use [g/day] \times 30 days/month \times density of efinaconazole 10% solution [mL/g]) and analyzed post hoc based on number of affected toenails, percent involvement of the target toenail, body mass index (BMI), and sex.

RESULTS

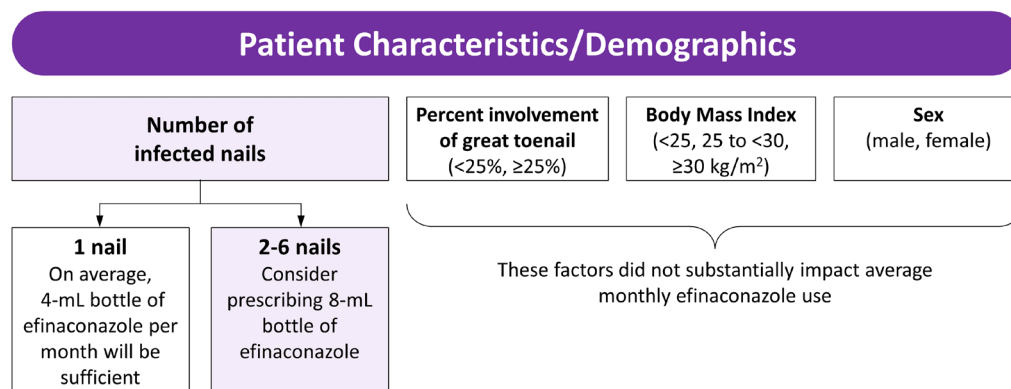
Efinaconazole-treated participants in both studies (n=656 and 580) had on average 3.7 to 3.8 affected toenails.⁴ Among those with usage data (n=1067), over 55% had ≥ 4 affected toenails (Figure 1). For the 90% of participants with 2 to 6 affected nails, average medication use ranged from 4.39 to 6.36 mL/month, corresponding to 1.10 to 1.59 4 mL bottles/month; only the 10% of participants with one affected toenail used <4 mL of efinaconazole monthly. Additional subgroup analyses revealed no meaningful differences in efinaconazole usage based on target toenail involvement, BMI, or sex; average medication use was 4.69 to 5.29 mL/month, corresponding to

FIGURE 1. Calculated monthly usage of efinaconazole 10% topical solution by number of toenails treated.

For study inclusion, all participants had at least one affected great toenail. Medication usage is presented as mean \pm standard deviation. Diamonds indicate the estimated maximum monthly usage for each group. Dashed line indicates usage above which more than one 4-mL bottle would be needed per month.

FIGURE 2. Calculated monthly usage of efinaconazole 10% topical solution by target toenail involvement, BMI, and sex.

Medication usage is presented as mean \pm standard deviation. Diamonds indicate the estimated maximum monthly usage for each group. Dashed line indicates usage above which more than one 4-mL bottle would be needed per month. BMI, body mass index.

FIGURE 3. The number of affected nails should be the major consideration when determining the amount of efinaconazole to prescribe per month.

1.17 to 1.32 4 mL bottles monthly (Figure 2). Because application instructions specify that the nail plate, toenail folds, toenail bed, hyponychium, and nail plate undersurface should be completely covered, regardless of the area of involvement, it was expected that medication usage might be similar for nails with different surface areas affected.⁵

DISCUSSION

In these clinical trials, participants were provided 10 mL of efinaconazole per month. In clinical practice, however, almost 90% of prescriptions for efinaconazole are for one 4 mL bottle

monthly.³ For patients with ≥ 2 affected toenails, a 4 mL bottle would likely be depleted in under a month, and after as few as 19 days with 6 affected nails, leaving treatment gaps until prescriptions are refilled. Because intermittent treatment may affect medication efficacy and increase the likelihood of relapse or reinfection,¹ patients with more than one nail involved might be more likely to achieve success with an 8 mL bottle of efinaconazole (Figure 3). Given that nail percent involvement, sex, and BMI do not affect medication usage, number of affected nails should be the major consideration when determining the monthly efinaconazole quantity to prescribe.

DISCLOSURES

Steven R. Feldman has received research, speaking and/or consulting support from BMS, Eli Lilly and Company, GlaxoSmithKline/Stiefel, AbbVie, Janssen, Alovtech, vTv Therapeutics, Bristol-Myers Squibb, Samsung, Pfizer, Boehringer Ingelheim, Amgen, Dermavant, Arcutis, Novartis, Novan, UCB, Helsinn, Sun Pharma, Almirall, Galderma, Leo Pharma, Mylan, Celgene, Ortho Dermatologics, Menlo, Merck & Co, Quriel, Forte, Arena, Biocon, Accordant, Argenx, Sanofi, Regeneron, the National Biological Corporation, Caremark, Teladoc, Eurofins, Informa, UpToDate, and the National Psoriasis Foundation. He is the founder and part owner of Causa Research and holds stock in Sensal Health. Shari R. Lipner has served as a consultant for Ortho Dermatologics, Hoth Therapeutics, Moberg Pharmaceuticals, and BelleTorus Corporation. Tracey C. Vlahovic has served as investigator and speaker for Ortho Dermatologics. Warren S. Joseph has served as a consultant and speaker for Ortho Dermatologics. C. Ralph Daniel has provided clinical research support to Ortho Dermatologics and owns stock in Medimetrix Pharmaceuticals. Boni Elewski has provided clinical research support (research funding to University) for AbbVie, Anaptys-Bio, Boehringer Ingelheim, Bristol-Myers Squibb, Celgene, Incyte, LEO Pharma, Lilly, Merck, Menlo, Novartis, Pfizer, Regeneron, Sun Pharma, Ortho Dermatologics, Vanda; and as consultant (received honorarium) from Boehringer Ingelheim, Bristol Meyers Squibb, Celgene, LEO Pharma, Lilly, Menlo, Novartis, Pfizer, Sun Pharma, Ortho Dermatologics, Verrica. Phoebe Rich has received research and educational grants from AbbVie, Allergan, Anacor Pharmaceuticals, Boehringer Ingelheim, Cassiopea, Dermira, Eli Lilly, Galderma, Janssen Ortho Inc., Kadmon Corporation, LEO Pharma, Merck, Moberg Derma, Novartis, Pfizer, Ranbaxy Laboratories Limited, Sandoz, Viamet Pharmaceutical Inc., Innovation Pharmaceuticals (Cellceutix), and Cutanea Life Sciences.

ACKNOWLEDGMENT

Medical writing and editorial support were provided by Kevin Corcoran, PhD, and Jacqueline Benjamin, PhD of Prescott Medical Communications Group (Chicago, IL) with financial support from Ortho Dermatologics. Ortho Dermatologics is a division of Bausch Health US, LLC.

REFERENCES

1. LaSenna CE, Tosti A. Patient considerations in the management of toe onychomycosis - role of efinaconazole. *Patient Prefer Adherence*. 2015;9:887-891.
2. Lipner SR, Ko D. Optimizing topical therapy for onychomycosis: The importance of patient education. *Cutis*. 2018;102(6):389-390.
3. Ortho Dermatologics. [data on file].
4. Elewski BE, Rich P, Pollak R, et al. Efinaconazole 10% solution in the treatment of toenail onychomycosis: Two phase III multicenter, randomized, double-blind studies. *J Am Acad Dermatol*. 2013;68(4):600-608.
5. JUBLIA (Efinaconazole) Topical Solution, 10% [package insert]. Bridgewater, NJ: Ortho Dermatologics; 2022.

AUTHOR CORRESPONDENCE**Steven R Feldman MD PhD**

E-mail:..... sfeldman@wakehealth.edu