

Short-Contact Clobetasol Propionate Shampoo 0.05% Improves Quality of Life in Patients With Scalp Psoriasis

Jerry Tan, MD, FRCPC; Richard Thomas, MD; Béatrice Wang, MD; David Gratton, MD; Ronald Vender, MD; Nabil Kerrouche, MSc; Hervé Villemagne, MSc; for the *CalePso Study Team*

Scalp psoriasis has a considerable impact on the quality of life (QOL) of patients, and most patients are dissatisfied with available treatments. Clobetasol propionate shampoo 0.05% has been shown to be effective and safe for moderate to severe scalp psoriasis. We evaluated the effect of clobetasol propionate shampoo on QOL and the degree of participant satisfaction with the product. Participants received once-daily treatment for up to 4 weeks. Their QOL and degree of satisfaction were evaluated by questionnaires. The mean (standard deviation) Dermatology Life Quality Index (DLQI) score decreased significantly from 7.0 (4.9) at baseline to 3.2 (3.2) at week 4 ($P < .001$). Participants who considered the disease as having a small effect or no effect

on their QOL increased from 45.6% at baseline to 81.7% at week 4. Most participants were satisfied with the cosmetic acceptability and the efficacy and safety aspects of the product, considered it better than prior treatments, and would use it again in the future. Therefore, we conclude that treatment with clobetasol propionate shampoo improved the QOL of participants and resulted in high satisfaction.

Cutis. 2009;83:157-164.

Accepted for publication January 26, 2009.

Dr. Tan is from Windsor Clinical Research Inc, Ontario, Canada. Dr. Thomas is from Derm Research @ 888 Inc, Vancouver, British Columbia, Canada. Dr. Wang is from Siena Medical Research, Montréal, Quebec, Canada. Dr. Gratton is from International Dermatology Research, Montréal. Dr. Vender is from Dermatrics Research, Hamilton, Ontario, Canada. Mr. Kerrouche is from and Mr. Villemagne was from Medical and Marketing, Galderma R&D, Sophia Antipolis, France.

This study was supported by Galderma Laboratories, LP. The clinical investigators received fees for the conduct of this study.

Dr. Tan is an advisory board member, clinical trial investigator, consultant, and speaker for Galderma Laboratories, LP.

Drs. Thomas, Wang, and Gratton report no conflict of interest.

Dr. Vender is an advisory board member for, has received a research grant from, and is on the speakers program for Dermatrics Research. Mr. Kerrouche is an employee and Mr. Villemagne was an employee of Galderma R&D until study completion.

Correspondence: Jerry Tan, MD, FRCPC, Windsor Clinical Research Inc, 2224 Walker Rd, Suite 300, Windsor, ON N8W 5L7, Canada (jerrytan@bellnet.ca).

Scalp psoriasis is a common inflammatory disease that has a considerable impact on the quality of life (QOL) of patients because of its associated pruritus, the visibility of lesions, and the chronicity of disease.¹ Approximately 50% of patients in one survey (N=1023) reported that their scalp psoriasis was psychologically disturbing and socially impeding.² Patients have indicated that pruritus and scaling are the two most distressing and frequent symptoms.^{2,3} Furthermore, because there is no cure for psoriasis, patients experience a lifelong condition with frequent relapses.²

Topical medication remains the most frequently used treatment for scalp psoriasis in all severity groups.^{4,5} Patients have expressed a high level of dissatisfaction with existing treatments; common complaints include side effects, lack of efficacy, and inconvenience.⁶ Tar-based products are not widely accepted because of their unpleasant odor; potential carcinogenicity; and staining of hair, skin, and clothing.⁷ Vitamin D₃ analogues have the disadvantages of possible irritation and slow onset of effect, while the rapid and highly effective

topical corticosteroids may cause skin atrophy; striae; telangiectasia; and rare systemic adverse events (AEs), such as hypothalamic-pituitary-adrenal axis suppression.⁸⁻¹⁰ Vehicles such as creams and ointments have the disadvantage of being greasy, messy, and difficult to apply, especially to the hair-bearing and relatively inaccessible scalp area.¹¹ Based on these considerations, products with shampoo, spray, and foam formulations have been developed. A foam formulation containing 60% alcohol was proposed to be a preferred vehicle for delivering clobetasol propionate 0.05%.^{11,12} However, it requires twice-daily application, which may adversely affect adherence.

Facilitating adherence may be one of the most important ways to improve the overall effectiveness of treatment, as surveys revealed that approximately 40% of patients with psoriasis were poorly adherent to topical corticosteroid therapy.^{3,13,14} Discussions about QOL also could serve to encourage patient adherence. However, according to one survey, discussion of QOL was absent in 40% of a total of 238 dermatology outpatient consultations.¹⁵

A shampoo formulation integrating a superpotent corticosteroid (clobetasol propionate 0.05%) into a once-daily, short-contact formulation was developed to minimize the risk for cutaneous steroidal AEs without compromising efficacy. Moreover, this formulation may be particularly suited for application on hair-bearing regions, such as the scalp. The results of a randomized, controlled, double-blind study demonstrated that while clobetasol propionate shampoo had a safety profile similar to the corresponding vehicle, it was significantly more efficacious for patients with moderate to severe scalp psoriasis ($P < .001$).¹⁶ Compared with leave-on clobetasol propionate gel 0.05%, the short-contact, rinse-off clobetasol propionate shampoo was equally efficacious but did not result in hypothalamic-pituitary-adrenal axis suppression, skin atrophy, or other cutaneous steroidal AEs.¹⁷ Furthermore, results of 2 randomized investigator-blind studies demonstrated that the efficacy and safety profile of clobetasol propionate shampoo was superior to tar blend shampoo 1% and calcipotriol solution 0.005%.^{18,19}

Although the efficacy and safety of clobetasol propionate shampoo have been established, participant-reported outcomes have not been previously evaluated. We present participant responses to a QOL index questionnaire (the Dermatology Life Quality Index [DLQI]) and a satisfaction questionnaire.

Methods

This study was conducted in accordance with the Declaration of Helsinki and its amendments, mandates of the US Food and Drug Administration's Good Clinical Practice program, and local regulatory requirements including an ethics board review. All participants provided written informed consent before entering the study.

Study Design and Participant Selection—This single-arm open-label study was conducted in 12 centers in Canada and comprised the preliminary phase of a randomized, double-blind, vehicle-controlled investigation on the maintenance effect of long-term clobetasol propionate shampoo treatment in scalp psoriasis. The recruited participants were 18 years or older, with moderate or severe scalp psoriasis based on their global severity score (GSS) assessment (3=moderate; 4=severe). For participants who had previously received potentially interfering topical or systemic treatments, a washout period was mandatory prior to entering the study: 2 weeks for topical treatments on the scalp, and 2 to 12 weeks for systemic treatments.

Treatment—All participants received clobetasol propionate shampoo 0.05% for up to 4 weeks. Participants were instructed to apply the study drug once daily in a thin film onto dry affected scalp areas and leave it in place for 15 minutes before lathering and rinsing. The use of conventional topical therapies, except superpotent corticosteroids, was allowed to treat body psoriasis. The study visits were conducted at baseline and weeks 2 and 4.

Assessment of Participant-Reported Outcomes—Two self-administered questionnaires were used to evaluate participant-reported outcomes of treatment. An evaluation of the effect of treatment on skin-related QOL was performed by comparing the results of the 10-item DLQI questionnaire distributed to all participants at baseline and at completion of treatment (week 4). The DLQI questionnaire is a simple and practical tool designed to assess the impact of different skin diseases and their treatments on the QOL of participants. Total DLQI score, calculated by summing the scores of each answer, has previously been shown to correlate with the overall impact on skin-related QOL (0-1=no effect; 2-5=small effect; 6-10=moderate effect; 11-20=very large effect; 21-30=extremely large effect).²⁰ The difference in DLQI score before and after treatment was tested using the nonparametric Wilcoxon signed rank test. Participant satisfaction and preference with treatment was evaluated with a 13-item questionnaire administered at week 4, and the results were summarized descriptively.

Assessment of Efficacy and Safety—Efficacy was assessed by changes in GSS (0=clear; 5=very severe) at each study visit (baseline, weeks 2 and 4). Participants with a GSS of clear at week 2 terminated the study earlier. At each visit, the participants were asked to indicate their level of pruritus (0=none; 3=severe), and the investigators also evaluated the degree of scaling (0=none; 4=very severe). Safety was evaluated based on the AEs either spontaneously reported by the participants or observed by the investigators.

Results

Participant disposition, demographics, and disease characteristics at baseline are summarized in the Table. A total of 288 participants were enrolled in 12 centers in Canada, predominantly white women. All participants had moderate or severe scalp psoriasis; 90.5% of participants had a history of prior scalp psoriasis treatments. A low dropout rate in the study was observed, with 271 participants (94.1%)

completing the study and only 1 discontinuation due to an AE (unrelated to study treatment).

Participant Skin-Related QOL—We evaluated the impact of clobetasol propionate shampoo treatment on participant skin-related QOL by comparing DLQI scores before and after treatment (Figure 1). The mean (standard deviation) DLQI score decreased significantly from 7.0 (4.9) at baseline to 3.2 (3.2) at week 4 ($P<.001$). After treatment, 81.7% of participants indicated that scalp psoriasis had a small effect or no effect on their QOL compared with 45.6% at baseline ($P<.001$). Furthermore, the percentage of participants who considered the disease to have a very large effect or extremely large effect on their life decreased from 19.4% to 3.4% ($P<.001$) (Figure 1A).

The 10 DLQI questions can be further grouped into 6 domains: daily activities, symptoms/feelings, leisure, work/school, personal relationships, and treatment.²⁰ Improvement of scores was observed in all domains, with changes in daily activities and symptoms/feelings being the most prominent

Participant Disposition, Demographics, and Disease Characteristics at Baseline

	Frequency
Enrolled participants, n (%)	288 (100)
Completed participants, n (%)	271 (94.1)
Discontinued participants, n (%)	17 (5.9)
Adverse event	1 (0.3)
Patient request	14 (4.9)
Lost to follow-up	1 (0.3)
Other	1 (0.3)
Median age, y	52
Women, %	57.6
White, %	92.0
Moderate scalp psoriasis, %	58.3
Severe scalp psoriasis, %	41.7
DLQI score, mean (SD)	7.0 (4.9)
History of prior scalp psoriasis treatments, %	90.5

Abbreviations: DLQI, Dermatology Life Quality Index; SD, standard deviation.

(Figures 1B and 1C). At week 4, most participants reported that the disorder had no effect on their daily activities or symptoms/feelings (85.8% and 61.2%, respectively) compared with 54.8% and 14.5% at baseline, respectively. In the 4 other domains, improvement also was observed after the treatment, albeit less dramatic, likely because the disease had lesser impact at baseline. The percentage of participants considering the disease as having no effect on their leisure, work/school, personal relationships, and treatment increased from 83.0%, 91.5%, 86.2%, and 87.6%, respectively, to 95.1%, 98.1%, 93.7%, and 93.7%, respectively. In summary, the results of the DLQI questionnaire suggested that daily treatment with clobetasol propionate shampoo for up to 4 weeks improved participant skin-related QOL.

Because pruritus and scaling appear to be the two most distressing and frequent symptoms of scalp psoriasis,^{2,3} we attempted to confirm in this study the efficacy of clobetasol propionate shampoo in managing these features (Figure 2). The percentage of participants who had none or mild pruritus increased from 24.6% at baseline to 83.0% at week 4. Similarly, the percentage of participants who experienced none or mild scaling increased from 0.7% at baseline to 64.9% at week 4. Correspondingly, the percentage of participants with moderate or severe pruritus decreased from 75.4% at baseline to 17.0% at week 4. The percentage of participants with severe or very severe scaling decreased from 57.3% at baseline to 4.5% at week 4. Therefore, the reduction in these symptoms was consistent with general improvement in the dermatologic QOL of participants.

Participant Satisfaction—A questionnaire was used to determine overall satisfaction with treatment. Participants were required to evaluate clobetasol propionate shampoo and compare it with prior treatments. The assessment of clobetasol propionate shampoo was further analyzed based on the degree of participant satisfaction with the cosmetic acceptability as well as the efficacy and safety aspects of the product (Figure 3).

Most participants (>90%) were highly satisfied with the cosmetic acceptability of clobetasol propionate shampoo: 92.8% of participants considered it pleasant to use, and 91.7% agreed that they could easily incorporate it into their daily routine. Additionally, clobetasol propionate shampoo lathered and cleansed hair as well as regular shampoo, according to 95.1% of participants (Figure 3A), so that no additional cleaning product was required. Most participants also agreed that clobetasol propionate shampoo left the hair manageable, did not dry the hair, and provided a pleasant appearance after use (data not shown).

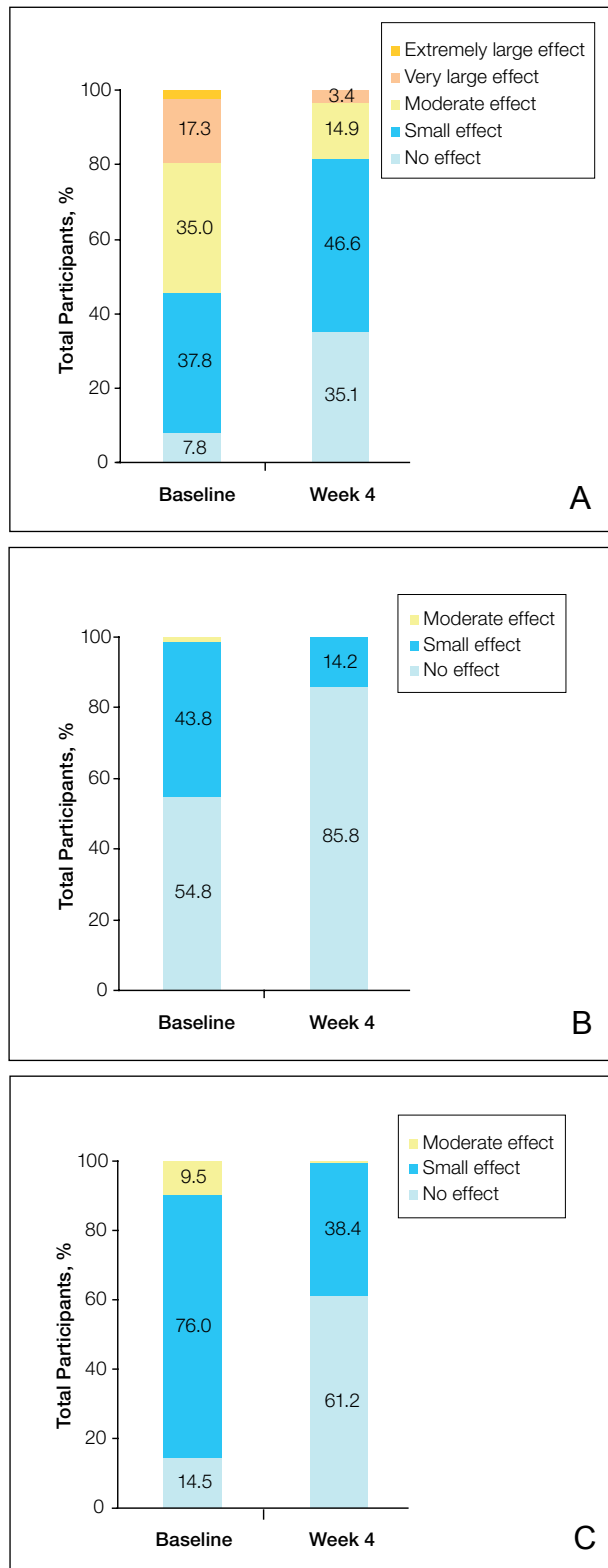


Figure 1. Impact of scalp psoriasis and treatment with clobetasol propionate shampoo 0.05% on participant skin-related quality of life (based on the Dermatology Life Quality Index) at baseline and after 4 weeks of treatment (N=288). Evaluations included overall quality of life (A) ($P<.001$), daily activities (B), and symptoms/feelings (C).

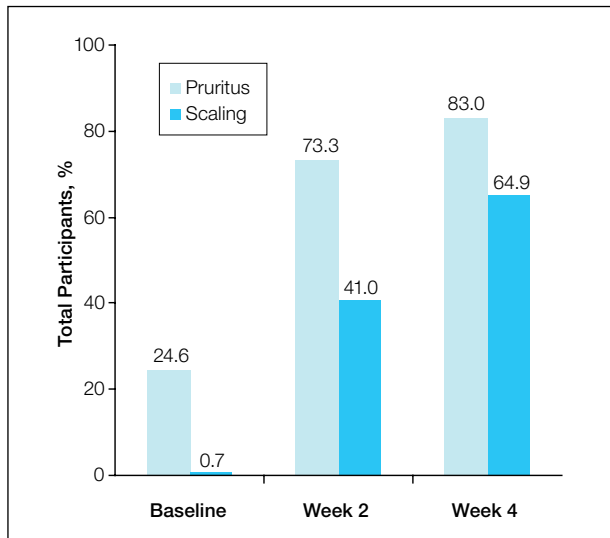


Figure 2. The percentage of participants with none or mild pruritus or scaling at baseline and after 2 and 4 weeks of treatment with clobetasol propionate shampoo 0.05% for scalp psoriasis (N=288).

Overall, 90.2% of participants were satisfied with the efficacy of the treatment, while 86.4% were unaffected by side effects (Figure 3B). The GSS, which was moderate or severe for all participants at baseline, decreased progressively and remarkably during the treatment (data not shown). At week 4, 78.1% of participants achieved the score of mild, very mild, or clear, while the percentage of participants having severe psoriasis decreased from 41.7% to 3.5%. Of a total 288 participants, only 6 (2.1%) reported 7 treatment-related AEs that were all of a dermatologic nature and mild or moderate in severity. These results were in agreement with prior studies^{16,18,19} and corroborated with the high satisfaction rate among patients on the efficacy and tolerability of the product.

In summary, participants were satisfied with all 3 areas of inquiry in the questionnaire: cosmetic acceptability, efficacy, and safety. Accordingly, 91.7% of total participants were satisfied with treatment, and nearly all participants (97.3%) felt better about themselves since baseline, with 31.4% of them stating that they felt much better (data not shown). These improvements were consistent with the decrease in DLQI scores, as shown in Figure 1.

Participant Preference—A total of 90.5% of participants had previously used other treatments for scalp psoriasis. The most frequently used prior treatments included tar shampoos, steroids, and salicylic acid products, in 68.3%, 42.3%, and 25.3% of total participants, respectively. More than half of participants (54.6%)

were dissatisfied with prior treatments, which is much greater than the percentage dissatisfied with clobetasol propionate shampoo (8.3%). Additionally, 80.7% of participants considered clobetasol propionate shampoo to be better than prior treatments, with more than half of participants (57.3%) indicating it was much better (Figure 4A). Overall, 86.5% of participants indicated that they would use clobetasol propionate shampoo again (Figure 4B).

Comment

Clobetasol propionate shampoo has been previously demonstrated to be effective and safe in the treatment of scalp psoriasis.¹⁶⁻¹⁹ In the present study, we found that the skin-related QOL of participants with moderate to severe scalp psoriasis improved significantly after 4 weeks of once-daily treatment with clobetasol propionate shampoo 0.05% ($P<.001$). Participants also were satisfied with the product and preferred it to other treatments they had previously used.

Because this study comprised the preliminary phase of an extended study on the maintenance effect of clobetasol propionate shampoo, limitations included an open-label design and absence of a vehicle-controlled arm. Nevertheless, our findings on efficacy and safety are in agreement with previously reported randomized controlled trials of this product.^{16,17}

Pruritus and scaling are the two most distressing symptoms of scalp psoriasis.^{2,3} During the 4-week once-daily treatment with clobetasol propionate shampoo, the percentage of participants with moderate/severe pruritus and with severe/very severe scaling decreased progressively and remarkably, suggesting that the product was efficacious in improving these symptoms.

Approximately 40% of patients with psoriasis receiving topical corticosteroid therapy are poorly adherent, contributing to suboptimal effectiveness.^{3,13,14} While physicians assess the severity of the disorder based mainly on the clinical characteristics of the disease, patients are affected by its impact on QOL. In the absence of curative therapy for psoriasis, improvement in QOL is a primary outcome determinant of treatment effectiveness. The impact of psoriasis on QOL has been found to be inversely correlated to adherence to therapy over 12 weeks.²¹ In the present 4-week study, our finding of significant reduction in DLQI scores may translate into greater adherence over longer durations of therapy ($P<.001$). Patient satisfaction also is critical to the success of scalp psoriasis treatment, as patients may choose to avoid the use of messy, unpleasant, or time-consuming treatments, despite

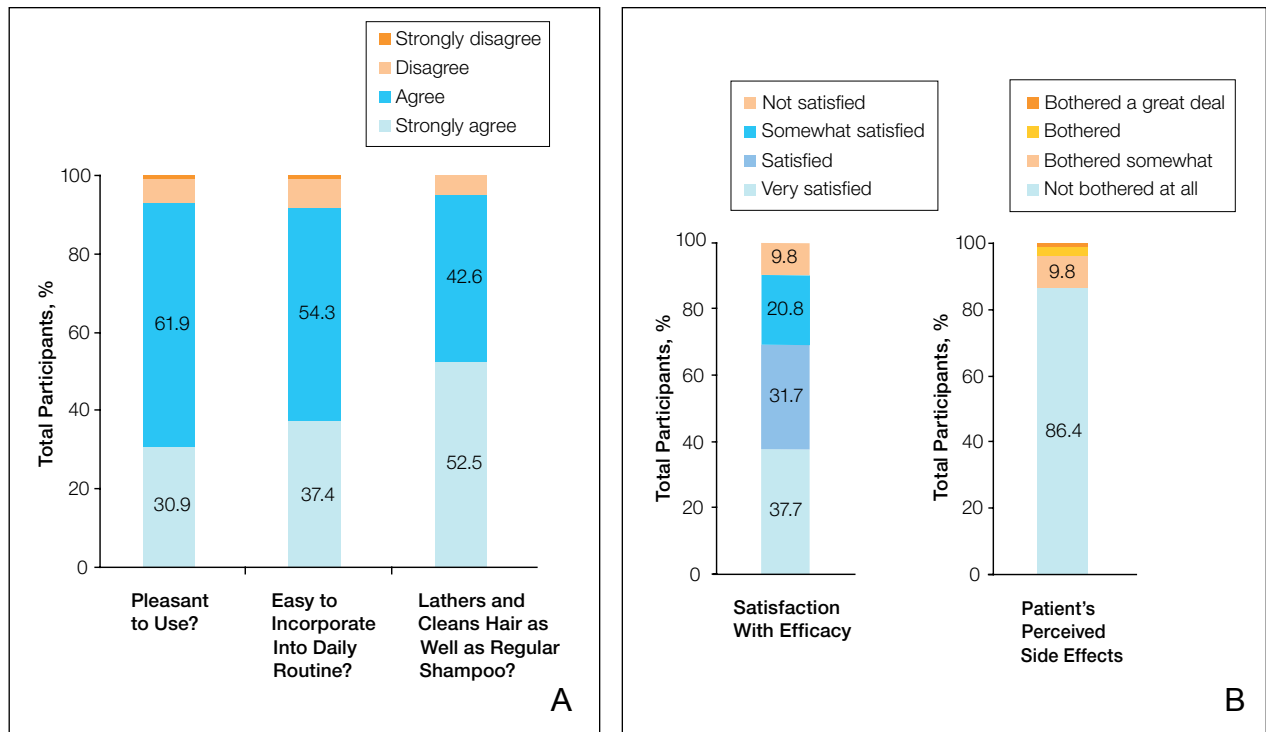


Figure 3. Participant satisfaction with cosmetic acceptability (A) and the efficacy and safety aspects (B) of clobetasol propionate shampoo 0.05% for scalp psoriasis (N=288).

proven effectiveness. In summary, we expect that patients with scalp psoriasis are more likely to adhere to treatments that improve their QOL and produce satisfying results.

The DLQI is a validated and commonly used instrument for measuring the QOL of patients with dermatologic diseases, including psoriasis.^{20,22} We have demonstrated improvement in skin-related QOL among participants with scalp psoriasis after 4 weeks' treatment using clobetasol propionate shampoo 0.05%. This improvement was manifested by decreased scores in all 6 domains of the index, suggesting comprehensive improvement in all facets of participant skin-related QOL. A notable finding in this study is that 19.4% of participants indicated that scalp psoriasis had a very large effect or extremely large effect on QOL at baseline. This result underscores the potential for scalp involvement, despite its limited extent as a proportion of total body surface area, to confer severe impact on QOL in affected individuals.²³

According to a survey among patients with scalp psoriasis, the profile of an ideal topical treatment includes high efficacy, long-term safety, ease of application, and cosmetic acceptability.² In a survey of 200 patients with atopic dermatitis, 73% of the patients expressed worry about the potential side effects of steroid therapy, with 24% reporting

poor adherence because of these concerns.²⁴ The short-contact clobetasol propionate shampoo was designed to address these needs and concerns. The rinse-off regimen allows delivery of a superpotent corticosteroid with high efficacy balanced by an excellent safety profile.¹⁷ Participants were satisfied with both the efficacy and safety of this product. Because clobetasol propionate shampoo is not oil based and contains only 10% alcohol, it does not lead to greasy or dry hair. In the present study, most participants also agreed that the product could be easily incorporated into their daily routine because it is a once-daily treatment and no additional shampoo is required for further cleansing. In addition, clobetasol propionate shampoo is pleasant to use, without the malodor or potential for staining of tar shampoos. Overall, this formulation of clobetasol propionate shampoo may encourage patient adherence because of its cosmetic acceptability, ease of application, and convenience, in addition to its efficacy and safety profile.

The participant preference results are informative for clinician prescribing. As previously reported, most patients have had prior experience with several treatments but remained largely unsatisfied.⁶ In the present study, the overall response to clobetasol propionate shampoo was more positive, and the general feeling of participants about themselves was dramatically improved after treatment. These findings

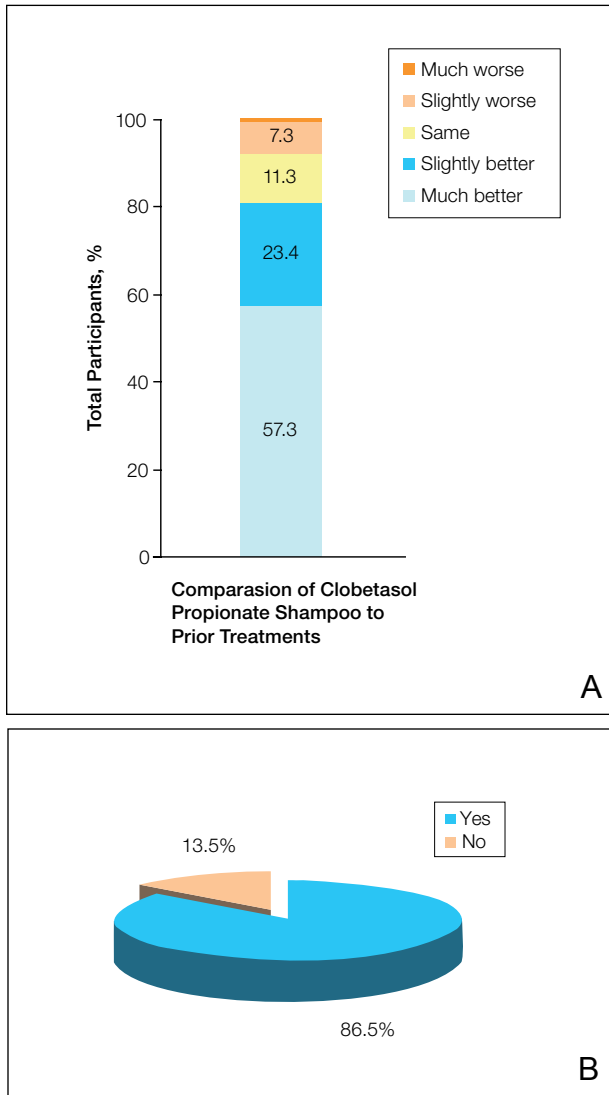


Figure 4. Participant preference (N=288) measured by satisfaction with clobetasol propionate shampoo 0.05% versus prior treatments for scalp psoriasis (A) and indication of future use of clobetasol propionate shampoo (B).

were consistent with the conclusion that the participants were highly satisfied with various aspects of the product and the overall treatment. As a result, most participants preferred clobetasol propionate shampoo to treatments they had previously received and indicated they would likely use it again in the future. Additionally, in view of its established safety profile, long-term use of this product as a maintenance regimen for scalp psoriasis is being explored in another study.

Conclusion

Clobetasol propionate shampoo resulted in improvement in the QOL of participants and a high level of participant satisfaction. We expect that these

positive outcomes will encourage adherence to therapy for scalp psoriasis, thereby enhancing effectiveness in regular use.

Acknowledgments—The authors would like to thank the other investigators who participated in the study (all from Canada): Kirk Barber, MD, Calgary, Alberta; Robert Bissonnette, MD, Laval, Quebec; Lyn Guenther, MD, London, Ontario; Harvey Lui, MD, Vancouver, British Columbia; Charles Lynde, MD, Markham, Ontario; Kym Papp, MD, Waterloo, Ontario; and Yves Poulin, MD, Quebec City, Quebec. The authors also would like to thank Dr. Y. May Ma, Galderma R&D, Sophia Antipolis, France, for editorial assistance.

REFERENCES

- Choi J, Koo JY. Quality of life issues in psoriasis. *J Am Acad Dermatol.* 2003;49(suppl 2):S57-S61.
- van de Kerkhof PC, de Hoop D, de Korte J, et al. Scalp psoriasis, clinical presentations and therapeutic management [published correction appears in *Dermatology.* 1999;198:222]. *Dermatology.* 1998;197:326-334.
- van de Kerkhof PC, de Hoop D, de Korte J, et al. Patient compliance and disease management in the treatment of psoriasis in the Netherlands. *Dermatology.* 2000;200:292-298.
- Papp K, Berth-Jones J, Kragballe K, et al. Scalp psoriasis: a review of current topical treatment options. *J Eur Acad Dermatol Venereol.* 2007;21:1151-1160.
- van der Vleuten CJ, van de Kerkhof PC. Management of scalp psoriasis: guidelines for corticosteroid use in combination treatment. *Drugs.* 2001;61:1593-1598.
- Dubertret L, Mrowietz U, Ranki A, et al. European patient perspectives on the impact of psoriasis: the EUROPSO patient membership survey. *Br J Dermatol.* 2006;155:729-736.
- Lebwohl M. A clinician's paradigm in the treatment of psoriasis. *J Am Acad Dermatol.* 2005;53(suppl 1):S59-S69.
- Klaber MR, Hutchinson PE, Pedvis-Leftick A, et al. Comparative effects of calcipotriol solution (50 micrograms/ml) and betamethasone 17-valerate solution (1 mg/ml) in the treatment of scalp psoriasis. *Br J Dermatol.* 1994;131:678-683.
- Olsen EA, Cornell RC. Topical clobetasol-17-propionate: review of its clinical efficacy and safety. *J Am Acad Dermatol.* 1986;15(2, pt 1):246-255.
- Praver SE, Katz HI. Guidelines for using superpotent topical steroids. *Am Fam Physician.* 1990;41:1531-1538.
- Feldman SR, Housman TS. Patients' vehicle preference for corticosteroid treatments of scalp psoriasis. *Am J Clin Dermatol.* 2003;4:221-224.
- Melian EB, Spencer CM, Jarvis B. Clobetasol propionate foam, 0.05%. *Am J Clin Dermatol.* 2001;2:89-92.

13. Richards HL, Fortune DG, O'Sullivan TM, et al. Patients with psoriasis and their compliance with medication. *J Am Acad Dermatol*. 1999;41:581-583.
14. Brown KK, Rehms WE, Kimball AB. Determining the relative importance of patient motivations for nonadherence to topical corticosteroids therapy in psoriasis. *J Am Acad Dermatol*. 2006;55:607-613.
15. David SE, Ahmed Z, Salek MS, et al. Does enough quality of life-related discussion occur during dermatology outpatient consultations? *Br J Dermatol*. 2005;153:997-1000.
16. Jarratt M, Breneman D, Gottlieb AB, et al. Clobetasol propionate shampoo 0.05%: a new option to treat patients with moderate to severe scalp psoriasis. *J Drugs Dermatol*. 2004;3:367-373.
17. Andres P, Poncet M, Farzaneh S, et al. Short-term safety assessment of clobetasol propionate 0.05% shampoo: hypothalamic-pituitary-adrenal axis suppression, atrophogenicity, and ocular safety in subjects with scalp psoriasis. *J Drugs Dermatol*. 2006;5:328-332.
18. Reygagne P, Mrowietz U, Decroix J, et al. Clobetasol propionate shampoo 0.05% and calcipotriol solution 0.005%: a randomized comparison of efficacy and safety in subjects with scalp psoriasis. *J Dermatolog Treat*. 2005;16:31-36.
19. Griffiths CE, Finlay AY, Fleming CJ, et al. A randomized, investigator-masked clinical evaluation of the efficacy and safety of clobetasol propionate 0.05% shampoo and tar blend 1% shampoo in the treatment of moderate to severe scalp psoriasis. *J Dermatolog Treat*. 2006;17:90-95.
20. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI)—a simple practical measure for routine clinical use. *Clin Exp Dermatol*. 1994;19:210-216.
21. Zaghoul SS, Goodfield MJ. Objective assessment of compliance with psoriasis treatment. *Arch Dermatol*. 2004;140:408-414.
22. Krueger GG, Langley RG, Finlay AY, et al. Patient-reported outcomes of psoriasis improvement with etanercept therapy: results of a randomized phase III trial. *Br J Dermatol*. 2005;153:1192-1199.
23. Jobling RG. Psoriasis—a preliminary questionnaire study of sufferers' subjective experience. *Clin Exp Dermatol*. 1976;1:233-236.
24. Charman CR, Morris AD, Williams HC. Topical corticosteroid phobia in patients with atopic eczema. *Br J Dermatol*. 2000;142:931-936.