A selenium disulfide-based shampoo improves significantly dandruff and seborrheic dermatitis in women wearing a veil: results from an observational study

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INTRODUCTION

Seborrheic Dermatitis (SD) is a chronic and relapsing inflammatory skin condition of sebum-rich areas such as the scalp. It is characterized by erythema, mild to moderate scaling resulting in greasy and flaky scalp, and is sometimes associated with pruritus.[1] When only mild scaling without visible inflammation is observed, SD is called dandruff (D). The prevalence of dandruff in the general population has been estimated at 50%.[2])

In 2006, the prevalence of female adolescents presenting with dandruff in Eastern Saudi Araba was estimated at 18.1%.[3]

Various environmental, intrinsic and host immune factors may contribute to the development of D/SD, leading to an alteration of the sebaceous gland activity and sebum composition, epidermal barrier function, and skin surface fungal colonization, which ultimately leads to inflammation. Among these factors, lipophilic *Malassezia* yeasts may play a key role.

Selenium disulfide shampoo (SeS_2) is an effective means in the treatment of dandruff and SD.[4] SeS_2 has antifungal properties against *Malassezia spp.* and also inhibits *Staphylococcus epidermidis* growth *in vitro*.[5, 6] Past reports on the treatment of scalp D/SD have focused on *Malassezia spp.* counts, while bacterial microbiota changes have only been poorly described.[7, 8] Moreover, the SeS_2-based shampoo contains salicylic acid, known for its keratolytic activity, allowing to reduce flakes on the scalp.[9, 10]

OBJECTIVE

The objective of this study was to assess the efficacy of a SeS_2-based shampoo in adult women with dandruff and wearing a veil.

MATERIAL AND METHODS

A multicenter, observational study was conducted in Saudi Arabia in 601 adult women with dandruff and wearing a veil; 353 subjects accounted for the efficacy analysis (229 subjects used the product less than 3 weeks) and 596 for safety. SeS_2-based shampoo was used 2 to 3 times per week for 3 to 6 weeks.

Clinical efficacy criteria included improvement of scalp, flakes, erythema and irritation on a scale from 0=none to 5=severe; investigator satisfaction was assessed at week 4 on a scale from 0=not satisfied to 10=completely satisfied.

Subjects rated the impact of the scalp condition (0=none to 5=very bothered) efficacy and satisfaction with SeS_2 based shampoo was assessed by the investigators at the end of the study.

Tolerance was assessed throughout the study.

RESULTS

The mean age was 31.4±9.6 years. At baseline, 56% had a flake score of 4 or 5, 39.4% a erythema score of 4 or 5 and 27.8% an irritation score of 4 or 5; 55.7% had a bothering score of 4 or 5. Detailed demographic and baseline information is provided in **Table 1**.

After a mean of 4.4 ± 1.4 weeks of use, the scalp had clearly of very clearly improved in 80.2% (CI95% [75.9;84.4]) of subjects.

Clinical signs (flakes, erythema, irritation) had all significantly (p<0.001) improved. **(Figure 1-3)**.

Significantly less subjects (24.2% vs 55.8% at baseline, p<0.0001) were still bothered with a score of 4 or 5, and 31.6% not bothered at all anymore (score of 0) versus none at baseline **(Figure 4)**.

Investigators were satisfied or very satisfied with the efficacy of the SeS_2-based shampoo for 97.7% (CI 95% [96.1;99.3]) of the subjects.

The overall subject satisfaction score was 8.8±1.5. Subject satisfaction of the cosmeticity of the tested SeS_2-based shampoo was high and is depicted in **Figure 5**.

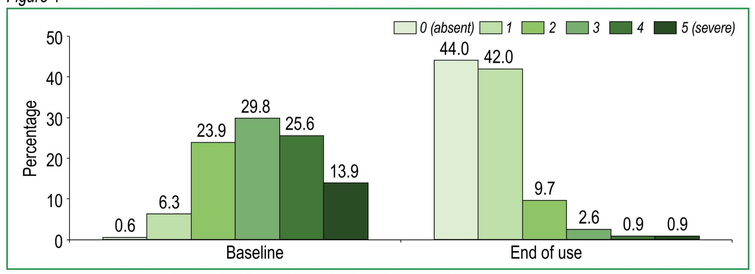
Tolerance was rated good to very good in 98.7% (CI95% [97.7;99.6]) of subjects.

Table 1 **DEMOGRAPHIC AND BASELINE DATA***

	n	%
Age (years)		
Mean age ±SD	31.4±9.6	
< 30 years old	97	27.8
[30 - 40[	138	39.5
>= 40 years old	114	32.7
Flakes		
0 Absent	2	0.6
1	23	6.5
2	84	23.8
3	105	29.7
4	90	25.5
5 Severe	49	13.9
Erythema		
0 Absent	62	17.6
1	95	26.9
2	81	22.9
3	67	19.0
4	41	11.6
5 Severe	7	2.0
Irritation		
0 Absent	28	7.9
1	71	20.1
2	70	19.8
3	86	24.4
4	62	17.6
5 Severe	36	10.2
Bothering caused by dandruff/seborrheic dermatitis		
0 Not bothered	2	0.6
1	8	2.3
2	50	14.3
3	95	27.1
4	106	30.3
5 Very bothered	89	25.4

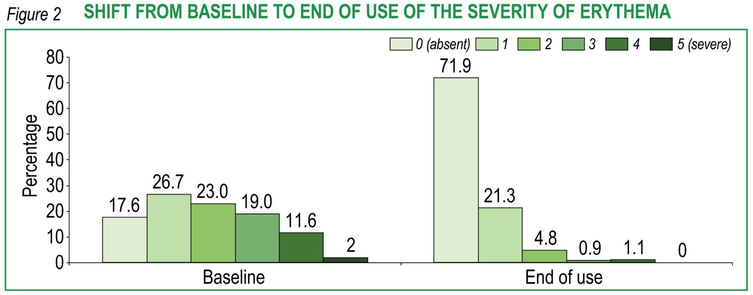
Data available for variables

Figure 1 **SHIFT FROM BASELINE TO END OF USE OF THE SEVERITY OF FLAKES**



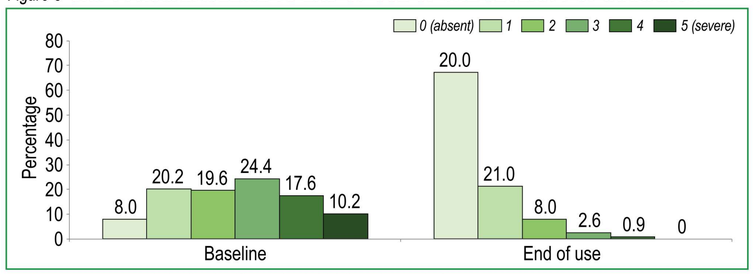
Improvement was statistically significant (p<0.0001) at the end of use.

Figure 2 **SHIFT FROM BASELINE TO END OF USE OF THE SEVERITY OF ERYTHEMA**



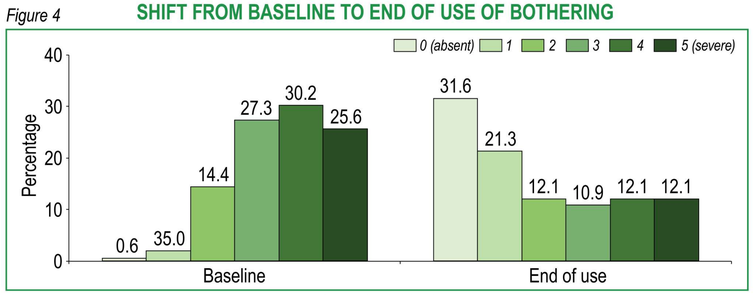
Improvement was statistically significant (p<0.0001) at the end of use.

Figure 3 **SHIFT FROM BASELINE TO END OF USE OF THE SEVERITY OF IRRITATION**



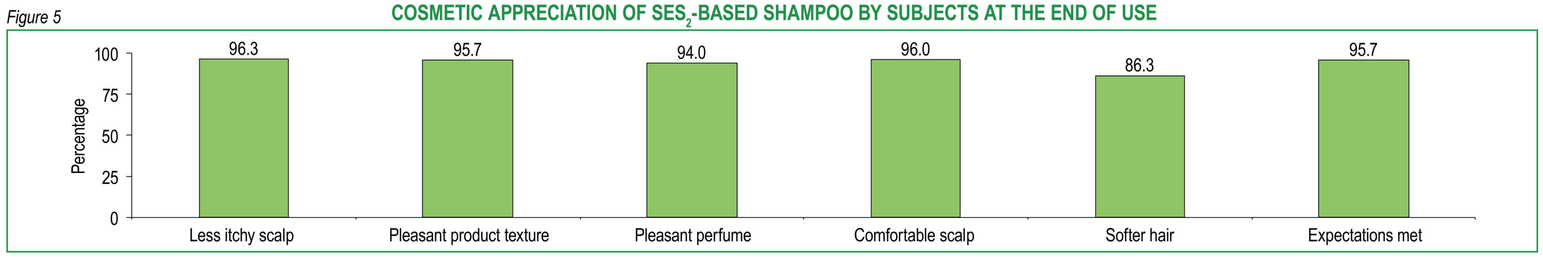
Improvement was statistically significant (p<0.0001) at the end of use.

Figure 4 **SHIFT FROM BASELINE TO END OF USE OF BOTHERING**



Subjects were significantly less bothered significant (p<0.0001) at the end of use.

Figure 5 **COSMETIC APPRECIATION OF SES_2-BASED SHAMPOO BY SUBJECTS AT THE END OF USE**



CONCLUSION

SeS_2-based shampoo applied 2 to 3/week is efficient and well tolerated in the treatment of severe dandruff/ seborrheic dermatitis, in women wearing veil.

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Conflict of interest

Delphine Kerob is an employee of Laboratoires Vichy International, France. The other authors have no conflict of interest to disclose.

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