

USING A SPECIFIC CLEANSER FOR PATIENTS WITH MILD ATOPIC DERMATITIS RELATIONSHIP BETWEEN CLINICAL EFFICACY AND SKIN MICROBIOTA MODIFICATION

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OBJECTIVE

Changes in the composition of microbial communities that colonize skin have been linked to several dermatological diseases, in particular atopic dermatitis. This pathology has long been associated with *Staphylococcus aureus* colonization or infection. We speculated that a mild cleanser (syndet) supplemented with a biomass of non-pathogenic bacteria such as *Vitreoscilla filiformis*, grown in a medium containing thermal spring water (LRP-VFB) could have a clinical effect on the skin symptoms and skin bacterial landscape.

METHODOLOGY

A double blind study was conducted with 32 atopic dermatitis patients using the mild cleanser once a day during 14 days. SCORAD, local SCORAD, clinical and subjective signs, tolerance and quality of life (DLQI) have been evaluated before and after treatment. Swabs were taken under axenic conditions, from lesion and proximal unaffected skin to analyse microbiome. 16S rRNA bacterial gene was used to analyze the composition of bacterial communities.

RESULTS

When looking at the results obtained on the 32 patients included in this study, a significant improvement of SCORAD was obtained after treatment. For local SCORAD, significant improvement of erythema, desquamation and pruritus was noticed. A good to excellent efficacy was noted for 53% of patients and a good to excellent tolerance for 62%. At the same time, a significant improvement in the quality of life with a reduction of the DLQI of 27% was evidenced.

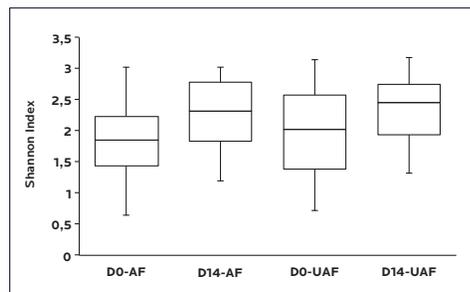
Using a high-throughput sequencing approach that targets a portion of the 16S rRNA gene and comparing an affected area and a closest non affected area for each participant, we obtained results for 19 individuals (13F and 6M - aged 36 ± 15 years - duration of AD: 8 ± 9 years) with 38-paired samples analysed. Mean SCORAD at D0 for these patients was 30 ± 5 and at D14, 22 ± 12 ($p < 0.05$, -26%, 14 responders). Local SCORAD for affected areas evaluated in the 14 responders was in average $6,5 \pm 1,6$ at D0 and $3,4 \pm 1,5$ at D14 ($p < 0.05$).

Bacterial biodiversity (Shannon Index)

Shannon Index measuring the bacterial biodiversity was lower at D0 on the affected (AF) skin compared to the adjacent unaffected (UAF) skin. It increased significantly after treatment and became similar on both areas (D14).

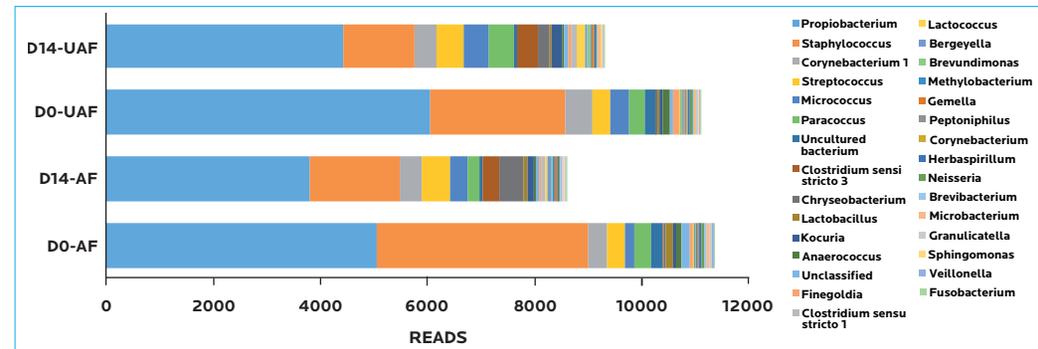
SHANNON INDEX n=19	D0		D14	
	UAF	AF	UAF	AF
Mean	1,89	1,75	2,26*	2,28**
SD	0,70	0,55	0,58	0,52
SEM	0,11	0,09	0,10	0,08

$p=0,015$; ** $p=0,004$ vs D0



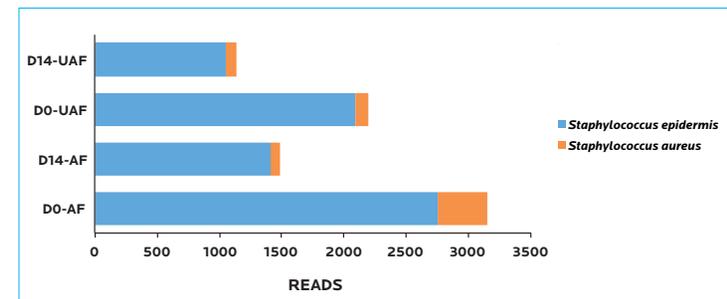
Bacterial landscape

Average taxonomic composition (30 main genus) of the skin microbiome associated with AD prior (D0) and after (D14) treatment associated with unaffected (UAF) and affected (AF) showed that the reduced disease severity was associated with a significant decrease of *Staphylococcus* in both areas (from 22 to 12% ($p=0.028$) in UAF and from 28.5 to 16% ($p=0.022$) in AF).



Staphylococcus species

A decrease of both *S. epidermis* and *S. aureus* was noticed after treatment.



CONCLUSION

Patients with atopic dermatitis (SCORAD 30) using the tested cleanser once a day during 14 days showed a significant reduction of their SCORAD and Local SCORAD associated with an increase of their bacterial diversity (Shannon Index) and a reduction of Staphylococci level (both *S. epidermis* and *S. aureus*). These results indicated that this syndet is useful for patients suffering from atopic dermatitis and can reduce the skin microbiota dysbiosis associated with this pathology. However, use of an adapted emollient (supplemented with the same biomass (1)) in addition to syndet is important for atopic patient's management.

REFERENCE

Seite S, Zelenkova H, Martin R. Clinical efficacy of emollients in atopic dermatitis patients - relationship with the skin microbiota modification. *Clin Cosmet Invest Dermatol*: 2017, Janv 12: 10: 25-33