

THE USE OF LIPOHYDROXY ACID IN SKIN CARE AND ACNE TREATMENT

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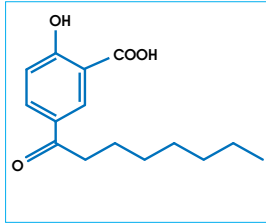
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INTRODUCTION

•Lipohydroxy acid (LHA) is a salicylic acid (SA) derivative with skin renewing, exfoliating, and acne treating properties.

•With a higher molecular weight than SA and an added fatty chain, it is more lipophilic than SA⁽¹⁾.

•LHA was first developed by L'Oréal researchers in the 1980's and is found only in L'Oréal brand skin care products.



LHA or 2-hydroxy 5-octanoyl benzoic acid

EXFOLIATING/SKIN RENEWING PROPERTIES

•Little LHA penetrates past the stratum corneum, with a large reservoir effect. *In Vitro* data revealed only 6% of LHA penetrated past the stratum corneum versus 58% of SA^(1,2). Tape-strip analysis revealed 17.1% of LHA was retained in the stratum corneum after a 4 day application period, versus 9.7% of SA^(1,3).

•LHA exhibits unique exfoliating properties. Being highly lipophilic slows penetration and results in slow cell-by-cell corneocyte exfoliation thought to mimic physiologic desquamation⁽¹⁾.

•LHA has been shown to provide stratum corneum thinning (-19.8% at 4 weeks) vs control (0%), placebo (1.2%), salicylic acid (-3.7%) and tretinoin (-1.2%)⁽⁴⁾.

•LHA has been shown to result in dermal thickening comparable to tretinoin thought to be due to stimulation of glycosaminoglycans, hyaluronic acid, collagen, and elastin^(1,4).

•Studies in human skin demonstrate enhanced cell turnover, explained by signaling from lamellar lipids during desquamation or direct mechanical exfoliating forces. This is controversial^(5,6).

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COMEDOLYTIC PROPERTIES

•Being highly lipophilic nature, LHA penetrates well into the pilosebaceous unit.

•In a split-face study of patients with comedonal acne, follicular casts were reduced by 47% ($P<0.01$) and their size by 54% ($P<0.01$) compared to the untreated side, as evaluated by cyanoacrylate skin strips⁽⁷⁾.

•A 2 week study of 14 acne patients showed that twice daily LHA application resulted in a significant decrease in size and number of comedones with approximately an 85% reduction in follicular plugs⁽⁸⁾.

DATA IN TREATING ACNE

•The FDA OTC acne monograph includes benzoyl peroxide (BPO), SA, and sulfur.

•While not indicated for acne, data exist on the use of LHA in treating acne.

•Study 1⁽⁹⁾:

•*Design*: Monotherapy LHA vs BPO in acne patients.

•*Efficacy*: LHA equal to BPO.

•*Tolerability*: LHA more tolerable than BPO.

•Study 2⁽¹⁰⁾:

•*Design*:

•Arm 1: OTC Fixed dose combination of 5.5% BPO/LHA QAM and Rx tretinoin 0.025% cream QPM.

•Arm 2: Rx fixed dose combination BPO 5%/clindamycin 1% gel QAM and Rx tretinoin 0.025% QPM.

•Patients randomized 1:1, with treatment for 12 weeks.

•66 patients, ages 18-50 years, with mild-moderate acne.

•*Efficacy*:

•Equal efficacy between arms with similar reductions in comedonal, inflammatory, and total lesion counts at weeks 4, 8, and 12 and statistically better than baseline ($p<0.05$).

•*Tolerability*:

•Skin dryness and peeling at early time points in both arms.

•At week 2, there was statistically less erythema for the BPO/LHA arm vs BPO/CP arm ($p=0.042$).

•No other differences in tolerability between treatment arms.

CONCLUSION

•LHA is a SA derivative shown to be effective and tolerable in exfoliating the skin and promoting dermal thickening.

•LHA has comedolytic properties and demonstrated efficacy as monotherapy and as part of a combination regimen in treating mild to moderate acne with a favorable tolerability profile.