THE USE OF LIPOHYDROXY ACID IN SKIN CARE AND ACNE TREATMENT

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

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. 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.
- LHA exhibits unique exfoliating properties. Being highly lipophilic slows penetration and results in slow cell-by-cell corneocyte exfoliation thought to mimic physiologic desquamation.
- 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%).
- 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.
- Studies in human skin demonstrate enhanced cell turnover, explained by signaling from lamellar lipids during desquamation or direct mechanical exfoliating forces. This is controversial.

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.
- 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.

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:
  - Design: Monotherapy LHA vs BPO in acne patients.
  - Efficacy: LHA equal to BPO.
  - Tolerability: LHA more tolerable than BPO.

  Study 2:
  - 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-to-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.

REFERENCES