Cysteamine: Non-cytoxic topical therapy for melasma & PIH on face and body in patients of Skin of Color Fitzpatrick III to VI.

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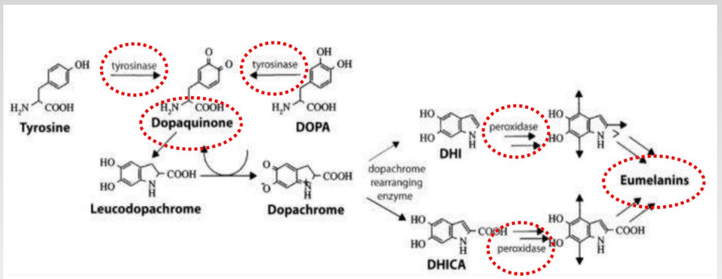
Introduction

- Cysteamine hydrochloride is known for its potent depigmenting effect since 1960's when it was tested by injecting cysteamine into black goldfish skin (1). A few years later, in vivo studies showed the higher depigmenting efficacy of this molecule compared to hydroquinone (2).
- In addition, cysteamine also has known anti-carcinogenic and anti-melanoma effects.
- Superiority to hydroquinone was confirmed in vivo (3). However, cysteamine has never been utilizable in humans for topical therapy mainly due to the very offensive odor.
- An innovative technology has now been released to decrease the odor in cysteamine. Cysteamine thus became utilizable for the first time in a topical product. This product showed a significant melanogenesis inhibiting effect in different in vitro and in vivo models

Mechanism of Action

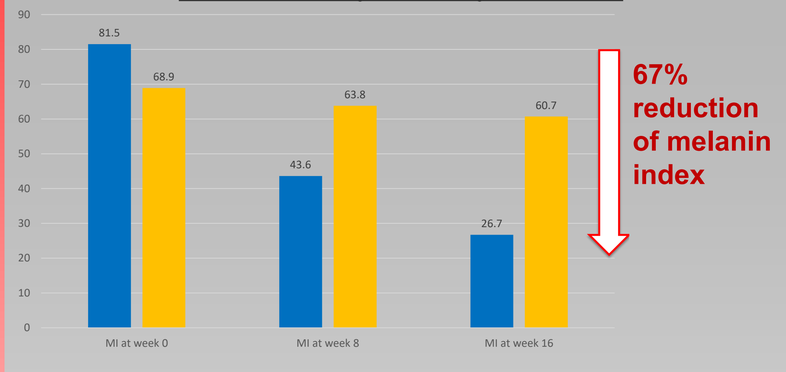


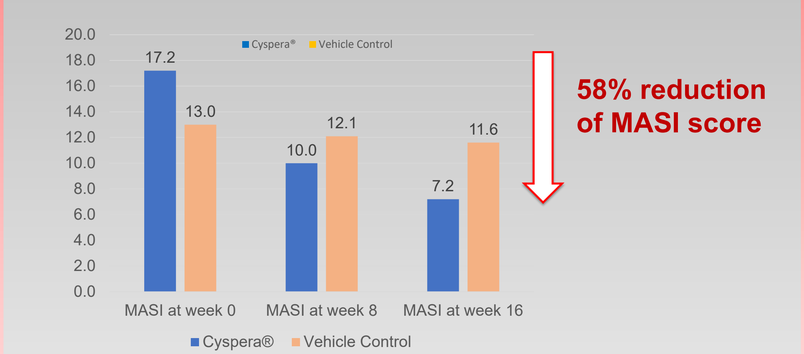
- Double enzyme inhibition: tyrosinase and peroxidase inhibitors
- Dopaquinone quenching: removing dopaquinone from the pathway
- Inhibition of Fenton-type reactions through iron and copper ion quenching
- Reduction of melanin in the stratum corneum into a lighter form through antioxidant effect

Safety

- Cysteamine is biologically produced in mammalian cells and serves as an intracellular anti-oxidant.
- It has a long history of safety for human use.
- Cysteamine is a natural compound and can even be found in foods we eat, with highest concentrations in human breast milk.

Clinical Study Efficacy Results[4]





Methods and Materials

- 50 subjects
- Subjects with mild to severe melasma
- Fitzpatrick skin types: III-IV
- Age of participants between 23-50 years old
- Products used: Syndet bar, Cysteamine Cream & SPF 50
- Duration: 16 weeks
- Evaluations: Clinical assessment for pigmentation, Wood's lamp, mexameter, digital imaging, and MASI scoring

References

1.Besouw, Martine; Masereeuw, Rosalinde; van den Heuvel, Lambert; Levtchenko, Elena (2013). "Cysteamine: an old drug with new potential". Drug Discovery Today. 18 (15-16): 785–792

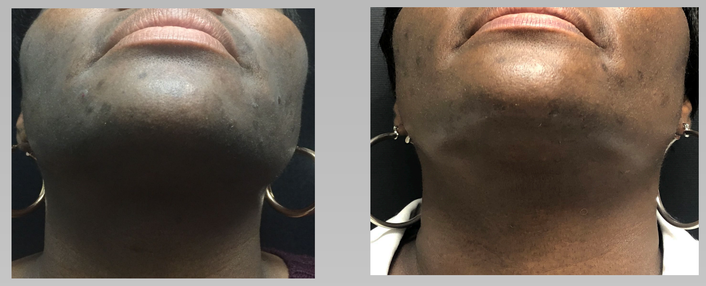
2.Chavin, W.; Schlesinger, W. (1966). "Some potent melanin depigmentary agents in the black goldfish". Die Naturwissenschaften 53(16): 413–414.

3.Frenk E, Pathak MA, Szabo G, Fitzpatrick TB. (1968). "Selective action of mercaptoethylamines on melanocytes in mammalian skin: experimental depigmentation". Arch Dermatol 97:465–77

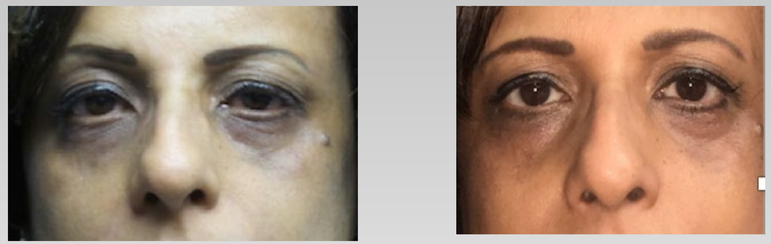
4.Mansouri, P.; Farshi, S.; Hashemi, Z.; Kasraee, B. (2015)."Evaluation of the efficacy of cysteamine 5% cream in the treatment of epidermal melasma: a randomized double-blind placebo-controlled trial". The British Journal of Dermatology. 173 (1): 209–217.

Case Studies in Practice

54 year old African American Female; Diagnosis: PIH secondary to Contact Dermatitis, Pseudofolliculitis Barbae/PIH; Treatment: Cyspera® QHS x 15 min,.3 months duration



After Cyspera® peri-ocular application, 10 weeks duration



39 year old African American female; Diagnoses: PIH post Acne Vulgaris, Treatment: Cyspera®, 3 months duration

51-year-old African American Male; Diagnoses: Melasma and Seborrheic Dermatitis
Treatment: SPF 30 QAM and Cyspera® QHS x 15 minutes initially, then was switched to 20 minutes after 3 months of inconsistent use.
Then after an additional 2 months of consistent, nightly use of 20 min of Cyspera®, his biggest improvement was seen.