

# Dermatopharmacology / Cosmeceuticals

## P1000

### **Further enhancement of facial appearance with a hydroquinone/tretinoin skin care system in patients previously treated with botulinum toxin type A: A multicenter investigator-masked study**

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**Introduction:** The first hydroquinone/tretinoin (HQ/tret) skin care system designed for use in conjunction with non-surgical procedures is now available. We sought to compare the efficacy of this system in improving facial appearance with that of a standard skin care regimen in patients who had received botulinum toxin type A (BoNTA).

**Methods:** Patients who had received upper facial treatment with BoNTA in the previous 3-6 months, and again 24 hours before entering the study, were randomly assigned to receive either the HQ/tret system (cleanser, toner, proprietary 4% hydroquinone, exfoliant, sunscreen, and 0.05% tretinoin cream) or a standard skin care regimen (cleanser, moisturizer, and sunscreen) for 120 days.

**Results:** Among 41 patients enrolled to date, the HQ/tret system was associated with significantly greater reductions in fine lines/wrinkles and hyperpigmentation than standard skin care. Also, compared with standard skin care, there was a considerably greater proportion of patients in the HQ/tret group who: had their global response to treatment rated as complete, very noticeable, or noticeable (73% vs. 6%); considered their study treatment had added to the improvements attained with BoNTA (80% vs. 7%); and were satisfied or extremely satisfied with their study treatment (87% vs. 0%). Similarly, a relatively greater proportion of patients in the HQ/tret group considered that: the color tone of their skin was even or much more even than at baseline (93% vs. 0%); their facial texture was smoother or much smoother than at baseline (93% vs. 13%); and at least some of their peers had noticed a positive change in their facial appearance (73% vs. 7%). The proportion of patients considering that they looked younger than their age increased from 35% to 67% with HQ/tret and declined from 33% to 18% with standard skin care. The proportion of those wanting to continue their regimen post-study was 100% (HQ/tret) vs. 0% (standard care). Mean levels of peeling, dryness, burning and erythema were significantly higher with HQ/tret than standard skin care on at least days 30 and 60. However, mean levels were less than mild (or less than moderate for erythema) throughout.

**Conclusions:** Adjunctive use of the HQ/tret system can provide additional improvements in facial appearance beyond those attained with BoNTA. The system offers multiple clinical benefits over standard skin care, including significantly greater improvements in fine lines/wrinkles and hyperpigmentation.

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## **Dermatopharmacology / Cosmeceuticals**

**P1001**

### **A proposed unified mechanism of action for the effect of prostaglandin analogues on promoting eyelash growth**

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Background: Recently approved by the Federal Drug Administration for treating hypotrichosis of the eyelashes, bimatoprost (a prostaglandin analog) had been previously recognized as having an effect on the appearance of eyelashes in the context of glaucoma treatment. However, there has been no published unified theory of the multiple effects of the prostaglandin analogues on eyelash growth including increased length, thickness and darkness.

Objective and Purpose: To propose a unified anatomic and physiologic mechanism of action of the effect of prostaglandin analogues on eyelash growth.

Methods: A comprehensive literature review was conducted on Medline and multiple general search engines until December 2008 to identify studies that addressed the anatomy and physiology of eyelash growth and the potential role of signaling agents, including the prostaglandin analogues, in impacting eyelash growth characteristics.

Results: Prostaglandin analogues bind to the FP prostaglandin [PGF<sub>2</sub>α] receptor (one of the nine known G-protein-coupled cell surface receptors). Murine model studies demonstrate that PGF<sub>2</sub>α stimulates hair follicles and the follicular melanocytes (the latter by increasing the number of dendrites and the phagocytic transfer of dendritic melanosomes) in both the telogen and anagen stages, stimulates conversion from the telogen to the anagen phase, and prolongs the duration of the anagen phase. The mechanism of these effects appears to be through the ability of PGF<sub>2</sub>α to induce DNA replication, stimulate cell division and growth, and stimulate cell surface receptors linked to phosphorylase C, thereby triggering the activation of the protein kinase C (PKC) family resulting in the subsequent upregulation of tyrosinase gene expression. Corroborating these animal study results, human data has demonstrated follicular PGF<sub>2</sub>α receptors as being essentially restricted to the outer root sheath companion layer and dermal papilla and has further demonstrated the ability of prostaglandin analogues to result in greater thickness and length of eyelashes, additional lash rows, conversion of vellus to terminal hairs in canthal areas as well as in regions adjacent to lash rows, and increased pigmentation of both terminal and vellus eyelid hairs.

Conclusions: The range of observed effects of prostaglandin analogues on the profile of eyelash growth may be explained by FP prostaglandin receptor induced augmentation of follicular growth and melanogenesis.

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