

Letter to the Editor

Eyelash Growth: A Beneficial Side Effect of Prostaglandin Analogues

To the Editor:

Prostaglandin analogues have been indicated by the US Food and Drug Administration (FDA) for the treatment of glaucoma since 1996. Side effects on the eyelashes including increased length, thickness, and pigmentation, as well as additional eyelash rows secondary to adjacent vellus hairs converting into terminal hairs, were soon reported.¹ In fact, eyelash hypertrichosis has been reported in ophthalmologic literature to occur in up to 75% of patients treated with this class of medication for ocular hypertension.² Prostaglandin analogues appear to target hair follicle prostaglandin receptors that have been implicated in hair growth and development. While this exact mechanism of action currently is being elucidated, there appears to be similar clinical efficacy and adverse effects among the prostaglandin analogues.³

Because increased length and thickness of eyelashes are both desired aesthetic effects, not to mention the potential for medical utility in conditions such as alopecia areata, the role of prostaglandin analogues is being investigated. For example, Feletti et al¹ examined the use of travoprost ophthalmic solution 0.004%, a prostaglandin analogue, for its eyelash effects in the treatment of alopecia areata of the eyelashes. They reported 1 case of eyelash regrowth in 3 patients applying travoprost to the eyelid border twice daily. Unfortunately, all 3 patients also had clinically significant eyelid hyperpigmentation, and the researchers concluded that this reversible side effect is more likely to occur in darker-skinned patients.¹

We present a patient who used travoprost for the treatment of glaucoma. Prior to treatment, our patient used cosmetics to accentuate the length and thickness of her eyelashes (Figure, A). In November 2007, after only 2 weeks of travoprost use (consisting of 1 drop per eye daily), the patient noticed her eyelashes brushing against the lens of her eyeglasses. Of note, the increased eyelash length is a sustained effect; at the time of this manuscript preparation the patient had been using this therapy for 1 year. Consistent with the side effects of prostaglandin analogues established by Eisenberg et al,² our patient experienced increased eyelash length and thickness



The patient's eyelashes before treatment (A). She used cosmetics, including mascara, eyeliner, and eye shadow, to accentuate the eyelashes. Two weeks after treatment with travoprost ophthalmic solution 0.004% for glaucoma, the patient experienced increased eyelash length and thickness (B).

as well as a gross amount of terminal eyelashes (Figure, B). Additionally, in the 28 months of daily use, our patient has not noticed any changes in eyelid pigmentation.

In December 2008, Allergan, Inc, announced FDA approval of bimatoprost ophthalmic solution 0.03%, a prostaglandin analogue, for the treatment of hypotrichosis of the eyelashes.⁴ It currently is available by prescription only and provides consumers with an aesthetic eyelash effect with longer lasting and more permanent results. In a phase 3 study of 278 patients, 3.6% of patients experienced eye redness and pruritus, while 2.9% experienced eyelid hyperpigmentation.⁴ All side effects were found to be

reversible with the discontinuation of the product; however, the eyelashes also returned to their initial state prior to treatment within weeks to months following the discontinuation of treatment, with the length of time being dependent on the duration of the patient's eyelash growth cycle.⁴

Of note, other potential side effects of this class of medications include blurred vision; eye redness, discomfort, and pruritus; dry eyes; tearing; darkening color of the eyelashes, eyelids, and the iris (long-term); dizziness; increased sensitivity to light; and allergic reactions.

While more data are needed, the potential role of prostaglandin analogues in the treatment of male pattern baldness or other types of nonscarring hair loss has been considered. To date, there have been animal studies that have shown minimal to moderate hair growth in mice with androgenic alopecia.⁵ It is probable that there will be other approved uses and indications for prostaglandin analogues that currently are FDA approved only for the treatment of glaucoma and cosmetic use for enhancement of the eyelashes.

Sincerely,
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Dr. Bikowski is on the advisory board for Allergan, Inc. Drs. Lau and Jacob report no conflict of interest.

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