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Case Report

Application of bimatoprost ophthalmic solution 0.03% for the treatment of eyebrow hypotrichosis: series of ten cases

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Abstract

In December 2008, bimatoprost ophthalmic solution 0.03% was approved in the United States for the treatment of hypotrichosis of the eyelashes. Since then, there have been several reports in the literature on the off-label use of bimatoprost ophthalmic solution 0.03% for the treatment of thinning in other hair bearing areas, such as in the eyebrows and in the scalp. Herein, a prospective pilot study is presented in which bimatoprost ophthalmic solution 0.03% is evaluated for helping to re-grow hair in the eyebrow region of ten female patients.

Introduction

It has been 5 years since bimatoprost ophthalmic solution 0.03% was approved in the United States in December 2008 for the treatment of hypotrichosis of the eyelashes. Since then, the use of bimatoprost ophthalmic solution 0.03% has been expanded and there have been several articles in the literature reporting great results with the off-label use of the bimatoprost ophthalmic solution 0.03% for the treatment of thinning in other hair bearing areas, such as in the eyebrows and in the scalp. Herein, a prospective pilot study is presented in which the use of bimatoprost ophthalmic solution 0.03% was evaluated for the treatment of thinning eyebrows in ten randomly selected female patients who presented to our dermatology clinic complaining of thinning eyebrows. Upon careful screening the patients had no underlying medical or psychiatric causes for thinning of their eyebrows.

Materials and Methods

This pilot study was investigator initiated and was not sponsored by any manufacturers. Ten female patients who presented to our dermatology clinic complaining of thinning eyebrows between the periods of January 1, 2012 and December 31, 2012 were recruited for this study. The criteria for inclusion in this study was that these patients 1) have not been using any other products to stimulate the growth of their eyebrow hairs in the past 6 months, 2) have not had any underlying pathologic causes of loosing eyebrow hairs, such as undergoing chemotherapy, having iron deficiency, or thyroid disease, and 3) were not manipulating their eyebrow hairs in any way. Patients also needed to have symmetrical loss of hairs in both the right and the left eyebrows in order to be included.

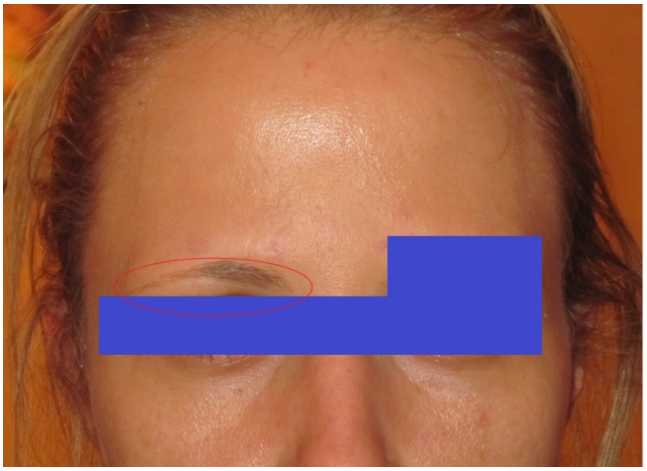
After undergoing screening and signing informed consent for the inclusion in this study, patients were provided with a bottle of bimatoprost ophthalmic solution 0.03% to be randomly used daily at bedtime on either their right or their left eyebrow, as per assignment from the investigator. Subjects were also given a placebo solution in an identical bottle and with identical consistency to bimatoprost ophthalmic solution 0.03% to be applied at bedtime on the other eyebrow. Subjects were blinded as to which solution was bimatoprost ophthalmic solution 0.03% and which was the placebo. Subjects were applying solutions nightly for the duration of the study, which was 6 weeks. Subjects were instructed to return to clinic at two-week intervals and were photographed at baseline and at weeks 2, 4, and 6. Subjects were told not to manipulate their eyebrows in any way during the

duration of the study. Upon completion of the 6 weeks study, subjects were allowed to use bimatoprost ophthalmic solution 0.03% to the eyebrow on which placebo solution was used in order to even out their eyebrows.

Data was analyzed based on the photographs collected at baseline and during the 2, 4, and 6 week follow ups. Photographs were independently analyzed by three medical assistants in the practice who were blinded as to which eyebrow received the bimatoprost ophthalmic solution 0.03% and which received the placebo.

Results

Ten female subjects, with no significant past medical or psychiatric histories, whose ages ranged between 31 – 45 years old, were enrolled in this study. All ten subjects enrolled in this study competed the study. All ten study subjects showed significant improvement in eyebrow hair growth, both based on their perception of the improvement in the treated eyebrow and on photographic evidence. See Figure 1 for before and after treatment photographs of a representative patient enrolled in this study. All ten of the subjects were very pleased with the eyebrow hair growth and continued to use bimatoprost ophthalmic solution 0.03% on both of their eyebrows upon the conclusion of this study. No adverse effects related to the use of the bimatoprost ophthalmic solution 0.03% on the eyebrows was reported by any of the study participants.



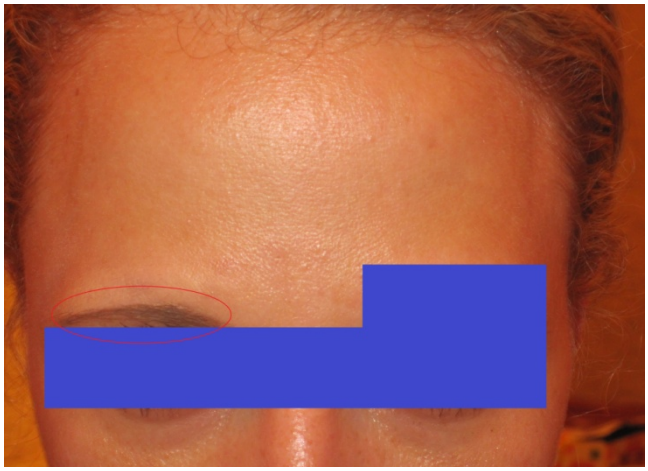


Figure 1A. Representative patient before treatment with bimatoprost ophthalmic solution 0.03%

Figure 1B. Representative patient after 6 weeks of treatment with bimatoprost ophthalmic solution 0.03%

Data was analyzed independently by three medical assistants in the practice who were blinded as to which eyebrow received the bimatoprost ophthalmic solution 0.03% and which received the placebo. All three identified correctly in all 10 patients the eyebrow that was treated with bimatoprost ophthalmic solution 0.03% and reported significant improvement in the observed thickness and fullness of the eyebrow hair. This was a small pilot study and no statistical analysis was performed on the data. Data was only generated based on the observational analysis performed by the three medical assistants who were blinded as to which eyebrow received the bimatoprost ophthalmic solution 0.03% and which received the placebo treatment. (See Table 1).

Table 1.

Subjects	Bimatoprost ophthalmic solution 0.03% used on the Right Eyebrow	Bimatoprost ophthalmic solution 0.03% used on the Left Eyebrow	3 Independent Reviewers Identified Correctly On Which Eyebrow It Was Used
1	+ (yes)	-	+ (yes)
2	-	+ (yes)	+ (yes)
3	-	+ (yes)	+ (yes)

4	**+ (yes)**	**-**	**+ (yes)**
5	**-**	**+ (yes)**	**+ (yes)**
6	**+ (yes)**	**-**	**+ (yes)**
7	**+ (yes)**	**-**	**+ (yes)**
8	**-**	**+ (yes)**	**+ (yes)**
9	**+ (yes)**	**-**	**+ (yes)**
10	**-**	**+ (yes)**	**+ (yes)**

Discussion

In December 2008, bimatoprost ophthalmic solution 0.03% was approved in the United States for the treatment of hypotrichosis of the eyelashes. Since then, there have been several reports in the literature describing the off-label use of bimatoprost ophthalmic solution 0.03% for the treatment of thinning hair in other hair bearing areas, such as in the eyebrows and in the scalp. In the pilot study presented in this case report, we evaluated the use of bimatoprost ophthalmic solution 0.03% for the treatment of thinning eyebrow hairs in ten otherwise healthy female patients who presented to our dermatology clinic complaining of thinning and reduction in their eyebrow hairs.

As presented in the results section of this report, all ten of the subjects enrolled in this study achieved satisfactory results in the treated eyebrow by using bimatoprost ophthalmic solution 0.03% every night. Furthermore, no adverse reactions were reported by any of the study participants and there were no adverse effects, such as darkening of the eye color, as has been reported with the use of bimatoprost ophthalmic solution 0.03% for the treatment of hypotrichosis of the eyelashes. Furthermore, no excessive hair growth was reported by any of the study participants.

This is a prospective pilot study, that evaluated ten female subjects with no other medical or psychiatric histories, who used the bimatoprost ophthalmic solution 0.03% nightly. One of the weaknesses of this study was that the observation period only lasted 6 weeks. It would also be interesting to determine if using bimatoprost ophthalmic solution 0.03% every other day would have similar satisfactory results in producing eyebrow hair re-growth, this way reducing the cost of the product for the patients. Moreover, it would be good to follow patients for a longer period of time in order to observe if the results are long lasting and would persist after discontinuation of the use of the medication. Incidentally, some of the subjects that have been enrolled in the study have been seen in our dermatology clinic for other unrelated problems and all have reported continued use of bimatoprost ophthalmic solution 0.03% and continued re-growth and maintenance of their eyebrow hairs.

In order to investigate whether bimatoprost ophthalmic solution 0.03% can be used every other night for eyebrow hypertrichosis and to answer some of the other questions raised in this pilot study, a larger prospective study designed to follow more patients for a longer duration, is currently being designed. It would also be interesting to investigate on a larger scale if bimatoprost ophthalmic solution 0.03% works satisfactorily for the treatment of hypotrichosis in other hair bearing areas of the body, such as the scalp. Potential indications, such as scarring alopecia, which is otherwise resistant to many of the conventional treatments could be investigated.

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