



RANZCO

The Royal Australian
and New Zealand
College of Ophthalmologists

RANZCO Position Statement: Cosmetic Eyelash Serums Containing Prostaglandin Analogues

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1. Purpose

This position statement was developed by The Royal Australian and New Zealand College of Ophthalmologists (RANZCO). The purpose of this position statement is to raise awareness among ophthalmologists and the public on the potential risks of using cosmetic eyelash growth serums containing prostaglandin analogues.

2. Scope

The ocular surface is protected from debris, dust and other small foreign particles, in part, by the eyelashes (cilia). The cosmetics industry's contemporary construction of beauty incorporates the promotion of longer eyelashes as synonymous with desirability, beauty, and femininity in many cultures. As a result, many products are marketed to induce eyelash enhancement including the mascara, eyelash extensions, lash dyes or tints and eyelash growth-enhancing serums, the latter, the focus of this statement.

Since the 1990s, studies have shown that eyelash growth is linked to prostaglandin analogues. On that basis, several beauty industry organisations release products, including eyelash growth serums, some of which contain small amounts of the drug, prostaglandin analogues, and sold as an over-the-counter product due to the small quantities of prostaglandin analogues.

Nevertheless, prostaglandin analogues are associated with a variety of adverse ocular reactions. Consequently, in some countries, these eyelash growth serums containing prostaglandin are banned. However, in some other countries, due to the small amounts of prostaglandin analogues in these eyelash enhancement products (below 10 milligrams), the respective health regulatory body does not consider the prostaglandin present sufficient for their classification as prescription-only medication.

The premise that a low concentration of a drug makes it less than a pharmaceutical is false. Prostaglandins are potent at low concentrations. Latisse (that has the same concentration as Lumigan 0.03%) is regarded as a drug in the USA and banned in many countries, including Australia, Germany, and Canada.

In our ophthalmologists' experience, prostaglandin eye drops cause predictable side effects, but the exact pattern of side effects that each patient experiences are unpredictable. Ocular irritation, redness, iris hyperpigmentation, excessive hair growth, inflammation of the eyelids (blepharitis), skin hyperpigmentation, and loss of fatty tissue around the eye giving a sunken appearance (periorbitopathy) are most common. If patients take prostaglandins for years, they usually get a combination of these. Still, with shorter treatments, it is hard to know which of these side effects will be most noticeable (no side effects for most, a limited set for some, a full house for others).

The use of pharmaceutical agents is always a balance between safety, efficacy, adverse effects of the medication and the effect of the condition that it is treating. We would accept a greater risk of adverse side effects when treating a blinding eye condition, i.e., glaucoma than a topical prostaglandin for cosmetic use. Ideally, health professionals should regularly monitor patients using prostaglandin medications for any adverse effects. However, if

available as an over-the-counter product, consumers would not have this as a safety measure.

RANZCO believes that consumers should be aware of the full list of possible ocular and periocular side effects. There are very few published trials of prostaglandin use for eyelash growth and none with more than nine months follow-up. This raises the possibility that as yet unreported effects seen in eye drop application may occur when used in the longer term.

Application to skin may have less absorption than through conjunctiva. Regardless, prostaglandins such as PGF2a are rapidly broken down in the blood, so they are unlikely to cause systemic side effects. Side effects would thus more likely be local to the site of application. Other ingredients in these cosmetics will have their own attendant risks.

RANZCO is most concerned about the side effects of topical prostaglandins on the areas around the eye. Periocular side effects of topical prostaglandins include excessive hair growth (hypertrichosis), loss of the normal fatty tissue around the eye giving a sunken appearance (prostaglandin associated periorbitopathy), skin hyperpigmentation, iris hyperpigmentation, redness (conjunctival hyperaemia), possible infection of the cornea (HSV keratitis reactivation) and thickening of the macula due to a disruption of the normal blood-retinal barrier (cystoid macular oedema). To date, skin hyperpigmentation, hypertrichosis, conjunctival hyperaemia, iris hyperpigmentation, and ocular discomfort, have been reported to be adverse effects of prostaglandins' cosmetic application.

Furthermore, the sustained use of these cosmetic eyelash growth serums containing prostaglandin analogues can result in potentially irreversible effects on the conjunctiva, e.g., loss of goblet cells and increased sub-epithelial fibrosis. Although these serums are not supposed to be applied directly to the eye, there is the possibility of local absorption and 'spill-over' effect. This effect has significant implications for the development of dry eye and potential for interfering with therapeutic measures in people who might develop glaucoma later in life.

3. Recommendations

As a result of the many adverse health effects identified, RANZCO advises that:

- eyelash products containing prostaglandins can cause irreversible unwanted side effects.
- although these would be rare as the effects develop very slowly and are usually mostly reversible on stopping the product, consumers may cause themselves unintended harm by continuing to use the product without proper management by an ophthalmologist.
- the side effects that are most likely to be long lasting or permanent would-be prostaglandin associated periorbitopathy, or hyperpigmentation of the iris or skin.

Therefore, we recommend that regulatory bodies consider the available evidence to ensure that the public is informed about the risks of using cosmetic eyelash growth serums containing prostaglandin analogues. Furthermore, we recommend that the cosmetics industry that produce these eyelash growth serums containing prostaglandin analogues, provide their consumers with detailed information on the potential risks involved in the use of these products.

4. References

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