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ORIGINAL ARTICLE

A Comparative Analysis of use of Hydroquinone and Salicylic Acid in patients with Peri-Orbital Hyperpigmentation

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***ABSTRACT*:**

Background: It is a common dermatological problem, reported more in females than in males. It is a condition which is neither health threatening nor associated with any morbidity, but it can influence an individual's quality of life. The present study was conducted to compare the effect of topical hydroquinone and 30% salicylic acid peels on patients with POH. **Materials & Methods:** Patients were divided into 2 groups. Group I (30) received 4% HQ daily and group II (30) received 30% SA peel once in 2 weeks for 3 months. The peel was applied serially at 2 weekly intervals at 0, 2, 4, 6, 8, and 10 weeks after the test peel. Subjective assessment of the response was also made by the patient and the treating physician at 4, 8, and 12 weeks and was evaluated on a visual analog scale (VAS) as 1 (worse), 2 (no change), 3 (<30%), 4 (30–60%), and 5 (>60%). **Results:** Group I (HQ) had 30 and group II (SA) had 30 patients. The difference was non- significant (P-1). Age group 10-20 years had 6 males and 18 females, age group 20-30 years had 10 males and 12 females and age group 30-40 years had 4 males and 10 females. The difference was significant (P< 0.05). Maximum improvement was observed at 12 weeks in both groups. There was no statistical difference in VAS score at 4, 8 and 12 weeks between both groups. **Conclusion:** Periocular pigmentation is frequently seen in multiple members of the same family. Possible causative factors include anemia, nutritional status, UV component, Contact dermatitis, estrogens and NSAIDS.

Key words: Hydroquinone, Periocular pigmentation, Salicylic acid.

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INTRODUCTION

Periorbital hyperpigmentation (POH) has also been referred to as "dark circles," "infraorbital darkening or discoloration," and "periorbital melanosis." It is a common dermatological problem, reported more in females than in males. It is a condition which is neither health threatening nor associated with any morbidity, but it can influence an individual's quality of life. POH is considered to have a genetic basis. Other causative factors include excessive pigmentation, post-inflammatory hyperpigmentation secondary to atopic and allergic contact dermatitis, periorbital edema, shadowing due to skin laxity, and tear trough defect associated with aging.[1]

Periocular pigmentation is more pronounced in certain ethnic groups and also frequently seen in multiple members of the same family. Possible causative factors of the dark circles include excessive pigmentation, periorbital edema, thin-translucent lower eyelid skin overlying the orbicularis oculi muscle; and shadowing due to skin laxity and tear trough. Excessive pigmentation is seen in such conditions as dermal melanocytosis and post inflammatory hyperpigmentation secondary to atopic or allergic contact dermatitis.[2] Atopic dermatitis and allergic contact dermatitis are frequent causes of chronic rubbing around the eyes. Chronic rubbing will lead to excessive pigmentation and appearance of dark circles around the eyes.

Among the available alternatives to treat dark circles are topical agents such as hydroquinone (HQ), kojic acid, azelaic acid, topical retinoic acid, chemical peels, surgical corrections, and recently laser therapy, most of which are however tried for melasma, another common condition with hyperpigmentation.[3]

HQ is the most prescribed bleaching agent worldwide for different types of facial hyperpigmentation, though it has not been studied as a monotherapy or compared to other common treatment options such as 30% salicylic acid (SA) peels on POH. In addition, although it is a cosmetically distressing condition, there are no studies on the quality of life of these patients before and after treatment.[4] The present study was conducted to compare the effect of topical HQ and 30% SA peels on patients with POH.

MATERIALS & METHODS

The present study was conducted in the department of dermatology. It consisted of 60 patients of both genders. Patients were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

Pregnant females, lactating females, and patients with active bacterial, viral, fungal, or herpetic infection, or with keloidal tendency were excluded from the study. General information such as name, age, sex etc. was recorded.

Detailed examination of the face under good illumination was conducted to assess the lesions, clinical type, and color of lesion.

Patients were divided into 2 groups. Group I (30) received 4% HQ daily and group II (30) received 30% SA peel once in 2 weeks for 3 months.

The peel was applied serially at 2 weekly intervals at 0, 2, 4, 6, 8, and 10 weeks after the test peel. About 30% of SA was applied with cotton tipped applicator in the infraorbital areas.

Subjective assessment of the response was also made by the patient and the treating physician at 4, 8, and 12 weeks and was evaluated on a visual analog scale (VAS) as 1 (worse), 2 (no change), 3 (<30%), 4 (30–60%), and 5 (>60%). After treatment, the patients were followed up at 6 weeks to note any recurrence and to record the side effects, if any.

Results were subjected to statistical analysis using chi-square test. P value < 0.05 was considered significant.

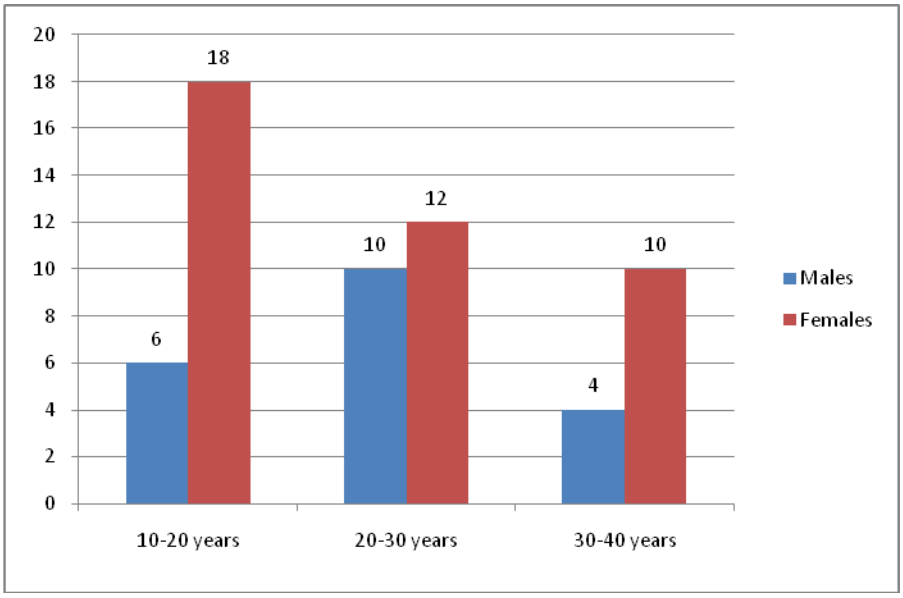
RESULTS

Table I Distribution of patients

Total- 60		
Group I (HQ)	Group II (SA)	P value
30	30	1

Table I shows that group I (HQ) had 30 and group II (SA) had 30 patients. The difference was non- significant (P-1).

Graph I Age wise distribution



Graph I shows that age group 10-20 years had 6 males and 18 females, age group 20-30 years had 10 males and 12 females and age group 30-40 years had 4 males and 10 females. The difference was significant (P< 0.05).

Table II VAS in both groups

Groups	Patient VAS			Doctor VAS		
	4 weeks	8 weeks	12 weeks	4 weeks	8 weeks	12 weeks
Group I	2.28±0.432	2.54±0.56	3.12±0.410	2.07±0.261	2.54±0.526	3.04±0.50
Group II	2.10±0.157	2.56±0.51	3.16±0.518	2.02±0.10	2.56±0.524	3.06±0.72
P value	0.1	0.07	0.21	0.82	0.64	0.15

Table II shows that maximum improvement was observed at 12 weeks in both groups. There was no statistical difference in VAS score at 4, 8 and 12 weeks between both groups.

DISCUSSION

Topically applied products are by far the most convenient way to start with for the majority of patients. Despite the great number of available topical medications and creams, there are no evidence-based studies to support their use. These cosmetics have thus generally been designed to improve blood circulation and/or reduce melanin. The goal of using a skin-lightening agent is to reduce the amount of melanin.[5]

Vitamin C and derivatives (such as magnesium ascorbyl phosphate and sodium ascorbate) have a long history as topical lightening agents. They inhibit melanogenesis in human melanocytes, regulate collagen production and conceal the color of blood stasis. in the skin as well as decrease the appearance of the darkness, shadow or pigmentation. Bleaching agents may be used as a monotherapy or combined with procedures. 'Cocktail bleaching agents' have increased in popularity and each one has unique ingredients. These ingredients target different portions of the melanin cascade.[6] The present study was conducted to compare the effect of topical HQ and 30% SA peels on patients with POH.

Group I (HQ) had 30 and group II (SA) had 30 patients. Age group 10-20 years had 6 males and 18 females, age group 20-30 years had 10 males and 12 females and age group 30-40 years had 4 males and 10 females. This is similar to Malakar et al.[7]

We found that maximum improvement was observed at 12 weeks in both groups. There was no statistical difference in VAS score at 4, 8 and 12 weeks between both groups. This is in agreement with Samar et al.[8] There are many disorders that may mimic or be associated with periocular pigmentation (such as Acanthosis nigricans, melasma, Erythema dyschromicum perstans, fixed drug eruption, ecchymosis, amyloidosis, dermatomyositis). Because this may be a special opportunity to diagnose an underlying health issue prior to formulating a treatment plan.

History of allergy, atopy, thyroid disease, Addisons disease, anemia, nutritional status, UV component, Contact dermatitis, Estrogens and NSAIDS are among causative factors. Hydroquinone and salicylic acid are widely used agents for peri- orbital hyperpigmentation. Its role has been well established.[9]

CONCLUSION

Periocular pigmentation is frequently seen in multiple members of the same family. Possible causative factors include anemia, nutritional status, UV component, Contact dermatitis, estrogens and NSAIDS.

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