CASE REPORT

CHEMICAL PEELING IN ETHNIC SKIN

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Background: Chemical peeling for skin of colour arose in Egypt, Mesopotamia and other ancient cultures in and around Africa. Egyptians bathed in sour milk to smooth the skin utilising the properties of Alpha-hydroxy acids (AHAs).[1] Chemical peeling agents are varied. Superficial agents are many and varied. Superficial agents include Alpha Hydroxy Acids (AHAs), salicylic acid, resorcinol, and Jessner's solution and trichloroacetic acid (TCA) at 10-35% concentrations. The most feared complication is scarring. Those at risk are patients with histories of poor healing and keloid formation, patients undergoing deep peels patient recently on Accutane therapy and those who develop infection during the peel.[2] In ethnic or dark skin our efforts are focused on superficial and medium depth peeling agents and techniques.

Objective: To determine the effect of chemical peeling on ethnic (dark) skin in terms of safety and tolerance
Methods: 25 women of Fitzpatrick Type V-VI between 16 and 45years. Of the 25 women, twelve had acne, five had acne scarring, six had melasma and two had acne and post inflammatory hyperpigmented scarring. All information regarding the treatment and the complication which may occur as a result of the treatment were let known to the patients. Peeling procedure was done according to Neostrata peeling protocol. All the patients were started with a 20% and the proceeded to 35% to 50%.Peeling interval was 4 weeks. Pre and post peel photos were taken.

Results :The results show improvement in the patient's condition. Marked clearing of acne and improvement in melasma was noted in the study group.

Conclusion: In the 18 month period there was no evidence of hyperpigmentation or scarring in the study group.

Introduction and Objectives

Chemical peeling for skin of colour arose in Egypt, Mesopotamia and other ancient cultures in and around Africa. Egyptians bathed in sour milk to smooth the skin utilising the properties of alpha-hydroxy acids.[1] Chemical peeling is basically an accelerated form of exfoliation induced by use of chemical agent. Superficial peeling agents include a faster sloughing of the cells in the stratum corneum, whereas deeper peeling agents create necrosis and inflammation in the dermis or reticular dermis.[2]

Chemical peeling creates changes in the skin through three mechanisms:

- Stimulation of epidermal growth through removal of stratum corneum. Even light peels that do not create necrosis of “the living dermis” can induce the epidermis to thicken
- Destruction of specific layers of damaged skin. By destroying the layers and replacing them with normalised tissue, a better cosmetic result is achieved. This is especially true in the treatment of pigmentation abnormalities and actinic keratosis.
- Induction of an inflammatory reaction induced by the chemical agent. Activation of the mediators of inflammation is able to induce production of new collagen and ground substance in the dermis. Epidermal wounds are capable of inducing deposition of collagen and glycosaminoglycans in the dermis.[2]

Chemical peeling agents are varied. Superficial agents are many and varied. Superficial agents include Alpha Hydroxy Acids (AHAs), salicylic acid, resorcinol, and Jessner's solution and trichloroacetic acid (TCA) at 10-35% concentrations.[1,2,3] AHAs cosmetic effects include increased flexibility of the stratum corneum and decreased formulations of dry, flaky scales on skin surface. Applied in lower concentrations, AHAs promote desquamation and temporary thinning of the corneum, eventually leading to a point at which cells formed and shed at a normal rate and pattern. AHAs are organic carboxylic acids with one hydroxyl group attached to the position of the acid.

Many AHAs are non toxic and occur naturally in plants, animals or body tissues. AHAs in common clinical use include glycolic acids and lactic acid.[4] Indications for chemical peeling in darker skin include acne vulgaris; post inflammatory hyperpigmentation, melasma, scarring, photodamage and pseudofolliculitis barbae.[2,3] Chemical peeling can be used alone or in combination with the bleaching agents for the treatment epidermal and mixed types of melasma. For the epidermal melasma (checked with Wood's lamp) even superficial peeling gives excellent results. For the mixed types of melasma a medium chemical peeling sometimes stimulates melanogenesis resulting to a worsening of the hyperpigmented patches especially in dark skinned individuals.[5]

The most feared complication is scarring. Those at risk are patients with histories of poor healing and keloid formation, patients undergoing deep peels patient recently on Accutane therapy and those who develop infection during the peel.[2] In ethnic or dark skin our efforts are focused on superficial and medium depth peeling agents and techniques. The objective of this study was to determine the effect of chemical peeling, tolerance and safety on ethnic (dark) skin

Methods

25 women of Fitzpatrick Type V-VI between 16 and 45years. Initially the group consisted of 40 women. Most of the patients about 8 left after the first peel procedure, the other two left because they were pregnant and one reported an allergic reaction a day after the peel procedure. Of the 25 women, twelve had acne, five had acne scarring, six had melasma and two had acne and post inflammatory hyperpigmented scarring. Patients were fully informed about the aim of the study, the possibility of side effects and the complications of the treatment. A formal written consent to the chemical peeling procedure was obtained from each patient. The clinical history was collected from each patient on their first visit, with special attention to previous and current dermatological therapy, occupation and allergies. The patients were advised to stop all topical treatment except for their cleanser and moisturising cream. Patients were strongly advised to apply sunscreen and to wear protective clothing to their face.

Peeling procedure included AHAs from Neostrata. No pre-conditioning of the skin done. Peeling procedure included cleansing, application of petroleum sparingly to the medial and lateral canthi of the eyes, nasolabial folds commissure of lips and the lips themselves. This protected the sensitive areas from pooling of the glycolic acid solution. The eyes were also protected with gauze pads.

All the patients were started with a 20% and the proceeded to 35% to 50%. Some of the patients had to be peeled twice with 20% peel concentration before they could tolerate the peel. In the melasma group a peel booster was used after the 50% peel concentration.

The number of peels per patient ranged from 6-10. Peeling was done every 4 weeks and follow up period ranged from 6- 18 months. Pre - and post peel photos of each patient was taken.

Results

The results show improvement in the patient's condition. Skin tolerance was noted after the second peel. In the acne group, marked clearing of acne was seen (*see figure 1a and 1b*). This effect was noticed after the third peel in most of the patients. In the melasma group improvement in patient's pigmentation was seen after the fifth peel (*figure 3 and 4*). When asked to evaluate their skin in terms of mild, moderate and significant improvement worsening of condition most of the patents reported significant improvement, while 3 of the patients reported mild to moderate improvement in their skin condition.

Discussion

Chemical peeling is largely a cosmetic procedure. Indications depend on the patient's tolerance and wishes for correcting the skin textural problems. Fitzpatrick skin types IV-VI have significantly increased chance of developing post inflammatory hyperpigmentation.[2] It is important to know that when peeling darker skin, the peel has to be started slowly and conservatively to avoid inducing additional post inflammatory hyperpigmentation. The peel must be neutralized at the first sign of erythema and certainly before epidermolysis to prevent further hyperpigmentation complications.[3] A pre -peel photograph was taken and was used as a baseline. Skin tolerance was noted after the second peel. Maximum peel concentration that could be tolerated was 50%. Averages of three peels were done for acne patients and six peels melasma patients and acne scarring patients. As seen in (*figure 2*) the patient presented with acne and post inflammatory hyperpigmentation scarring and a marked clearing was seen after six peels. Significant clearing of acne was seen in the patient in (*figure 1*) after three peels. Similar results were obtained in acne patients peeled with glycolic acid. A significant improvement of coexisting post acne superficial scarring was noted.[5] Four out of five melasma patients showed a dramatic improvement in their melasma after an average of 5 peels as seen in *figure 3 and 4*.

In a study done by Cotellessa *et al*, it was found that both TCA and glycolic acid peels were effective in the treatment of cutaneous hyperpigmentation.[9] Superficial improvement in skin texture, pigmentation and acne has been observed by patients. Some patients reported improvement in skin texture with minimum change in their pigmentation. This was noted more in the melasma group.

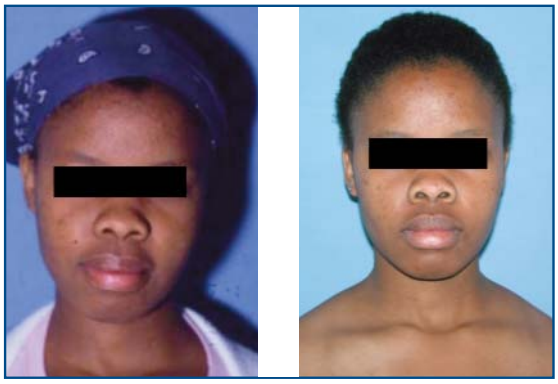

Figure 1A:Significant clearing of acne after 3 peels.

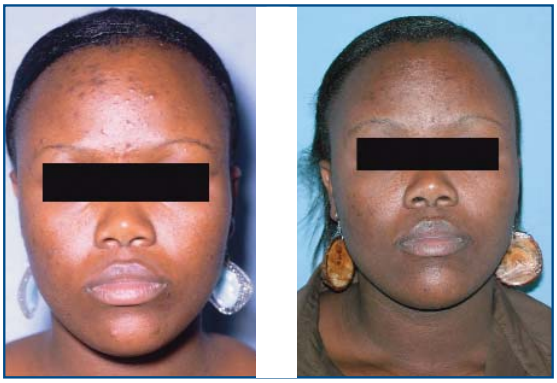

Figure 1B: Significant clearing of acne after 3 peels.

Figure 2: Clearing of inflammatory hyperpigmentation scarring after 6 peels.

Figure 3: Improvement in their melasma after 5 peels

Figure 4: Improvement in their melasma after 5 peels

No evidence of post inflammatory hyperpigmentation or worsening of condition was observed in the study group in the 18 months period.

Conclusion

The peeling agent was well tolerated and safe to use in Fitzpatrick V-VI. It is illustrated in this study that there are clinically proven benefits in the use of glycolic acid peel. Most of the patients in the study group were satisfied with the treatment

Declaration

Genop Healthcare donated the Neostrata peeling kit.

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