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Simple superficial chemical peels to complement a medical dermatology practice

Introduction

In an era of exciting new drug therapies and cutting-edge laser devices, it is easy to forget about simpler, “low-tech” treatments that have stood the test of time but are not being championed by industry. One such example is a superficial chemical peel, which produces a controlled injury that is limited to the epidermis. This is a simple and inexpensive procedure that can complement the treatments provided by dermatologists for acne, melasma or postinflammatory hyperpigmentation.

This article will address two simple superficial peels that can be quickly implemented in a busy medical dermatology practice, which are the salicylic acid peel and the Jessner's peel.¹ Peels that require neutralization (glycolic peels and pyruvic acid peels), medium depth peels (usually requiring pretreatment with either Jessner's solution or CO₂ followed by trichloroacetic acid 35%) or deep peels (phenol-croton oil peel) are beyond the scope of this article.²

Salicylic acid peel

Salicylic acid is a lipid-soluble beta-hydroxy acid. It is a well-known active ingredient in the treatment of acne, psoriasis, seborrheic dermatitis, warts, and

many other conditions. Over-the-counter cleansers and leave-on products for acne often contain 2–3% salicylic acid, while prescription topicals and custom compounds contain much higher concentrations. Salicylic acid is thought to be anti-inflammatory, antimicrobial, sebolytic and to inhibit tyrosinase. Because of its lipophilic and comedolytic effects, it is particularly well suited to treating comedonal acne.

Salicylic acid 30% is available in a hydroalcoholic solution or in polyethylene glycol (PEG). The 20–30% salicylic acid hydroalcoholic solution crystallizes on the skin when the ethanol component evaporates, leaving a “pseudofrost” that can be wiped from the face if desired. This peel is self-limiting—the crystals cannot penetrate the dermis. Minimal stinging can occasionally be felt during application, and 1–3 days of desquamation can follow. Rarely, focal “hot spots” of overpenetration can lead to postinflammatory hyperpigmentation. The PEG vehicle enhances follicular penetration while resulting in slower penetration and a more even distribution. It leaves a shiny appearance on the skin and can be slightly occlusive, and some practitioners recommend wiping it off with water after >5 minutes of contact. This peel results in either no or minimal desquamation, making recovery from the procedure easier on patients. A split-face study comparing 30% salicylic acid in PEG versus 30%

salicylic acid in a hydroalcoholic solution to treat acne favored the solution in PEG.³ However, this treatment should be avoided during pregnancy, breastfeeding and in patients with Aspirin (acetylsalicylic acid) allergy.

In the author's practice, salicylic acid 30% in PEG peels are primarily used in combination with a prescription topical treatment (**Figure 1**). The peeling agent is poured over a 4×4 gauze, and the gauze is used to apply three coats to the full face. No more than 5 mL of peel solution is required for a treatment. The skin is gently wiped with a dry gauze to minimize shine approximately 5 minutes after the application of the peel. These peels can be performed weekly, however, in practice patients return for treatments every 2–4 weeks, which also allows for their topical treatment to take effect (**Figure 1**). Because of the simplicity of the peel process and the absence of specialized equipment required to perform the procedure, a salicylic acid peel can be a quick “add-on” treatment during an appointment without affecting clinic workflow.



Figure 1: Patient treated with a dapsone 5% gel twice a day and four peels with salicylic acid 30% in polyethylene glycol over a two-month period; courtesy of Vincent Richer, MD, FRCPC

Jessner's peel

Jessner's solution consists of 14% resorcinol, 14% salicylic acid, and 14% lactic acid in a 95% ethanol base. It can be used as an adjunctive treatment for acne, and for pigmentary disorders such as melasma and postinflammatory hyperpigmentation. Since this peel also contains salicylic acid, a pseudofrost can develop over the skin during treatment. The resorcinol component can also leave very light, reticulate frosting.

There is a greater immediate discomfort (stinging) with the application of Jessner's solution compared to a salicylic acid peel. Forced cool air or a handheld fan can be helpful for symptom control. Of note, the resorcinol molecule is chemically similar to hydroquinone, and contact hypersensitivity is possible with repeat exposure. In the event that a patient is sensitized to

resorcinol, a modified Jessner's solution is available that increases the concentrations of salicylic acid and lactic acid to 17% and replaces resorcinol with 8% citric acid.

In the author's practice, Jessner's solution is not used as a stand-alone treatment for hyperpigmentation, but rather as a complement to topical brightening agents, laser devices or oral tranexamic acid. It is delivered in a similar fashion to the salicylic acid peel described above.

Other superficial peels

Other superficial peels include tretinoin peels (containing 5–10% tretinoin). These are usually applied to the full face and left on for 6 hours. After the specified time, they are rinsed off at home. These peels require in-office reconstitution using crystals that leave a bright yellow residue on the patient's skin.

Trichloroacetic acid is also considered a superficial peel at concentrations ranging from 10–30%. Trichloroacetic acid in concentrations higher than 35% is recommended for focal treatment of individual lesions, and not for field treatment. In the author's practice, 70–90% trichloroacetic acid is one of the treatment options for the management of xanthelasma.



Figure 2: An example of chemical peeling agents and a skin prepping agent; courtesy of Vincent Richer, MD, FRCPC

Practical takeaways

- Prepping/degreasing the skin is an important consideration prior to administering a peel. This process allows for an even distribution and absorption of the peel. A solution of equal parts alcohol/acetone ("Peel Prep") can serve this purpose effectively.
- Peels can be obtained from your local compounding pharmacy or ordered from a company that specializes in peels. The author's personal choice is to order from an established company to minimize variation in vehicle composition (**Figure 2**).
- If you work with extenders (nurse practitioners or physician assistants) that you closely supervise and train, superficial peels can be effectively delegated.

Conclusion

Salicylic acid and Jessner's solution are superficial chemical peels that can complement the treatments a dermatologist provides for acne and melasma. Choosing salicylic acid in a PEG solution rather than in a hydroalcoholic solution appears to maximize outcomes and minimize recovery/risks for patients when treating acne. Proactively managing the stinging sensation that may occur during a Jessner's peel, using tools such as handheld fans, is key to successful implementation of this procedure.

References

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Financial disclosures:

None declared.