



Using Patient Education to Achieve Optimal Results with their Topical Retinoid/Benzoyl Peroxide Therapy

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Abstract

Background of Inquiry: In our clinical practice it was found that our nursing staff did not know the evidence-based rationale for administration times related to topical retinoids (specifically tretinoin and adapalene) and benzoyl peroxide. Our nursing staff fields phone calls and questions from patients regarding their treatment plans and has a significant impact on their adherence to these plans.

Purpose of Inquiry: Upon discovering this knowledge gap, a literature review was completed to provide data to our nursing staff in order to ensure that they are able to share the evidence-based rationale with patients and improve adherence to their treatment plan.

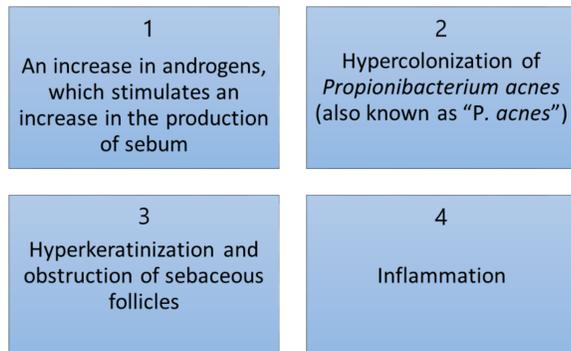
Methods/Analytical Approach: Literature Review

Conclusions: Teaching the nursing staff was essential in order to ensure that each of our nurses is sharing evidence-based knowledge with the patients when they call with questions about their treatment plans. Our nurses can now more confidently explain the purpose for the timing of the patient's medications, and the patients are more likely to remember the information because they understand the rationale behind the timing of their treatment regimen.

What Causes Acne?

Acne Vulgaris is a common skin disorder that affects the sebaceous follicles resulting in the eruption of both inflammatory (ie: papules, pustules, or cysts) and non-inflammatory lesions (open or closed comedones). While there are various factors that can trigger the pathogenesis of acne, the following four have been identified as especially contributory: (1) an increase in androgens which stimulates an increase in the production of sebum, (2) hyperkeratinization and obstruction of sebaceous follicles resulting from altered desquamation of follicular epithelium, (3) hypercolonization of *Propionibacterium acnes* (also known as "P. acnes"), and (4) inflammation.

Four Major Causes of Acne



Stability of Tretinoin Versus Adapalene

Studies have compared the effectiveness of Tretinoin and Adapalene in various conditions, including administration in combination with benzoyl peroxide and exposure to light. When examined in the presence of benzoyl peroxide, tretinoin 0.025% gel was found to have degraded to 80% of its initial quantity after 24 hours. Tretinoin content also dropped rapidly when exposed to laboratory light. A combination of benzoyl peroxide and light resulted in more than 50% degradation in 2 hours, and 95% in 24 hours. Adapalene, however, was found to be stable under all conditions for 24 hours.

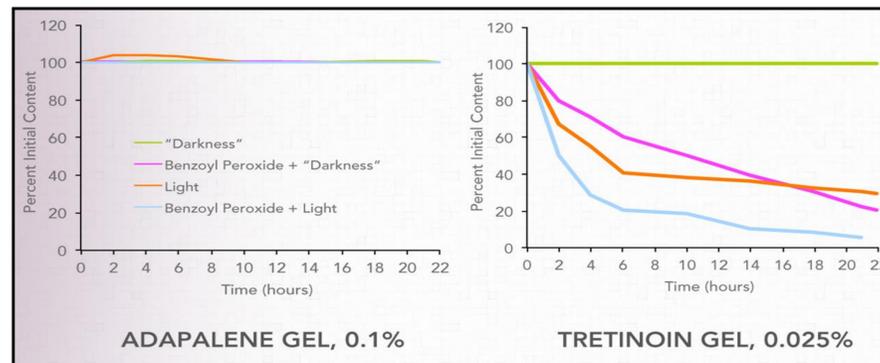


Figure 1. Stability of Adapalene: effect of light and benzoyl peroxide

Figure 2. Stability of tretinoin: effect of light and benzoyl peroxide

Medication Administration to Prevent Degradation

Treatment Regimen for Retinoid Products and Benzoyl Peroxide

Morning 	Clean with Benzoyl Peroxide wash or apply topical Benzoyl Peroxide as directed. For topical application, use a pea-sized amount and cover the entire area being treated with a thin layer.
Evening 	Wash with gentle cleanser and allow the skin to completely dry. Spread a pea-sized amount of Retinoid product (Tretinoin/ Adapalene/ Tazarotene) in a thin layer over the entire acne-prone area.

Patient Education

Patient Education to Improve Efficacy and Tolerability

Benzoyl Peroxide	Tretinoin	Adapalene
<ul style="list-style-type: none"> This medication can be purchased over-the-counter Adverse effects (dryness, irritation, etc.) typically last only 1-2 weeks Benzoyl Peroxide is a bleaching agent. Clothes, towels, pillowcases, etc. can be affected. Wash your hands after application. When applying the medication, cover the whole area being treated (not just individual lesions). Benzoyl peroxide has a preventative effect against new lesions. Apply only a thin layer to the area treated. Applying more can increase irritation. Acne responds slowly to treatment. Please allow at least 6 weeks of consistent use of the medication before assessing if the treatment has been effective. 	<ul style="list-style-type: none"> This medication requires a prescription Tretinoin should be administered at night only, as it is unstable in the presence of sunlight. Degradation of tretinoin also occurs when it is mixed with benzoyl peroxide. For this reason, the two medications should be administered 12 hours apart. Tretinoin is available in a microsphere formulation which was designed to limit irritation. The microspheres also assist in protecting the active ingredient from degrading in the presence of light and benzoyl peroxide. When starting this medication, irritation can be reduced by decreasing use of the medication to every other day and/or application of an oil-free moisturizer. 	<ul style="list-style-type: none"> This medication is available via prescription or in an over-the-counter formulation. This provides a less-expensive alternative for patients paying for the medication out-of-pocket. Adapalene has been noted to cause less irritation than tretinoin. It is also stable in the presence of light and benzoyl peroxide. Adapalene available in a fixed-dose combination along with benzoyl peroxide. This allows patients to apply only one medication once per day, which can positively impact patient compliance. When starting this medication, irritation can be reduced by decreasing use of the medication to every other day and/or application of an oil-free moisturizer.

Targeting Multiple Causes with Treatment

Targeting multiple pathophysiologic factors is possible through the use of a combination of topical retinoids and antimicrobials. Utilizing both of these agents concurrently has become a first-line tactic in treating acne because together these complimentary medications attack three out of the four major causes of acne: hyperkeratinization and obstruction of sebaceous follicles, proliferation of *P. acnes*, and inflammation. Benzoyl Peroxide is an ideal antimicrobial agent because it acts faster and is more effective at combating *P. acnes* than topical antibiotics and it has not shown evidence of antimicrobial resistance.

When choosing a retinoid medication, it is important to understand the differences in their stability and plan their timing of administration to achieve optimal results. Patient education is key in ensuring that the correct treatment regimen is followed for the medications to achieve their optimal effect.

References

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