Article

Acne Revisited

New Insights to Help Our Patients

By: Nicole F. Velez, MD

Regardless of your medical specialty, you have probably been approached at some point by patients or friends with questions about acne management. Acne vulgaris affects 9.4% of the global population and is the eighth most prevalent disease globally.[1] In the US, acne accounted for $846 million in medical costs and $398 million in lost productivity in 2013.[2] Studies show that the health-related quality of life impact of acne is similar to that of other chronic conditions, such as asthma and arthritis.[3] Fortunately, there have been many advancements in our understanding of acne, as illustrated by the latest Guidelines on Acne published this year in the Journal of the American Academy of Dermatology.[4] While this is not meant to be a comprehensive review, here are some updates that may be of interest to you no matter your field of practice:

Combination therapy is best. When using topical treatments, multimodal therapy is best. By incorporating multiple mechanisms of action, combination therapy optimizes efficacy and reduces the risk of bacterial resistance.[4] A typical regimen might include a benzoyl peroxide product (often over the counter), a topical antibiotic and a topical retinoid. Vitamin A derivatives, retinoids are a mainstay in acne management and should be a part of most treatment plans. Retinoids work at the level of the keratinocyte nucleus to provide comedolytic and anti-inflammatory effects as well as to help improve discoloration and scarring. Counseling regarding amount and frequency of use is important when prescribing a retinoid so that patients do not develop irritation and discontinue use prematurely.

Spironolactone is a safe and effective treatment. While not FDA-approved for acne, oral spironolactone has been used for decades in female acne due to its anti-androgen properties. Especially as we aim to reduce oral antibiotic use (current guidelines recommend no more than 3-4 months of oral antibiotics a year), spironolactone has been shown to be an effective alternative. The first multi-centre, randomized controlled study of spironolactone vs doxycycline was published this year and showed that spironolactone outcomes (lesion count and quality of life) were better than doxycycline at both month 4 and 6.[5] Concerns regarding tumorgenicity and hyperkalemia have contributed to underutilization of spironolactone in the past. However, in a retrospective study this year, spironolactone exposure was not associated with gynecologic or other common malignancies.[6] Additionally, no association between spironolactone use and breast cancer recurrence was found among patients with a history of breast cancer. Unless a patient has risk factors for hyperkalemia (i.e. older age, medical comorbitidies, or other medications), potassium monitoring has been shown to be of low usefulness and is no longer recommended.[7]

There are treatment options in pregnancy. Fortunately, many topical medications are safe in pregnancy, including benzoyl peroxide, azelaic acid, clindamycin, erythromycin and metronidazole. Certain retinoids, such as tretinoin and adapalene (over the counter), were also shown to be safe in pregnancy in large studies with no increased risk of congenital malformations. When oral antibiotics are needed, there is clinical date to support the use of cephalexin, cefadroxil, amoxicillin, azithromycin or erythromycin. Doxycycline, however, should not be used in pregnant patients. Vascular laser, intralesional steroid injections and low dose courses of prednisone can also be helpful.

Isotretinoin can help in refractory mild to moderate acne. While traditionally considered for nodulocystic acne, isotretinoin is being used increasingly for patients with mild to moderate acne that is resistant to oral antibiotics. By reducing the size of sebaceous glands, and normalizing keratinocyte development, isotretinoin has long term disease modifying potential. Recent studies show that laboratory abnormalities are seen in <1% of patients. Guidelines now recommend only checking alanine aminotransferase and triglycerides prior to initiation and at peak dose.[4] More research has also emerged regarding concerns of isotretinoin and psychiatric side effects. A 20 year retrospective study, showed suicide rates among patients treated with isotretinoin were lower than the national average.[7] In a recent study, authors found that treatment with isotretinoin was not associated with an increased incidence of neuropsychiatric diagnoses (ie: mood disorders, anxiety) when compared to treatment with oral antibiotics.[9] In fact, multiple studies suggest that isotretinoin may improve quality of life and decrease symptoms

of anxiety.[4] Still, isotretinoin is often prescribed to the adolescent population which is at higher risk for depression and appropriate screening is indicated.

Diet can play a role. The pathogenesis of acne is multifactorial and related to follicular changes, hormones, microbial colonization and genetics. We know that a high glycemic diet can contribute to acne. Whereas, a Mediterranean diet, rich in omega-3-fatty acids, has been shown to improve acne in small studies. More data is also emerging about the role of probiotics (both oral and topical) to help treat acne, alone and/or in conjunction with prescription medications. This is an evolving field and hopefully will continue to expand in the future. In the meantime, we have many more options for acne now than we did even a decade ago. By taking a multimodal and personalized approach, we should be able to make a difference for our patients with acne.

References

1. Hay RJ, Johns NE, Williams HC, et al. The global burden of skin disease in 2010: an analysis of the prevalence and impact of skin conditions. J Invest Dermatol.2014;134:1527-1534.

2. Lim HW, Collins SAB, Resneck JS Jr, et al. The burden of skin disease in the United States. J Am Acad Dermatol. 2017;76:958-972.e2.

3. Cresce ND, Davis SA, Huang WW, et al. The quality of life impace of acne and rosacea compared to other major medical conditions. J Drugs Dermatol. 2014;13:692-697.

4. Reynolds RV, Yeung H, Cheng CE, et al. Guidelines for the management of acne vulgaris.. J Am Acad Dermatol 2024;90:1006.e1-30.

5. Dreno B, Nguyen JM, Hainaut E, et al. Efficacy of Spironolactone Compared with Doxycycline in Moderate Acne in Adult Females: Results of the Multicentre, Controlled, Randomized, Double-blind Prospective and Parallel Female Acne Sprionolactone vs doxycycline efficacy (FASCE) Study. Acta Derm Venereol 2024 ;104 :26002.

6. Hill RC, Wang Y, Shaikh B, et al. No increased risk of breast or gynecologic malignancies in women exposed to spironolactone for dermatolgic conditions: A retrospective cohort study. J Am Acad Dermatol 2024; 90(6):1302-1304.

7. Han JJ, Faletsky A, Barbieri JS. New Acne Therapies and Updates on Use of Spironolactone and Isotretinoin: A Narrative Review. Dermatol Ther 2021;11(1):79-91.

8. Rau A, Keri J, Murase JE. Management of Acne in Pregnancy. Am J Clin Dermatol 2024;25(3): 465-471.

9. Paljarvi T, McPherson T, Thompson C, et al. Neuropsychiatric diagnoses after isotretinoin initiation in pediatric acne patients : A retrospective cohort study. J Am Acad Dermatol 2024. May 23 :S0190-9622.

Dr. Nicole F. Vélez is a board certified dermatologist and Mohs surgeon at Pittsburgh Skin: Dermatology & Mohs Surgery, with offices in Shadyside and Cranberry, PA. She can be reached at nvelez@pittsburghskin.com.

Treatment Algorithm for Acne
*Adapted from [4]

	Mild	Moderate	Severe
1st line treatment	Benzoyl Peroxide or Topical Retinoid *Or* Topical Combination Therapy**	Topical Combination Therapy** *Or* Oral Antibiotic + Topical Combination Therapy	Oral Antibiotic + Topical Combination Therapy *Or* Oral Isotretinoin
Alternative treatment	Topical Dapsone	Consider alternate combination therapy *Or* Consider (1) change in oral antibiotic or (2) oral contraceptive and/or spironolactone in females *Or* Consider oral isotretinoin	Consider (1) change in oral antibiotic or (2) oral contraceptive and/or spironolactone in females *Or* Consider oral isotretinoin

**Topical Combination Therapy = benzoyl peroxide + topical antibiotic + retinoid