I love treating acne. It is so rewarding to help someone with skin problems, and especially so when that someone is a patient going through puberty. I enjoy helping teenagers with their acne and watching their entire attitude improve as their skin improves. Currently, I am debating how I will treat acne now that generic doxycycline may not be available and that my favorite oral medication, Oracea (doxycycline, Galderma), is not covered on a few of the larger insurance plans in our area. This, coupled with greater recognition that inflammation plays a role in the pathogenesis of acne, as well as having two children that are about to hit puberty, has left me re-evaluating my treatment approaches. We as dermatologists face a clinical conundrum. What can we do?

**SURVEYING THE SCENE**

First, I reviewed the consensus conference information. The most current I could find was from 2009, and it still advised me to use a topical retinoid, topical benzoyl peroxide, and oral antibiotic to treat most patients with acne.¹ I learned in residency that the microcomedone is the first lesion of acne. Since then, there has been research showing that the immune system, oxidative stress, and some foods can play a role in the initiation and pathogenesis of acne.² This makes me curious as to whether acne is one disease or a spectrum. Is the microcomedone the primary lesion in acne vulgaris? Are rosacea, perioral dermatitis, pomade acne, and friction acne due to musical instruments or athletic gear all in the acne family or are they all separate diseases?

I often ask myself, “Is it acne or is it not?” Do I need to see comedones to make the diagnosis of acne? The next natural question: If inflammation is involved so prominently in the pathogenesis of acne, should I be using steroids to treat acne? No. Should I use more tacrolimus (Protopic, Astellas) or calcitriol ( Vectical, Galderma), since these agents decrease inflammation but without the potential adverse events associated with corticosteroids? Maybe. So then should I be scolding people when they use UV light to treat acne? Yes, because the immunosuppressive benefits for their acne do not outweigh all of the risks of UV exposure. You get the idea—One question leads to another.

**HOW TO NAVIGATE**

This chain of questioning at least confirms what I already do for my first line treatment for acne. My first thought when treating someone who I have diagnosed with acne is to give them a topical retinoid (unless they are pregnant). When choosing a topical retinoid, my go-to is either adapalene 0.1% and benzoyl peroxide 2.5% gel (Epiduo, Galderma) or adapalene 0.3% (Differin, Galderma). There is evidence that, in addition to providing all of the benefits of a topical retinoid, adapalene has anti-inflammatory effects similar to betamethasone-17-valerate and therefore may be the most anti-inflammatory topical retinoid available.³ When treating

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How Should I Be Treating Acne in 2013?

One question leads to many others, but the answers aren’t all available. Dermatologists may be challenged to treat acne in novel ways.

**BY SANDY MARCHESE JOHNSON, MD**

“*I still believe that the practice of medicine in general and the treatment of acne specifically are an art as well as a science.*

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¹ *I still believe that the practice of medicine in general and the treatment of acne specifically are an art as well as a science.*
acne, patients need both a topical retinoid and benzoyl peroxide, which Epiduo provides in one formulation.

In residency, we were taught to use high doses of oral antibiotics to treat acne in addition to the use of topical retinoids and benzoyl peroxides. Oral erythromycin and tetracycline were falling out of favor, and azithromycin was not quite in vogue at that time. I was hesitant to use antibiotics with sulfa, since our father had an awful adverse reaction to sulfa. In addition, the discussions about antibiotic resistance were mounting, and I did not want to “waste” sulfa drugs for acne. So that left two camps: the doxycycline camp and the minocycline camp. I quickly joined the doxycycline camp because the two main side effects are gastrointestinal upset and photosensitivity. My prescriptions for minocycline stayed about zero, since one of my friends and a respected dermatologist was involved in a lawsuit involving minocycline, one of my peers in residency took minocycline and experienced incapacitating vertigo, and one of my patients developed a lupus-like reaction to the antibiotic. In addition, I saw too many people with the various types of minocycline-induced pigmentation.

So, at the turn of the century, my cocktail for acne looked like this: doxycycline 100 mg twice a day, adapalene 0.1% gel in the morning, Benzamycin at night, and benzoyl peroxide wash in the shower. I bet I bleached many a towel, pillow, and shirt. Then I read one of those articles that gave me an “Ah-ha!” moment. It detailed the use of low-dose doxycycline for acne. This way, there is less photosensitivity and GI upset, and prescribers no longer contribute to the increasing problem of antibiotic resistance. So I changed one ingredient in my acne cocktail from doxycycline 100 mg to doxycycline 20 mg. I then extrapolated using doxycycline 20 mg for conditions where I had used tetracycline for its anti-inflammatory effects, such as bullous pemphigoid and hand eczema.

Following the chain of my thought process, the next item that warrants attention is the role of *P. acnes* in the development of acne. I have seen the data that doxycycline 100 mg twice a day does not decrease the incidence of *P. acnes* on the skin. But add topical benzoyl peroxide to the doxycycline regimen, and *P. acnes* colonization decreases substantially. So if doxycycline does not target *P. acnes*, why should I be using antimicrobial doses of doxycycline to treat acne? Does a higher dose of doxycycline give a more robust anti-inflammatory response? That does not appear to be the case. Rather, inhibition of the matrix metalloproteinases, specifically MMP-8, by doxycycline reaches 100 percent at 50 micrograms/ml. Therefore, higher doses of doxycycline will not further decrease inflammation.

If acne is partially due to inflammation and oxidative stress, as well as *P. acnes*, why is benzoyl peroxide a treatment of choice? Benzoyl peroxide generates free radicals. Is the decrease of *P. acnes* more important than the contribution of oxidative stress? Moreover, is there a causative relationship between food and acne? What about the hormones added to food and their effect on acne? What about hormonal treatment for acne? There are so many questions and so few answers. I should note that there is evidence for a hormonal component to acne for some people, and I believe that hormonal therapy should be included in the armamentarium for some female acne patients. I will encourage patients to consider this therapy when appropriate, and I do prescribe spironolactone when appropriate.

UNRAVELING THE MYSTERY

I am a firm believer in isotretinoin for management of severe recalcitrant cystic scarring acne. At our clinic, we jump through the hoops of iPledge because we want to keep this medicine available. We typically are treating about 40 patients per month with isotretinoin at our clinic. I also rely on chemical peels, blue light, and laser for the treatment of active acne and the residual pigmentation and scarring from having suffered from acne.

To manage acne and encourage optimal skin health requires that dermatologists be able to creatively adapt regimens, recognizing that the number of prescribed therapies may vary from patient to patient. I personally use a topical retinol with antioxidants—green tea and resveratrol—on my skin daily. For my teenage nephew who plays football, I have prescribed Oracea, Epiduo, and dapsone gel 5% (Aczone, Allergan). I added Aczone for its anti-inflammatory properties and so he would better “tolerate” Epiduo. For our own pre-pubertal children (my husband is also a dermatologist), we are asking them to use Differin lotion three times per week for now.

I still believe that the practice of medicine in general and the treatment of acne specifically are an art as well as a science. I appreciate those great dermatologists and researchers who came before me. I thank those dermatologists, researchers, and pharmaceutical companies dedicated to dermatology who continue to unravel the mysteries of acne. ■

Dr. Johnson is a speaker for Galderma.

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