

# A Rational Approach to Treating Adult Acne

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Treating patients with adult acne is a common challenge that dermatologists face. Adult acne differs from adolescent acne in its chronicity and typical clinical presentation. Successful therapeutic regimens target the multiple pathogenic factors that cause acne while considering the properties of adult skin. A combination of topical and oral medications and adjunctive procedures should be tailored to the adult patient's need for optimal results. Recent advances in these areas have increased options for therapeutic armamentaria. Particular attention should be paid to formulations that are compatible with the dry sensitive skin of many adults with acne. Proper skin care, an essential component of effective acne therapy that is necessary for patient compliance, should be emphasized.

Acne vulgaris is among the most common conditions that dermatologists treat. It traditionally has been considered a disorder of adolescence; however, growing attention is being given to acne in the adult population.<sup>1</sup> Adult acne may represent chronic persistent acne from adolescence, or it may appear in adults who did not have acne as adolescents. Adult acne differs from adolescent acne in its chronicity and clinical features; adults tend to have a low-grade chronic form. Flares in women often are related to hormonal fluctuations that may occur during the premenstrual period, upon discontinuing oral contraceptives, with pregnancy, or during perimenopause. Adult acne lesions most often are localized to the lower part of the face (eg,

chin, jawline, neck). In contrast, adolescents may have more widespread involvement, with comedonal acne occurring most commonly on the forehead, nose, and chin.

Recent studies have highlighted the prevalence of adult acne in women. In one survey of 91 women, 80% of respondents reported persistent acne while 58% reported an ongoing need for treatment.<sup>2</sup> Another survey showed that women older than 33 years had a 53% rate of premenstrual acne flare.<sup>3</sup> These surveys also showed that adult women often do not seek medical treatment for their acne. Reasons cited include the belief that their acne will clear spontaneously or that no effective therapy exists. Adult acne may be psychologically distressing, may negatively affect employment,<sup>4</sup> and often accompanies stressful life events such as pregnancy and menopause. This article addresses advances in the treatment of adult acne and focuses mainly on women because they comprise most of the patients with this condition.

The pathophysiology of acne has 4 main factors: androgen-influenced excess sebum production, abnormal follicular desquamation of keratinocytes in the pilosebaceous duct, proliferation of *Propionibacterium acnes*, and inflammation. Rational therapy for all patients with acne targets each of these pathogenic factors. Topical and oral medications and adjunctive procedures are combined for optimal results, and recent advances in these areas have

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## TREATING ADULT ACNE

increased therapeutic options. Furthermore, proper skin care is an essential component of effective acne therapy.

The treatment of adult acne shares the same principles as those of adolescent acne, but adult skin requires special consideration for therapeutic tailoring. For instance, adults with acne may have dry or sensitive skin. This has led to the development of formulations containing vehicles that are less irritating and drying and more compatible with cosmetics. In addition, recognizing the importance of hormonal influences on adult women with acne allows dermatologists to harness available therapies that can minimize hormonal flares. Patients with adult acne also may have age-related concerns, such as uneven skin texture or pigmentation, that should be considered during treatment consultations.

### TOPICAL THERAPIES

The cornerstone therapy for patients with mild to moderate acne is the use of topical retinoids (eg, tretinoin, adapalene, tazarotene). These vitamin A derivatives normalize the skin's keratinization process and were once used mainly for comedonal acne; however, retinoids are now known to have both comedolytic and anti-inflammatory properties.<sup>5</sup> Therefore, topical retinoid therapy should be initiated early in adults, even if most of the lesions are inflammatory. Topical retinoids also are essential in maintenance therapy because they prevent microcomedone formation.<sup>5,6</sup> Additionally, topical retinoids may provide the added benefit of reducing early signs of photoaging, such as fine wrinkles, lentigines, and surface roughness.

Benzoyl peroxide and topical antibiotics (eg, erythromycin, clindamycin), alone or in combination, have long been used for treating acne. Combination products are preferable because the addition of benzoyl peroxide prevents resistant *P acnes* strains from developing—a condition that can occur when topical antibiotics are used alone.<sup>6</sup> Older formulations of these topical antimicrobials were designed for the oily complexions of adolescents and were often too harsh for adult skin; however, newer topical antimicrobials are formulated in vehicles containing glycerin, which is a humectant, and dimethicone to increase tolerability and improve the skin's barrier function.<sup>7</sup> Combining antimicrobial and topical retinoid therapy reduces acne lesions faster and to a greater extent than antimicrobial therapy alone because more pathogenic factors are targeted.<sup>5,6</sup> Also, topical retinoids likely enhance the penetrability of antimicrobials.<sup>8</sup>

Anti-inflammatory agents containing sodium sulfacetamide and sulfur have experienced a comeback in recent years. They are available as washes, creams, and foams. In addition to reducing redness and inflammation, they have antimicrobial and keratolytic properties. Some

agents are tinted green to cosmetically reduce the appearance of redness.<sup>8</sup>

Azelaic acid is a dicarboxylic acid that is effective in treating patients with mild acne. It has modest comedolytic, antibiotic, and anti-inflammatory properties and may be beneficial in decreasing postinflammatory hyperpigmentation, which is especially important for darker skin.<sup>8,9</sup>

Topical therapies awaiting US Food and Drug Administration (FDA) approval include combination retinoid/antimicrobial agents (tretinoin 0.025% gel/clindamycin phosphate 0.1% and adapalene 0.1% gel/benzoyl peroxide 5%) and higher-potency formulations of existing topical retinoids (adapalene 0.3% gel). Recently, the FDA approved topical dapsone 5% gel for treating mild to moderate acne. Dapsone is a sulfone with both anti-inflammatory and antimicrobial properties. In clinical trials, it reduced the number and severity of all lesion types in patients with adult acne and posed no significant safety issues.<sup>10</sup>

### ORAL THERAPIES

Oral antibiotics have long been a mainstay treatment for moderate to severe inflammatory acne. Tetracycline and erythromycin are the most commonly used oral antibiotics, though trimethoprim/sulfamethoxazole combination also is an option. Because resistance of *P acnes* to oral antibiotics is a growing problem, therapy duration with these agents should be as brief as possible.<sup>6</sup> Recently, doxycycline at subantimicrobial doses has been used for its anti-inflammatory effect and as a maintenance regimen. The low dose decreases side effects and may prevent antibiotic resistance.<sup>11</sup>

Hormone therapy is an excellent adjunct for treating healthy adult women with acne, especially if their acne is resistant to conventional therapy. Androgenic hormones influence sebum production, so hyperandrogenism may be an important pathogenic factor in adult acne. Dermatologists should be aware of the classic triad of hyperandrogenism: hirsutism, acne, and alopecia. Most patients who present with adult acne do not have a systemic endocrine abnormality but instead have peripheral end-organ hyperreactivity. However, additional findings of oligomenorrhea/amenorrhea, infertility, obesity, and insulin resistance should prompt a screening laboratory evaluation. This evaluation should include levels of serum dehydroepiandrosterone sulfate, total and free testosterone, sex hormone-binding globulin, and a luteinizing hormone/follicle-stimulating hormone ratio. If abnormalities are detected, coordination with a gynecologist and/or endocrinologist is advised.<sup>12</sup>

Therapeutic agents for treating adults with hormonal acne include oral contraceptives, which inhibit ovarian

androgen synthesis; glucocorticosteroids, which inhibit adrenal androgen synthesis; and androgen receptor blockers (antiandrogens). The estrogen component of oral contraceptives also increases the levels of sex hormone-binding globulin, which binds testosterone and thereby leaves less biologically active free testosterone. The overall effect is decreased sebum production, which has been shown in one study to reduce acne lesions by nearly 50%.<sup>12</sup> Newer oral contraceptives use lower doses of estrogen and consequently have fewer side effects. Patients need to be evaluated to ensure that they are appropriate candidates for oral contraceptive therapy. Contraindications to oral contraceptives include hypertension, history of stroke or cardiovascular disease, and blood clotting disorders.

Spirolactone is an antiandrogen that is a useful adjunct to oral contraceptive therapy for adult women with hormonal acne. It is especially appropriate for women who have hirsutism or androgenic alopecia in addition to acne. A dosage of spironolactone 25 mg twice daily is effective for many patients and may be increased to 50 mg twice daily if needed. It should not be prescribed to pregnant women because of the risk of feminization to the male fetus. Drospirenone is the progestin component of drospirenone 3.0-mg/ethinyl estradiol 0.030-mg tablets and has the unique property of being an analogue of spironolactone. Because of its dual antiandrogenic and antimineralocorticoid activity, drospirenone may not only improve acne and hirsutism but also may decrease the fluid retention associated with premenstrual syndrome.<sup>13</sup>

Isotretinoin is the agent closest to curing severe nodulocystic or conglobate acne. It is a naturally occurring vitamin A metabolite that reduces sebaceous gland size and normalizes follicular epithelial desquamation. Isotretinoin has weathered recent scrutiny due to reported pregnancies (despite strict prescribing regulations) and a purported association with depression. On August 12, 2005, the FDA approved iPLEDGE™, a new regulatory program that requires all prescribers and wholesalers of, patients on, and pharmacies selling isotretinoin to participate in a mandatory registry.<sup>14</sup> The effect that the iPLEDGE program will have on the use of isotretinoin as acne therapy remains to be seen.

## ADJUNCTIVE PROCEDURES

Many procedures may be useful adjuncts to the aforementioned therapies for patients with adult acne. However, these procedures are not first-line therapies and should be used within the context of a standard therapeutic program. These procedures include comedone extraction, intralesional corticosteroids, chemical peels, light therapy, and treatment of acne scarring.

Comedone extraction and intralesional corticosteroid injections are the standard methods of treating persistent or isolated lesions. Pretreatment with a topical retinoid optimizes the benefits from comedone extraction.<sup>6</sup> Intralesional corticosteroid (triamcinolone 2.5 mg/mL) injections may reduce the inflammation of large acne cysts or nodules and facilitate their healing.

Once acne is brought under control, light chemical peels may offer additional benefits. Salicylic acid, or “lunchtime,” peels have a keratolytic effect, particularly on the follicular epithelium, and also may have anti-inflammatory effects. Glycolic acid peels decrease corneocyte adhesions and thus cause shedding of dry scales from the skin surface. They act to increase the penetration of topical medications and improve postinflammatory hyperpigmentation.<sup>8</sup> Trichloroacetic acid peels are helpful for patients with mild acne scarring. Peels may be repeated at regular 2- to 4-week intervals for optimal results initially and then less frequently for maintenance. Adults may experience the additional benefit of reduced early signs of photoaging.

Blue-light therapy is FDA approved for treating acne. Blue-light sources emit peak wavelengths at 415 nm, which cause the accumulation of excess porphyrins in the skin that are toxic to *P. acnes*.<sup>8</sup> In addition, blue-light therapy may shrink sebaceous glands and improve skin texture. Clinical trials are under way to evaluate the effectiveness of photodynamic therapy using 5-aminolevulinic acid and various light sources. Blue-light therapy has proven successful in the treatment of many patients with adult acne.<sup>15</sup>

Despite efforts to control adult acne, scarring still may result. Many methods for treating acne scarring exist. Thick hypertrophic scars may be treated with cryotherapy, corticosteroid injections, or dermabrasion; depressed scars may be injected with dermal fillers; and superficial depressions may be treated with nonablative laser therapy. Active acne and acne scarring may be treated simultaneously with pulsed dye laser therapy.<sup>16</sup> More significant ice-pick scars require punch excisions or ablative laser resurfacing procedures. Boxcar scars may be managed with punch elevation, excision, or grafting; subcision; or resurfacing.

## ACNE DURING PREGNANCY

Pregnant women may experience new-onset acne or exacerbation of preexisting acne flares. Treatment options are limited because of the known teratogenicity of certain systemic therapies, as well as potential fetal harm from penetration of topical therapy. Therefore, conservative treatment with topical antimicrobials is recommended until the postpartum period after breast-feeding has ended.

### SKIN CARE

Skin care is as important an aspect of acne therapy as prescribed medications because the proper skin care routine actually may enhance patient compliance. Patients may experience dryness, peeling, and irritation at the beginning of any acne therapy regimen. Adult skin is especially prone to these side effects. Patients with adult acne should be advised to cleanse with a mild synthetic detergent (syndet) cleanser and avoid harsh exfoliants, scrubs, and alcohol-based products. Toners may be useful for patients with oily skin. Products containing salicylic acid and polyhydroxy acid are preferable to those containing  $\alpha$ -hydroxy acids because the former are lipophilic and may enter the sebaceous follicle to act as comedolytics.<sup>6</sup> Moisturizers act to improve the barrier function of skin and reduce irritation. Noncomedogenic products with the fewest ingredients are recommended. Although retinoids are not photosensitizing per se, the thinned stratum corneum of treated patients may make these individuals more susceptible to irritation from UV exposure. Therefore, all patients with adult acne should be advised to use a sunscreen daily.

*Acne cosmetica* describes acne lesions attributable to the use of cosmetics, but its existence is debatable.<sup>17</sup> Because of the negative psychological effect of facial acne lesions, expecting adult patients to avoid using cosmetics is unrealistic. Dermatologists should advise their patients with adult acne to use cosmetics formulated specifically for acne-prone skin. These products usually are labeled *non-comedogenic* and/or *nonacnegenic*. Oil-free products usually contain liquid silicones (eg, dimethicone and cyclomethicone). Loose transparent powders may absorb excess sebum and are preferable to pressed, oil-containing powders. Powder blushes and eye shadows are preferable to creams and liquids; matte lipsticks are preferable to glosses that may cause comedogenesis along the vermilion border of the lip.<sup>18</sup>

### CONCLUSION

Successful treatment of adult acne involves understanding the pathogenic factors that cause acne and choosing therapies that are appropriate for adult skin. Topical medications available in new vehicle formulations may minimize irritation and protect the skin barrier while treating and preventing acne lesions. Among oral agents, hormone therapy specifically tackles an important pathogenic factor of acne in adult women. Office-based procedures such as extractions, peels, and photodynamic

therapy may be useful adjuncts to standard first-line acne treatment regimens. Some therapies, such as topical retinoids and chemical peels, may serve a dual purpose by reducing the signs of photoaging. Emphasizing proper skin care and cosmetic use is critical in optimizing patient compliance. A rational therapeutic approach combines these tools to improve acne effectively in the adult patient.

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