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James Q. Del Rosso

Clinical Considerations in the Treatment of Acne Vulgaris and Other Inflammatory Skin Disorders: a Status Report 1

James J. Leyden, James Q. Del Rosso, and Guy F. Webster

This article reviews the anti-inflammatory and nonantimicrobial effects of antibiotics in acne and other diseases and examines issues relating to the emergence of decreased bacterial sensitivity to antibiotics and how these issues relate to clinical practice. It includes an overview of the inflammatory activities of some antibiotic agents and their potential for use in various dermatologic and nondermatologic diseases. It demonstrates that *P. acnes*-resistant organisms may be associated with therapeutic failure in some patients with acne, and that the prudent use of antibiotics is necessary to ensure that we can continue to use these drugs to combat disease effectively. It concludes that there are treatment strategies that can effectively minimize the potential for development of resistant *P. acnes* organisms.

A Current Review of Topical Benzoyl Peroxide: New Perspectives on Formulation and Utilization 17

Emil A. Tanghetti and Karl F. Popp

Benzoyl peroxide (BPO) is the most widely used topical acne treatment, with significant antibacterial, antikeratolytic, and comedolytic activity. It has been shown to be extremely effective as monotherapy and in combination with antibiotics or retinoids for managing comedonal and inflammatory acne lesions. As numerous clinical studies have shown, the combination of BPO plus a topical antibiotic is not only more effective but also is often better tolerated than either agent alone. Unlike antibiotics, no bacterial resistance has been noted. Adding BPO to any long-term antibiotic regimen in acne is generally recommended to help reduce populations of drug-resistant variants. Although effective combinations of BPO and antibiotics or retinoids are used, BPO monotherapy can also be extremely effective in treating mild to moderate acne with no resistance issues.

Topical Antibiotics in Dermatology: Emerging Patterns of Resistance 25

Dirk M. Elston

Resistance to topical antibiotics is increasingly relevant in dermatology. This article discusses emerging patterns of resistance and the implications for clinical practice. Emergence of resistance is complicating decolonization of the skin and nares in patients infected with methicillin-resistant *Staphylococcus aureus*. In the setting of acne treatment, adding topical benzoyl peroxide has been shown to reduce the emergence of strains resistant to topical antibiotics. Other agents, such as zinc salts, are promising in this regard. This article discusses alternatives to antibiotics and mechanisms to stem the emergence of resistance.

Optimizing Use of Oral Antibiotics in Acne Vulgaris

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James Q. Del Rosso and Grace Kim

Oral antibiotics are commonly used to treat acne vulgaris, primarily in patients presenting with moderate to severe facial or truncal disease severity. These agents are most appropriately used in combination with a topical regimen containing benzoyl peroxide and a topical retinoid. The most common oral antibiotics for treating acne vulgaris are the tetracycline derivatives, although macrolide agents such as erythromycin have also been used extensively. Over the past 4 decades, as the sensitivity of *Propionibacterium acnes* to several oral and topical antibiotics has decreased, the efficacy of oral tetracycline and erythromycin has markedly diminished, leading to increased use of doxycycline, minocycline, and other agents, such as trimethoprim/sulfamethoxazole.

How to Handle a CA-MRSA Outbreak

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Dirk M. Elston

Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) continues to make headlines because of large outbreaks in daycare centers and among members of athletic teams. CA-MRSA infections in children commonly lead to hospitalization. Life-threatening infections, such as necrotizing pneumonitis and brain abscess, can occur. The organism has crossed into hospitals and is now a common cause of hospital-acquired sepsis. Multidrug-resistant strains of MRSA are emerging in Asia, with the resistance based on either a novel gene cassette or a transmissible plasmid. The routine use of antibiotics in livestock seems to be contributing to the emergence of resistant organisms, and some of these have already produced human infection. Fortunately, most cutaneous CA-MRSA infections present as abscesses or furunculosis, and these manifestations generally respond to drainage. The recurrence and attack rates of close contacts are high and relate to persistent colonization.

Antibiotic Use in Sexually Transmissible Diseases

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Ted Rosen, Travis Vandergriff, and Mandy Harting

Sexually transmissible diseases (STDs) remain a major health issue worldwide, with approximately 300 million new cases annually. STDs caused by bacteria can be treated with antibiotics, although the susceptibility pattern of many etiologic microbes has changed over the past few decades. Syphilis remains best managed with single-dose benzathine penicillin G. Other single-dose antibiotic regimens for lues are either associated with clinical failure or of uncertain dosage. However, single-dose azithromycin and ceftriaxone are suitable for chancroid. Lymphogranuloma venereum, reemerged as a cause of proctitis, is treated with prolonged courses of doxycycline or minocycline. Trimethoprim-sulfamethoxazole has replaced tetracycline derivatives as preferred treatment for donovanosis in many regions. Parenteral cephalosporins, such as ceftriaxone, cefotaxime, and ceftizoxime, are initial interventions for disseminated gonococcemia. Pending culture results, genital bite wounds (often consisting of deep, painful ulcerations) should be treated with high-dose amoxicillin-clavulanic acid.

Atypical Mycobacterial Cutaneous Infections

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Sanjay Bhambri, Avani Bhambri, and James Q. Del Rosso

Atypical mycobacterial infections have been a cause of steadily growing infections over the past decades, especially in immunocompromised patients. They are

classified by their ability to produce pigment, growth rate, and optimal temperature. *Mycobacterium marinum*, *M. kansasii*, and *M. avium-intracellulare* are examples of slow-growing mycobacteria. *M. fortuitum*, *M. chelonae*, and *M. abscessus* are examples of rapidly growing mycobacteria. Atypical mycobacteria are ubiquitous in the environment. No specific treatment guidelines exist but a multidrug regimen combined with surgical modalities is often used for therapy.

When Antibiotics are Unnecessary

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J.V. Hirschmann

Dermatologists can decrease unnecessary use of antimicrobial agents by avoiding them in situations wherein good evidence indicates that they are ineffective. Controlled trials indicate that antimicrobial agents are unhelpful in treating cutaneous abscesses, inflamed epidermal cysts, uninfected atopic eczema, and cutaneous ulcers caused by venous insufficiency or diabetes in the absence of significant contiguous soft-tissue inflammation. Prophylactic antibiotics are rarely appropriate for routine dermatologic surgery and are not indicated for patients who have prosthetic joints or vascular grafts. They are recommended only for a small group of patients who have abnormal cardiac valves, and then only with surgery involving clearly infected skin or soft-tissue. Topical antibiotics are no better than white petrolatum in covering sutured wounds, and with moist occlusive dressings, no ointment is necessary.

Use of Antibiotics for Noninfectious Dermatologic Disorders

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Neal Bhatia

One fascinating element of medical dermatology is the diversity of available therapeutic agents, and dermatologists are well versed in applying the mechanism of action of a drug to modify a disease process. Oral antibiotics are the ideal example of pharmacologic agents that are effective against inflammatory processes and have obvious roles in infectious diseases.

Oral Antibiotic Drug Interactions of Clinical Significance to Dermatologists

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James Q. Del Rosso

Oral antibiotics are commonly prescribed by dermatologists in clinical practice. When prescribing an oral antibiotic, as with other systemic medications, it is important to consider potential interactions with other drugs, including over-the-counter medications. The most common drug interaction mechanisms that may lead to clinically significant sequelae are inhibition of GI drug absorption and alterations in drug metabolism. Tetracycline and quinolones undergo chelation interactions with many metal ions found in antacids and mineral supplements. Some macrolides, such as erythromycin, inhibit the hepatic metabolism of many other drugs, increasing the risk for toxicity. Rifampin increases the metabolism of many other drugs, thus predisposing to treatment failure. Drug interactions can only be averted if their potential is understood and recognized in advance.

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