Let the Oral Therapy Debate Begin
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Antibiotics have been used to treat acne for years, and they are effective therapies in a dermatologist's armamentarium. Tetracycline (minocycline and doxycycline) are first-line oral antibiotics. Macrolides, trimethoprim-sulfamethoxazole, and topical clindamycin or erythromycin are a few other options. The rationale for antibiotic use in acne is to inhibit cutibacterium acnes bacteria, which have low pathogenicity and cause antigenic stimulation and inflammation. Tetracyclines are antibacterial (they inhibit bacterial protein synthesis) and anti-inflammatory (they inhibit neutrophil chemotaxis, cytokine production, macrophage function, neutrophil release of reactive oxygen species, and matrix metalloproteinases). Minocycline was the first FDA-approved antibiotic for acne. It is lipophilic, reaches the sebaceous follicle, and is associated with the least antibiotic resistance. Common side effects include headaches and blue-black pigmentation; rare side effects include lupus like syndrome, liver and lung issues, and pseudotumor cerebri. Doxycycline is more commonly used for acne and rosacea, and has good anti-inflammatory properties. Side effects include esophagitis, candidiasis and photosensitivity. Patients are advised to take doxycycline with food and water early in the day.

Antibiotic stewardship is key. Tetracyclines are recommended: limit use to 3-6 months, use with topical benzoyl peroxide, avoid topical antibiotic monotherapy, and use topicals for maintenance. Broad-spectrum antibiotics impact the microbiome (diverse bacteria, fungi, and yeast that regulate the immune system) and maintain a low pH of the skin. The Annals of Dermatology demonstrated that minocycline produces significant derangements in the microbiota of the skin and gut, highlighting the potential for more targeted antimicrobial acne treatments. Numerous journals have described the association of oral tetracycline use for acne and development of gastrointestinal conditions. Recently, sarecycline was approved as a narrow-spectrum antibiotic for the treatment of acne. Sarecycline has a long C7 moiety, which overcomes the efflux pump. Importantly, it targets specific pathogenic bacteria, preventing resistance. The Centers for Disease Control and Prevention has an antibiotic stewardship initiative which promotes selection of narrow-spectrum over broad-spectrum agents and advocates antibiotics are prescribed for the shortest effective duration. Join the Acne and Rosacea Society for more information.