

FOR OUR PATIENTS

Macrolides and Tetracyclines for Chronic Inflammatory Diseases

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The summary below is based on a more extensive article that appears in the January 2005 issue of *The Annals of Pharmacotherapy* (volume 39, no. 1, pages 86-94). The full report is entitled “Use of Macrolides and Tetracyclines for Chronic Inflammatory Diseases ” and is authored by Stacy A Voils PharmD, Martin E Evans MD, Matthew T Lane PharmD, Robert H Schosser MD, and Robert P Rapp PharmD. It was first published in *The Annals Online* on November 23, 2004 and can be accessed at <http://dx.doi.org/10.1345/aph.1E282>.

What diseases are macrolides and tetracyclines used for?

Macrolides (for example, erythromycin, clindamycin) and tetracyclines are antibiotics used to treat infections. They are also increasing being studied or used for chronic conditions such as acne, rosacea (a skin disorder that causes flushing of the face, neck and upper chest), blepharitis (inflammation of the eyelids), periodontitis (inflammation of the gums), rheumatoid arthritis, coronary artery disease, and cystic fibrosis. These drugs have anti-inflammatory properties, as well as the ability to inhibit or kill pathogens that may cause these diseases.

Why is there a concern about these drugs in the treatment of chronic inflammatory diseases?

Doxycycline and the newer macrolides are now recommended for the treatment of some types of pneumonia. Overuse of these antibiotics may decrease their effectiveness against respiratory pathogens that cause short-term illnesses, such as pneumonia.

Which antibiotics should be chosen for chronic inflammatory diseases?

Antibiotics are often prescribed for months or even years for acne. Researchers recommend low-dose doxycycline for extended time periods.

Current recommendations for rosacea include long-term doxycycline, minocycline, tetracycline, or erythromycin. However, no major clinical trials have been performed to assess their effectiveness.

The American Academy of Ophthalmology recommends the chronic use of either doxycycline or tetracycline for the management of blepharitis.

Periodontitis can be treated for long periods with low doses of doxycycline. Larger clinical trials are needed to confirm the role of macrolides in periodontitis.

Azithromycin, a macrolide, has been used in patients with cystic fibrosis because of its antibacterial and antiinflammatory properties. Patients receiving this drug maintain better lung function, require fewer courses of intravenous antibiotics, and have improved quality of life. However, there are no data demonstrating a stronger survival benefit in patients who have taken macrolides.

Results from published clinical trials do not support the use of macrolides or other antibiotics for the prevention of a repeat heart attack or stroke. Of note, two trials are continuing to study the role of macrolides in the prevention of cardiovascular disease.

For patients suffering from rheumatoid arthritis, it appears that minocycline has some effect on the progression of the disease. However, measures of improvement were often difficult to measure with certainty. Further studies are needed to better define the role of minocycline in the treatment of this disease.

How serious is the resistance to antibiotics becoming?

Resistance to one or more antibiotics increased from 35% in 1991 to 56% in 2000. Resistance to erythromycin, clindamycin, and tetracycline approximately doubled over this period. Resistance to the macrolides is increasing and may have reached rates up to 43%.

What approaches should be followed to preserve the effectiveness of antibiotics against acute infectious diseases?

Alternative antiinflammatory medications should be used for chronic inflammatory conditions whenever possible. For instance, high-dose ibuprofen and oral corticosteroids may be beneficial for patients with cystic fibrosis. Clinical trials comparing the effectiveness of antiinflammatory agents with antibiotics should be performed.

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