Macrolides

Macrolides are broad-spectrum antibiotics used for respiratory infections, pneumonia in Legionnaire's disease, and as an alternative for penicillin. These drugs can be remembered by having the suffix "-thromycin." Examples can be recalled by the acronym "ACE" for azithromycin, clarithromycin and erythromycin.



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End in "-thromycin"
Throwing-mice
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Mechanism of Action

Bacteriostatic
Bacteria-shocked
This class of medication works by inhibiting protein synthesis in bacteria, as it binds to ribosomal subunits within their cells. These medications don't directly kill bacteria, but inhibit their growth, making macrolides bacteriostatic. Important to note that at higher doses and depending on the target organism, macrolides may be bactericidal.

Indications

Alternative for Penicillin Allergy
Pencil-villain with Allergy-alligator
Macrolides are useful in patients with penicillin allergies, as these drugs can serve as a replacement when treating streptococcal infections in patients. These drugs have a slightly wider spectrum of coverage than penicillin.

Respiratory Infections
Lungs Bacteria
These can be used to treat respiratory tract infections, such as Streptococcus pneumoniae and haemophilus influenza.

Pneumonia
Nude-Mona
This drug class is indicated for treating atypical pneumonias, such as Legionnaire’s disease. They can also be used for Mycoplasma pneumoniae and Chlamydial pneumonia infections.

Side Effects

QT Prolongation and Sudden Death
QT-heart Stretched and Suddenly Dying
It should be noted that these drugs can cause dysrhythmias from QT segment prolongation. Thus, patients with pre-existing QT elongation syndromes should avoid this drug, as it can lead to torsades de pointes (fatal ventricular dysrhythmia), and eventually sudden death.

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C.Diff Overgrowth

Classroom of Differential-equations with Overgrowth

Macrolide use, especially clarithromycin, has been associated with C. difficile overgrowth. This is a normal flora of the gut, which can thrive when other bacteria are affected by antibiotic use. Patients with C. difficile overgrowth can have severe diarrhea and complications from developing pseudomembranous colitis.

GI Distress

GI with Flare-gun

Macrolides are absorbed in the intestines, sent to the liver, and again excreted into the duodenum from the liver. This can lead to a buildup of the drug, leading to nausea and vomiting. Furthermore, patients can develop GI motility issues, diarrhea, and epigastric pain. Taking this medication with meals helps alleviate these side effects.

Considerations

Slow IV Infusion

Snail IV

For severe or systemic infections where macrolides are indicated for IV infusion, it is important to prevent the common problem of thrombophlebitis by diluting the medication and administering it slowly.

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