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Azithromycin - An Antibiotic

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Abstract: *Azithromycin is a macrolide antibiotic which inhibits bacterial protein synthesis, quorum-sensing and reduces the formation of biofilm. Accumulating effectively in cells, particularly phagocytes, it is delivered in high concentrations to sites of infection, as reflected in rapid plasma clearance and extensive tissue distribution. Azithromycin is indicated for respiratory, urogenital, dermal and other bacterial infections, and exerts immunomodulatory effects in chronic inflammatory disorders, including diffuse panbronchiolitis, post-transplant bronchiolitis and rosacea. Modulation of host responses facilitates its long-term therapeutic benefit in cystic fibrosis, non-cystic fibrosis bronchiectasis, exacerbations of chronic obstructive pulmonary disease (COPD) and non-eosinophilic asthma.Delayed inhibitory effects on cell function and high lysosomal accumulation accompany disruption of protein and intracellular lipid transport, regulation of surface receptor expression, of macrophage phenotype and autophagy. These later changes underlie many immunomodulatory effects of azithromycin, contributing to resolution of acute infections and reduction of exacerbations in chronic airway diseases. A sub-group of post-transplant bronchiolitis patients appears to be sensitive to azithromycin, as may be patients with severe sepsis. Other promising indications include chronic prostatitis and periodontitis, but weak activity in malaria is unlikely to prove crucial. Long-term administration of azithromycin must be balanced against the potential for increased bacterial resistance. Azithromycin has a very good record of safety, but recent reports indicate rare cases of cardiac torsades des pointes in patients at risk. Azithromycin is a broad-spectrum macrolide antibiotic with a long half-life and excellent tissue penetration.It is primarily used for the treatment of respiratory, enteric and genitourinary infections and may be used in preference to other macrolides for some sexually transmitted and enteric infections. Azithromycin has additional immunomodulatory effects and has been used in chronic respiratory inflammatory diseases for this purpose.Potential major adverse effects include cardiovascular arrhythmias and hearing loss. Macrolide resistance is also a problem, as are interactions with commonly prescribed drugs. Azithromycin, an antibiotic with potential antiviral and anti-inflammatory properties, has been used to treat COVID-19, but evidence from community randomised trials is lacking. We aimed to assess the effectiveness of azithromycin to treat suspected COVID-19 among people in the community who had an increased risk of complications.*

Keywords: Azithromycin; Clinical efficacy; Immunomodulation; Macrolide antibiotic; Mechanisms of action; Pharmacokinetics

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