



Evaluation of Antibiotic Use for Dental-related Infections in Dental Clinics Associated with an Academic Safety Net Institution

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INTRODUCTION

Oral antibiotics play a critical role in treating bacterial infections, offering a convenient method of administration for various conditions. This article explores the mechanisms of action, common applications, resistance issues, and considerations for the effective use of oral antibiotics. Oral antibiotics are medications used to combat bacterial infections by inhibiting bacterial growth or killing bacteria outright. They are often the first line of defense in treating infections due to their ease of administration, effectiveness, and patient compliance. This article discusses the mechanisms of action of oral antibiotics, their applications in various clinical settings.

DESCRIPTION

Antibiotics function through various mechanisms to combat bacterial infections. Oral antibiotics are prescribed for various bacterial infections, including, conditions such as sinusitis, bronchitis, and pneumonia are commonly treated with oral antibiotics. Amoxicillin is frequently prescribed for bacterial sinusitis, while azithromycin is used for certain types of pneumonia. Oral antibiotics like cephalexin and dicloxacillin are effective against skin infections such as cellulitis and impetigo. These infections are often caused by *Staphylococcus aureus* and *Streptococcus pyogenes*. Nitrofurantoin and trimethoprim-sulfamethoxazole are commonly prescribed for uncomplicated UTIs. These antibiotics effectively target the bacteria responsible for these infections, such as *Escherichia coli*. In dentistry, oral antibiotics like clindamycin and amoxicillin are used to manage infections associated with dental procedures, abscesses, and periodontal disease. Antibiotics like metronidazole and ciprofloxacin may be used to treat bacterial infections in the gastrointestinal tract, including those caused by *Helicobacter pylori*, which is associated with peptic ulcers. The efficacy of oral antibiotics is increasingly threatened

by the emergence of antibiotic-resistant bacteria. Resistance occurs when bacteria adapt and develop mechanisms to survive despite antibiotic treatment. The inappropriate use of antibiotics for viral infections or unnecessary prophylaxis can promote resistance. Patients who do not complete their prescribed antibiotic regimen may leave behind surviving bacteria that can develop resistance. The use of antibiotics in livestock for growth promotion can contribute to the spread of resistant bacteria. Addressing antibiotic resistance requires a multifaceted approach, including stewardship programs that promote appropriate prescribing practices, public awareness campaigns, and ongoing research into new antibiotics. When prescribing or using oral antibiotics, several important factors should be considered. It is crucial to ensure that the infection is bacterial and not viral before initiating antibiotic therapy. Diagnostic tests, including cultures, can help confirm the causative organism.

CONCLUSION

Oral antibiotics are a cornerstone of modern medicine, effectively treating a wide range of bacterial infections. Understanding their mechanisms of action, appropriate applications, and the challenges posed by antibiotic resistance is essential for healthcare providers and patients alike. By promoting responsible use and adhering to best practices, we can ensure the continued effectiveness of oral antibiotics in combating bacterial infections and safeguarding public health.

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CONFLICT OF INTEREST

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