

CARDINAL DECISION FOR AN ENDODONTIST TO MAKE: IS NOT ONLY, IN WHICH INFECTION TO USE ANTIBIOTIC, BUT WHETHER TO USE ONE AT ALL?

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ABSTRACT

Antibiotics are used in dentistry to treat an existing infection therapeutically or to prevent an infection prophylactically. They are cardinal in the management and prophylaxis of infection in patients at risk of experiencing microbial disease. Endodontics is the field of choice where antibiotics are used extensively. In addition, they are used to aid the host defences in the elimination of remaining bacteria. Most frequently, antibiotics are used and misused by dentists themselves. Dentists need to update the occurrent knowledge of pharmacology, pertaining to antibiotics and its indications in dental office. The present communication highlights the relative contraindications of antibiotics for an endodontist in routine dental practice.

Keywords: Antibiotic, Endodontic Pain, Odontogenic, Prophylaxis

INTRODUCTION

Alexander Fleming, Scottish bacteriologist, reported on the antibacterial action of cultures of a penicillium species in 1929. Dentists were also benefited greatly from discovery of penicillin because most odontogenic infections were believed to be caused by penicillin sensitive organisms. Judicious use of antibiotics in conjunction with surgical therapy is the most appropriate method to treat odontogenic infections. [1] Antibiotics are used in dentistry to treat an existing infection therapeutically or to prevent an infection prophylactically. It should be prescribed on the basis of a defined need otherwise their application may pose a risk to the patient. [2] They also may be administered to patients who have an existing medical condition or have received a previously placed device to reduce the risk of infection from a bacteremia (secondary prophylaxis). [3] They are cardinal in the management and prophylaxis of infection in patients at risk of experiencing microbial disease. In dentistry most often antibiotic prescription envelops prophylactic use for life-threatening diseases and prevention of postoperative infections. Even though many guidelines for the rational use of antibiotics have been published, recommendations often conflict. [4] They are most frequently used and misused drugs by dentist themselves. The antibiotic prescribed most frequently is penicillin or an analog, especially amoxicillin. [5] Endodontics is the field of choice where antibiotics are used extensively. [5, 6] The present paper portrays the relative contraindications of antibiotics for an endodontist in routine dental practice.

RELATIVE CONTRAINDICATIONS OF ANTIBIOTICS

The inflammatory process results in endodontic pain, which is most commonly related to microbial irritation, but can also be related to mechanical or chemical factors.[7] The most commonly used antibiotic in dental practice, penicillins in general, were found to be the most commonly prescribed antibiotics by dentists, [8,9,10] the most popular one being amoxicillin, [11,12,13,14] followed by penicillin V,[15,16,17] metronidazole, [11,12] and amoxicillin and clavulanate. Endodontic diseases involve the dental pulp and related peri radicular tissues. More common dental infections present in the form of pulpitis and periapical periodontitis, which require only operative measures like restorations, root canal therapy, or extraction if the tooth is not restorable. Surprisingly, dentists still prescribe antibiotics for this condition. [18, 19, 20]

In pulpitis, the inflammation is confined and is not a true infection. Treatment is removal of the inflamed tissue; antibiotics should not

be used, although a recent survey vindicated that dentists occasionally do so. [5] Acute apical abscess is the most common abscesses in the oral tissues and controlled clinical trials have substantiated that penicillin is of no benefit as a supplement to appropriate local treatment. [21] Cellulitis is a more severe manifestation of the localized abscess. The recommended antibiotic is penicillin, administered orally and with aggressive dosages but still considered as supplemental treatment. [22] Controlled prospective clinical trials have explicated that antibiotics are of no benefit in treating symptoms preceding root canal treatment. [23] Adverse reactions (flare-ups) occur infrequently. [24,25,26,27] Clinical trials experimenting the effectiveness of prophylactic antibiotics to minimize post treatment infections in other oral surgical procedures have found antibiotics to be of no benefit. A considerable percentage of dental pain occurs from acute and chronic infections of pulpal origin, which demands operative intervention, rather than antibiotics. [28]

Non-indicated clinical cases for antibiotic use include acute periapical infection, dry socket, and pulpitis. [29] The misconception which still prevails among the dentists is that, antibiotics need to be used for particular number of days to destroy the resistant strains. [30] But in doing so the bacteria are frequently exposed to some antibiotics, so they mutate and become resistant to the antibiotics. The existence of antibiotic-resistant bacteria creates the danger of life-threatening infections that don't respond to antibiotics. The antimicrobials should be prescribed only in selected cases, preferably after confirmation with culture and sensitivity tests, to prevent emergence of AMR. Antibiotics should be prescribed at the correct frequency, dose, and duration so that the minimal inhibitory concentration is exceeded, and so that side effects and the selection of resistant bacteria are prevented. [11]

CONCLUSION

To end with, clinical and bacteriological epidemiological factors determine the indications of antibiotics in dentistry. Antibiotics are prescribed for oral conditions related to endodontic, oral surgical, and periodontal manifestations. In addition, they are used to aid the host defences in the elimination of remaining bacteria. [31]They need to be used as supplement treatment rather than an alternative. [32-35] Dentists need to update the occurrent knowledge of pharmacology, pertaining to antibiotics and its indications in dental practice. Prescribing practices of dentists can be improved by

increasing awareness among dental practitioners of the recommended guidelines.

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