

Antibiotic Prophylaxis in Dental Implants: A review

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Abstract:

Introduction: Dentists are often faced with the tough decision of whether to prescribe prophylactic antibiotics for complex oral surgeries such as dental implants. Although these decisions are generally made on a case by case basis, if antibiotics were improperly prescribed, it would produce a greater difficulty in treating infections.

Materials and methods: Antibiotics are used to prevent infections. If a dental implant does become infected, the chances of implant failure become high. While a huge number of factors can ultimately lead to the failure of dental implants, most of us take extra precautions regarding infection.

Generally, Amoxicillin and Penicillins are prescribed as first line of treatment, due to their superior absorption rate and prolonged serum levels. In today's population, however, there is increased levels of penicillin allergies. In such cases, Clindamycin is used as an alternate with excellent results. The use of antibiotics in implant dentistry is controversial. While, pre-operational standard guidelines regarding antibiotics are possible to form; however, post-operational will need to be based on procedural outcomes during, and after completion of the operation.

Conclusion: The non-evidence-based practice protocol of prescribing prophylactic antibiotics raises serious ethical concerns. Surgeons and general practitioners are routinely placing implants with antibiotics perhaps due to the fact that they are fearful of the repercussions of implant failure. The negative impacts associated with use of antibiotic therapy must be assessed in comparison to the costs and morbidity. The dental professionals must be careful, to not only prescribe antibiotics only when necessary, but also work towards performing implant procedures with utmost care and importance given to sterilization and a maintenance of aseptic conditions before and during the procedure.

Keywords:

Antibiotics, Amoxicillin, Penicillins, Clindamycin.

Introduction:

Dentists are often faced with the tough decision of whether to prescribe prophylactic antibiotics for complex oral surgeries such as dental implants. Although these decisions are generally made on a case by case basis, if antibiotics were improperly prescribed, it would produce a greater difficulty in treating infections.

A study that was done in 2000 revealed that 40% of dentist prescribed antibiotics to patients with no relevant medical history as a contingency for infection. It is crucial that appropriate case specific guidelines are available for the use of prophylactic antibiotics.

Materials and Methods:

Antibiotics are used to prevent infections. If a dental implant does become infected, the chances of implant failure become high. While a huge number of factors can ultimately lead to the failure of dental implants, most of us take extra precautions regarding infection.

Early implant failure has been associated with certain strains of bacteria including streptococci, anaerobic Gram-positive cocci, and anaerobic gram-negative rods. The antibiotic of choice for the prevention of delayed wound healing should be bactericidal and have low toxicity.

Generally, Amoxicillin and Penicillins are prescribed as first line of treatment, due to their superior absorption rate and prolonged serum levels. In today's population, however, there is increased levels of penicillin allergies. In such cases, Clindamycin is used as an alternate with excellent results.

The use of antibiotics in implant dentistry is controversial. Major concerns associated with the widespread use of antibiotics is the evolution of antibiotic resistant bacteria. There is dear that the routine use of antibiotics may lead to lax surgical techniques and actually increase the rate of complications.

Currently, only high and some moderate risk category patients are suggested for prophylactic antibiotic therapy during dental implants.

While, pre-operational standard guidelines regarding antibiotics are possible to form; however, post-operational will need to be based on procedural outcomes during, and after completion of the operation.

There is a general consensus amongst dental practitioners and clinicians that antibiotics are overused. Some alternative methods to lower the risk of infection, and reduce use of antibiotics include the use of Chlorhexidine digluconate (CHX), a mouthwash rinse. CHX, when used as a preoperative rinse, has proven to be efficient aid in promoting healing and reducing other surgical complications that may occur.

Lambert, et al. (1997) found that the infectious complications which lead to implant failure were more likely to occur during the closed healing period. CHX rinse, therefore, has been proven to be an effective alternative in reducing infectious complications from implant surgery when routinely used.

Other factors that affect the success rates of implants are intraoperative management, skill of the surgeon, and the patient's medical status. Early loading of the implant, lack of sufficient alveolar bone, and patient factors such as hygiene levels, use of alcohol and tobacco, all increase the chances of postoperative infection.

Conclusion:

The non-evidence-based practice protocol of prescribing prophylactic antibiotics raises serious ethical concerns. Surgeons and general practitioners are routinely placing implants with antibiotics perhaps due to the fact that they are fearful of the repercussions of implant failure. The cost-benefit ratio of any therapy, including all potential adverse effects, must be determined.

Use of antibiotics is reported to reduce the infection rate, but inappropriate and non-judicious antibiotic administration can lead to side effects. Side effects are complications associated with Gastrointestinal System, resistant bacteria, secondary infection, antibiotic toxicity, and adverse reaction. Some other, more serious side effects are anaphylactic reactions and pseudomembranous colitis.

Hypersensitivity reactions can range from mild to fatal. Mild reactions include cutaneous eruptions such as rashes, urticaria, or exfoliate dermatitis. Another complication that may be seen with antibiotics is serum sickness, an immune complex condition. The most severe form of hypersensitivity

is immediate hypersensitivity including anaphylaxis, laryngeal edema, or bronchospasm. These may eventually lead to the death of the individual, if appropriate treatment is not given to the patient at the right time.

The negative impacts associated with use of antibiotic therapy must be assessed in comparison to the costs and morbidity. The dental professionals must be careful, to not only prescribe antibiotics only when necessary, but also work towards performing implant procedures with utmost care and importance given to sterilization and a maintenance of aseptic conditions before and during the procedure.

Ethical clearance – Not required since it is a review article

Source of funding – nil

Conflict of interest – nil

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