

Is Antibiotic Prescription required in All Cases of Dental Implant Placement?

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Generally prophylactic antibiotic is prescribed in cases with an infectious endocarditis, an immunodeficiency, or previous prosthetic instrumentation who were at high risk. Since long, antibiotics have been used commonly as surgical prophylaxis during the placement of dental implants. Today, resistance occurring due to antibiotic prescription is a very serious health threat faced by the world. Antibiotic toxicity, hypersensitive reactions, and resistant to microorganisms are the commonly found adverse effects found due to intake of antibiotics. It is utmost important to scrutinize the concept of routine administration of antibiotics to healthy patients undergoing dental implant placement. It seems to be controversial in implant dentistry for the prescription of antibiotics in individuals who are clinically healthy and are at low-to-moderate risk. Selection of antibiotic resistant bacteria is also one of the main concerns with the overprescription of antibiotics. In dental implantation, it is very important to understand the efficacy of prophylactic treatment.^{1,2}

Mauceri et al³ evaluated that prophylactic antibiotic helps in the reduction of contamination of bone particles by microorganisms, which are accumulated on the bur during osteotomy. They found that the antibiotic prophylaxis given can decrease, but did not eliminate totally, the chances of infection at the bone graft site. Park et al² in their systematic review determined whether there is any general agreement for prescribing antibiotics in healthy

patients undergoing implant placement. They found that antibiotic use in healthy patients for the prophylaxis of surgical infection associated with dental implant placement does not appear to improve clinical outcomes. They concluded that practitioners should apply the principles of antimicrobial stewardship and not use antibiotics as a routine measure in healthy patients.

Ahmad and Saad¹ evaluated in their systematic review about the success rate of dental implants with no prophylactic antibiotics prescribed and antibiotics prescribed preoperatively and postoperatively. They found that 92% success rate was found in cases with no antibiotic prescriptions, 96% success rate was found in cases with antibiotic prescribed only preoperatively, and 97% success rate was found in case with antibiotics prescribed only postoperatively. In cases where antibiotic was prescribed both pre- and postoperatively, it showed 96% success rate. Thus, patients who are at low-to-moderate risk of infection with dental implants show no benefit with the prescription of prophylactic antibiotics.

Evidences indicate that prescription of antibiotics before most of the dental procedures lacks a clear benefit compared with when antibiotics are not given in cases with the minimal risk of infection. Unnecessary use of antibiotics can lead to serious adverse drug effects which includes bacterial resistance, allergic reactions, and *Clostridium difficile* infection (CDI). Antibiotic prophylaxis given for short duration in cases of dental infections is found to be associated with CDI.^{4,5} Keenan and Veitz-Keenan⁶ in their study suggested that failure of an implant placed under ordinary conditions can be reduced with a prophylactic antibiotic regimen. However, in postoperative infections, no apparent differences were found in cases with or without antibiotic prescriptions.

Esposito et al⁷ evaluated the effects of prophylactic antibiotics given systemic during dental implant placement and compared it with cases where no antibiotic or placebo is given. They concluded that failure of dental implants placed in ordinary conditions can be reduced with administration of 2 gm of amoxicillin given 1 hour preoperatively. However, it is not very clear whether antibiotics administered postoperatively are beneficial.

Up to 72 to 85.5% of dentists from India, Finland, Sweden, UK, and USA are prescribing preoperatively and/or postoperatively antibiotics routinely during

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dental implant insertion. Today, antibiotic prophylaxis is very commonly indicated in dentistry, second only to respiratory infections. Role of antibiotic at the time of implant placement is very doubtful, whether they play an important role in decreasing the early incidence of failure of prosthesis, implant failure, any adverse effects or related postoperative complications is not very clear.^{2,5} It the time to decide whether to follow antibiotic prescription as a rule-based approach or to prescribe wisely in each case based on its merits.

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