

# Prophylactic Antibiotic Regimens in Conjunction with Routine Dental Implant Placement

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## Editorial

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## Editorial

Replacing missing teeth in partially and fully edentulous patients with dental implants has become an evidence-based treatment option in dentistry. However, while the published success rates have been high, implant failures do occur [1]. The investigations have proposed that infection is a major cause of early implant failure [2-6]. Microbial control is essential because pathogenic bacteria can introduce peri-implant infections that impair implant osseointegration [7]. Various preoperative antibiotic regimens have been proposed to prevent bacterial proliferation in patients [8-11]. Antibiotic prophylaxis AP may produce a local aseptic environment during the implant placement that is favorable for wound healing and osseointegration [12]. Major concerns associated with the widespread use of antibiotics is the evolution of antibiotic resistant bacteria [13]. However, their use in conjunction with implant surgery in healthy patients and its correlation with failure and success rates remains controversial. A Cochrane systematic review conducted by Esposito, et al. failed to provide evidence to recommend or discourage the use of prophylactic systemic antibiotics to prevent complications in dental implant placement [13]. Investigators in several randomized clinical control trials [14-17] and reviews [18,19] concluded that the use of AP may not be a benefit in patients at low and moderate risk receiving routine dental implants. In contrast, a Cochrane systematic review Esposito, et al. of four RCTs comparing various prophylactic antibiotic regimens versus placebo reported a statistically significant reduction in implant failure, with a risk ratio of 0.4, suggesting that the use of pre-operative antibiotics may be beneficial [17]. Although multiple recent RCTs [11,20,21] have provided evidence that use

of pre-operative antibiotics may reduce implant failures. Participants at the fourth European Association for Osseointegration Consensus Conference in 2015 also conducted a systematic review and evaluated the effects of AP on dental implant survival [10]. They concluded that there is no benefit of AP in uncomplicated implant surgery in patients who are healthy. Similarly, in a 2018 review, Park JS, et al. [22] suggested that antibiotics for patients who are healthy and are receiving dental implants may not improve clinical outcomes and should not be administered in all patients who are healthy but should be limited to patients who are immunocompromised who show systemic signs of infection. Furthermore, the specific antibiotic regimens proposed varied between the studies whose investigators recommended [8-10]. In conclusion, there appears to be no consensus among oral and maxillofacial surgeons regarding the use of antibiotics in association with routine dental implant placement, the type of regimen to use, or whether such use is even effective in preventing early implant loss. Investigators must conduct well-designed large-scale RCTs to determine the efficacy of AP and the various antibiotic regimens. If AP minimizes dental implant failures in the absence of such confounding variables, investigators in subsequent trials should determine the most effective antibiotic regimen.

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