Clinical Significance

Patients who receive implants should be made aware of the factors associated with the development of the complication of peri-implantitis. Problems with periodontitis, having ill-fitting and ill-designed prostheses, and the placement of cemented rather than screw-retained prostheses are all issues that should be addressed before implant placement. Avoiding such problems should reduce the risk for developing peri-implantitis.

Changi KK, Finkelstein J, Papapanou PN: Peri-implantitis prevalence, incidence rate, and risk factors: A study of electronic health records at a U.S. dental school. *Clin Oral Impl Res* 30:306-314, 2019

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Antibiotic prophylaxis

BACKGROUND

The routine prescription of prophylactic antibiotics for the surgical placement of dental implants remains a controversial area. Several reviews and meta-analyses have found antibiotic prophylaxis to be a good practice and recommend various regimens. Several other systematic reviews and analyses have concluded there is no benefit to the use of antibiotics given prophylactically for patients at low to moderate risk for infection who are receiving implants. Instead they recommend monitoring antibiotic use among dental practitioners. All of the publications have focused on preventing dental failure instead of preventing postoperative infections (POIs). None have addressed the major risks associated with antibiotic use. These risks include drug-related adverse events that can range from mild to lethal, with examples such as hypersensitivity allergic and serum reactions, direct organ toxicities, and superinfections. Dental implant surgery can involve POIs. The conflicting recommendations regarding antibiotic prophylaxis to avoid POI development require more complete evaluation focused on the most current literature. The efficacy of antibiotic prophylaxis and specific antibiotic regimens in dental implant surgery to prevent POI was investigated.

METHODS

The PubMed, CINAHL, Embase, and Dentistry & Oral Sciences Source (DOSS) electronic databases were searched up to July 14, 2017, In addition, the US National Institutes of Health Clinical Trials Database was searched for ongoing studies, bibliographies of previous reviews were evaluated, and a hand search of relevant studies published in dental journals from 2000 to 2017 was also performed. Ten randomized controlled trials (RCTs) covering 1934 patients were identified and analyzed. In addition to POI prevention, secondary analyses included wound dehiscence, pain, and adverse events.

RESULTS

Primary Outcome

The primary infection outcome was not statistically significantly different in all 10 trials.

The meta-analysis found no statistically significant difference in total POI and early and late POI regardless of whether antibiotics were given or in relation to specific antibiotic dosing groups versus comparative antibiotic regimens. The no antibiotic/placebo group and all antibiotic regimens groups showed no significant difference in POI. The various regimens included preoperative only administration, pre- and postoperative antibiotic administration, and pre- and postoperative or postoperative only antibiotic use. Dosing schedule comparisons also found no statistically significant difference in POIs.

POIs were investigated as those occurring overall, those developing within 1 to 2 weeks of surgery (early POI), and those delayed until 3 to 4 months after surgery (late POI). No difference in POI was found for early or late infections or for the various treatment groups (no antibiotic/placebo groups, all antibiotics, preoperative only groups, pre- and postoperative antibiotic groups, or pre- and postoperative/postoperative only antibiotic groups).

Secondary Outcomes

Secondary outcomes also showed no significant differences except for 1 for wound dehiscence and 2 for pain. When the

Clinical Significance

Based on these results, it appears that antibiotic prophylaxis may not be indicated to prevent POIs for patients who are in good general health when they undergo implant surgery. Large-scale RCTs are needed to determine if antibiotic prophylaxis is efficacious without reference to patient and surgical confounding variables. Research is also required to determine if more complicated implant cases that require additional treatments may benefit from the use of antibiotic prophylaxis. Once all the data are in, public policy makers should collaborate with clinicians to advocate for better medical stewardship in the use of routine antibiotic prophylaxis. Until this time comes, clinicians should evaluate each case thoroughly to determine the risks to the patient if antibiotic prophylaxis is given and if such prophylaxis be omitted.

various comparisons were run between antibiotic/no antibiotic or dosing groups, no statistically significant difference in wound dehiscence was found. Pain could not be analyzed because no 2 studies with the same treatment arms either assessed or reported pain in comparable terms. In addition, just 1 study reported adverse events for a treatment group.

DISCUSSION

No apparent difference was noted between the outcomes for prophylactic antibiotics given preoperatively, pre- and postoperatively, or just postoperatively and the outcomes of control groups. The development of infections immediately or late did not differ based on whether or not the patient had received prophylactic antibiotics, regardless of the schedule of administration.

Khouly I, Braun RS, Chambrone L: Antibiotic prophylaxis may not be indicated for prevention of dental implant infections in healthy patients. A systematic review and meta-analysis. *Clin Oral Invest* 23:1525-1553, 2019

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ORAL HYGIENE

Interactive power tooth brush for teen orthodontic patients

BACKGROUND

The increased risk for caries and gingivitis among adolescents is likely the result of the convergence of their lessened parental oversight of oral hygiene behaviors, frequent consumption of sugary and acidic drinks and snacks, and highly valued social and academic demands and distractions that diminish their motivation to perform regular, careful tooth brushing. As a result, dental plaque goes undisturbed, promoting the development of caries and gingival disease. Adolescents worldwide experience these influences, but adding fixed orthodontics into the mix can increase the risk of poor oral hygiene. Power (electric) toothbrushes have been shown to be superior to standard manual toothbrushes for plaque removal. Some also offer tools for improved cleaning of orthodontic interbracket areas. Compliance with the use of a power toothbrush may be enhanced by their ability to link wirelessly through an application to a smartphone, allowing 2-way communication between the app and the toothbrush. The user then gets immediate information about how long he or she is brushing, if the force applied is excessive, and reminders to focus on specific areas of concern. The phone can also distract users by offering a newsfeed and calendar, increasing their engagement in the process. A study was undertaken to assess the plaque removal efficacy and the motivation associated with use of an interactive power toothbrush versus a regular manual toothbrush in an adolescent population wearing orthodontic fixed appliances.

METHODS

Sixty adolescents with fixed orthodontic appliances in both arches were randomly assigned to use an interactive power toothbrush with Bluetooth technology or a regular manual toothbrush. The adolescents were not supervised but were told to brush focus care areas identified by their dental practitioners for 10 added seconds. Plaque removal scores were obtained using the Turesky Modification of the Quigley-Hein Plaque Index (TMQHPI) and indicated the change from baseline values to those after 2 and 6 weeks. Actual brushing times were measured during supervised periods at screening and at post-treatment visits. The motivational aspects were reported by subjects at screening and at week 6.