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.

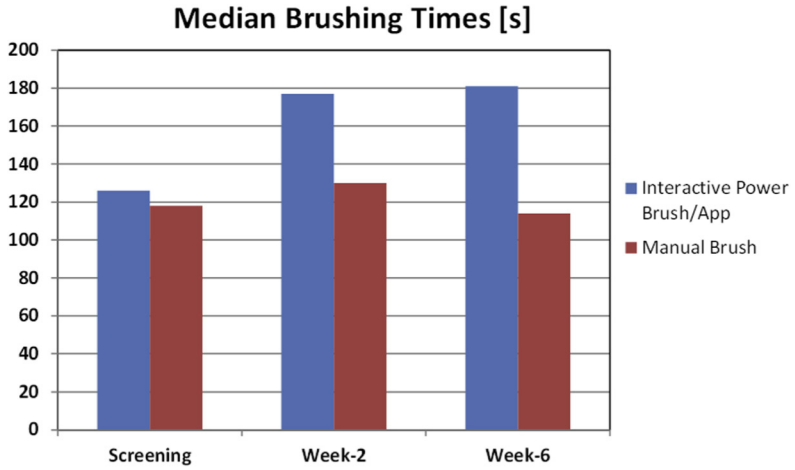

Figure 3. Median brushing times (126 and 118 seconds for the power and manual brushes, respectively) were similar at screening ($P = 0.411$). At week 2 (177 s for power and 130 s for manual) and week 6 (181 s for power and 114 s for manual), power brush users brushed significantly longer ($P \leq 0.002$) than manual brush users. (Courtesy of Erbe C, Klees V, Braunbeck F, et al: Comparative assessment of plaque removal and motivation between a manual toothbrush and an interactive power toothbrush in adolescents with fixed orthodontic appliances: A single-center, examiner-blind randomized controlled trial. *Am J Orthod Dentofacial Orthop* 155:462-472, 2019.)

RESULTS

Brushing Outcomes

Fifty-nine subjects completed the 6-week study. Evaluation showed the interactive power brush was significantly better as a plaque removal tool than the manual control brush after 2 and 6 weeks. Both groups experienced significant reductions in whole-mouth TMQHPI scores after 2 and 6 weeks compared to baseline.

When the focus care areas were evaluated, the interactive power toothbrush achieved significantly greater plaque removal than the manual control brush at both weeks 2 and 6. However, both groups also saw significant reductions in their mean plaque scores for the focus care areas at 2 and 6 weeks compared to baseline.

After 6 weeks the interactive power brush reduced the total number of focus care areas from 5.2 at baseline to 2.4. The manual control brush dropped the number of focus care areas from 5.5 at baseline to 1.5. The between-group difference favored the interactive power brush group, with a significantly greater reduction in focus care area prevalence than the manual brush group.

Median brushing time was 126 seconds for the interactive power brush group and 118 seconds for the manual control brush group (Figure 3). After treatment, the interactive power brush group had significantly longer median brushing times than the manual control brush group. After 2 weeks the median brushing time for the power brush group was 177 seconds, whereas after 6 weeks median brushing time was 181 seconds. For the manual brushing group, the times were 130 and 144 seconds, respectively. Changes in the brushing time were not significant for the manual brush control group, but the gains in median brushing time for the power brushing group, specifically 51 seconds at 2 weeks and 55 seconds at 6 weeks, were statistically significant.

Motivation Outcomes

Before beginning, subjects in the interactive power brush group were asked a question regarding their motivation to brush 2 times a day. On a scale from 1 to 5, with 1 as the highest motivation, the mean score was 2.63, with 43.3% of the adolescents responding with a 1 or 2. After 6 weeks, when the same question was asked, the mean score was 1.93, with 86.7% ranking motivation as a 1 or 2. This showed a significant improvement in motivation to brush twice a day.

When the same group was asked about their motivation to brush for at least 2 minutes, the mean response at baseline was 2.30, with 56.7% responding with a 1 or 2. At study end, the mean score was 1.83, with 73.3% responding with a 1 or 2. The increase in motivation was also statistically significant.

Over 93% of the individuals in the interactive power brush group responded with a 1 or 2 when asked if they agreed with the statement, 'With the app, I can do more for my oral care.' Ninety percent responded with a 1 or 2 to the statement, 'With the app, time goes faster during brushing.'

Adverse Events

No adverse events were reported. Both of the brushes were well tolerated by the subjects.

DISCUSSION

Use of an interactive power toothbrush not only increased plaque removal overall and in focus care areas better than a manual toothbrush, but it also increased brushing time and engagement with the process through the link with a smartphone. Adolescents can be difficult to motivate to be consistent in their oral health care. Using wireless technology that they are well-versed in and comfortable with can achieve better motivation as well as excellent results.

Clinical Significance

Populations who are at higher risk for oral disease, which would include adolescents with orthodontic appliances in place, require targeted, practical oral hygiene strategies that can adapt to their particular challenges. Having personal wireless technology linking a power toothbrush with a smartphone is not only relevant to the generation that most often undergoes orthodontic treatment but works on both the clinical and the motivational aspects of providing oral care in this situation. By engaging the individual, the app can provide quantifiable health and cost benefits.

Erbe C, Klees V, Braunbeck F, et al: Comparative assessment of plaque removal and motivation between a manual toothbrush and an interactive power toothbrush in adolescents with fixed orthodontic appliances: A single-center, examiner-blind randomized controlled trial. *Am J Orthod Dentofacial Orthop* 155:462-472, 2019

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ORAL SURGERY

Opioid prescribing protocol for third molar surgery

BACKGROUND

The United States is experiencing a tremendous surge in opioid overdoses and deaths that has been linked to the overprescription of opioids, which makes these drugs available for misuse, abuse, and diversion. Oral and maxillofacial surgeons, along with other dentists, are among the most prevalent prescribers of opioids. Evidence-based ways to diminish the excess prescription of opioids to dental patients while maintaining good management of postoperative pain are needed to guide the dental profession, as well as other prescribers. Broad guidelines are already in place to treat postoperative pain, but no procedure-specific guidelines have been developed for managing pain after third molar extraction. An opioid prescribing protocol was put into place in a university dental facility, and the effect on opioid prescribing behaviors was tracked.

METHODS

An opioid prescribing protocol specific to third molar surgery was put into place at the Division of Oral and Maxillofacial Surgery of the University of Minnesota, Minneapolis. The prescribing behaviors in the fourth quarter of 2015, before the protocol was in place, were compared with those behaviors in the fourth quarter of 2017, when the protocol was in effect. The retrospective analysis focused on 344 patients who underwent third molar extraction during the study period (Figure 1). The variables assessed included total number of postoperative opioid prescriptions written, number written for each procedure code, and number written per patient procedure. In addition, researchers documented the total number of postoperative opioid tablets prescribed, the number of tablets prescribed for each procedure code, the number of tablets prescribed for each patient undergoing each procedure code, and the average number of opioid tablets prescribed. The morphine milligram equivalent (MME) was calculated. All the variables were compared before and after the protocol was implemented.

RESULTS

Of the 344 patients who had third molar extraction during the study period, 173 were operated on before implementation of the protocol and 171 patients underwent surgery after the protocol was put into place. The surgery varied according to the patient's presentation and included surgical extraction, soft tissue impaction, partial bony impaction, or complete bony impaction.

Considerable changes in the number of opioid prescriptions were noted before and after implementing the protocol. Two hundred one prescriptions were written during the study period, with 164 (82%) written before the protocol and 37 (18%) written after. In addition, the various procedures differed in the number of opioid prescriptions written before and after implementation of the prescribing protocol, as did the number of tablets prescribed. Generally, increased surgical difficulty was identified as the rationale for prescribing opioids. Mean number of tablets per prescription was 15.9 in 2015 and 11.5 in 2017.

Notable changes were also seen in the number of nonopioid prescriptions written before and after the protocol was implemented. One hundred postoperative nonopioid prescriptions