

ORAL SURGERY CARE



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Happy Spring!

Enjoy our newsletter reviewing some of the latest in oral surgery and implant dentistry.

If you would like some in-office continuing education, I would be happy to present *Managing Dental Patients on Anticoagulants: It's Not Just Coumadin Anymore*. This talk reviews some of the recent changes in thinking about how to proceed with your patients who are on anticoagulants, as well as the new anticoagulants we are seeing. I would enjoy seeing you and your staff as well as presenting the topic. Call if you are interested.



Oral Surgery Care

We really appreciate the trust you place in us with your patient referrals. We are committed to making your patients' experiences good ones.

Regards,

Dr. Brent L. Florine

Comparison of Azithromycin and Amoxicillin Before Dental Implant Placement: An Exploratory Study of Bioavailability and Resolution of Postoperative Inflammation

Escalante MG, Eubank TD, et al.
J Periodontol. 2015 Nov;86(11):1190-200

Studies suggest that a single prophylactic dose of amoxicillin reduces early implant complications, but it is unclear whether other antibiotics are also effective. This study compared the local antimicrobial and anti-inflammatory effects resulting from a single dose of azithromycin or amoxicillin before surgical placement of one-stage dental implants. Healthy adult patients requiring one-stage dental implant placement were allocated randomly to receive either 2 g amoxicillin (n = 7) or 500 mg azithromycin (n = 6) before surgery. Peri-implant crevicular fluid (PICF) samples from the new implant and gingival crevicular fluid (GCF) from adjacent teeth were sampled on postoperative days 6, 13, and 20. Inflammatory mediators in the samples were analyzed by immunoassay, and antibiotic levels were measured by bioassay.

On day 6, azithromycin concentrations in GCF and PICF were 3.39 and 2.77 $\mu\text{g}/\text{mL}$, respectively, whereas amoxicillin was below the limit of detection. During early healing, patients in the azithromycin group exhibited a significantly greater decrease in GCF volume. At specific times during healing, the azithromycin group exhibited significantly lower levels of interleukin (IL)-6 and IL-8 in GCF than the amoxicillin group and exhibited significantly lower levels of granulocyte colony stimulating factor, IL-8, macrophage inflammatory protein-1 β , and interferon-gamma-inducible protein-10 in PICF. *Azithromycin was available at the surgical site for a longer period of time than amoxicillin, and patients taking azithromycin exhibited lower levels of specific proinflammatory cytokines and chemokines in GCF and PICF. Thus, preoperative azithromycin may enhance resolution of postoperative inflammation to a greater extent than amoxicillin.*

Effects of Antiseptic Solutions Commonly Used in Dentistry on Bone Viability, Bone Morphology, and Release of Growth Factors

Sawada K, Fujioka-Kobayashi M., et al.
J Oral Maxillofac Surg. 2016 Feb;74(2):247-54

Antiseptic solutions are commonly used in dentistry for a number of sterilization procedures, including harvesting of bone chips, irrigation of extraction sockets, and sterilization of osteonecrotic bone. Despite its widespread use, little information is available regarding the effects of various antiseptic solutions

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Dr. Brent Florine received his undergrad degree from the University of Minnesota College of Liberal Arts and attended the University of Minnesota School of Dentistry. He received postgraduate



dental and oral and maxillofacial surgery training at Louisiana State University and Charity Hospital in New Orleans, and the University of Minnesota Hospitals and Clinics. He is certified as a Diplomate of the American Board of Oral and Maxillofacial Surgery and has practiced oral surgery in Eagan since 1987.

Effects of Antiseptic Solutions ...continued

on bone cell viability, morphology, and the release of growth factors. The antiseptic solutions included 1) 0.5% povidone iodine (PI), 2) 0.2% chlorhexidine digluconate (CHX), 3) 1% hydrogen peroxide (H₂O₂), and 4) 0.25% sodium hypochlorite (HYP). Bone samples collected from porcine mandibular cortical bone were rinsed in the antiseptic solutions for 10 minutes and assessed for cell viability using an MTS assay and protein release of transforming growth factor (TGF- β 1), bone morphogenetic protein 2 (BMP2), vascular endothelial growth factor (VEGF), interleukin (IL)-1 β , and receptor activator of nuclear factor κ B ligand (RANKL) using an enzyme-linked immunosorbent assay at 15 minutes and 4 hours after rinsing.

After antiseptic rinsing, changes to the surface protein content showed marked alterations, with an abundant protein layer remaining on CHX-rinsed bone samples. The amount of surface protein content gradually decreased in the following order: CHX, H₂O₂, PI, and HYP. A similar trend was also observed for the relative cell viability from within bone samples after rinsing, with up to 6 times more viable cells found in the CHX-rinsed bone samples than in the HYP- and PI-rinsed samples. An analysis of the growth factors found that both HYP and PI had significantly lower VEGF and TGF- β 1 protein release from bone samples at 15 minutes and 4 hours after rinsing compared with CHX and H₂O₂. A similar trend was observed for RANKL and IL-1 β protein release, although no change was observed for BMP2. *The results from the present study have demonstrated that antiseptic solutions present with very different effects on bone samples after 10 minutes of rinsing. Rinsing with CHX maintained significantly higher cell viability and protein release of growth factors potent to the bone remodeling cycle.*

Open Contacts Adjacent to Dental Implant Restorations

Greenstein G, Carpentieri J, et al.
J Am Dent Assoc. 2016 Jan;147(1):28-34

The purpose of this investigation was to evaluate the potential causes, clinical significance, and treatment of open contacts between dental implant restorations and adjacent natural teeth. The authors searched the dental literature for clinical trials in humans that addressed the incidence of open contacts that develop after implant restorations are placed next to teeth.

The authors found 5 studies in which the investigators addressed the incidence of open contacts after implant restorations are inserted next to teeth. Results from these studies indicated that an interproximal gap developed 34% to 66% of the time after an implant restoration was inserted next to a natural tooth. This event occurred as early as 3 months after prosthetic rehabilitation, usually on the mesial aspect of a restoration. The occurrence of an interproximal separation next to an implant restoration was greater than anticipated. It appears that force vectors cause tooth movement and an implant functions like an ankylosed tooth. Clinicians should inform patients of the potential to develop

interproximal gaps adjacent to implant restorations, which may require repair or replacement of implant crowns or rehabilitation of adjacent teeth. Furthermore, steps should be taken to check the continuity of the arch periodically. *If the clinician detects an open contact, it is prudent to monitor for signs or symptoms of pathosis so that prosthetic repair of the gap can be initiated, if needed. These problems could add to treatment costs and decrease overall patient satisfaction related to implant treatment.*

Accuracy and Reliability of Cone Beam Computed Tomographic Measurements of the Bone Labial and Palatal to the Maxillary Anterior Teeth

Behnia H, Motamedian SR, et al.
Int J Oral Maxillofac Implants. 2015 Nov-Dec;30(6):1249-55

The purpose of this study was to measure the thickness of bone labial and palatal to maxillary anterior teeth on cone beam computed tomographic (CBCT) images and to compare these measurements with direct clinical measurements to determine the reliability and accuracy of CBCT. Eighteen healthy subjects were randomly selected from among candidates for immediate implant placement in the anterior maxilla. After extraction, labial bone thickness was measured at 1, 4, and 8 mm from the bone crest. Palatal bone thickness was also measured at 1 and 4 mm from the bone crest. The same measurements were performed on presurgical CBCT images. The CBCT measurements were compared to the direct measurements, and their accuracy and reliability were assessed by Pearson correlation coefficients and intraclass correlation coefficients, respectively.

The mean width of labial bone was 0.50 mm and 0.76 mm for direct and CBCT measurements, respectively. Average thickness of the palatal bone was 1.16 mm and 1.41 mm for direct and CBCT measurements, respectively. The mean absolute error and mean relative error of CBCT measurements compared to direct measurements were 0.28 mm and 0.60 mm, respectively. The Pearson correlation between CBCT and direct measurements was 0.795 and the intraclass correlation coefficient between direct and CBCT measurements was 0.840. The correlation between the measurement series increased significantly when the measured bone was more than 1 mm thick. CBCT measurements of labial bone mostly overestimated bone thickness. *CBCT has relatively good accuracy and reliability for measurement of labial bone thickness when the alveolar bone is thicker than 1 mm. However, most subjects have labial bone thinner than 1 mm; therefore, CBCT could result in large errors in many patients.*

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