

John Ley, DDS, Editor

“Outcomes of placing dental implants in patients taking oral bisphosphonates: a review of 115 cases” by Grant B-T, Amenedo C, Freeman K, Kraut R. J Oral Maxillofac Surg. 2008;66:223–230.

This paper examined the effect of dental implant placement in patients taking oral bisphosphonates. The authors sent a survey regarding bisphosphonate use to female patients older than 40 years who had dental implants placed at a single hospital over an 8-year period. Of the 1319 patients, 458 responded to the survey. Of those 458, 115 had reported taking bisphosphonates before or after implant surgery. Thirty-two of these patients also had sinus augmentation surgery. Of the 115 patients, 89 started bisphosphonate therapy prior to implant placement (33 patients took the drug longer than 3 years prior to implant placement). The remaining 26 patients started bisphosphonate treatment after implant placement. Seventy-two of the 115 patients were seen for clinical and radiographic assessment. Established criteria of implant success were employed. The results indicated that 468 implants were placed in those receiving bisphosphonates. Two implants failed. There was no incidence of osteonecrosis. These results suggest that no added complications with oral bisphosphonate therapy given before or after implant placement were present in this patient pool.

“Delayed versus immediate loading of implants: survival analysis and risk factors for dental implant failure” by Susaria S, Chuang S-K, Dodson T. J Oral Maxillofac Surg. 2008;66:251–255.

This retrospective study examined the effect of immediate load on implant success. Patients having at least 1 Bicon Implant (Bicon, Boston, Mass) placed at a private facility were included in the study. Implants immediately loaded were provisionally restored and stabilized by bonding to adjacent teeth or implants and placed into occlusion. Implants with delayed loading were placed into function at various intervals after placement. Implant failure was defined as implants needing removal. The results indicated that 855 patients had 2876 implants placed. There were 2349 implants loaded in a delayed fashion, and 477 implants loaded immediately. The 1-year survival estimates were 95.5% for the delayed loading group and 90.3% for the immediate loading group. These differences were significant. The immediately loaded implants were 2.7 times more likely to fail at 1 year.

Additional failure factors included jaw position (maxillary implants were 90% more likely to fail), tobacco use (2.6 times failure) and implant length (30% increase in failure for each 1-mm decrease in implant length). This study suggests that immediately loading the implant significantly increases the risk of implant failure.

“The effect of simvastatin on the remodeling of the alveolar bone following tooth extraction” by Wu Z, Liu C, Zang G. Int J Oral Maxillofac Surg. 2008;37:170–176.

This study examined the effect of a cholesterol-lowering drug, simvastatin, on the remodeling of extraction sockets in a rat model. Sixty male rats were divided into 2 equal groups. All animals had the mandibular right incisor extracted. In the experimental group, a mixture of simvastatin and polylactide-coglycolide (PLGA) carrier was placed into the socket. In the control group, PLGA alone was placed into the sockets. All sockets were closed primarily. The rats were killed at 1, 2, 4, 8, and 12 days postsurgically. The jaws were examined radiographically for residual ridge height with a standardized method. Additional tests were employed for bone mineral density and histologic assessment of the sockets. The results indicated that the residual ridge height was significantly greater in the experimental group. In addition, there was increased bone formation in the sockets with the application of simvastatin. These results indicate that local delivery of simvastatin may increase bone formation and preserve the alveolar ridge in extraction sockets.

“Dental implants placed in previously failed sites: survival rate and factors affecting outcome” by Machtei E, Mahler D, Oettinger O, et al. Clin Oral Implants Res. 2008;19:259–264.

This retrospective study examined the survival of implants placed into sites where implants have previously failed. Fifty-six patients who had previously lost 79 implants were included in the study. All patients had a history of chronic periodontitis. To be included in the study, the replacement implants had to be placed in the same site as the failed implants, had to be a similar implant, and had to be placed by the same dentist at the initial placement and at the redo. All patients were evaluated for the existence of systemic conditions that affect metabolism, the use of

tobacco, the presence of diabetes, parafunctional habits, and nonbiological implant failure (implant fracture or prosthetic failure). The results indicated that 16.5% of redo implants had failed after a mean observation of 29.9 months (range, 7–78 months). Most of the implants failed prior to loading. The most common reason for implant removal was mobility. Other reasons for failure included inflammation and suppuration and prolonged acute pain. Approximately half (55.7%) of the implants were placed in a submerged, 2-stage fashion. The authors did not find any correlation between implant length, the need for bone grafting at the time of implant placement, premature exposure of the implants, implant or prosthesis type, presence of diabetes, or smoking and the success or failure of the redo implants. The authors concluded that redo implants have a higher failure rate compared with implants placed in pristine sites. The failure of these implants did not seem to be related to implant or patient factors. The increased failure rate may be due to factors associated with the surgical site itself.

“Re-osseointegration on rough implant surfaces previously coated with bacterial biofilm: an experimental study in the dog” by Alhag M, Renvert S, Polyzois I, Claffey N. Clin Oral Implants Res. 2008;19: 182–187.

This study compared the efficacy of various techniques to decontaminate implants covered with a

bacterial biofilm prior to implantation in a dog model. Four dogs had their mandibular premolars extracted bilaterally. After 3 months of healing, three 3.75 mm × 10 mm Ti Unite implants (Noble Biocare, Gothenburg, Sweden) were placed in the left mandible in a method that left several threads exposed to the oral environment. After 5 weeks of healing, the implants were exposed, and the number of threads exposed in the mouth and above the bone were recorded. The exposed threads were then treated by 1 of 3 methods: (1) citric acid on a cotton pellet for 30 seconds followed by rinsing with saline, (2) cleaning with saline on a toothbrush for 1 minute, and (3) 10% hydrogen peroxide on a cotton pellet for 1 minute followed by saline rinse. All implants were then removed from the bone and placed fully into the bone on the right mandible. After 11 weeks of healing, the dogs were killed and the mandibles subjected to analysis. The results indicated that all treated areas were associated with bone-to-implant contact. There was significantly less bone-to-implant contact in the previously exposed threads. There was no difference between the methods used to disinfect the implants. These results suggest decontaminated rough implant surfaces can osseointegrate with bone but at a reduced rate compared with virgin implant surfaces. Within this study, there was no difference in the decontamination methods. The low numbers in this study limit the results.