What's New in Dentistry

Vincent Kokich, DDS, MSD

Estrogen status in postmenopausal women related to implant failure rate. Implants are commonly used to replace missing teeth in adults. The success rate of implants is highly predictable and is well over 90%. However, some implants fail to osseointegrate and must be removed. One of the essential requirements for adequate integration is that the patient's bone metabolism must be functioning properly. A study published in the *Journal of Oral and Maxillofacial Surgery* (59:1285–1289;2001), has shown that postmenopausal women are at higher risk for osteoporosis and implant failure if their estrogen levels are not supplemented. The sample for this study consisted of over 500 adult subjects who had had implants placed. This group was divided into several subgroups. The first subgroup consisted of females who were postmenopausal and were not taking estrogen replacements. The second subgroup consisted of women who were postmenopausal, but they were regularly taking estrogen replacements. The remaining subgroups consisted of young premenopausal females and also men who were over the age of 50 years. The implant failure rates of the groups were compared. Most surveys of implant success report an implant failure rate around 6 to 7% long term. For postmenopausal women without estrogen replacements, the implant failure rate in this study was twice that amount, or around 14%. The authors attribute the higher implant failure rate to an imbalance in the bone resorption and deposition rates caused by the osteoporosis. Estrogen replacements help to control this imbalance. The authors conclude that postmenopausal women who have implants placed should be receiving estrogen replacements.

Local antibiotic therapy reduces the severity of periodontal disease. Today periodontists recognize the benefit of systemic antibiotics in treating generalized aggressive periodontitis in adults. However, long-term antibiotic therapy could lead to the development of resistant strains of periodontal pathogens. Recently, researchers have developed fibers that are impregnated with tetracycline. These may be inserted into an active periodontal pocket, and provide direct local antibiotic therapy, rather than the systemic approach. But are these fibers as effective as traditional systemic delivery? That question was addressed in a study that was published in the *Journal of Periodontology* (72: 1241–1245;2001). The sample for this investigation consisted of 28 subjects with generalized aggressive periodontal disease. Each subject received initial root planning and curettage and was then assigned to one of two treatment groups. One group received systemic antibiotics and the other group had tetracycline fibers placed in the active pockets. After one year, the pocket depths were measured, and the clinical attachment loss was calculated. The results were equivocal, and demonstrate that adjunctive antibiotic therapy improves the clinical parameters independently whether the application is local or systemic.

Immediate implant placement yields high success rate. Most dental implants are inserted into edentulous alveolar bone to replace previously extracted teeth. However, when teeth are extracted because of trauma, extensive caries, or hopeless periodontal disease, the alveolar ridge resorbs and becomes narrower. Significant narrowing of the alveolus could adversely affect subsequent placement of an implant. Therefore, surgeons are now placing implants immediately after tooth extraction in order to avoid ridge resorption. But, will the success rate of immediate implant placement be as high as traditional delayed implant placement? An article published in the *Journal of Periodontology* (72:1560–1571;2001) evaluated this question. The sample for the study consisted of 48 adults who each had at least four implants placed in two symmetric quadrants. On one side the implants were placed in a mature edentulous ridge. In the contralateral arch, at least one of the four implants was placed in a fresh extraction socket. Then, after six months, the sulcus depths, gingival index, and clinical attachment levels of immediate and delayed implants were compared. In addition, one delayed and one immediate implant from each quadrant in each patient were removed and examined histologically to determine and compare the degree of osseointegration. The results showed no significant differences in the clinical and radiographic status of delayed or immediate implants. Histologic evaluation showed no connective or fibrous tissues present, and bone resorption was not present in any of the histological sections. This study has shown that immediate placement of implants into a fresh extraction socket demonstrates osseointegration that does not differ from implants placed in healed, mature bone.

Deep overbite and excessive overjet are not related to TMD. The role of malocclusion in the precipitation of temporomandibular disorders has changed over the past 25 years. In the past, many individuals regarded occlusal dysfunction as a primary cause of TMD. However, in recent

years randomized, prospective clinical trials have shown that malocclusion may have a minor cause and effect relationship to most temporomandibular symptoms. A recent study published in the *Journal of Dental Research* (81:164–169;2002), is another in a growing group of investigations that discounts the role of specific aspects of a malocclusion in the incidence of TMD. The sample for this study consisted of 3033 subjects. About one-third were adolescents, and the remainder of the sample was divided equally between adults and senior subjects. All individuals were completely dentulous and had a variety of occlusions and malocclusions. The primary objective of the study was to determine the amount of overbite and overjet and relate the severity of these measurements to the incidence of temporomandibular symptoms, such as limitation of mouth opening, locking during opening, joint noises, and pain. The clinical symptoms were obtained from each subject using a questionnaire. The results from this investigation clearly support the idea that wide ranges of overbite and overjet are compatible with normal function of the masticatory muscles and the temporomandibular joints. There was no association between the incidence of temporomandibular disorders and the severity of overjet and overbite. The authors concluded that attempting to prevent TMD by creating more normal values of overbite and overjet with dental treatment is not supported by their findings.

Delayed third molar extraction adversely affects periodontal health of second molars. A common decision that must be made after orthodontic treatment of adolescent patients is whether or not the mandibular third molars should be extracted. With the trend toward more non-extraction therapy today in orthodontics, there is even less room for third molars to erupt normally. Should the third molars be extracted early, or could the decision be delayed for a few years, until the adolescent is an adult? What is the periodontal impact on the mandibular second molar of extracting an impacted third molar? A study published in the *Journal of Periodontology* (72:1647–1651;2001), investigated the impact of extraction of impacted third molars on the periodontal health at the distal of the mandibular second molars. The sample for this study consisted of 57 adult patients with active periodontitis. In 232 sites, third molars were extracted. In the other 80 sites in this sample, third molars were congenitally absent. The third molars had been extracted at least five years previous to the investigation. Sulcus depth, attachment loss, and radiographic bone level were measured on the distal of the second molars and also on the mesial, which served as a control site. The authors found greater periodontal breakdown, with deeper sulcus depth and greater alveolar bone loss at distal sites where third molars had been surgically extracted compared to control sites. The authors suggest that periodontal re-evaluation after third molar extraction may be necessary to determine which patients may have developed periodontal defects.