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A comparative study of osseointegration of Avana implants in a demineralized freeze-dried bone alone or with platelet-rich plasma

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Abstract

Purpose: The purpose of this study was to assess the efficacy of demineralized bone powder (DBP) alone or combined in a mixture with platelet-rich plasma (PRP) used to enhance osseointegration of dental implants in a dog model. **Materials and Methods:** Tissue integration was assessed using standard histomorphometric methods at 6 and 12 weeks after surgery. A total of 30 Avana dental implants (SooMin Synthesis Dental Materials Co, Busan, Korea) were inserted in the animals. They were self-tapping screw implants, 10 mm in length and 4 mm in diameter, made of commercially pure titanium. A titanium implant was then placed centrally in each defect. In each dog, the defects were treated with 1 of the following 3 treatment modalities:1) no treatment (control), 2) grafting with DBP, or 3) grafting with DBP and PRP. **Results:** Histologic analysis showed that all of the bone defects surrounding the implants that were treated with DBP, with and without PRP, were filled with new bone. The defects that were not treated (control) showed new bone formation only in the inferior threaded portion of the implants. Histomorphometric results revealed a higher percentage of bone contact with DBP and PRP compared with control and DBP. **Conclusion:** These results suggested that bone defects around titanium implants can be treated successfully with DBP and that PRP may improve bone formation. *J Oral Maxillofac Surg 60:1018-1025, 2002*