Editorial

Implant stability and tissue preservation

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The topic of osseointegration in conjunction with bone grafts is very interesting. Previous studies conducted by our group have confirmed that platelet-rich plasma affects early healing response around implants. However, that effect appears to be brief. Researchers have proven in numerous studies that the effect of local growth factors probably lasts for only minutes or hours, and the effect in the healing process histologically can be seen for only three to four months. After six to twelve months, it is no longer detectable.

We have therefore moved to a more simplified treatment protocol. We are now using a technique for making a membrane from the patient's own blood. In this technique, blood is harvested from the patient who will be receiving a bone graft. The blood is allowed to coagulate; a platelet-rich fibrin membrane is produced from the coagulated blood. The membrane is used to cover the bone graft. Using monoclonal antibodies and other tools, we are now studying what happens when the platelets are subjected to this kind of handling. The aim is to determine whether platelets still continue to release growth factors that function normally or whether the processing inactivates the platelets to any extent.

The other facts that are important to consider are the costs and benefits of this kind of treatment. For the healthy elderly patient who has merely lost some teeth and bone, I believe that a careful cost-benefit analysis may not justify the additional therapeutic steps. Patients who have been treated for a malignancy with chemotherapy or even radiation to the head and neck region experience impaired vascularity. This may also impact patients with diabetes, peripheral vascular disease, or autoimmune disease. For these patient populations, the benefits of using platelet-rich concentrates to enhance healing are much more likely to justify the additional cost.