Open trial in 289 patients

Augmentation and Defect Reconstruction with a New Synthetic Pure-Phase Beta-Tricalcium Phosphate

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In a mono-center open trial, 325 patients were treated with beta-tricalcium phosphate granules for bone grafting. In 289 of them, Cerasorb M was used alone, in all others the bone grafting material was combined with autogenous bone. Filling bone voids left after wisdom tooth extraction, extraction sockets and apicectomy cavities were the most common indications. A membrane was used in 84 cases. The patients were followed up at 1 week, 3 and 6 months, some of them also at 9 months. Most of the defects repaired were up to 1.5 ccm in size, some of them up to 7 ccm. Handling of the synthetic granules proved to be easy. Depending on its amount and the site treated, the grafting material was resorbed after 3 to 9 months. Eight patients (2.8%) presented with signs of inflammation. In three of them, postoperative wound healing was impaired.

Introduction

Dental implants have become a generally accepted treatment modality in the prosthodontic management of edentulous and partially dentate patients. An adequate bone volume for accommodating root form implants and adequate primary implant stability ensuring implant osseointegration are key for a successful outcome.

Neukam and Buser [12] showed that a certain minimum bone volume both vertically and transversally is required for implant placement in the upper and lower jaw. But as most of the bone defects secondary to extractions continue to be left alone, the alveolar process is often severely resorbed particularly in the distal maxilla. In the upper jaw sinus descent may complicate vertical and/or horizontal bone loss and require sinus lifting.

Prosthodontists have come to insist on "backward planning" for implant placement based on ideal prosthodontic baseline conditions. Surgery-driven implant placement in what bone is available is no longer acceptable in the referral setting so that there is an increasing need for bone grafting and reconstruction.

Autografts and xenografts, which have widely been used for this purpose, no longer meet what is expected of a safe bone grafting material – not only because of the potential residual risks inherent in biologic materials [5, 6]. While bone autografts continue to be the "golden standard" for many users and for most clinicians, their functionality as a bone grafting material as well as the associated donor site morbidity and the risk of persistent damage to the patients are increasingly given critical attention [9], all the more so as a number of suitable synthetic grafting materials has been around for some time now. Whether or not autogenous bone still fulfills what is currently expected of a suitable bone grafting material should also be considered from an economic point of view.