Scientific & Clinical Evidence

cerabone®

Natural Bovine Bone Grafting Material

Facts

- CE since 2002
- so far no serious clinical complication or objection
- approx. 500.000 successful clinical treatments (09/2014)
- no product related recall or remark
Preclinical studies

1.

**Keywords:** Porosity; Density; Specific surface; cerabone®

Mat.-wiss. u. Werkstofftech. 2006, 37, No. 6

Numerical computation of the porosity of bone substitution materials from synchrotron micro computer tomographic data

S. Vanis, O. Rheinbach, A. Klawonn, O. Prymak, M. Epple

Different porous bone substitution materials were studied by synchrotron micro computer tomography (SRMCT). The digital data were analysed with respect to the geometrical parameters of the samples, i.e., porosity, specific surface, and connectivity of the pores.

**Results for cerabone:** Porosity 71.7%; Total volume 27.31mm³; Inner surface of Sample 134.28mm²; Specific surface per volume (solid phase and pores) 4.92mm⁻¹; Density of solid phase 3.16 g cm⁻³; Specific surface per gram 55.01 cm² g⁻¹; Type of porosity interconnecting.

2.

**Keywords:** Rabbit skull critical size defect; micro CT; new bone growth; cerabone® vs. BioOss

**Institute of bone science report; Seoul Korea**

Test period: 3 and 6 weeks; 3 animals per each test point cerabone® vs. BioOss

**Results for cerabone® vs. BioOss:** 3 weeks 40% new bone growth for cerabone® and 34.1% for BioOss 6 weeks 60.6% new bone growth for cerabone® and 52.1% for BioOss
Conclusion: Comparing cerabone® and BioOss, there were no significant differences during week 3. But, during week 6, cerabone® showed significant higher new bone growth compared with BioOss.

3.

Keywords: Rabbit critical size defect; histological examination; osseous consolidation; cerabone®

Evaluation of a novel nanocrystalline hydroxyapatite paste and a solid hydroxyapatite ceramic for the treatment of critical size bone defects (CSD) in rabbits

Franz-Xaver Huber, Irina Berger, Nicholas McArthur, Colette Huber, Hans-Peter Kock, Jürgen Hillmeier, Peter Jürgen Meeder

The purpose of our study was to test the effectiveness of Ostim nanocrystalline hydroxyapatite paste and cerabone® ceramic by treating a critical size bone defect (CSD) on the right foreleg of a white New Zealand rabbit.

32 animals, 4 groups, 60 days

Results for cerabone®: The cerabone® group presented good integration of the filling with the surrounding bone. The good bony integration of the whole cerabone® group could also be confirmed histologically. The honeycomb structure of the ceramic was filled to various extents with newly formed bone and bone marrow without any signs of fibrosis. Bone ingrowth rate for cerabone® was 26%. The bone ingrowth was calculated as the percentage of the ceramic pore space filled with new bone. The critical size defect of the cerabone® group was replaced with a median of 55% of newly formed bone.

Conclusion: Eight weeks post-op the results gained from the cerabone® group were similarly favourable to those of Endobon with full integration after three months.
Clinical results

4.

**Keywords:** sinus floor elevation; sintered natural bovine bone mineral; histological case report study; cerabone®

zzi 2011; 27 (1)

**Sinus floor elevation using a sintered, natural bone mineral**

D. Rothamel, R. Smeets, A. Happe, T. Fienitz, F. Schwarz, J. Zöller

The aim of the present study was the histological and clinical evaluation of the xenogenic bone substitute material cerabone® for the indications one stage and two stage sinus floor elevation.

12 patients; average age of patients 54.4 years; 15 Sinus lifts; histologically and histomorphometrically; 6 two stage procedures; lateral window covered with Jason® membrane; six months radiological control or biopsy was taken

**Results for cerabone®:** All patients showed good hard tissue regeneration of the sinus. Neither resorption nor dislocation of the cerabone® was observed. Radiologically, good volume stability of the graft was observed. Histologically, cerabone® was complete osseous integrated in newly formed bone matrix.

Newly formed bone 25.8-49.6%; Remaining cerabone 28.6-38.5%; in the two stage procedures, all implants achieved adequate primary stability.

**Conclusion:** After a healing period of six months, good bony consolidation of the augmentation was seen clinically and histologically in all patients.

5.

**Keywords:** nasal floor elevation; significant atrophy; implant survival rate; increased implant stability; cerabone®

Clinical Implant Dentistry and Related Research 2010
Nasal Floor Elevation Combined with Dental Implant Placement

Ziv Mazor, Adi Lorean, Eitan Mijiritsky, Liran Levin

The aim of the present study was to report on the survival of dental implants placed in conjunction with nasal floor elevation.

A retrospective cohort of 32 consecutive patients from two private practices was evaluated. Elevation and augmentation of the nasal mucosa performed simultaneously with dental implant placement. Patients age range from 35 to 76 (ave. 56.4 +/- 9.9 years).

Results with cerabone®: 32 patients; 100 implants with 100% implant survival; pre op available bone height was 9.1 +/- 0.9mm Range 7.3-11.2mm; bone addition with cerabone® was 3.4 +/- 0.9mm Range between 1.1-5.7mm; follow up time 27.8 +/- 12.4 months; no implant failure was recorded, resulting in 100% implant survival.

Conclusion: The nasal floor elevation with cerabone® might serve as a predictable procedure, which allows implant placement in areas with significant atrophy together with increased implant stability due to the bicortical support.

6.

Keywords: resorption, sinus lift, volume stability, cerabone® vs. BioOss

Influence of material properties on rate of resorption of two bone graft materials after sinus lift using radiographic assessment

Fawzi Riachi, Nada Naaman, Carine Tabarani, Nayer Aboelsaad, Moustafa N. Aboushelib, Antoine Berberi, Ziad Salameh

The aim of this study was to investigate the influence of chemical and physical properties of cerabone® and BioOss on the rate of resorption.
Results for cerabone® vs. BioOss: The amount of calcium release due to dissolution of material in water was much higher for BioOss compared to cerabone®. X-ray image analysis revealed that BioOss demonstrated significantly higher volumetric loss (33.4 +/- 3.1%) of initial graft size compared to cerabone® (23.4 +/- 3.6%). The greatest amount of vertical loss of graft material volume was observed after one year of surgery. All patients demonstrated adequate healing after grafting surgery without complications.

Conclusion: After four years from implant placement, it was observed that the height of BioOss graft was located at level of implant apex while this finding was not reported for cerabone®. Meanwhile at least 3mm of new bone remained on top of implants inserted in cerabone® graft.