

dentalnoj implantologiji. Može poslužiti kao nosač osteoinduktivnih dodataka poput morfogenetskoga proteina te podržati njegovo djelovanje.

Najpoznatiji su predstavnici te skupine Ceros 82, Calciresorb, Sinthograft, Augmen, Implant, a od novijih Cerasorb, Bio-Resorb i Biovision, pripravci na bazi beta-trikalcijeva fosfata.

Svrha je rada prikazati dinamiku cijeljenja koštanih defekata čeljusti zaostalih nakon operacije cista, tumora ili drugih patoloških promjena koje su punjene granulatom Bio Resorba i usporediti ih s drugim poznatim metodama liječenja.

Postupak je izveden na hospitaliziranim pacijentima s njihovim pristankom u Kliničkom zavodu za oralnu kirurgiju Kliničke bolnice Dubrava. Koštani su defekti punjeni potrebnom količinom granulata veličine zrnaca od 1000 - 2000  $\mu\text{m}$ . Rezultati cijeljenja subjektivno su procijenjeni raščlambom kontrolnih snimaka nakon 2, 4 i 6 mjeseci i uspoređivani s cijeljenjem istovrsnih šupljina liječenih drugim postupcima.

Od 37 pacijenata Bio Resorb je upotrijebljen u 10 slučajeva ( 3 radikularne ciste, 2 folikularne ciste, 2 odontogene keratociste i 3 traumatske koštane šupljine/ciste) koji su rezultirali koštanim šupljinama većim od 3 cm u promjeru. U jednome slučaju pacijentica je imala poteškoće s infekcijom pa su izbacivanje zrnaca i ponovne upalne smetnje trajali dva mjeseca poslije zahvata. U svih ostalih pacijenata nije bilo komplikacija, a obnova koštane strukture bila je završena u razdoblju od 4 do 6 mjeseci nakon zahvata. Prikazani primjeri i njihova usporedba s rezultatima dobivenim metodama ekskoleacije i dekortikacije čeljusti ili ekskoleacije i trajne poslijeoperacijske sukcije govore u prilog uporabe resorbilnoga trikalcijeva fosfata, osobito pri liječenju velikih traumatskih koštanih šupljina. Tom se metodom brže uspostavlja očekivana građa kosti nego drugim primijenjenim metodama.

## Application of Tricalcium Phosphate in the Treatment of Large Bone Cavities of Jaws

**Knežević G., Zagreb**

Clinical Department of Oral Surgery, University Hospital "Dubrava", Av. G. Šuška 6, 10000 Zagreb  
knezevic@sfzg.hr

Tricalcium phosphate -  $\text{Ca}_3(\text{PO})_2$  is a resorptive and bio-compatible calcium phosphate ceramic with the ratio of calcium and phosphate atoms very similar to natural osseous mineral. Thus in the tissue it behaves like its own bone transplant. On the market it appears in the form of granules of different size. It gradually becomes entirely resorbed during the conversion of bone and substitution with new osseous tissue. In oral surgery it is mainly applied for major bone defects which occur after cysts and tumours operations, and in dental implantology. It can serve as a carrier of osteoinductive supplements, such as morphogenetic protein, and maintain its activity. The best known representatives of this group are Ceros 82, Calciresorb, Sinthograft, Augmen, Implant, while more recent are Cerasorb, Bio-Resorb and Biovision, preparations on the basis of beta-tricalcic phosphate.

The purpose of the paper is to show the dynamism of healing bone defects of the jaw, remaining after operations for cysts, tumours, or other pathological lesions, which are filled with granulate Bio Resorba, and to compare them with other well-known methods of treatment.

The procedure was carried out in hospitalised patients with their consent in the Clinical Department of Oral Surgery, University Hospital "Dubrava." The bone defects were filled with the appropriate amount of granulates, 1 000 - 2 000  $\mu\text{m}$  in size. Healing results were subjectively evaluated by analysis of radiographs after 2, 4, and 6 months and compared with the healing of the same kind of cavities treated by other procedures.

Out of 37 cases Bio-Resorb was applied in 10 cases (3 radicular cysts, 2 follicular cysts, 2 odontogenic keratocysts and three traumatic bone cavities/cysts), which resulted in bone cavities larger than 3 cm in diameter. In one case a female patient

developed infection and rejection of the granules, and repeated inflammatory problems lasted for two months after the intervention. No other patient showed complications, and the renewal of bone structure was completed in the period from 4 to 6 months after the intervention. The presented examples and their comparison with the results obtained by methods of excochleation and decortication of the jaw, or excochleation and permanent post operational suction, favour the application of resorptive tricalcic phosphate, particularly in the treatment of large traumatic bone cavities. This method ensures faster establishment of the expected bone structure than other applied methods.

## Problematika implantacije u distalnoj regiji atrofične gornje čeljusti - implantacijske tehnike i prikazi slučajeva

**M. Krmpotić, D. Jelušić, Zagreb, Opatija**

Klinička bolnica Dubrava, Av. G. Šuška 6, 10000 Zagreb, mkrmpotic@kbd.hr

Ugradnja usatka u distalnu regiju atrofične gornje čeljusti obično je tehnički zahtjevan kirurški zahvat. Problem najčešće stvara nisko spušten maksilarni sinus. U prezentaciji su prikazane osnove sljedećih kirurških tehnika: 1. zaobilaženje sinusa - ugradnja usatka uz sam medijalni zid sinusa (bez penetracije u sinusnu šupljinu) s blagom distalnom inklinacijom; 2. transkrestalna kondenzacija dna sinusa osteotomima (Summers- tehnika)- kombinirana preparacija svrdlima i osteotomima uz završnu osteotomiju dna sinusa bez perforacije sluznice; 3. otvorena metoda podizanja dna sinusa vestibularnim pristupom - klasičan način pristupom kroz prozor u vestibularnome zidu sinusa, preparacija i potiskivanje sluznice te ugradnja materijala za augmentaciju (istodobno s ugradnjom usatka ili dvofazno).

Svaka metoda popraćena je prezentacijom kliničkih slučajeva.

Poznavanje svih triju metoda omogućuje iskusnom kliničaru riješiti sve situacije u implantološkom liječenju distalnih regija gornje čeljusti.

## The Problems Of Transplantation In The Distal Region Of The Atrophic Upper Jaw - Implantation Techniques And Case Presentations

**Krmpotić M., Jelušić D., Zagreb, Opatija**

University Hospital "Dubrava", Av. G. Šuška 6, 10000 Zagreb, mkrmpotic@kbd.hr

The insertion of an implant in the distal region of the atrophic upper jaw is usually a technically demanding surgical intervention. Most commonly the problem is a lowered maxillary sinus. The presentation describes the bases of the following surgical techniques: 1. bypassing the sinus - insertion of the implant alongside the medial wall of the sinus (without penetration into the sinus cavity), with slight distal inclination; 2. transcrestal condensation of the sinus floor by osteotomes (Summers-technique) - combined preparation by drills and osteotomes with final osteotomy of the sinus floor without perforation of the mucous membrane; 3. open method of lifting the sinus floor by the vestibular approach - classical method of approach through the opening in the vestibular wall of the sinus, preparation and pressing of the mucous membrane, and inserting of material for augmentation (simultaneously with the insertion implant, or in two phases). Each method is supplemented with a presentation of clinical cases.

Knowledge of all three methods enables the experienced clinician to solve all situations in implantological treatment of distal regions in the upper jaw.