ONLINE ISSN : 1880-3997
PRINT ISSN : 0917-2394

Pediatric Dental Journal
Vol. 17 (2007) , No. 2 pp.131-140

[PDF (622K)] [References]

Effects of sintered apatite on bone regeneration in rabbits

Kiyoshi Arai[1)], Harunori Okamoto[1)], Kensuke Matsune[4)], Kimiya Nemoto[2)], Norihiro Nishiyama[2)], Yoshinori Arai[3)] and Takahide Maeda[4)]

1) Department of Pediatric Dentistry, Nihon University Graduate School of Dentistry at Matsudo
2) Department of Dental Biomaterials, Nihon University School of Dentistry at Matsudo
3) Institute for Oral Science, Matsumoto Dental University
4) Department of Pediatric Dentistry, Nihon University School of Dentistry at Matsudo

(Received on February 17, 2007)
(Accepted on August 23, 2007)

Abstract Apatite is considered to be effective for bone regeneration when it contains calcium carbonate and β-TCP. In the present study, we made 3 different apatite preparations, hydroxyapatite, hydroxyapatite containing calcium carbonate, and hydroxyapatite containing β-TCP, using spark plasma sintering and compared their abilities for osteoinduction. For elucidation of bone regeneration, evaluations are generally made after euthanasia of experimental animals. However, the present R_mCT® procedure allowed such evaluations while the animals were alive. Our results showed that sintered HAP containing β-TCP was more effective for guided bone regeneration than the other test materials.

Key words Apatite, Bone regeneration, Calcium carbonate, Micro-CT, β-tricalcium phosphate (β-TCP)

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