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[\[PDF \(1763K\)\]](#) [\[References\]](#)**Combination with allogenic bone reduces early absorption of β -tricalcium phosphate (β -TCP) and enhances the role as a bone regeneration scaffold. Experimental animal study in rat mandibular bone defects**

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Abstract:

β -tricalcium phosphate (β -TCP) was grafted into rat mandibular bone defects to assess its potential as a scaffold material for bone regeneration. For this purpose, β -TCP (TCP), allogenic bone (Allograft), and allogenic bone combined with β -TCP (Combined) were employed as graft materials. To the left side of the graft materials in the bone defects, platelet-rich plasma (PRP) was added. The rats were sacrificed at one, three, and five weeks. Bone formation rate (BFR), remaining β -TCP rate (RTR), β -TCP absorption rate (TAR), whole amount of β -TCP (WTCP), and total rate of BFR and RTR (TBR) were measured. Combined showed equivalent BFR to Allograft at five weeks, and showed higher RTR at one week and higher BFR at five weeks than TCP. Combined with PRP showed higher TAR than that without PRP at three weeks. Therefore, combination with allogenic bone showed reduced β -TCP absorption, hence enhancing the role of β -TCP in bone regeneration. These findings suggested that β -TCP is a better scaffold for bone regeneration if its early absorption is reduced when used in combination with an osteogenic material.

Key words:

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