Evaluation of the efficacy and safety of two types of rhBMP-2-soaked bone graft materials in extraction socket preservation

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Introduction

Recombinant human bone morphogenetic protein-2 (rhBMP-2), which is a potent **osteoinductor**, has long been considered a promising avenue for **bone regeneration**, and has been commercially available for the treatment of oral and maxillofacial hard-tissue defects.

Purpose

The aim of this study was to evaluate the safety and effect of two types of rhBMP-2-soaked bone graft materials on extraction socket preservation.

Materials and Methods

Between October 2015 and September 2016, **bone graft** was performed in **64 patients** scheduled to receive implantation after single tooth extraction.

2 types of rhBMP-2-soaked bone graft materials

- 1) **O-BMP** (Osstem Implant Co., Busan, Korea; scaffold: collagen sponge)
: experimental group (n=32)
- 2) **Cowell BMP** (Cowell medi, Busan, Korea; scaffold: β -TCP)
: control group (n=32)

After covering the resorbable collagen membrane, the flap was closed.

Before and 12 weeks after the operation, **panoramic radiograph** and cone-beam computed tomography (CBCT) was used to **assess the changes in bone height, and the widths** at 25%, 50%, and 75% of the extraction socket levels.

Histological evaluation :

Patients who agreed to undergo **biopsy** were evaluated for histological healing by obtaining tissue specimens with a trephine bur at the time of implant placement. (3-4 months after bone grafting).

Results

Clinical results:

Both the experimental group and the control group showed **good healing without specific complications** such as infection.

Radiographic results:

CBCT evaluation of the width and height change of the extraction socket revealed that the amount of bone resorption in the experimental and control groups was not large and that **the shape of the extraction socket was well maintained**.

Histological results:

Both groups showed good healing state without inflammatory reaction and **new bone formation** increased with time.

Conclusions

Compared with Cowell BMP®, which has been proven effective and safe, O-BMP used in extraction socket preservation resulted in clinically and histologically better healing and preservation.