

R-20. The effect of calcium aluminate bone cement incorporating LiF-maleic acid on the bone regeneration of 1-wall intrabony defects in beagle dogs

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Background

The ultimate goal of periodontal treatment is not only to deter the progression of the disease, but also to functionally regenerate the already destroyed supporting tissues. One of the synthetic bone graft materials, calcium aluminate has an excellent biocompatibility, host adaptability, and mineralization capacity, which facilitates hard and soft tissue reconstruction.

Materials and Methods

In this the present study, LiF-maleic acid included calcium aluminate bony cement incorporating LiF-maleic acid was developed, with which had a fast setting time a low exothermic temperature and proper appropriate mechanical properties for the grafting of bony defects was developed, This cement was grafted into the 1-wall bony defects of beagle dogs, in order to evaluate the its regeneration capacity of in the periodontal tissues and observed the bonding tendencies to the bone and the reaction of the surrounding tissues to come up with the following conclusion was reached.

Results

In the control group, a slight amount of new cementum was formed along the root surface above the notch and new bone was formed above the notch. Inflammatory cell infiltration in the connective tissue was feeble. In the experimental group, the amount of new cementum and new bone formation was the same as that not observed as in the control group. The grafted calcium aluminate cement was not absorbed and fibrous connective tissue was epithelized around the particles of the grafted bony cement. Inflammatory cells were observed in the infiltrated connective tissue around the grafted bony cement.

Conclusion

Because of the certain favorable properties, such as its easy manipulation and its ability to maintain the morphology of the defect site by acting as a scaffold, the newly developed cement is appropriate suitable for us as a graft material, it and could be used very effectively in alveolar augmentation. However, further study needs to be conducted before it can be used as a bone graft materials for periodontal tissue regeneration.

* This work was supported by the Korea Research Foundation Grant (KRF-2002- 042-E00078)