ABSTRACT

Background. Hydroxyapatite and chitosan are biomaterials affording biocompatibility and osteoconductivity which may provoke tissue regeneration. This research studies the effect of hydroxyapatite-chitosan 30:70 and 70:30 application to promote fibroblast proliferation in bone regeneration.

Purpose. The study aims is to find the effective ratio to promote the amount of fibroblast proliferation in bone regeneration.

Method. This study used 20 local rabbits which are divided into 4 groups of samples based on ratio and treatment time. Each group consist of 5 local rabbits. Group A means treatment with hydroxyapatite-chitosan ratio is 70:30 and group B means 30:70 ratio. 7 and 14 are the long of treatment of certain group. The preparation of hydroxyapatite and chitosan are made by using freeze dry method. Local rabbits bone defect are made by using bone bur. Then, the hydroxyapatite-chitosan graft are being placed on the defect and the wound closed by suturing. Then all of the rabbits get treatment until day 7 and 14. Afterward, the local rabbits are being sacrificed to be histological specimens to have the amount of fibroblast proliferation were measured.

Result. There were little increase in 70:30 group instead of 30:70 group. But the result showing there were no significant difference between the 70:30 group and the 30:70 group when analyzed statistically using independent t-test with level of significance below 0.05 (Sig<0.05).

Conclusion. Hydroxyapatite-chitosan 70:30 promoting fibroblast proliferation in bone regeneration.

Keywords: hydroxyapatite-chitosan, fibroblast proliferation, bone regeneration