

APLIKASI SERBUK NATURAL HIDROKSIAPATIT-KITOSAN DENGAN  
KADAR 70:30 DAN 30:70 TERHADAP PROLIFERASI OSTEOBLAS

(APPLICATION OF NATURAL HYDROXYAPATITE-CHITOSAN POWDER  
WITH CONCENTRATION 70:30 AND 30:70 ON OSTEOBLAS  
PROLIFERATION)

ABSTRACT

**Background:** Combination of hydroxyapatite with chitosan has been concerned in local bone regeneration. Some researches have shown that combination of hydroxyapatite and chitosan has biocompatibility and good osteoconductivity. Nevertheless, there is no exact concentration between hydroxyapatite and chitosan which is effective on osteoblast proliferation. **Purpose:** The aim of this study is comparing HA:CS with concentration 70:30 and HA:CS with concentration 30:70 on osteoblast proliferation in rabbit's tibia. **Methods:** Defect was made with a diameter of 1.5 mm and a depth of 1 mm in 20 local rabbits. Rabbits were divided into 2 groups which are defect in group 1 received HA-CS 70:30 and defect in group 2 received HA:CS 30:70. Each of that groups was divided into 2 groups, they are 7 days and 14 days. Rabbits were sacrificed at 7 days and 14 days. The number of osteoblasts was evaluated using histologist preparations. These preparations are formed by cutting the tibia longitudinally, stained with hematoxylin eosin, and observed under light microscope. Outcome data was analyzed using statistical test One Way Anova and continued with LSD. **Results:** Application of HA:CS 70:30 14 days had the biggest influence on osteoblast proliferation. **Conclusion:** There is a significant increasement of osteoblast cell on HA:CS 70:30 application in 14 days comparing to 7 days and HA:CS 70:30 application in 14 days comparing to HA:CS 30:70 application in 14 days due to the increasement of alkaline phosphatase and osteocalcin activity in high hidroxyapatite concentration.

**Keywords:** hydroxyapatite-chitosan 70:30, hydroxyapatite-chitosan 30:70, osteoblast.