ABSTRACT

EFFECT OF SCAFFOLD BOVINE HYDROXYAPATITE-GELATINE-ALENDRONATE ON CLOSURE OF BONE DEFECT AND EXPRESSION OF ALKALINE PHOSPHATASE IN BONE

Dewi Novitasari

The main purpose of this study was to examine the effect of Bovine Hydroxyapatite-Gelatin-Alendronate (BHA-Gel-Ale) scaffold on the healing process of the defect and expression of Alkaline Phosphatase (ALP) on defect model. This study used 36 male Wistar strain rats that divided into 3 groups, namely positive control, BHA-Gel and BHA-Gel-Ale. Defect models were made by drilling the femur with a diameter of 2 mm in all groups. In the positive control group, the defect was not given a scaffold, in the BHA-Gel group the defect was given a BHA-Gel scaffold, and BHA-Gel-Ale scaffold for the BHA-Gel-Ale group. On the 14^{th} and 28^{th} day termination was performed to take the treated femur. Radiological analysis and ALP expression analysis with Immunoreactive Score (IRS) in the Immunohistochemistry (IHC) test was performed.

In the 14^{th} and 28^{th} day of radiological analysis, closure of the defect in BHA-Gel-Ale group was the worst among all groups. Furthermore, ALP expression in the BHA-Gel group was significantly higher than the positif control group ($p< 0.05$) but did not different with BHA-Gel-Ale group ($p>0,05$).

This study shows that BHA-Gel-Ale scaffold cross-linked with GA 0.5% does not improve the repairment of bone defects and ALP expression.

Keyword : Alendronate, scaffold, alkaline phosphatase, bovine hydroxyapatite-gelatin, glutaraldehyde.