ABSTRACT

Effect of Gentamisin addition in BHA-GEL-GA Implant on Bone Growth in Bone Defect due to Fracture (Observation with HE Staining)

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Gentamicin is a broad spectrum antibiotic. The effect of this agents is decrease infection in bone by againt the bacteria. There are some difference of opinion about the effect of Gentamicin on bone cells. The aimed of this study were to determined the effect of gentamicin in BHA-GEL-GA implant on bone growth in bone defect due to fracture using rat model with defect.

In this study, 54 male Wistar rats were divided into 3 groups: positive control (without implant) and two treatment groups (with implant) were BHA-GEL-GA and BHA-GEL-GEN-GA. Each groups is divided into 3 sub groups based on observation day (2^{nd} day, 7^{th} day, and 14^{th} day). Defect was created at the right femur of the rats. The diameter of defect was 2,2 mm and then filled it with implant for treatment groups. After 2^{nd} day,7^{th} day, and 14^{th} day, rats were terminated to take the femur. There were two analysis for this study: Radiological analysis to observe the closure of bone defect and histological analysis with haematoxylin-eosin staining for determining the number of bone cell (Osteoclasts, Osteoblasts, and Osteocyte).

The radiology analysis, shows that the BHA-GEL-GEN-GA implant on the 14th day looked fainter and fused when compared to BHA-GEL-GA implants. In addition, histological analysis, shows that there were no significant ($p > 0.05$) differences in osteoclasts, osteoblasts, and osteocytes between the BHA-GEL-GA and BHA-GEL-GEN-GA groups.

This study conclude that gentamicin in BHA-GEL-GA implant do not interfere the development of the bone cell in fracture healing.

Keyword : *Fracture, Gentamicin, Bovine Hydroxyapatite, Gelatin, Bone Cell, Glutaraldehyde*