

**ABSTRACT**

**Effect of Gentamicin on BHA-Gel Implants by Vegf Expression in Bone Defects Due to Fracture**

Ni Putu Krisma Perdana Putri

Fractures are neuromuscular damage due to tissue trauma or disconnection of bone tissue. Procedure to overcome incorrect fractures only use bone graft therapy with a surgical procedure that connects new bones or suggested materials (mixed matrices) damaged (defective). Complicated risks that can occur in the surgical process or in the management of closed fractures and open fractures are infections, this is because bacteria can attach to the bone or to the implant. Gentamicin is one of the bactericidal choice antibiotics that is used as a preventative and local infection. This study conducted on gentamicin in BHA-Gelatin pellet implants in bone defects due to fracture. The composition used in this pellets BHA: Gelatin (10: 1) and Gentamicin 10%. The aim of this research was to investigate the effect of adding gentamicin to BHA-Gelatin implants on bone repair using a model of Rat fractures, then drilled in the femur with 2,2 mm and given treatment in each group. After that, the termination is carried out to take the femur on the 2nd, 7th and 14th day after. The parameter use are measure reduction of bone defect with radiology and see new growth of bone cell which was described by VEGF expressions on *immunohistochemical* staining and scoring with *immunoactive score*. The result of Radiography x-ray showed that on 14<sup>th</sup> day bone separation had not occurred in all sample grup. The immunohistochemical results showed a significant difference VEGF expression between the BHA-Gelatin implant group and the BHA-Gelatin-Gentamicin implant group on day 2 ( $P < 0.05$ ); between the Positive Control group and the BHA-Gelatin implant group on day 7 ( $P < 0.05$ ). The results revealed VEGF in the BHA-Gelatin-Gentamicin group on days 2, 7, 14 showing a decrease profile due to the acceleration of bone growth in the fracture. Based on the results show that gentamicin in implants BHA-Gelatin increases bone repair in bone defects due to fracture.

Keywords: Gentamicin, Fracture, VEGF, Immunohistochemistry, Imunnoreactive Score