

HISTOLOGICAL EFFECT OF HPC HORMONE ON BONE HEALING AFTER ITS APPLICATION ON SURGICALLY CREATED DEFECT

Running title: HPC Effect on Bone Healing in an Animal Model

ABSTRACT:

Bone is highly vascularized living connective tissue responsible for important metabolic and mechanical functions. Progesterone was first isolated in 1934 by groups investigating the endocrine function of the corpus luteum. Sixty adult male domestic rabbits were selected, with an average weight of 1750 g and an age range of 8 to 10 months. After the rabbit was anesthetized, an incision 4 cm in length was made in the left leg above the femoral bone, followed by dissection of the muscle, fascia, and periosteum to expose the femoral bone. Two holes were made with a round bur of 3 mm, and the space between holes is about 1 cm. Each hole is away from the edge of the femoral bone by 1 cm. In the control negative group, the two holes were lifted without filling with any material, while in the control positive group, the two holes were filled by placement of gel-foam pieces, and in the study group, the holes were filled with gel-foam, which was soaked in hydroxyprogesterone caproate. The study group showed a closed defect faster than the other two groups; in seven days, it showed a narrow defect bone site area between the edge of the old bone under its granulation tissue, connective tissue with high new bone formation, cartilaginous tissue, and well angiogenesis, with a significance of p-value 0.033. In conclusion, HPC accelerates bone healing in different time intervals by activating osteoblasts to form bone.