

Oral (Tema Livre)

92-1 **THE TISSUE RESPONSE TO A PCL/HA IMPLANT: A STUDY IN TIBIA BONE RABBITS**

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Resumo

Tissue engineering with biodegradable polymer biomaterials is a promising method for repairing bone defects and micro-implant surgery. To investigate the biological bone tissue response, this study evaluated a hydroxyapatite composite of poly (ϵ -caprolactone) (PCL/HA) implants. Twelve New Zealand adult female rabbits (*Oryctolagus cuniculus*) were housed in groups during a period of 30, 60 or 90 days post surgery. PCL/HA cylindrical implants devices of 3.0 mm diameter and 6.0 mm long were inserted in the left tibia and a bone defect was made in the right tibia of each rabbit as a control. The animals were isolated in individual cage during a period of 7 days after the surgery and received anti-inflammatory and antibiotics drugs. After each implant period the animals have been euthanized. Up to now, euthanasia and radiological exam was performed in 8 rabbits and histological examination was done in 4 rabbits. In the macroscopic evaluation any mobility of the implant was observed in the animals after 30 and 60 days post surgery, and radiological analysis showed that the implants were trapped in the cortical bone. In the control tibia, it was observed initial formation of bone callus at 30 days and rearranged callus at 60 days. Histological data in the control tibia showed healing tissue at the site of the bone defect with macrophages and polymorphonuclear cells. Around the PCL/HA implants it appeared a small necrosis area with macrophages, polymorphonuclear cells and osteoblasts. In the experimental group, the histological analysis showed bone ingrowth and tissue differentiation in the rabbit tibia. The PCL/HA implants pointed out some features of osseointegration promotion.

Palavras-chave: Biodegradable polymers, Implants, Osseointegration, Poli (ϵ - caprolactona), Rabbit