EFFECTS OF NADROPARIN ON BONE HISTOMORPHOMETRIC PARAMETERS IN RATS

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Nadroparin calcium is a low-molecular-weight heparin. Low-molecular-weight heparins have a number of advantages over standard heparin (heparin), but it is not clear if low-molecular-weight heparins have less effect on bones than heparin. Administration of heparin can lead to osteoporosis. The aim of the present study was to investigate the effects of nadroparin on the rat osseous system and compare them with those of heparin. The experiments were carried out on female Wistar rats (13–15 weeks old at the beginning of the experiment), divided into 5 groups: I. Control, II. Nadroparin (1000 anti-Xa IU/kg sc daily), III. Nadroparin (2000 anti-Xa IU/kg sc daily), IV. Heparin (1000 IU/kg sc daily), V. Heparin (2000 IU/kg sc daily). Nadroparin and heparin were administered for 4 weeks. Bone mass, mineral and calcium content, macrometric and histomorphometric parameters (endosteal and periosteal transverse growth, width of endosteal and periosteal osteoid, transverse cross-section area of the cortical bone in the diaphysis and of the marrow cavity in the tibia, width of epiphyseal cartilage, width of trabeculae in the epiphysis and metaphysis in the femur) were examined. The effect of heparin on the ratio of bone mineral content to bone mass was more pronounced than that of nadroparin. Nadroparin caused unfavorable changes in the investigated bone histomorphometric parameters, similar to those caused by heparin. Nadroparin and heparin caused disorder of bone formation and intensification of bone resorption in rats.

Key words: nadroparin, heparin, osteopenia, rat