EFFECTS OF ENOXAPARIN ON HISTOMORPHOMETRIC PARAMETERS OF BONES IN RATS

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Enoxaparin sodium is a low-molecular-weight heparin. It is not clear whether the risk of development of osteoporosis after administration of low-molecular-weight heparins is lower than after administration of standard heparin.

The aim of the present study was to investigate the effects of enoxaparin on histomorphometric parameters of bones in female Wistar rats (13–15 weeks old at the beginning of the experiment). Enoxaparin was administered at doses of 1000 anti-Xa IU/kg sc daily or 2000 anti-Xa IU/kg sc daily for 4 weeks. Bone mass, mineral and calcium content (in the tibia, femur and L-4 vertebra), length and diameter in the tibia and femur, and histomorphometric parameters of the tibia (periosteal and endosteal transverse growth, width of periosteal and endosteal osteoid, area of the transverse cross-section of the cortical bone in the diaphysis and area of the transverse cross-section of the marrow cavity) and the femur (width of epiphyseal and metaphyseal trabeculae, width of epiphyseal cartilage) were examined.

Enoxaparin, administered at doses of 1000 anti-Xa IU/kg sc daily or 2000 anti-Xa IU/kg sc daily for 28 days, induced osteopenic changes in the rat skeletal system. The changes observed in bone histomorphometric parameters indicate that enoxaparin caused the inhibition of bone formation and intensification of bone resorption.

Key words: enoxaparin, osteopenia, rat