EFFECTS OF DOXYCYCLINE ON DEVELOPMENT OF CHANGES IN HISTOMORPHOMETRIC PARAMETERS OF BONES INDUCED BY BILATERAL OVARIECTOMY IN RATS

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Tetracyclines are considered potential medication for the treatment of osteoporosis. The aim of the present study was to investigate the effects of doxycycline on development of unfavorable changes in bone histomorphometric parameters induced by bilateral ovariectomy in rats. Doxycycline at a dose of 20 mg/kg po daily was administered for 28 days to bilaterally ovariectomized and sham-operated 3-month-old Wistar rats. Bone histomorphometric parameters of the tibia (transverse growth, width of periosteal and endosteal osteoid, area of the transverse cross-section of 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.

Bilateral ovariectomy caused symptoms of osteopenia in the rat bones. Doxycycline counteracted the unfavorable changes in bone structure caused by estrogen deficiency. However, in the sham-operated rats doxycycline itself induced deleterious effects in the trabecular bone.

Key words: doxycycline, ovariectomy, osteoporosis, rat