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## OSTEOPOROTIC FRACTURE MODELING IN LABORATORY RATS

**Hryhorieva Olena**

MD, PhD, DSc, Professor, Head of the Department of Normal Anatomy, Operative Surgery and Topographic Anatomy  
Zaporizhzhia State Medical University, Zaporizhzhia, Ukraine

**Abrosimov Yurii**

MD, PhD, Senior Lecturer of the Department of Normal Anatomy, Operative Surgery and Topographic Anatomy  
Zaporizhzhia State Medical University, Zaporizhzhia, Ukraine

In Ukraine, there has recently been an increase in the number of limb bone fractures among the population, in particular, an increase in the number of elderly people, which is associated with the development of age-related osteoporosis and fragility of bones. Osteoporosis causes 0.3 million femoral fractures per year in the United States and 1.7 million femoral fractures in Europe. In Ukraine, osteoporosis affects more than 2.5 million women and 900 thousand men, with an annual increase in incidence by 5% [1, 2].

**Purpose:** To study a model for the formation of experimental osteoporosis in laboratory rats.

**Materials and methods.** Based on the literature [3, 4], we chose the optimal model. In order to create the experimental osteoporosis, animals in the experimental group (15 rats) were injected intraperitoneally during 14 days with oil solution of retinol acetate (34.4 mg / ml) at a dosage of 70 mg / kg. Subsequently, the rats underwent modeling of a fracture of the left tibia. For this, after treatment of the operating field, access was performed along the anteromedial surface of the left leg. Using Liston bone cutting forceps, a fracture of the left tibia was performed at the level of the proximal metaphysis, followed by intramedullary osteosynthesis using a metal injection needle (0.7 mm thick). The wound was sutured in layers. All animals underwent surgery well.

15 rats of the control group underwent a similar operation - modeling a fracture of the left tibia, without preliminary osteoporosis modeling.

30 days after the operation, laboratory animals were taken out from the experiment with the study of the fracture site. When working with animals we were guided by «European Convention for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes» (Strasbourg, 18.03.86) and Law of Ukraine «On the protection of animals against cruel treatment» (№ 3447-IV).

**The results and discussions.** One month after modeled fracture in rats with experimental osteoporosis a violation of the normal consolidation of the fracture was observed.

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