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In vivo experimental study of the arterial supply of the rabbit posterior limb

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Abstract

Background: The use of bone graft has been a successful step in the treatment of a large number of diseases of the osteoarticular system. But a massive bone defect remains a dilemma for modern reconstructive surgery. Present methods used have a high level of morbidity and complication. Literature indicates the absence of an optimal solution in massive bone defects healing. The aim of this study: to perform an *in vivo* preliminary study of vascularization of the hind limb in the rabbit model, for obtaining a graft able for further inclusion in the host blood circulation, without immunosuppression by decellularization. **Material and methods:** The study was performed on the 12 laboratory rabbits. After euthanasia of the rabbit, the femoral and tibiofibular bone was collected without soft tissue, only with the vascular pedicle, and keeping the passage through the vessels. In the abdominal aorta was injected contrast material, with the subsequent preparation of the arterial vessels, succeeded by anatomical, morphological, radiography, and microangiography study of this vascularized bone segment.

Results: The principal nutrient artery of the rabbit femur springs from the lateral circumflex femoral artery. The optimal segment for vascularized allografting (the rabbit model) was determined the upper third of the femur with the up to the level of the internal iliac artery. So, it could be used as a bone graft for further conservation and decellularization.

Conclusions: The vascularized allogeneic bone without immunosuppression would be a perfect alternative in the treatment of the massive bone defects.

Key words: vascularized bone grafts, bone allograft surgical revascularization, angiography.

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