

The effect of the basic fibroblast growth factor mixed with fibrin glue on the survival of a random pattern rat flap. [Japanese]

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Abstract:

When applied onto skin graft flaps in an effective manner, the basic fibroblast growth factor (bFGF) causes an increase in skin flap survivals through various mechanisms, such as cell proliferation and vascularization. Previously, the authors have reported on an effective method of administering bFGF by means of a drug delivery system (DDS) from a sheet-like form, composed by mixing mixing bFGF with fibrin glue, and confirmed that the bFGF thus administered caused remarkable vascularization in skin flaps. This study has now examined whether the above DDS method can successfully cause a similar increase in a 3 x 9 cm rat dorsal skin flap (a caudal pedicled random pattern flap). Measurement of the skin flap blood flow distribution revealed that the above DDS method, which provides a continuous bFGF administration, accelerated the vascularization and early re-establishment of an effective circulatory blood flow within the skin flap and mother bed, thereby enhancing flap survival. It also was concluded that this DDS method allows bFGF to be continuously delivered locally and that low-dose applications were effective.