Effect of intraoperative platelet-rich plasma and fibrin glue application on skin flap survival.

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Abstract:

The experiment was designed to compare the effect of intraoperative platelet-rich plasma (PRP) and fibrin glue application on skin flap survival. In this study, bilateral epigastric flaps were elevated in 24 rats. The right-side flaps were used as the control of the left-side flaps. Platelet-rich plasma, fibrin glue, and thrombin had been applied under the flap sites in groups 1, 2, and 3, respectively. Five days later, all flap pedicles were ligated. Necrotic area measurements, microangiography, and histologic and immunohistochemical evaluations were performed to compare the groups. Platelet-rich plasma reduced necrotic area percentages as compared with other groups. Histologically and microangiographically increased number of arterioles were observed in PRP groups. Thrombin when used alone increased flap necrosis. Vascular endothelial growth factor, platelet-derived growth factor, and transforming growth factor A3 primary antibody staining showed increased neovascularization and reepithelialization in all PRP-applied flaps. This study demonstrated that PRP, when applied intraoperatively under the skin flap, may enhance flap survival. Thrombin used alone was found to be unsuitable in flap surgery.