

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

Authors: Findikcioglu F., Findikcioglu K., Yavuzer R., Lortlar N., Atabay K.

Publication Date: 2012

Abstract:

The aim of this study was to compare the effects of preoperative subcutaneous platelet-rich plasma and fibrin glue administration on skin flap survival. One week before surgery; saline, platelet-rich plasma, fibrin glue, and thrombin solutions were applied under rat skin flap areas in Groups I, II, III, and IV, respectively. Unipedicled epigastric flaps were elevated in the first three groups but could not be elevated in Group IV because of preoperative abdominal skin necrosis. Necrotic area measurements, microangiography, and histological and immunohistochemical evaluations were performed. Platelet-rich plasma reduced the percentage of necrotic area when compared to other groups. Histologically and microangiographically an increased number of arterioles were observed in the platelet-rich plasma group. Thrombin (when used alone) caused abdominal skin necrosis. Increased expression of VEGF and PDGF was found in all platelet-rich plasma-treated flaps. There was no significant difference between groups with respect to TGF-beta3 staining intensity. In this study preoperative administration of platelet-rich plasma mimicked the pharmacological delay effect and enhanced flap survival. Individual use of thrombin was found to be unsuitable in flap surgery. LEVEL OF EVIDENCE I: This journal requires that authors assign a level of evidence to each article.