Effects of locally applied autologous Platelet-Rich Fibrin® (PRF®) on split-thickness skin graft donor sites

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Aim
To study the effect of Platelet-Rich Fibrin® (PRF®) on the epithelialization rate of split-thickness skin graft donor sites and recipient wound beds in 20 patients undergoing skin transplantation.

Introduction
Clinical use of fibrin sealant was reported in the beginning of the 20th century.¹ The addition of platelets is a relatively new concept.

Discussion
The addition of platelets to fibrin may enhance the stimulatory effect of fibrin on keratinocytes explained by growth promoting factors being bound to fibrin/fibrinogen and thereby protected from degradation. Fibrin/fibrinogen itself or biologically active fragments may also stimulate keratinocytes.

Methods
Six ml PRF® was prepared preoperatively at the bedside from 120 ml of the patients’ own blood. Processing took less than 30 minutes. Two equally sized adjacent donor sites were inflicted on the thigh by an electrodermatome (Fig. 3).

Results
Biopsies of unmeshed grafts day 0 are shown in Figure 7.

Biopsies from PRF®-treated and control donor site wounds are shown in Figure 8. PRF®-treated donor site showed 50% epithelialization compared with 20% for control wound.

On postoperative days 5 and 8, epithelialization of donor site wounds was evaluated in a blinded manner macroscopically and microscopically from 4-mm punch biopsies (Fig. 6) stained with hematoxylin-eosin.

Conclusion
We successfully used PRF® to treat split-thickness skin graft donor sites and recipient leg ulcers in patients undergoing skin transplantation.

Based on initial positive effects of PRF® a randomized, controlled, observer-blinded study was started in April 2006 to investigate the role of PRF® in wound healing.

References
5. Data not published, assay performed by Rasmus Lundquist.

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