A1. Dermatoscopic assessment of the re-epithelialisation process in the suction blister model of wound healing

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Background : The suction blister model has been used for years as a reproducible and standardised in vivo model of wound healing in human. Several non-invasive techniques such as evaporimetry and laser Doppler flowmetry were used to follow the re-epithelialisation of the suction blister lesions.

Objective : Evaluate the dermatoscopy technique for the assessment of re-epithelialisation process after suction blister induced wounds. For that purpose, the wound healing activity of a product was compared to an untreated area.

Method : Fifteen healthy volunteers aged from 20 to 35 years (mean age 29 ± 5 years) were included in this study. Two suction blisters (8mm diameter) were induced at Day1 on each forearm of the volunteers using a depression of 300mmHg. After removal of the blister roof, the lesions of one forearm were treated, and then from Day2 to Day15 twice daily whereas on the opposite forearm the lesions were left untreated. Between two successive applications, the lesions were protected with a semi permeable dressing. The healing level of each lesion was assessed first 30 minutes after blister roof removal and then daily 30 minutes after the dressing removal in the morning. A last follow-up assessment was performed at Day20. The methods of assessment were dermatoscopy (Fotofinder, Derma instrument Germany), evaporimetry (Tewameter 300, Courage & Khazaka, Köln Germany) and a clinical scoring system. Using the image analysis software of the dermatoscope, the lesion area (non epithelialised area) was measured daily on the dermatoscopy macrophotographs (x20).

Results : The evolution of the lesion area decreased quicker on the treated area than on the untreated one. The time to complete healing calculated from the curves of evolution of the lesion area was 16.1 days for the treated lesions and 18.6 days for the untreated lesions. Compared to the untreated side, the lesion area of the treated side was significantly smaller from Day8 to Day15.

Conclusion : The results indicated that the dermatoscopy technique is a very useful standardised non invasive method to monitor the kinetics of the healing process.