

Deep Partial Thickness Burn Injury And The Effect of ESWT: an Experimental Investigation in Rats

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Extracorporeal shock wave therapy enhances tissue vascularisation and neoangiogenesis. Recent animal studies in our lab showed an improved tissue regeneration using ESWT. Deep partial thickness burns most of the time require skin grafting. This surgical intervention frequently causes a functional as well as aesthetical dissatisfying outcome. The aim of this study was to demonstrate the effect of ESWT on skin regeneration in second degree burns.

Two standardised deep partial thickness burns were applied to the back of 30 male Wistar rats, respectively. Immediately after the burn, ESWT was performed in rats (N=30; Group 1). The second group did not receive any treatment (N=30; Group 2). At day 5, 10 and 15 five rats of each group were analysed. The degree of re-epithelization was documented using digital photography and histology. Statistical analysis was performed.

ESWT enhanced the percentage of wound closure over time (group 1) as compared to the group 2 ($p < 0.05$). The re-epithelialization rate could be improved significantly at days 5 and 15 ($p < 0.05$). Extracorporeal shock wave therapy improves skin regeneration of deep partial thickness burns in rats, as confirmed by a significant reduction of wound areas and a significant increase of re-epithelialization. In this study we could show impressively the potential of this technology in skin applications.

8th INTERNATIONAL
CONGRESS
of the International
Society
for Musculoskeletal
Shockwave Therapy

&

5th Joint Meeting of the
German Speaking
Societies

MAY 29 - JUNE 1 | 2005
Vienna | Austria