

Using the Spincare® System in Hard to Heal Burns

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Outcome of Facial Burn Injuries Treated by a Nanofibrous Temporary Epidermal Layer

Introduction

The face is highly vascularized and will often heal conservatively, even in cases with deep partial-thickness injuries, making early excision and skin grafting less preferable. Conventional methods, such as occlusive wound products, necessitate daily painful reapplication, hindering reintegration into social life and activities, and potentially reducing compliance and satisfaction. Addressing facial movements, vision, and oral hygiene adds complexity. Spincare® by Nanomedic Technologies Ltd. offers a promising solution- a portable device applying proprietary nanofibrous matrices to create temporary epidermal layer for burns and donor sites. Considering the limited facial burn treatment data, Spincare®'s feasibility is assessed for its versatility and analgesic effects in a case series conducted at Zurich University Hospital's Burn Center.

Methods

Patients with superficial partial-thickness burns, deep partial-thickness facial burns and mixed pattern burns were treated with Spincare®. The patients were followed up from application until complete wound closure, indicated by full reepithelization. Optimal application thickness was determined by the nanofibrous layer turning white, 'frost'-like appearance, which becomes transparent due to wound fluid release. The treated area was not covered additionally. Five experienced board-certified plastic surgeons employed the Manchester Scar Scale (MSS) and Numeric Rating Scale (NRS) to evaluate pain, functionality, and aesthetic outcomes at different time frames. Healing time was measured through photographs taken prior to treatment, during hospitalization, and regular out-patient visits.

Results

A cohort of ten patients were enrolled in this study. All patients reported an analgesic effect upon application, with pain scores decreasing from a pre-application mean NRS of 7 to 0.875 during application. Subsequent scores of 0 were noted at 48 hours and 7 days post-treatment. The mean time for complete epithelization, signifying healing, was 6.4 days. There were no differences in pain perception or healing time based on injury depth, gender, or facial location. The aesthetic outcomes were evaluated using MSS scores ranging from 4 to 14, with lower scores indicating better outcomes. None of the patients experienced noticeable scars and they all expressed satisfaction with the aesthetic results, yielding a positive mean score of 5.06 for color, finish, contour, distortion, and texture. Spontaneous wound healing occurred, while patients reported no difficulties in facial movements, eating, oral competence, or eye movement.

Conclusions

Following the assessment of authors' experience and comparing the results with data available in the literature, the treatment with Spincare® is equivalent when compared to other standard treatment regimens. Collectively, Spincare® offers a relatively straightforward, flexible, and analgesic solution for facial burn wounds. While no unfavorable complications were observed, definite statements regarding the wound healing capacity cannot be made based on the small case series. The results obtained with Spincare® matrix establish it as an innovative treatment for wound coverage in facial burns within the present spectrum of treatment strategies.

