

Wound contact layers: The unsung heroes of burn care when utilising negative pressure wound therapy

Burns Open 2023;7(2):23-25

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KEY POINTS

- It is not known which dressings optimise burn wound re-epithelialisation when used in conjunction with negative pressure wound therapy (NPWT).
- A case is presented in which a patient had two different dressing combinations - **Mepitel®** (wound contact layer) with Acticoat (nanocrystalline silver dressing); and Acticoat alone - unintentionally applied to an extensive burn wound beneath NPWT. Areas which had Mepitel® combined with Acticoat applied re-epithelialised faster than those that were dressed with Acticoat alone.
- The authors advise that **a porous, wound contact layer should be placed beneath nanocrystalline silver dressings when utilising in conjunction with NPWT.**

INTRODUCTION

- NPWT is used as an adjunct to acute burn care as it may decrease the time to re-epithelialisation and likelihood of scar formation.
- It is unclear as to what are the best dressings to place at the interface between the NPWT system and the burn wound.
- Nanocrystalline silver dressings such as Acticoat are commonly applied to burns due to their antimicrobial and absorbent properties.
- The effects of Acticoat are likely enhanced by the addition of a porous, silicone wound contact layer (i.e. Mepitel®) between the silver-containing dressing and the skin. Mepitel® is thought to.
 - prevent Acticoat from adhering to the skin and, thus, reducing localised trauma when the dressing is removed;
 - facilitate exudate removal to the absorbent Acticoat layer;
 - facilitate silver delivery to the skin.
- It is unknown whether Acticoat alone or in conjunction with Mepitel® would alter the clinical outcome of a burn if applied beneath NPWT.
- A case is presented in which two different dressing combinations (Mepitel® with Acticoat, and Acticoat alone) were unintentionally applied to a patient with a large burn wound beneath NPWT, leading to notable different outcomes.

CASE

- An 11-year-old male presented with a 28% total body surface area (TBSA) scald burn to his back, anterior abdomen, chest, penis, bilateral medial thighs, left arm, forearm and hand (Figure 1).
- Standard practice for large burns at the authors' affiliation is to apply Mepitel, Acticoat, and NPWT after adequate debridement in theatre.
- The patient was admitted for 6 days and required three dressings in theatre (initial plus two dressing changes). Regarding the first dressing, Mepitel® was not aligned properly between the Acticoat dressings in this case. This meant that Mepitel® was omitted between the pieces of Acticoat, leaving strips without Mepitel™.
- NPWT was applied only at the initial dressing as detailed above and removed at the first dressing change two days later (56 hours) where it was not reapplied. NPWT was not used throughout the remainder of the treatment.

- At the subsequent dressings, it was ensured that there were no areas without Mepitel®.
- At the final appointment (14 days' post-injury), povidone iodine, moisturising cream and a film-forming primary dressing were applied. The patient was referred to the scar management clinic.
- Throughout this case, it was obvious where Mepitel® had not been applied to the burn (Figure 2).
- Acticoat only areas took longer to re-epithelialise (>15 days), compared to Mepitel® with Acticoat areas (10 days) and were the reason why the patient was referred to the scar management clinic.
- At the first scar appointment, the region with scar formation was the area that had received Acticoat only (Figure 3)



Figure 1: Extensive burn area after Initial debridement



Figure 2: First dressing change. Demarcation of the central area where Mepitel® was not applied and peripheral lines where there were gaps between the Mepitel® pieces.



Figure 3: First scar appointment, areas that scarred correspond to the areas that did not have Mepitel® between the skin and Acticoat under NPWT.

- The authors hypothesise that **these observations are likely to be due to a combination of increased cytotoxic effects, minimised micro-deformations and increased localised trauma with dressing removal**, usually mitigated using Mepitel between the Acticoat dressing and the wound.

CONCLUSIONS

- If using Acticoat beneath NPWT, it is important to consider using a contact wound interface dressing – such as Mepitel® – to ensure enhanced wound healing.

This summary has been compiled by the Global Medical Affairs Department of Mölnlycke Health Care as a service to healthcare professionals. It does not contain the complete text and Mölnlycke Health Care makes no representation as to its completeness in addressing all issues in the item to which it refers.

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Document reference: GMAS-2024-502-ES