



In the early management of minor burns, what is the clinical effectiveness of various wound dressings?

Treatment of minor burns with hydrocolloid, polyurethane film or silicon coated nylon dressings may improve wound healing time, and in some cases pain and other outcomes, but there is not enough evidence to clearly decide on the best dressing.



Inclusion/exclusion criteria

Studies

Systematic reviews, evidence-based clinical practice guidelines, health technology assessments and primary studies.

Participants

People of any age receiving treatment for superficial or partial thickness burns.

Phase of care

Included: Pre-hospital care setting (i.e. initial medical care given by a paramedic or other person before the patient reaches the hospital) OR Medical care given in an emergency department.

Excluded: Any care given outside of the ED in a hospital setting (i.e. following admission to a hospital ward or discharge).

Intervention

Any dressing for burn wounds (e.g. hydrocolloid, polyurethane film, silicon coated nylon dressings or paraffin gauze dressings).

Outcomes

Primary: Wound healing time.

Secondary: Number of dressing changes, pain, cost, patient satisfaction, quality of life, infection, adverse events.

Results

Included studies

- One systematic review (Wasiak 2008) was used which included 26 studies. Of these, six studies met the inclusion criteria. An update of this search (April 2009) identified one additional trial (Welling 2007).
- Seven trials with 393 participants (adults and children) were included. Allocation concealment was adequate in 2 studies.
- Hydrocolloid dressing resulted in shorter healing time, improved overall wound healing, fewer dressing changes and reduced pain when compared to SSD cream (1 trial, 42 participants). In two other small trials comparing hydrocolloid dressing with chlorhexidine impregnated paraffin gauze, with or without SSD cream, hydrocolloid dressing did not improve healing time, pain or adverse effects, and in one trial led to significantly more dressing changes due to leakage (15% versus 3%) (1 trial, 98 participants).
- Polyurethane film dressing reduced wound healing time and pain when compared to chlorhexidine impregnated paraffin gauze dressing (1 trial, 51 participants), but did not significantly improve these outcomes when compared with paraffin gauze dressing in another small trial (55 participants).

Included studies (continued)

- When compared to SSD, silicon coated nylon dressing significantly reduced wound healing time and also required fewer dressing changes due to the shorter healing time (1 trial, 76 participants), but did not significantly improve pain or adverse events.
- In one small trial (49 participants), hydrogel dressing, with or without topical morphine, did not significantly improve wound healing time, pain or analgesic use, adverse effects or other outcomes when compared paraffin impregnated gauze .
- Patient satisfaction and quality of life were poorly reported by the included studies.

Authors' conclusions

What the evidence tells us

Hydrocolloid, polyurethane film and silicon coated nylon dressings may result in shorter wound healing time, and less pain.

Implications for practice

There is not enough evidence to clearly decide on the best dressing for burns in pre-hospital and emergency settings. The difficulties of performing meaningful trials on burn wound healing centre on our inability to acutely assess the depth of a mid-depth burn wound, and thus to be able to obtain meaningful clinical comparisons. The vast majority of superficial wounds will heal without complication, and therefore demonstrating clinical differences between particular dressings requires very large numbers of participants. Many dressings are suitable for treating minor burn wounds, and which is most appropriate depends on local resources and management protocols. Appropriate wound management practice is likely to be more important than specific dressing choices and the use of antimicrobials.

Implications for research

Well-designed trials are required to assess the benefits and harms of all dressing types to be used in pre-hospital and emergency care settings.

Search for evidence

A systematic search for evidence was conducted on 22nd February 2009 in the following databases: Cochrane, Medline and Embase.

Included studies

Afilalo M, Dankoff J, Guttman A, Lloyd J. DuoDERM hydroactive dressing vs silver sulphadiazine/Bactigras in the emergency treatment of partial skin thickness burns. *Burns* 1992; 18(4):313-6

Bugmann P, Taylor S, Gyger D, Lironi A, Genin B, Vunda A, et al. A silicone-coated nylon dressing reduces healing time in burned paediatric patients in comparison with standard sulfadiazine treatment: a prospective randomized trial. *Burns* 1998; 24(7):609-12.

Neal D, Whalley P, Flowers M, Wilson D. The effects of an adherent polyurethane film and conventional absorbent dressing in patients with small partial thickness burns. *British Journal of Clinical Practice* 1981; 35(7-8):254-7.

Poulsen T, Freund K, Arendrup K, Nyhuus P, Pedersen O. Polyurethane film vs impregnated gauze in the treatment of outpatient burns: a prospective, randomized study. *Burns* 1991;17(1):59-61.

Wasiak J, Cleland H, Campbell F. Dressings for superficial and partial thickness burns. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD002106. DOI: 10.1002/14651858.CD002106.pub3.

Welling A. A randomized controlled trial to test the analgesic efficacy of topical morphine on minor superficial and partial thickness burns in accident and emergency departments. *Emergency Medicine Journal* 2007; 24(6):408-12.

Wright A, MacKechnie DW, Paskins JR. Management of partial thickness burns with Granuflex 'E' dressings. *Granuflex 'E' vs Bactigras*. *Burns* 1993; 19(2):128-30.

Wyatt D, McGowan D, Najarian MP. Comparison of a hydrocolloid dressing and silver sulfadiazine cream in the outpatient management of second-degree burns. *The Journal of Trauma* 1990; 30(7):857-65.