

Venous Leg Ulcers: Choosing an appropriate dressing

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Question

What is the best available evidence regarding choosing an appropriate dressing to facilitate the healing of venous leg ulcers?

Clinical Bottom Line

- The importance of maximising the wound bed is recognised as a primary aim of wound care and of dressings¹ (Level II). Identifying the salient problem presented by the wound offers a guide to selecting the most appropriate dressing; for example:-⁵ (Level IV)
 - A wound in need of debridement – select a suitable debridement method according to the type of wound, the patient needs, the characteristics of the wound, and the environment.
 - A wound with an exudate problem – select an appropriate absorbent dressing that maintains a moist wound environment and minimises the risk of peri-wound maceration. Similarly, dressing selection should also avoid excessive drying of the wound bed.
 - A wound with an infection problem – select a dressing and/or topical treatment and/or systemic treatment that has known efficacy against the bacterial organism infecting the wound.
- Compression therapy is regarded as a significant factor in the healing of venous leg ulcers. In addition to compression therapy, a number of dressing types, both 'conventional' and 'modern' are used to promote healing of venous ulcers^{2,3,4}. (Level I).
- Methodological inadequacies in many studies have compromised the ability to draw firm conclusions regarding the contribution made by dressings towards complete healing of venous ulcers. Well powered studies do however suggest that modern dressings, in combination with multi-layer compression bandaging contribute significantly towards completely healing venous ulcers². (Level I).
- A systematic review found statistically significant evidence that the following modern dressings resulted in complete healing of venous ulcers over the trial periods² (Level I):
 - Zinc oxide paste bandage
 - A hydrocolloid dressing
 - Perilesional injection of granulocyte-macrophage colony-stimulation factor
 - Porcine collagen derived from small-intestine submucosa
 - Human skin equivalent (63%) was superior in outcome to a hydrocolloid dressing (48%)
- Hydrocolloid dressings as well as simple low adherent dressings used beneath compression bandaging were equally effective in healing venous ulcers at 12–16 weeks^{3,4} (Level I).
- A 79% wound healing rate was reported in a study that compared a zinc oxide paste bandage with a zinc oxide impregnated stockinette (59%) or a calcium alginate fibre dressing (56%) ($p < 0.05$)² (Level I)
- There is a lack of evidence to suggest that modern dressings are superior to conventional dressings in healing venous leg ulcers, therefore cost and patient comfort should determine the choice of dressing^{3,4} (Level I).
- Research that has compared the cost effectiveness of simple gauze dressings with moisture-retentive or semi-occlusive dressings has consistently found that gauze dressings are associated with higher costs than moisture-retentive or semi-occlusive dressings. While gauze and normal saline are not necessarily high cost items, researchers have drawn attention to the following factors that need to be considered when calculating the cost effectiveness of a treatment^{7,8,9} (Level III):
 - Cost-effectiveness is not the same as unit price of the dressing; while semi-occlusive dressings may be more expensive than gauze and normal saline, gauze dressings need to be changed more frequently and include associated costs of wound dressing materials.
 - Gauze dressings are labour-intensive as they require multiple dressing changes throughout the day.

OTHER FACTORS FOR CONSIDERATION

- Conventional dressings refer to saline-gauze or nonadherent knitted viscose type dressings. Modern dressings refer to a wide range of more complex products such as hydrocolloids, foams, alginates, hydrogel; these dressings tend to be more expensive initially (unit cost)

but have been shown to be more cost effective than gauze dressing which are labour intensive and require additional dressing materials ⁴ (Level I) ^{7,8,9} (Level III).

- Types of dressings are further classified as follows according to their function in promoting wound healing ² (Level I):
 - Nonocclusive, semiocclusive, occlusive: refers to the degree that the dressing minimises heat and water vapour loss from the wound thereby maintaining a moist wound environment that is known to be an important factor in wound healing.
 - Growth factor stimulating dressings: provide or stimulate growth factors that promote wound healing.
 - Human skin equivalent dressings: provide wound coverage and growth factors that promote wound healing.
 - The degree of wound activity stimulated by the properties contained within a dressing designates the dressing as passive, interactive or active.

RISK FACTORS

- Similar adverse effects were reported for both modern and conventional dressings; these included the following:
 - Clinical deterioration of the wound and presence of signs of local infection with or without cellulitis ⁴ (Level I)
 - Hypersensitivity and allergic reactions to modern dressings was reported in one review ⁴ (Level I).
 - Gauze dressings need to be checked regularly to ensure that they have not dried out ⁹ (Level III)

Characteristics of the Evidence

This evidence summary is based on a structured search of the literature and selected evidence-based health care databases. The evidence in this summary is from:

- A literature review of wound bed preparation and the application of a systematic approach to wound management ¹
- A systematic review including 20 randomised controlled trials ²
- A systematic review including 42 randomised controlled trials ³
- A systematic review including 31 randomised controlled trials ⁴
- Expert opinion from the Wound Healing & Management Node group members ⁵
- A systematic review including 6 randomised controlled trials ⁶
- A descriptive, exploratory study of the use of wet-to-dry dressings by clinicians ⁷

- A retrospective, descriptive study of the use of wet-to-dry dressings as ordered ⁸
- An article that discussed advantages and disadvantages of various dressings ⁹

Best Practice Recommendations

- There is a lack of evidence to suggest that modern dressings are consistently superior to conventional dressings in healing venous leg ulcers, therefore cost and patient comfort should determine the choice of dressing. (Grade B)
- All dressings should be accompanied by best practice wound care. (Grade A)
- Best practice in the management of venous leg ulcers also involves the application of compression therapy. (Grade A)
- The dressing should be in contact with all surfaces of the wound bed; if packing is required ribbon gauze should be used and only gently applied to avoid damage from pressure (Grade B).
- Maceration to surrounding skin should be avoided by ensuring that the moist dressing is confined with the wound margins (Grade B).
- Dressing material that does not shed fibres into the wound should be selected (Grade B).

References

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