Banana Leaf Dressing: A WHAM evidence summary

Wound Healing and Management Node Group

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CLINICAL QUESTION

What is the best available evidence regarding sterilised banana leaf dressings (BLD) for wound management?

SUMMARY

Very limited research has been conducted on this type of wound dressing. Studies have investigated their effectiveness in the management of partial thickness burns,[5] skin graft donor sites[1,4] and surgical incisions.[2] In these studies BLD are associated with rapid healing of skin graft donor sites,[1] and a low [1] or no incidence [2] of wound infection. Patients reported that BLD are comfortable to wear and associated with low levels of or no pain, including on dressing removal.[1, 4, 5] Effective use of BLD has been reported in patients ranging in age from 11 months to 38 years without diabetes mellitus.[5] Two methods of preparing the dressings have been developed, one less time consuming than the other.[1, 2, 5]

Note: Untreated banana leaves are heavily contaminated with various fungi and pathogens and must be sterilised before use as dressings.

CLINICAL PRACTICE RECOMMENDATIONS

All recommendations should be applied with consideration to the wound, the person, the health professional and the clinical context.

Banana leaf dressings offer a low cost dressing option for managing partial thickness burns, skin graft donor sites and surgical incisions in settings where there is limited or no access to advanced wound care products. (Grade B)

Banana leaf dressings are effective in promoting healing in partial thickness burns and skin graft donor sites. (Grade B)

Banana leaf dressings provide patients with relief from pain, including during dressing changes. (Grade B)

SOURCES OF EVIDENCE

This summary was conducted using methods published by the Joanna Briggs Institute.[6-8] This evidence summary is based on a structured search of the literature and selected evidence-based healthcare databases including developing nations' health care journals, combining search terms that describe wound management and banana leaf dressings. Inclusion was limited to studies published to March 2017 in English. Levels of evidence for intervention studies are reported in Table 1.

BACKGROUND

Banana leaf dressings (BLD) provide a low cost, traditional wound dressing option in tropical countries where supplies are easily accessible at no or very low cost.[1-4] Banana leaves have a waxy

Table 1: Sources of evidence and the level

Level 1 Evidence	Level 2 Evidence	Level 3 Evidence	Level 4 Evidence	Level 5 Evidence
Experimental Designs	**Quasi-experimental Designs**	**Observational – Analytic Designs**	**Observational –Descriptive Studies**	**Expert Opinion/ Bench Research**
1.c RCTs [1, 4, 5]	None	None	4.b clinical observation component[2] 4.c case series [3]	5.c mixed methods – *in-vivo* laboratory component[2]

surface that prevents the dressing adhering to the wound and, although impervious to water, they allow exudate to drain from the wound due to slits made or cracks occurring in the leaves during the preparation process.[1]

CLINICAL EVIDENCE

Effectiveness in promoting healing

- A split-body RCT (n=30) reported complete epithelialisation for skin graft donor sites occurred significantly ($p < 0.001$) faster for sites dressed with BLD (range 8 to 10 days, mean 8.67, SD 0.84) compared with sites dressed with petroleum jelly impregnated gauze (range 9 to 13 days, mean 11.73, SD 1.05).[1] (*Level 1*).
- A second split-body RCT (n = 30) reported that total wound healing for partial thickness burns managed with povidone-iodine ointment and BLD had occurred within 10 days for the majority of participants. There was no significant difference in healing rates compared to potato peel dressings[5] (*Level 1*).

Effectiveness in preventing infection

- In one split-body RCT (n = 30) no skin donor sites dressed with BLD showed signs of infection compared with 10% of skin donor sites dressed with petroleum jelly impregnated gauze; however, this was not significantly different[1] (*Level 1*).
- One observational article reported that the infection rate in partial thickness burns treated with BLD was not greater than that observed with paraffin impregnated gauze (no data provided)[3] (*Level 5*).
- In an observational study of post-surgical patients (n = 100) no incisional infections were reported among the 43 patients who were able to be followed up in person or by telephone at 7 and 14 days. The same study had initially tested sterilized banana leaf dressings on mice compared to a control group treated with petroleum jelly gauze with no greater infection rate in the wounds treated with BLD[2] (*Levels 4 & 5*).

Effectiveness in managing pain

- In one split-body RCT that evaluated pain during dressing changes, 93% of patients classified pain during BLD changes as tolerable. This compared to 90% classifying potato peel dressing changes as tolerable (p=not significant)[5] (*Level 1*).
- A second split-body RCT reported significantly less general pain (1.1 ± 0.71 versus 6.9 ± 0.84 on an 11-point visual analogue scale) and pain on dressing removal (0.97 ± 0.61 versus 9.47 ± 0.77 on the same scale) for BLD compared with petroleum jelly impregnated gauze[1] (*Level 1*). Results from these split-body RCTs [1, 5] may be influenced by the order in which dressings are removed from the wound sites but this was not reported in the trials.
- 95% of patients described BLD as comfortable to wear and 5% reported minor discomfort. There was no significant difference in comfort ratings compared to potato peel dressings[5] (*Level 1*).
- In a small RCT (n =3 0) in which the burn donor sites of the experimental group were treated with autoclaved BLD and the control group with paraffin gauze dressing, the results indicated significantly less pain in the experimental group ($p < 0.05$) as well as no pain on removal of dressing ($p < 0.05$)[4] (*Level 1*).

Contraindications and side effects

- No signs of allergy or other side effects have been observed in participants treated with BLD[1, 2, 5] (*Levels 1& 4*).

CONSIDERATIONS FOR USE

Cost

Banana leaf dressings was reported to be 160 times cheaper than impregnated gauze and 5,200 times cheaper than a biosynthetic dressing in India in 2003.[5] In 2003, the average cost of a BLD was less than $US 0.02.[1]

Ease of preparing and applying

In one trial 100% of health care professionals preparing and applying BLD rated its handling as easy (scale=easy or difficult).[5]

CONFLICTS OF INTEREST

The author declares no conflicts of interest in accordance with International Committee of Medical Journal Editors (ICMJE) standards.

ABOUT WHAM EVIDENCE SUMMARIES

WHAM evidence summaries are consistent with methodology published in

Munn Z, Lockwood C, Moola S. The development and use of evidence summaries for point of care information systems: A streamlined rapid review approach, Worldviews Evid Based Nurs. 2015;12(3):131-8.

Methods are provided in detail in resources published by the Joanna Briggs Institute as cited in this evidence summary. WHAM evidence summaries undergo peer-review by an international review panel.

WHAM evidence summaries provide a summary of the best available evidence on specific topics and make suggestions that can be used to inform clinical practice. Evidence contained within this summary should be evaluated by appropriately trained professionals with expertise in wound prevention and management, and the evidence should be considered in the context of the individual, the professional, the clinical setting and other relevant clinical information.

PUBLICATION

This evidence summary has been published in:

Wound Healing and Management Node Group, Evidence summary: Wound management – Low resource Communities: Banana leaf dressing. Wound Practice and Research, 2017;25(3):156-7.

REFERENCES

1. Gore, M. and D. Akolekar, Banana leaf dressing for skin graft donor areas. Burns,2003; 29(5):483-486.
2. Guenova, E., et al., Banana leaves as an alternative wound dressing. Am Soc Dermatol Surg, 2012;39(2):290-297.
3. Chongchet, V., The use of sterile, steamed banana leaves in the local treatment of burns. Burns, 1980;6(4):264-265.
4. Prasannababy, S., The efficacy of dressing with banana leaves on donorsite wound of the patients with burns. Nurs J India, 2000;91(5):108
5. Gore, M. and D. Akolekar, Evaluation of banana leaf dressing for partial thickness burn wounds. Burns, 2003;29(5):487-492.
6. Aromataris E, Munn Z, editors. Joanna Briggs Institute Reviewer's Manual. https://reviewersmanual.joannabriggs.org/. The Joanna Briggs Institute, 2017.
7. Joanna Briggs Institute Levels of Evidence and Grades of Recommendation Working Party. New JBI Grades of Recommendation. Adelaide: Joanna Briggs Institute, 2013.
8. The Joanna Briggs Institute Levels of Evidence and Grades of Recommendation Working Party. Supporting Document for the Joanna Briggs Institute Levels of Evidence and Grades of Recommendation. The Joanna Briggs Institute, 2014.