

Wound Management: Debridement - Autolytic

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Author

Wound Healing and Management Node Group

QUESTION

What is the best available evidence regarding the use of autolysis for debridement of chronic wounds?

SUMMARY

Autolytic debridement is a natural process whereby devitalised tissue is removed by phagocytic action aided by the use of moisture retentive dressings.¹ This method is generally low cost and painless but with favourable outcomes only evident after several weeks of treatment due to the relatively slow nature of the process.¹ It is suitable for use when there are only minor or moderate areas of devitalised tissue and there is a low risk of wound infection.² Although there is a paucity of high level research to demonstrate the benefits of autolytic debridement, its usefulness in wound healing is recognised by wound care specialists.^{3, 4}

CLINICAL BOTTOM LINE

Debridement is considered to be an important element of wound bed preparation² and is defined as *'the removal of foreign matter or devitalized, injured, infected tissue from a wound until the surrounding healthy tissue is exposed.'*⁵ One option for debridement is autolysis which makes use of the body's own natural and highly selective ability to dissolve devitalised tissue through the phagocytic action of macrophages and lymphocytes. This technique requires providing a supportive environment for autolysis while not damaging healthy tissue³ i.e. keeping the wound moist using moisture retentive dressings⁶ with agents that complement the debriding process (e.g. hydrogels, alginates, hydrocolloids, foam or film dressings).^{1, 6}

Debridement by autolysis is considered to be a safe and painless method and generally considered useful when the area for debridement is not too extensive. This method is generally low cost and painless, with favourable outcomes only evident after several weeks of treatment.¹ (Level IV). As for any method of debridement, the clinician should assess the patient and wound thoroughly with particular attention to the adequacy of the blood supply to the wound area.² (Level IV)

Based on the only RCT of the four included in Bradley et al's³ systematic review that demonstrated a statistically significant difference, a small benefit could be gained from treatment with a hydrogel dressing compared to a hydrocolloid dressing.

Another systematic review⁴ compared hydrogel with gauze or standard wound care. Three studies were included in the analysis, with the authors concluding that the evidence

suggested that hydrogels are significantly more effective in healing diabetic foot ulcers, with the effect size reported for the measure 'number of ulcers completed healed' being 1.84 (1.30, 2.61).

An RCT⁷ conducted in 2008 resulted in no statistical difference between the reduction in necrotic tissue between the use of a polyacrylate dressing and a collagenase ointment (enzymatic debridement for treating venous ulcers (n=42), although clinically a greater reduction in necrotic tissue as achieved with the autolytic process. Fifteen patients were managed with autolytic debridement while the remaining 27 were treated with a collagenase ointment. In the first two weeks of treatment the autolytic group had a 19% mean reduction in necrotic tissue while the collagenase group experienced only half that mean reduction (9%). Granulation tissue increased by 26% and 10% respectively. In the third week the autolytic group demonstrated an additional 11% reduction while the collagenase group relapsed, with a mean increase of 9.1% in necrotic tissue. However when these results were analysed there was no statistical difference between the groups.

In the systematic review conducted by Ramundo and Gray⁸ in the same year, no additional studies on the effectiveness of autolytic debridement compared to enzymatic debridement were identified. The authors concluded that there was insufficient evidence to determine whether collagenase ointment removes necrotic tissue from leg ulcers more or less rapidly than autolytic debridement enhanced by a polyacrylate dressing.

CONTRA INDICATIONS

Autolytic debridement is not advisable in the presence of extensive devitalised necrotic tissue which is dry and there is no possibility of restoring vascularity to the area,¹ (Level IV) or in infected chronic wounds. Kirshen, et al² also list exposed tendon/bone, friable skin, severe neutropenia and immune-compromised patients as contraindications to the use of autolytic debridement.

OTHER CONSIDERATIONS

Autolytic debridement can contribute to the maceration of surrounding skin if wound exudate / moisture levels are too high for the primary or secondary dressings to manage.¹ (Level IV). Suggested management of excess chronic wound exudate is to apply a fibrous primary wound dressing covered by a secondary low water vapour transmission rate (WVTR) dressing e.g. hydrocolloid or film.⁶ (Level IV)

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:

- Three systematic reviews: one on debridement of chronic wounds,³ one on debridement of diabetic foot ulcers⁴ and one on enzymatic debridement⁸ (Level I)
- An RCT comparing the use of autolytic debridement to collagenase ointment⁷ (Level II)
- An article on moist wound healing⁶ (Level IV)
- Four articles summarising a number of debriding techniques and associated aspects of care^{1, 2, 9, 10} (Level 4)

BEST PRACTICE RECOMMENDATIONS

- Careful assessment must be made to identify the possible causes of tissue damage and the patient's suitability for the chosen method of debridement. Particular attention should be paid to the adequacy of the blood supply to the wound. (Grade B).
- Autolytic debridement is recommended in wounds where the amount of de-vitalised tissue is not extensive and infection is not present (Grade B).
- At each dressing change assess the surrounding tissue for maceration. If there is excess wound exudate apply a fibrous primary dressing with a covering low water vapour transmission rate (WTVR) dressing e.g. hydrocolloid or film. (Grade B).
- Autolytic debridement should be accompanied by best practice wound care (Grade B).

NB: Other related topics:

- ES 3456 Larval therapy for debridement of chronic wounds
- ES 7019 Wound infection: Biofilms and sharp debridement
- ES3454 Enzymatic debridement for venous leg ulcers
- ES3450 Wound management: Debridement - autolytic

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