The effect of a new debridement technique on patient wellbeing

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There have been a number of documents published during the past few years focusing on the importance of the patient experience of NHS care (Department of Health [DH], 2011a, 2011b; Wounds International 2012), and the significance of the whole patient journey.

Treating patients with compassion, dignity and respect is fundamental in any specialty and wound management is no exception. Therefore, it is increasingly under the spotlight of the DH, given the high impact on patient-reported experience of care and the escalating associated financial burden.

In February 2012, the National Institute for Health and Clinical Excellence (NICE) published a new quality standard on patient experience in adult NHS services. The document stated that high-quality care should be both effective and safe, and contained 14 quality statements to this effect, all of which can be aligned to wound care (*Table 1*).

Eaton (2012) commented that the aim of the guidance was to create 'sustainable change that will result in an "NHS cultural shift" towards a truly patient-centred service.'

WELLBEING

The NHS Operating Framework (DH, 2011a) advocated that quality and outcomes should drive everything that clinicians do. The framework was designed to act as a catalyst for driving quality improvements. Domain 4 of the framework — 'ensuring that people have a positive experience of care' — is focused on a number of areas, including improving people's experience of A&E services and responsiveness to patients' personal needs. Pain management, particularly related to wound debridement, and ongoing care will certainly impact on the individual's experience of those services and will be reflected in outcome data.

As the population ages, and the management of tissue viability develops heightened focus, this will be further reflected in the outcome domains of the future.

A positive experience of care can also be reflected in optimising wellbeing. While health professionals may focus on wound healing as a key outcome, the priorities of the person challenged by the 'wound experience' may be reducing pain and malodour, or finding a dressing that is comfortable.

One international consensus group looking at factors affecting wellbeing suggested that odour and excessive exudate can lead to feelings of low self-esteem (Wounds international, 2012). Evidence suggests that reducing the wound bioburden and the amount of devitalised tissue in the wound bed can also reduce malodour and excess exudate (Wolcott et al, 2009), which can be effectively achieved through debridement.

PREPARING THE WOUND BED — INNOVATIVE DEBRIDEMENT TECHNIQUES

Debridement of devitalised tissue in the wound bed has been described as fundamental to healing in many wound types (Hofman, 2007; Gray et al, 2011; Vowden and Vowden, 2011). Indeed Fletcher (2010) states that every patient with a wound is entitled to a good minimum standard of care.

Debridement has been described as the removal of non-viable tissue from the wound bed to encourage wound healing, and is, therefore, an essential component

Table 1
Quality standards for patient experience

Number	*Quality statement*
1	*Patients are treated with dignity, kindness, compassion, courtesy, respect, understanding and honesty*
2	*Patients experience effective interactions with staff who have demonstrated competency in relevant communications skills*
3	*Patients are introduced to all healthcare professionals involved in their care, and are made aware of the roles and responsibilities of the members of the healthcare team*
4	*Patients have opportunities to discuss their healthcare beliefs, concerns and preferences to inform their individualised care*
5	*Patients are supported by healthcare professionals to understand relevant treatment options, including benefits, risks and potential consequences*
6	*Patients are actively involved in shared decision making and supported by healthcare professionals to make fully informed choices about investigations, treatment and care that reflect what is important to them*
7	*Patients are made aware that they have the right to choose, accept or decline treatment and these decisions are respected and supported*
8	*Patients are made aware that they can ask for a second opinion*
9	*Patients experience care that is tailored to their needs and personal preferences, taking into account their circumstances, their ability to access services and their coexisting conditions*
10	*Patients have their physical and psychological needs regularly assessed and addressed, including nutrition, hydration, pain relief, personal hygiene and anxiety*
11	*Patients experience continuity of care delivery, whenever possible, by the same healthcare professional or team throughout a single episode of care*
12	*Patients experience coordinated care with clear and accurate information exchange between relevant health and social care professionals*
13	*Patients' preferences for sharing information with their partner, family members and/or carers are established, respected and reviewed throughout their care*
14	*Patients are made aware of who to contact, how to contact them and when to make contact about on-going healthcare needs.*

of wound management (European Wound Management Association [EWMA], 2004).

Historical methods of debridement include:

- Autolytic
- Enzymatic
- Mechanical
- Surgical
- Sharp
- Biosurgical options.

Sharp and surgical debridement are widely used techniques, but require specialist training. More recently, hydrosurgery and ultrasonic modalities have been developed for use by specialist practitioners, and an overview of the various debridement techniques can be found in the consensus guidance document provided by Gray et al (2011).

Whatever method of wound debridement is chosen, it must be appropriate to the wound and the clinical setting as well as negotiated with the patient. It is important that the patient understands the options available, however, the reality can be that both practitioner competence and financial constraints can limit those options.

Ultrasound

As mentioned above, ultrasound technology has recently been applied in wound management — the procedure uses low frequency ultrasound to help debride layers of necrosis and foster healing. Ultrasound is defined as a mechanical vibration transmitted at a frequency above the upper limit of human hearing (Sussman and Dyson, 2001) to debride recalcitrant wounds.

Ultrasonic debridement technology delivers ultrasound either in direct contact with the wound bed or via an atomised solution. Most devices include a built-in irrigation system and are supplied with a variety of probes for different wound types. This method of debridement can be immediate and selective and can be used over a period of time, however, financial investment and specialist training can inhibit the use of this modality.

Hydrosurgery

The hydrosurgical method of debridement uses a high-energy saline beam to precisely remove devitalised tissue. The high pressure jet of sterile saline travels parallel to the wound surface, enabling the practitioner to cut and remove tissue while irrigating the wound bed.

This option can provide rapid removal of dead tissue and may be used in a variety of settings (Gurunluoglu and Glasgow, 2009). Again, the unit cost of the therapy can be high and it must be facilitated by a specially trained practitioner.

Autolytic

Devitalised tissue in the wound bed may increase inflammatory response

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Figure 1: Case study: the patient experienced extensive skin loss from knee to ankle.

and mask or mimic signs of infection (Leaper, 2002; Kammerlander et al, 2005). Autolytic debridement, using occlusive and semi-occlusive dressings to promote rehydration of devitalised tissue, is an option for generalist practitioners, however, this needs to be carefully supervised as it can be dangerous if not monitored correctly and should not be used purely because the clinician does not have the skills to consider other methods. As autolytic debridement takes a long time, the dead tissue can become a focus for infection, thus delaying healing.

More recently, the use of hydro-balanced antimicrobial dressings, such as Suprasorb X + PHMB® (Activa Healthcare) has proved effective in promoting autolytic debridement while controlling the bioburden within the wound, thereby, preventing systemic infection (Fumarola et al, 2010; Mason, 2011).

DEBRISOFT

Although debridement may be the appropriate treatment option, challenges exist in the level of skill required to perform some aspects of mechanical debridement safely, for example, sharp debridement and hydrosurgical debridement.

To address this challenge, a selective method of mechanical debridement has been developed and successfully evaluated in practice in a number of different types of wounds (Gray et al, 2011; Haemmerle et al, 2011; Westgate and Cutting, 2012; Stephen-Haynes, 2012; Fumarola, 2012).

Properties

Debrisoft® (Activa Healthcare) is constructed from monofilament polyester fibres with a fleece-like wound contact surface designed to remove devitalised cells, slough and debris from the wound bed. Westgate and Cutting (2012) have demonstrated the removal of biofilm material on a solid surface using the Debrisoft debridement product.

Mode of action

The Debrisoft pad is moistened with the selected wound cleansing solution and passed over the wound surface using the required amount of pressure. It has been demonstrated that Debrisoft successfully removes debris, bacteria and haematoma from the wound bed and hyperkeratotic skin from lower limbs (Bahr et al, 2011; Haemmerle et al, 2011; Gray et al, 2011), while maintaining patient comfort (Bahr et al, 2011; Fumarola, 2012). A whole treatment episode can be achieved in a timeframe reported to be as short as 2–3 minutes (Bahr et al, 2011), and no adverse medical device effects have been recorded to date.

Application

Debrisoft has been used as a debriding agent in a range of acute, traumatic, and chronic wounds where the focus has been on the removal of wound debris and potential biofilm, while effectively managing the patient's pain experience.

Successful treatment episodes have informed appropriate wound interventions, reduced in-patient bed days and supported safe ongoing care by the patient's nursing team (Gray, 2011; Fumarola, 2012; Stephen-Haynes, 2012).

Callaghan and Stephen-Haynes (2012) described the treatment of 12 pressure ulcers using the active debridement system and reported rapid, safe and pain-free debridement. The pad resulted in better visualisation of the wound bed, improved management objectives and reduced numbers of district nurse visits.

Collarte et al (2012) undertook a 10-patient study evaluating removal of hyperkeratosis from the lower leg. They discovered that Debrisoft aided fast and effective wound and periwound skin debridement without the delay of referring on to specialist teams. Pritchard (2012) described debridement of slough from an extensive leg ulcer, enabling the application of topical antimicrobials to the wound bed and subsequent wound healing.

Haemmerle et al (2011) evaluated the debridement properties of Debrisoft in 11 patients with ulcers to the lower leg. Researchers discovered that the monofilament pad removed almost all of the debris in the wound while leaving healthy granulating tissue intact. Scanning electron microscopy revealed wound debris tightly packed into the monofilaments of the pad.

CASE STUDY

Mr X is a 62-year-old man who underwent an extensive surgical debridement to

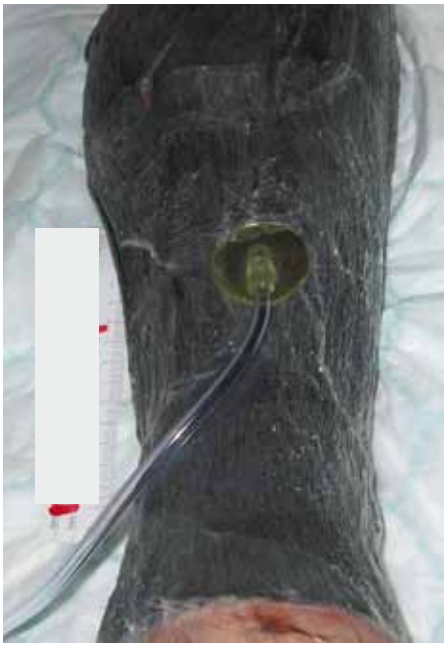

Figure 2: The wound being treated with NPWT.

the tissue of the lower leg following a necrotising infection (*Figure 1*). He was managed in an intensive care unit and then in the renal unit, undergoing haemodialysis following sepsis.

Mr X experienced circumferential loss of tissue from below the knee to the ankle and the wound demonstrated extensive slough (*Figure 1*). It was being managed with negative pressure wound therapy (NPWT) in preparation for skin graft (*Figure 2*).

Wound cleansing proved problematic because of the extensive area involved. Conventional methods, including irrigation or cleansing with saline and gauze, had proved ineffective. Critical contamination involving *Pseudomonas aeruginosa* developed, preventing skin grafting.

Due to the poor efficacy of other methods, a decision was taken to use a Debrisoft pad to enable cleansing and debridement of the wound and aid removal of the possible biofilm at dressing change. The pad was moistened with sterile saline and passed over the wound with light pressure to remove slough and wound debris (*Figures 3 and 4*).

This procedure was repeated at each dressing change (*Figure 5*). Dressing changes took place two or three times per week depending on the seal achieved with the NPWT. Mr X remained pain free during the procedure and skin graft was successfully applied to the lesion.

Figure 3: Debrisoft was able to cleanse the wound and gently debride it of debris.

CONCLUSION

This article has examined the different types of debridement available and their effect on the wellbeing of the patient with a wound.

Some techniques have an adverse impact on the patient, including pain and trauma, as well as requiring expert knowledge from clinicians. Because of this, Debrisoft, a new debridment method that removes devitalised cells, slough and debris from the wound bed, may be useful, as it offers a less painful debridment method, improved visualisation of the wound bed, and can reduce the amount of healthcare professional time required to debride. WUK

Figure 4: The wound after debridement with Debrisoft.

DECLARATION

This article has been produced with the support of Activa Healthcare.

Figure 5: As the wound progressed, Debrisoft continued to cleanse and debride.