Clinical Study

Meeting the clinical challenges posed by highly exuding wounds

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Over the last two decades medicine has become increasingly successful at helping patients to live longer with chronic diseases and reducing death rates from diseases such as cardiac failure and cancer.
The result is that today's patient population is older, sicker for longer and their comorbidities present greater complexities than their counterparts of the early 1990s, Leon (2011).

An example of this is a comparison between two studies in which the author was involved. The first study was conducted in 1993 (Gray and Campbell, 1994) and the second in 2008 (Gray et al, 2008). In both these studies the authors looked at patients at risk from pressure ulcer development. In 1993, Gray and Campbell (1994) found the mean age of the patient population at risk of pressure ulcer development to be 64 in both groups recruited, while in the 2008 study, Gray et al found the mean age for the two populations recruited to this study were 82.3 and 84.0 respectively. Both groups in 2008 were noted to have a mean of three additional comorbidities for example cardiac failure, diabetes and chronic kidney disease in addition to their reason for admission. These two studies, fifteen years apart, point towards an increase in the age and complexity of today's patient population. Therefore, the techniques, products and management strategies employed in caring for patients with wounds likewise have to evolve and develop in response to the changing population.

In the author's clinical experience, there has been an increase in the number of patients presenting with lower limb wounds, such as chronic leg ulcers, which cannot be treated with compression as a result of their underlying conditions, such as cardiac failure, or who are unable
to tolerate compression because of pain or discomfort, despite the presence of high levels of exudate which needs to be managed. This article considers how super absorbent wound dressings may have a role to play in the management of such conditions as soft pitting oedema, cellulitis and chronic leg ulcers, and how new strategies can improve patient wellbeing.

Clinical challenges

Chronic oedema and lymphedema have been acknowledged as playing a role in the development of lower limb skin problems such as ulceration and cellulitis (Green and Mason, 2006). This represents a change as previously the relationship between these two conditions had not been widely recognised. As said, the increased number of patients surviving with conditions such as cardiac failure has also resulted in more patients presenting with soft pitting oedema of the lower limbs (Partsch, 2003).

Added to the number of patients who are either unsuitable or unwilling to accept compression therapy, the numbers of patient presenting with highly exuding lower limb wounds has been steadily increasing in recent decades (Stalbow, 2004 & Stephens, 2006). Where leg ulceration is present, all four of the UK NHS authorities advise following their respective national guidelines, the foundation of which is a full assessment including establishing the Ankle Brachial Pressure Index. However as a result of the increasing complexity of the patient population it is not always possible to follow these guidelines and alternative approaches have to be considered such as those set out in Table 1. In such situations it is not always possible to absorb the fluid produced via such wounds using standard absorbent dressings.

Traditionally the foam dressing has been seen as the most absorbent dressing designed to absorb wound exudate, prevent strikethrough and reduce the time between dressing changes. Where exudate levels have been within the absorbency capabilities of the foam dressings this type of dressing has been found a useful treatment (Bianchi et al 2010). In laboratory studies Baines (2009) studied the absorbency capabilities of two widely used foam dressings Allevyn® (Smith and Nephew) and Versiva® XC (Convatec) under laboratory conditions and identified that the dressings had an absorbency rate of 5.9 (Allevyn) and 5.1 (Versiva XC) over a 24 hour period. Also under laboratory conditions Steinlechner et al. (2008) considered two super absorbent dressings alongside an absorbent pad, the type of which is often used when foam dressings are found to have insufficient absorbency. In this laboratory study the authors were able to identify that the standard absorbent pad was significantly less absorbent than the two super absorbent dressings tested. The challenge with laboratory studies is the question of applicability to the clinic situation.

These laboratory studies can only be viewed as indicators that super absorbent dressings have a higher absorbency capacity than that of foam dressings and standard absorbent pads.

Whilst we must be cautious relating laboratory studies directly to clinical practice they can be of benefit in understanding what the practitioner witnesses clinically.

For the majority of wounds the absorbency of foam dressings is adequate to meet the clinical needs of the patient; however it is clear that in some cases the absorbency of the dressings is not enough and problems can develop. In such circumstances the introduction of a super absorbent dressing often proves effective.

The laboratory findings suggest these clinical observations are the result of superior fluid absorbency.

Table 1: **Examples of Clinical Indications for the use of super absorbent dressings**

Where existing dressings reach absorbency limit within 24 hours
Where existing dressings leak prior to scheduled dressing change
Macerated peri wound areas
Infected wounds producing high levels of exudate
Where a wound exists along with soft pitting oedema
In cases where compression is indicated but not tolerated and high exudate levels are present
Cellulitis resulting in high exudate levels
Chronic or Lymphoedema treated with compression in the presence of high exudate levels

In her article on the management of fluid leakage in grossly oedematous legs, Anderson (2003) highlights the problems of managing wounds with very high levels of leakage, "dressings may quickly become saturated and thus extremely heavy, causing them to slip and pull on the skin". Karch and Karch (2001) describe non sterile hygiene products which contain a super absorbent core being used as wound dressings.

Alqahtani and Lalonde (2006) also discuss a potential role for non sterile products which contained a super absorbent core. Practitioners have identified that there is a potential role for products which contain a super absorbent core to deal with very high levels of exudate but resorted to using non sterile hygiene products due to a lack of availability of sterile wound dressings. However in recent years a variety of super absorbent dressings have become available in the UK.

Patient Wellbeing/Quality of Life

Patient wellbeing is defined as "a dynamic state, in which the individual is able to develop their potential, work productively and creatively, build strong and positive relationships with others, and contribute to their community." (Government Office for Science, 2008: 10).

Our understanding of patient wellbeing has developed significantly in recent years (Gray et al., 2010). It is often the case that what the practitioner sees, relates to their own professional interest and the patient has different priorities. In figure 1 and figure 2 the left leg of a 37 year old man is presented. This man has diabetes, obesity, osteoarthritis, recurrent infection, chronic pain, chronic oedema and venous disease of both lower limbs.

The widespread ulceration on the left leg is mirrored by ulceration on the right leg. This patient is unable to tolerate compression on the leg due to excessive pain which cannot be managed with a traditional approach. Having undergone gastric surgery and lost significant weight the priority for this patient is to remain infection free and able to continue with his employment while continuing to lose weight and explore the options available which might allow him to tolerate compression of the limb. Healing is not the patient's priority, ensuring the very high levels of exudate remain within the dressing during working hours, while avoiding maceration and infection are the priorities.

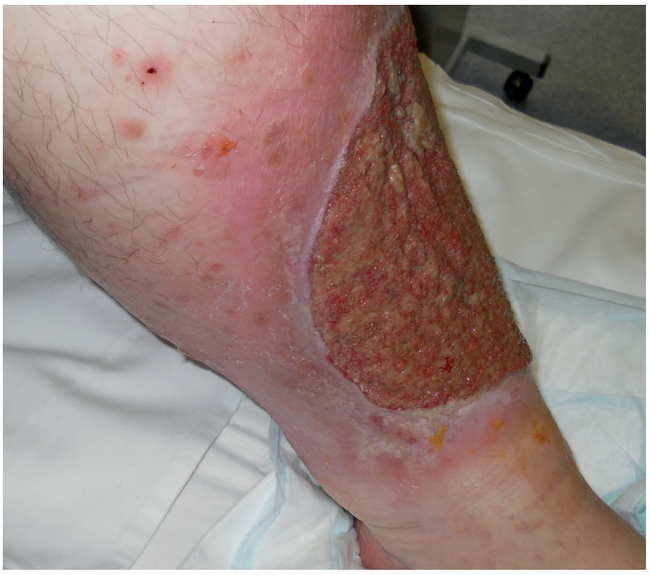

Figure 1: **The left leg of a 37 year old man with venous disease of the lower limbs.**

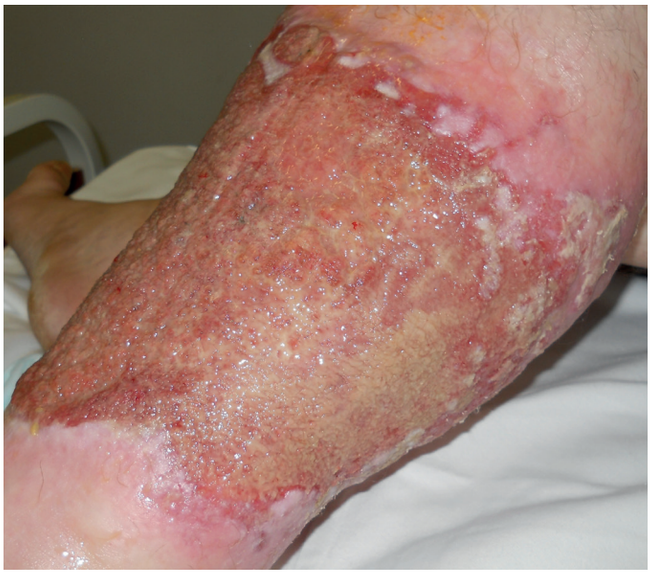

Figure 2: **The left leg of a 37 year old man with venous disease of the lower limbs.**

These cases present an accurate insight into the reality of wound management which involve the patient's views, coordinating care with carers and reaching an accommodation which in each case saw improved outcomes and wellbeing for the patients.

The improved management of the exudate produced and its subsequent reduction in volume in each case were the result of the distilling of good clinical practice with effective product selection.

Discussion

The changes in the patient population over the last two decades are self evident to anyone practicing clinically in the UK. The elderly patients are, in general, more complex and older than the elderly population of twenty years ago requiring more complex and innovative wound management. As highlighted by Bianchi et al (2011) foam dressings are popular and considered clinically effective in the management of wounds in the UK. However the authors also highlight the fact that there is little to choose between the foams in terms of clinical efficacy and that there maybe the need to consider alternatives to the basic foam dressing.

The desire for a higher level of absorbency has been highlighted where patients have been treated using non sterile hygiene products (Karch and Karch, 2003 & 2006). Another factor in both of these reports was the desire on the part of practitioners to reduce the costs of treatments. The main issue for people looking for alternatives to foam dressings for absorption, would appear to be as suggested by Anderson (2003) as recognition that in some cases the usual range of dressing available had inadequate absorption abilities. This situation can leave patient's with dressings which are leaking on a regular basis and result in a severely restricted lifestyle and a negative impact on their wellbeing. As has been highlighted by the laboratory tests of Phillips (2009) and Steinbecher

(2008) there are significant differences in the volume of exudate which can be absorbed between foam dressings and super absorbent dressings. This would suggest there is value in considering them as part of the innovative methods of wound management we require to treat today's patient population.

In the clinical information available, it is clear that Zetuvit® Plus has the ability to absorb high volumes of wound exudate and in some cases this leads to a reduction in wound pain. These cases cut to the heart of the matter in that many patients present with large exudate volumes from their lower limbs and if not managed effectively, can have a very detrimental impact on their wellbeing and that of their families. In the current financial climate there is a desire to ensure effective treatment and the lowest cost, sometimes this can result in an increase in the time between dressing changes. If the product used to absorb exudate is not effective, this can lead to leakage and poor clinical outcomes for the patient. It is therefore vital when selecting dressings to absorb wound exudate, that due consideration is given to the ability of the product selected to absorb and retain the exudate, commensurate with the patients need and that will not fail the patient before the next scheduled dressing change.

Conclusion

Over the last two decades there has been a steady increase in patients presenting with lower limb wounds and high levels of exudate which require an innovative response.
It is clear that the use of foam dressings in such cases has limitations and clinicians have looked elsewhere. With the option of super absorbent dressings the clinician and patient have the opportunity to implement a management strategy that is both clinically and cost effective, as well as improving the patient's wellbeing.

To this end using the super absorbent Zetuvit® Plus 20 x 40cm retained with tubular bandage provided sufficient absorbency to achieve these aims. Previously, Negative Pressure Wound Therapy was applied to the limb with an output of 1 litre per 24 hour period, the dressings can be required to be changed twice in 24 hours but can often last 24 hours. In this complex case the patient's wellbeing is enhanced by using a super absorbent dressing which conforms to his limb and allows a degree of self management. By using the dressing Zetuvit® Plus which has a super absorbent core, this patient has the opportunity to continue to live his life free of dressing leakage and pooling of exudate under his feet. In due course with specialist pain management, continued weight loss the healing of the ulcer can be tackled. Benbow and Stevens (2010) highlight the role that exudate management and infection prevention can impact on the patient wellbeing.

Zetuvit® Plus

Zetuvit® Plus is a wound dressing designed for the management of heavily exuding wounds. It functions by binding wound exudate which is retained within the absorbent core. It is suggested that in common with other super absorbents the exudate removal eliminates inhibitory factors from the wound, thus promoting wound healing. The high absorption and retention capacity reduces the frequency of dressing changes and affords protection against renewed infection.

Zetuvit® Plus consists of four layers of different materials. The absorbent core is enclosed in a thin non-woven fabric that uniformly distributes the fluid (Figure 3). On the side facing away from the wound, the product has a water repellent non-woven layer that is permeable to air.

The outer surface of the non-woven consists of hydrophobic polyamide fibres which do not absorb fluid, preventing it from sticking to the wound. In a recent clinical evaluation, Kaspar (2010) recruited 61 patients in a multi centered approach. The range of wounds recruited were a mix of chronic and acute wound with moderate to highly exuding wounds. In 59 of the wounds which were assessed for absorbency capability, 95% found the dressing to be very good, good or satisfactory and in terms of exudate management 100% found it to be very good, good or satisfactory. Patients reported a reduction in pain while being treated with Zetuvit® Plus.

In three case reports presented by Benbow and Stevens (2010) similar results are reported where exudate handling is improved on previous treatments, pain reduction in one case and exudate production is noted to be reduced in two cases.

Going further for health

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