

HRT the new NPWT in wound care? Exudate removal the key...

While negative pressure wound therapy (NPWT) was accepted as the treatment of choice for chronic wound management for decades - largely due to its ability to remove moderate to heavy levels of wound drainage - the emergence of a high-tech hydrokinetic fibrous dressing using hydration response technology (HRT) in recent years has now been accepted as an effective alternative by ensuring the removal and isolation of significant amounts of exudate together with its harmful components.

Introducing a recent study report, "NPWT or HRT-dressing? Results of an expert panel and a Delphi panel analysis"¹, British researchers Hermans and Cutting stressed that because of its potential side effects, exudate management was recognised as a crucial part of wound care and wound bed preparation: "As such," they explained, "it is an essential component of the TIME paradigm, that highlights the need for an appropriate moisture balance in the wound, along with the removal of devitalised tissue and the importance of avoiding or reducing the risk of infection."

NPWT, they acknowledged, was among the popular modalities in this regard with its therapeutic effects generally being based on the principle that the vacuum assists in the removal of excess exudate, in the lowering of the concentrations of inhibitory factors in that exudate, and in the promotion of local perfusion

Objective of their investigation was to assess the similarities and differences between HRT and NPWT with regard to wound bed preparation, and to devise a set of recommendations for their use on the basis of the opinion of two panels: an expert panel that analysed *in vitro* and clinical data as well as the similarities and differences between the two modalities, and a Delphi panel consisting of users of both NPWT and the HRT-dressing.

The expert panel's analyses culminated in a series of recommendations on which modality to use for which indication and these, in turn, were then presented to the Delphi panel for practical assessment.

Discussing their findings, the researchers noted that NPWT was the preferred treatment modality for abdominal dehiscence wounds, and to a lesser extent, for surgical wound healing by secondary intention.

"For all other indications," they added, "the treatment modalities are at least equal, with HRT-dressing often being the superior mode to treat wounds such as venous leg ulcers, arterial ulcers and vasculitis."

Elaborating on the investigation in a subsequent poster presentation at EWMA Conference 2014 in Madrid², co-author Prof Keith Cutting, of Buckinghamshire New University, explained that preference for the properties of HRT-dressing or the dressing component of NPWT (foam or gauze), were identified with regard to ease of application, no fragmentation/loss of dressing integrity and low dressing adhesion

Ease of application of HRT-dressing was chosen by the panel members in preference to NPWT dressing by a ratio of 4:1.

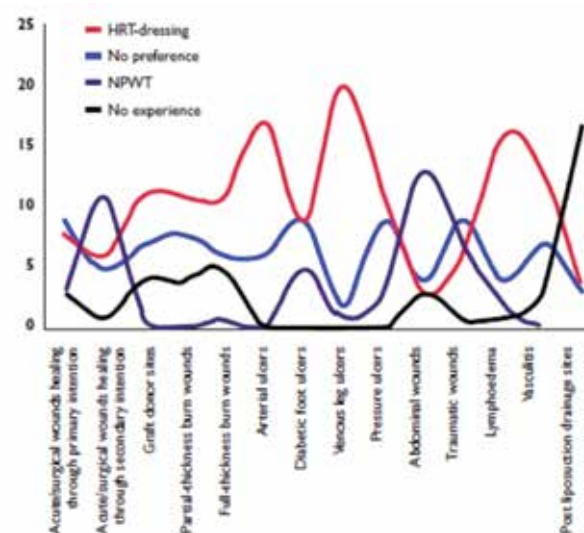


Figure 1: Treatment preference for HRT-dressing (Sorbion) in respect of a range of wound types

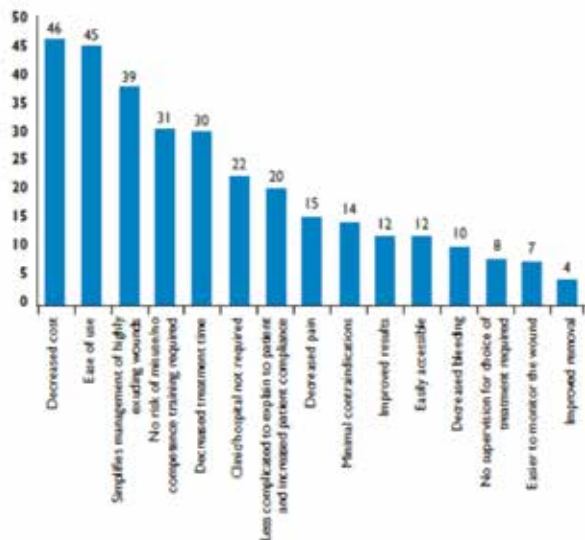


Figure 2: Benefits to the clinician offered by replacement of NPWT with HRT-dressing (Sorbion)

All 23 panel members (100%) preferred HRT-dressing based on no fragmentation or loss of dressing integrity, while 21 (91%) identified a preference for HRT-dressing in relation to low dressing adhesion with two (9%) expressing no preference.

The Delphi panel members were also asked to consider how many wounds could be potentially treated with HRT-dressing in place of NPWT in a practice that exclusively uses NPWT to treat 100 each of pressure ulcers, diabetic foot ulcers and abdominal dehiscid wounds.

For pressure ulcers and diabetic foot ulcers 70% and 52% of panel members respectively were of the opinion that in more than 50% of these lesions HRT-dressing could replace NPWT. When considering abdominal dehiscid wounds 70% of the panel considered that up to 50% of these wounds could be replaced by HRT-dressing.

"In the opinion of the expert panel and the Delphi panel," Hermans and Cutting explained in their concluding remarks, "both modalities share a number of clinical and non-clinical properties. However, because of the numerous advantages of HRT technology, HRT dressing has the potential to replace NPWT in a number of indications, where the patient, healthcare providers and institutions may benefit.

Introducing their report on a more specific evaluation of the influence of Sorbion Sachet S - "a wound dressing with Hydration Response Fibers" - on wound bed preparation in patients with venous leg ulcers VLU³, Italian researchers Romanelli *et al* stressed the importance of debridement in laying out the fundament for wound healing i.e. preparing the wound bed.

The body's way of debridement is an autolytic one, but especially in stagnating chronic wounds it may be slowed down due to the pathological chronification process.

So a dressing for chronic wounds, they added, should ideally support autolytic debridement.

This prompted them to perform a 10-patient evaluation to find out if the use of Sorbion Sachet S as a primary wound contact dressing supports the body's autolytic debridement process by significantly reducing the percentual presence of slough on the wound, by lowering the presence of oedema in the wound which often causes maceration and inflammatory processes like excoriation, and by normalizing the wound's pH level down to more physiological levels.

Major clinically relevant properties of Sorbion Sachet S, Romanelli and colleagues went on to note, were seen on debriding performances with effect on wet necrosis, improvement of peri-wound skin, reduction of pathologic oedema in the wound region with effect on the negative influences of static exudate, and improving the metabolic status of the wound with effect on inflammatory proteases.

All of these observations, they added, were attended by significant healing signs such as reduction of wound size and increased percentage of granulation tissue.

As an overall impression, effective wound bed preparation was performed at a high clinicians' and patients' satisfaction. In addition, the team concluded, the frequency of dressing change was significantly reduced which indicates, especially together with the healing rates, good cost efficacy.

The importance of the dressing's soft debridement in the removal of slough, toxins and bacteria was highlighted by Martyn Butcher, an independent tissue viability and wound care consultant and podiatry student at the University of Plymouth, in a recent issue of the *British Journal of Nursing* (2015, Vol 24, No 20).

He reminded readers that the presence of proteases and cytokines in chronic wound exudate can cause the wound to become stuck in the inflammatory phase of healing, resulting in non- or slow healing. To make matters worse, he added, such exudate is attractive to bacteria, and so increases the risk of infection. Failure to manage moderate to heavy exudate can therefore have serious consequences for the patient, and is costly for the health service.

In this regard he acknowledged the ability of Cutimed Sorbion Sachet S to manage and control moderate and heavy wound exudate, and thus avoid the serious complications associated with it: "Several clinical evaluations report its ability to absorb exudate and avoid or reduce maceration and painful excoriation. Further evidence," he added, "is provided on its ability to create a suitable moisture balance and thus facilitate autolytic debridement. There is also clear evidence that its use results in a reduction in slough."

Cutimed Sorbion Sachet S is the core product of a range of four superabsorbent hypoallergenic dressings incorporating, as explained, hydration response technology (HRT) for use on moderate to highly exuding wounds, including chronic wounds such as venous leg, diabetic foot and pressure ulcers, as well as acute wounds healing by secondary intention.

A functional feature of HRT is that it combines mechanically modified cellulose fibres and selected gel-forming polymers which work together to absorb and retain large quantities of exudate, encourage wound bed preparation and protect the peri-wound skin. In other words, the gelling agents and supporting cellulose fibres combine to form a matrix that absorbs and retains exudate, and locks harmful proteases and cytokines away from the wound bed.

The gel formation has also been shown to ensure that a moist wound environment is maintained to encourage autolytic debridement and remove non-viable tissue from the wound bed.

Others in the range are Sorbion Sachet Multi Star for the difficult body parts e.g. toes and elbows, Sorbion Sachet Drainage for catheters and drainage tubes, and Sorbion Sachet Border for use when quick and easy application is required.

All Sorbion dressings are hypoallergenic and sealed with ultrasonic technology without binders or adhesives thereby having very low skin friction and risk of allergy. There is also little or no risk of macerations as the high absorption capacity prevents leakage of excessive fluid, while all dressings can be applied on both sides to eliminate any chance of wrong application.

References

1. Hermans, M.H.E.; Cutting, K.F. (2013): NPWT or HRT-dressing? Results of an expert panel and a Delphi panel analysis. In: Journal of Wound Care, H. 22(11), S. 573–581
2. Cutting 2014: Investigating the potential for Hydration Response® Technology wound dressing to substitute for generic negative pressure wound therapy (NPWT) in a range of wound types – a Delphi inquiry
3. Romanelli, M.; Dini, v.; Bertone, M.S. (2009): A pilot study evaluating the wound and skin care performances of the hydration response technology dressing: a new concept of debridement. in: Journal of Wound Technology, h. 5, s. 1–3.

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