Managing wound exudate: role of Versiva® XC™ gelling foam dressing

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Abstract
Effective management of wound exudate is a considerable challenge for clinicians. Treatment of the patients underlying condition, accurate assessment of the wound and exudate, as well as selection of an appropriate dressing are all important factors for success. A variety of dressings are available to the clinician for the management of exudate, but not all handle fluid in the same way. A gelling foam dressing combining foam with Hydrofiber® technology is described and the supporting evidence for its use reviewed. Versiva® XC™ dressing has some good evidence to support its use in the management of wound exudate and performs well in clinical practice.

Key words: Dressings ■ Exudate ■ Hydrofiber ■ Wound care

Creating a moisture balance at the wound interface is essential if wound healing is to be achieved. Moist wound healing has been shown to improve healing, pain, discomfort and infection rates (Wiechula, 2003). Exudate is produced as part of the body’s response to tissue damage and the amount of exudates produced is dependant upon the pressure gradient within the tissues (Vowden and Vowden, 2004). A wound which progresses through the normal wound healing cycle produces enough moisture to promote cell proliferation (World Union of Wound Healing Societies [WUWHS], 2007) and supports the removal of devitalized tissue through autolysis (Cutting, 2003). ‘In a healing wound, exudate production generally reduces over time. However, in a non-healing wound, exudate production may continue and be excessive due to ongoing inflammatory or other processes’ (WUWHS, 2007).

Factors such as the underlying condition of the patient, the pathology of the wound and the dressing selection all affect the production of exudate (White, 2001). Patients with leg ulceration and underlying venous disease are more prone to excess exudate as are those with inflammatory ulcers or burns (WUWHS, 2007). The size of the wound will also influence the amount of exudate production with larger wounds producing more exudate. If a wound produces excessive amounts of exudates the wound bed becomes saturated and moisture leaks out onto the periwound skin causing maceration (Cutting and White, 2002) (Figure 1).

Damage may also occur due to increased frequency of dressing change, when adhesive products are being removed too often causing damage to the periwound skin. For many patients excess exudate can lead to problems of leaking, soiling of clothes, pain, discomfort and malodour (Vuolo, 2004). This problem can have a profound effect on their daily lives, and frequent laundering of clothes, linen and furnishings can have both practical and economic effects on patients’ lives and social interactions (Anderson, 2002). If the wound bed becomes too dry, however, a scab will form which then impedes healing and wound contraction. This can cause pain and discomfort for the patient (Dowsett and Ayello, 2004). If a dressing product does not manage the exudate and strike through occurs, this can lead to an increased risk of infection (Graham, 2004). The type of tissue at the wound bed is also significant in terms of exudate production with sloughy wound tissue producing exudate as it debrides through the process of autolysis (Graham, 2004).

Dressing products
In local wound management, dressings are the main option for managing exudate. Dressings should be used in the context of a total package of care and the wound should be reassessed and the dressing evaluated at each dressing change. When selecting a dressing it is important to remember that the dressing should be able to manage the exudate in such a way as to enhance the wound environment to favour healing as opposed to simply mopping up exudate.

There are many characteristics of an ideal wound dressing that include the maintenance of moisture balance and effective removal of excess fluid from the wound bed. In reality, not all dressings perform to the same standard and the challenge for the clinician is to identify the patient’s individual needs and match these to the performance characteristics of the dressings available. Issues such as patient wound type, efficacy, patient preference and cost-effectiveness all have to be considered. Other important aspects in relation to exudate management are ease of application and removal, in particular for patients who are performing their own dressing change.

Wound dressings must be designed to best handle biological exudate: absorbing and retaining it, while maintaining an optimal level of moisture at the wound surface without spreading the moisture or exudate onto the surrounding periwound skin (Bishop et al, 2003). There are
a variety of dressing products available for the management of exudate, including cottons, polyester or viscose, foams, hydrocolloids, alginites and Hydrofiber dressings. Many dressings handle fluid by absorbing it, and/or allowing it to evaporate. In addition, properties such as fluid retention and sequestration may be important (WUWHS, 2007). Simple absorptive dressings (e.g. traditional foams) hold fluid within spaces in their structure like a sponge. When placed under pressure the fluid is released and can cause leakage from the dressing. Many absorbent dressings, however, allow moisture to be transmitted from the surface of the dressing. This quality is known as the moisture vapour transmission rate (MVTR) and is important to consider when selecting a dressing for exudate management (WUWHS, 2007).

Foam dressings with a high MVTR are less likely to cause maceration as the wound exudate is lost by evaporation, instead of being held in the dressing. In addition to these modes of action some dressings, such as alginites and Hydrofiber dressings, take fluid up into the dressing to form a gel. When pressure is applied the gel changes shape but retains the fluid. They are therefore particularly useful under compression (WUWHS, 2007).

Hydrofiber dressings made from carboxymethylated cellulose have been shown to rapidly form a cohesive gel following hydration that immobilizes fluid restricting capillary flow (Waring and Parsons, 2001). More recently it has been shown that some alginate and Hydrofiber dressing materials trap bacteria (Walker et al, 2003) and potentially corrosive enzymes (Walker and Cochrane, 2003) in a process termed sequestration (Figure 2). The ability of the Hydrofiber technology to form a uniform cohesive gel gives it enhanced bacterial sequestration properties compared with the alginites (Walker et al, 2003). These properties of Hydrofiber technology could complement existing practice in wound management (Walker et al, 2003), particularly where bacteria is contributing to increased exudate levels.

Despite these technological advances wound exudate continues to be a problem for patients and a challenge for healthcare professionals involved in their care. Dressings with strike through and maceration are regularly encountered by clinicians caring for this patient group and patients often report discomfort and pain as a result of the problem. Frequent dressing changes are often inconvenient for the patient and costly for the health services in terms of clinician time and dressing product usage. Any new technology or dressing that has the potential to overcome these problems is welcomed for evaluation in practice.

Versiva® XC™ gelling foam dressing

Versiva XC (ConvaTec Ltd, Deeside) is a gelling foam dressing, which combines a foam with Hydrofiber technology in a thin and easy to use dressing format (Figure 4). Gelling foam represents a new generation of wound care technology that has been designed to protect the periwound skin and reduce the risk of maceration, as well as providing comfort for patients.

Unlike traditional foam dressings that absorb fluid into the air pockets of the foam structure, the Hydrofiber technology absorbs fluid into the interior of the fibres, causing them to swell and merge with each other to form a cohesive gel. This gelling action is specific to the area where the fluid is absorbed; where there is no fluid the fibres remain dry. Because fluid is absorbed and retained (Pritchard, 2006) directly into the fibres, rather than being taken into air gaps or pockets between fibres or inside a foam, the fluid is effectively retained when pressure is applied (Pritchard, 2006), as demonstrated by in vitro testing. In addition, the gelling foam also sequesters harmful...
skin at baseline, but this resolved in nine (82%) by the final dressing change. Sixty-seven per cent of investigators rated the dressing as excellent for exudate management, protection of surrounding skin (62%), ease of application (89%), ease of removal (96%), conformability (67%) and overall performance (58%) (Vanscheidt et al, 2007). The reduction of pain in-situ was found to be significant ($P < 0.0001$) from baseline to last dressing change, as was the reduction in pain upon dressing removal ($P < 0.0001$) compared with previous dressings used. There was also a 50% decrease in the mean wound size from baseline to final evaluation.

Similar results were found when used on patients with pressure ulcers (Parrish et al, 2008). In a prospective, non-comparative study involving 23 subjects with exuding pressure ulcers, an adhesive gelling foam dressing was found to be safe, effective for managing exudate and protected the surrounding skin. Mean dressing wear-time was 4.2 days, and the subjects found the dressing to be comfortable, soothing and cushioning at 80%, 64% and 70% of dressing changes, respectively. Pain severity was none or mild for every dressing change.

Mean wear-times in both these studies are significant in terms of resources of nursing time and product usage. It is not unusual when managing patients with exuding wounds to be undertaking frequent dressing changes, so a dressing that improves wear-time is welcomed by both clinicians and their patients.

Versiva XC dressing has been evaluated in practice with a view to inclusion on the Primary Care Trust (PCT) formulary. It performed well when used on a patient with a highly exuding postoperative wound. The patient reported an improvement in pain and discomfort during the wear-time of the dressing and on application and removal. The number of dressing changes reduced from daily to three times a week, due to the ability of the dressing to manage wound exudate, which in turn reduced the community nurses workload, inconvenience for the patient, and the cost for the PCT.

The dressing was also evaluated under compression therapy in a patient with a venous leg ulcer. The dressing handled the fluid well, and following 7 days wear there was no leakage and no evidence of maceration or pressure indentation. However, further evaluation in clinical practice is needed to be able to generalize from these preliminary findings.

### Conclusion

Effective management of wound exudate is a challenge for clinicians. Unless it is done right, patients will continue to suffer from pain, discomfort and delayed wound healing. The use of a systematic approach, which recognizes the importance of treating the underlying condition and selecting a suitable wound dressing is essential for success. Dressing selection should be based on the ability of the dressing to achieve the desired exudate level, to assist healing and/or prevent deterioration of wounds not expected to heal. Other qualities to be considered are the ability of the dressing to reduce pain on application and removal and during wear time. The ability of the dressing to prevent maceration and improve wear time is also essential. As new products become available we need to review their supporting evidence and evaluate their usage in clinical practice.
Versiva XC dressing is a welcome addition to the current range of dressing products for managing wound exudate. The evidence shows that it is effective in the management of moderate to heavily exuding wounds, prevents periwound maceration and can improve pain and discomfort often suffered by patients with exuding wounds. Further research in the form of a controlled study that directly compares gelling foam with other wound dressings for moderately to highly exuding wounds is recommended for the future.

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DECLARATION OF INTEREST

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KEY POINTS

- Excessive wound exudate is detrimental to wound healing and distressing for patients.
- Treatment of the underlying cause of wound exudate is essential for a successful patient outcome.
- Versiva® XC is a gelling foam dressing which has been shown to safely and effectively manage moderate to highly exuding wounds.
- Versiva® XC dressing should be considered for use in patients with moderate to highly exuding wounds.