A multicentre study examining the role of calcium alginate dressings in bleeding/infected chronic wounds

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Introduction
It has been suggested that a wound exudate decision algorithm will help nurses to decide on appropriate dressing choices in managing chronic wounds1. The algorithm states that wet/bleeding and bleeding/infected wounds should be managed with an alginate and silver alginate dressings respectively. Calcium alginate with silver (Sorbsan® Silver) was evaluated in the management of these types of wounds. Alginites have been demonstrated to have haemostatic properties2. Sorbsan is a calcium salt of alginic acid and when applied to a wound exchanges calcium ions for sodium ions creating a hydrophilic gel and promoting haemostasis3. The addition of silver to wound dressings reduces critical colonisation in wounds4. The combination should therefore be effective in bleeding and infected wounds.

Method
The effects of calcium alginate with added silver dressing were assessed in patients with chronic wounds. A multicentre cohort study included 7 sites across the UK. Patients were selected by 11 wound care clinician’s using the Wound Exudate Decision Tree1. Written and verbal consent was obtained. All the wounds were friable and either bled or had brown exudate (considered to contain blood) on entry to the study. Wounds were documented over a 1-16 week period. Dressings were changed at variable intervals, as clinically indicated. Baseline observations included tissue type, surrounding skin condition, exudate, odour, pain, clinical colonisation or infection and dressing performance was monitored over 4 dressing changes.

Calcium ions released into the wound during the ion exchange (that also enables alginites to absorb fluid and turn to gel) help in the activation of platelets being part of the clotting cascade (clotting factor IV), thereby promoting haemostasis. Calcium ions released following ion exchange in the dressing

Sodium ions in blood & wound fluid are absorbed by dressing

The Sodium ions present in wound fluids and around damaged tissues are absorbed and exchanged for calcium ions in the alginate dressing. Ca2+ ions are available at the site of the bleeding and help to support the coagulation cascade.

Results
Forty-eight patients entered the study and the median age of the patients was 81.3 years (33-100).

Fig. 2  Dressing evaluations at 3rd documented change

Dressing were rated very good, good, fair poor, not applicable and not documented. To each question such as ease of use, adhesion to skin, this was only documented if adhesive dressings were applied. Durability was linked to wear time, in 10 patients that had venous leg ulcers dressing were mainly applied once a day to weekly depending on the amount of exudate and strikethrough. As there were many different centres involved there was some disparity regarding completion of the documents. The lead author considered each entry and where possible ensured that the information was consistent.

Initial assessment was carried out using the Calcium Alginate dressings Sorbsan Silver®, across the range of products. The majority of patients were evaluated at the 3rd dressing changes (Fig 2). In those areas where Sorbsan Silver® was used where clinically indicated 5 out of the 11 clinician’s reported improved outcomes stating “where there was an improvement in the patients wound, it was felt that stopping effective treatment would be more costly and less beneficial to the patient.

Fig. 3  Wound Exudate Decision Tree

Conclusion
Calcium Alginate dressing whether they contained silver or not has been shown to be effective in the management of bleeding infected wounds with haemo-purulent exudate (Figure 3), when selected according to the Wound Exudate Decision Tree. It was disappointing to see that 23/47 patients did not complete all four weeks. There were many reasons given 11 patients in the independent clinic reviewed the dressing only for a three week period. 2 patients were withdrawn due to hospital admissions. Some of the patients were only on the silver dressings for a period of two weeks this was due to local trust protocol. This algorithm helps guide nurses to choose the most appropriate dressing which may improve wound healing time and outcomes. Alginites are often regarded as useful for mopping up exudate and nurses may forget their value in haemostasis. The bacterial load in a wound makes bleeding more likely and the addition of silver will help reduce this.

References