

Managing Maceration, Exudate, and Infection Risk: A Case Study on Super Absorbent Polymer (SAP) Dressing Strategies in a Lower Extremity Wound

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Introduction

Super absorbent polymer (SAP) dressings are a type of wound dressing that contains hydro active properties due to their ionic charge.¹ The super absorbent capacity of the dressing allows for increased wear time of the dressing, as well as creating a moist environment, which allows for accelerated wound healing.¹ Silver is another product commonly used in wound care. Silver is known to have excellent antimicrobial activity, which is useful for reducing microbial burden in the wound bed. This case study evaluated 2 super absorbent polymer dressings, 1 containing a 1% silver solution, in an acute lower extremity wound.

Case Description

A 71-year-old female presented to the wound care center with a left lower extremity wound that occurred 72 hours prior after bumping her leg on the floorboard of her truck. The patient received treatment in the emergency department at the time of injury, which consisted of a gauze dressing and antibiotics. The patient presented to the wound center clinic 3 days later with complaints of increased pain at the wound site. Upon initial assessment, the wound had moderate, copious serosanguinous drainage and 100% necrotic tissue. The decision was made to use an antimicrobial gel, a foam dressing, sharp debridement, compression sleeve, and order home health. The antimicrobial gel was discontinued after week 1, but debridement methods and compression continued until the wound was granular.

However, the patient developed a sensitivity to the foam dressing, which delayed progress in the wound healing. The foam dressing was changed to a novel, silicone super absorbent polymer (SAP) dressing containing 1% silver.

The wound was reassessed 1 week after the implementation of the new silver SAP use. The peri-wound maceration had resolved, skin fragility had improved, and the wound healing had recommenced. With granulation of the tissue and the risk of infection lowered, the silver SAP dressing was changed to a non-silver version of the super absorbent dressing. 100% Type I Bovine Collagen powder was also added to the wound bed to assist in wound closure progression. The patient was reassessed weekly until wound closure.

Discussion

When assessing a wound, providers need to ensure the wound bed and peri-wound tissue are addressed to prevent further wound breakdown. Although it is a standard of care, providers should consider discontinuing the use of a foam dressing when peri-wound irritation is present. This can potentially eliminate further breakdown and lead to wound improvement.

Silicone-based super absorbent polymer (SAP) dressings offer an alternative to foam and are superior regarding skin integrity protection and exudate management, with the addition of silver providing an extra level of support and reducing the risk of infection.

Conclusion

The change from a foam to a 1% silver silicone-based SAP dressing improved the patient's peri-wound irritation by assisting with exudate management and resulted in wound progression. More aggressive exudate management also helped reduce matrix metalloproteinases (MMPs), minimizing the risk of infection and supporting a more optimal wound environment. Then, the continued use of the non-silver version of the SAP bordered dressing assisted in continued wound closure once non-viable/necrotic tissue around the wound had resolved.



References

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