Effective Treatment of Anticoagulated Patients with Novel Transforming Powder Dressing (TPD)

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Background

Anticoagulants can contribute to wound healing complications by accelerating bleeding and exudation. Even minor injuries may evolve into severe soft tissue damage with increased risk of hematomas. Resulting wounds may be extensive, painful, and debilitating with high risk of infection and tissue necrosis, imposing a significant wound care challenge with limited treatment alternatives.[1] Conventional dressings require frequent changes exacerbating wound trauma and patient discomfort. Another routine therapy, negative pressure wound therapy (NPWT), has been associated with bleeding complications. Between 2009 and 2011, the FDA reported six deaths and 77 injuries associated with NPWT; bleeding complications were prevalent in all six deaths and 17 injuries, including certain patients on anticoagulant therapy.[2] Alternative therapies, therefore, must be evaluated.

Case Overview: Methodology

We present a complex case involving a patient treated with a novel transforming powder dressing (TPD*). An 88-year-old male with multiple comorbidities including atrial fibrillation was being treated with apixaban to reduce the risk of stroke and systemic embolism. The patient reported a fall, wounding his right lower extremity (RLE). His pain increased and the wound worsened despite standard of care therapy. Computed Tomography Angiography revealed a large, superficial hematoma in the lateral aspect of the right calf. Acute blood loss and anemia secondary to the hematoma was observed. DVT prophylaxis was discontinued. Excisional wound debridement and evacuation of the hematoma was performed eleven days after the initial injury. TPD was applied to the wound post-surgery and continued during home healthcare visits. The patient was observed weekly for removal of contact layer and outer dressing to assess the wound. For the first 5 weeks, the wound dressing was changed (topped off) 1 time per week. The following 8 weeks, the wound dressing was changed 1 time every other week. The final 6 weeks, the wound dressing was changed 1 time every third week (11 TPD dressing changes over treatment course).

Material

TPD is a novel powder dressing comprised primarily of biocompatible polymers (same as those used in contact lenses). Upon hydration with saline, TPD granules aggregate to form a moist, oxygen-permeable matrix that protects the wound from contamination while helping to manage excess exudate through vapor transpiration, as well as some negative pressure effects on the wound. Once applied, TPD may be left in place for up to 30 days and additional powder may be added ("topped off") as needed. Simple secondary dressings are used and changed in areas with high exudation or friction. TPD dries and flakes off as the wound heals.

**Altrazeal® Transforming Powder Dressing (USA)*

Results

- After treatment with TPD our team observed the following results:
- Reduced pain, minimal wound bleeding and a significant decrease in sanguineous drainage
- Expedited granulation: wound was ready for grafting 35 days after initial application of TPD (clinical team elected not to perform grafting)
- Significant reduction in wound size and dressing changes
- From 155 cm3 to 1.2 cm3 within 118 days
- Dressing change frequency reduced relative to standard of care dressings
- Changes every 10.7 days on average
- Homecare nursing visits reduced to once per week instead of thrice per week (standard of care)

Conclusion

After treatment with TPD, we observed a significant reduction in sanguineous drainage and overall wound size. Dressing change frequency and home health visits were reduced relative to standard of care therapies.

The wound care team recommended secondary intention wound healing with TPD as grafting was no longer required.

Based on the results of this complex case, we conclude that patients who are at high risk for stroke and embolism and are being treated with anticoagulants should be considered for wound care treatment with TPD.

References

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2. Livingston, M; (November 20, 2009); FDA Preliminary Public Health Notification: Serious Complications Associated with Negative Pressure Wound Therapy Systems (Shuren JE); https://woundblog.wordpress.com/2009/11/20/fda-preliminary-public-health-notification-serious-complications-associated-with-negative-pressure-wound-therapy-systems/

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