Effects of Using a Soft Monofilament Debriding Mitt Versus Traditional Gauze for Wound Bed Preparation in Painful Lower Extremity Wounds

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Problem
Debridement of painful lower extremity wounds creates management problems for practitioners and suffering for patients. Since pain and stress can delay wound healing, strategies for reducing procedural pain and anticipatory anxiety are important factors during the course of treatment. Debridement and wound hygiene are a key concept in the T.I.M.E acronym for wound healing, but can be time consuming for the practitioner and create pain and anxiety for the patient.

Previous Practice
Current procedures for wound bed preparation involves topical 2% lidocaine application for 10-15 minutes followed by either scrubbing with saline soaked gauze or sharp debridement with a curette.

Proposed Solution
Through the health system’s value analysis process, a soft monofilament debriding mitt (MDM) was approved for a clinical trial. A feedback form was developed to evaluate time to desired outcome, improved patient tolerance with debridement procedures, and an increase in effectiveness versus our current protocol for wound bed preparation. Painful lower extremity wounds included: calciphylaxis, vasculitis, venous stasis, and arterial wounds. Clinical evaluation forms were completed by the CWON team and collected for analysis.

Results
Our evaluation determined that the MDM was effective in removing devitalized tissue from the wound bed and surrounding skin, as well as keratosis from the lower leg. Patients were pleased with the soft feel of the mitt and tolerate the procedures better than with previous methods. Procedural times were decreased which supported a productivity gain that can be impactful for the value analysis process.

Conclusion
The evaluation of a MDM showed significant benefits over our current protocol for wound bed preparation in painful lower extremity wounds. As a result of this evaluation, the wound care team will support the adoption of an MDM for wound bed preparation and continue to implement this new technology into practice.

References

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**Case 1**  
58 year old male post total knee replacement surgery with post-op complication of necrotic hematoma formation.  
- Previous debriding techniques included surgical debridement, sharp non-excisional with curette, and mechanical with saline and gauze along with the application of 2% lidocaine for 10 minutes prior to the procedure, total treatment time of 20 minutes. Patient reported an average pain rating of 9/10 with these methods.  
- MDM procedure reduced procedural pain to a 3/10.  
- Total time of treatment was decreased to 5 minutes with MDM verses 20 minutes with previous methods.

**Case 2**  
100 year old female with history of chronic venous stasis insufficiency complicated by diagnosis of psoriasis.  
- Previous debriding techniques included, mechanical with saline and gauze, wash cloth with soap and water, and sharp non-excisional with scissors and pick-ups. Patient reported an average pain rating of 6/10 with these methods.  
- MDM procedure reduced procedural pain to a 3/10.  
- Time of treatment was decreased to 5 minutes with MDM verses average of 15 minutes with previous methods.

**Case 3**  
77 year old female with history of diabetes type 2, CHF, venous insufficiency, lymphedema, cellulites, and atrial fibrillation.  
- Previous debriding techniques included, sharp non-excisional with curette, and mechanical with saline and gauze, along with the application of 2% lidocaine for 10 minutes prior to the procedure. Total procedure time 15 minutes. Patient reported an average pain rating of 8/10 with these methods.  
- MDM procedure reduced procedural pain to a 4/10.  
- Time of treatment decreased 10 minutes per wound with MDM versus previous methods.

**Case 4**  
90 year old male with history of diabetes type 2, anemia, paranoid schizophrenia, and MI.  
- Previous debriding techniques included, surgical debridement, sharp non-excisional with curette, mechanical with saline and gauze and the application of 2% lidocaine for 10 minutes prior to the procedure, with a total procedure time of 15 minutes. Patient reported an average pain rating of 8/10 with these methods.  
- MDM procedure reduced procedural pain to a 3/10.  
- Time of treatment decreased 10 minutes with MDM versus previous procedure methods.

**Case 5**  
63 year old female with a complex medical history of scleroderma and osteoporosis. Wound present for 5 months prior to seeking treatment. Wound biopsy confirmed pyoderma gangrenosum.  
- Previous debriding methods included mechanical with saline and gauze, and sharp non-excisional with curette. Treatment with 2% lidocaine for 10 minutes prior to the procedure, with a total treatment time of 30 minutes due to 10/10 average pain rating.  
- The patient reported a pain rating of 5/10 with MDM debridement.  
- Procedure time decreased to 5-10 minutes from 25 minutes with previous methods.