Reduction in Wound Pain by Using a Polymeric Membrane Dressing on a Post-Surgical Below the Knee Amputation (BKA)

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Introduction

The primary goals of post-surgical amputation management include: prompt, uncomplicated wound healing, control of edema/postoperative pain, prevention of joint contractures, and rapid rehabilitation.[1] Wet-to-dry dressings are the current standard of care (SOC) for post operative wound care. Due to the psychological stress and physical pain associated with surgical wounds, pain due to dressing change and wound complications should be mitigated utilizing dressings which promote tissue proliferation as well as reducing painful dressing changes. One of the most difficult challenges for any wound care prescriber is to balance the potential benefits versus the potential risks of opiod prescribing.[2]

Rationale

Polymeric membrane dressings* (PMDs) help to control the inflammatory process to help reduce secondary cell damage and pain caused by the typical swelling and bruising usually observed beyond the injury site.[3,4] The versatile dressing has been shown to reduce the patient's wound pain experience while actively encouraging healing.[5] The trauma associated with dressings sticking to the wound bed causing pain is not present with PMDs.[6] PMDs contain glycerol to help maintain a moist healing environment and prevent adherence of the dressing on the wound bed.[7] The mild cleanser in PMDs supports autolytic debridement while continuously cleansing.[7]

Methods

A 32-year-old male presenting in the emergency department with chief complaint of dizziness. Multiple skin lesions noted which were concerning for purpura or possible Kaposi sarcoma. Patient transferred to ICU and was in septic shock secondary to community acquired fulminant disseminated bacterial meningitis. Purpura fulminans (an extreme thrombotic subtype of disseminated intravascular coagulation (DIC)), complicated with extensive skin necrosis, infection, and dry/wet gangrene, resulting in bilateral below the knee amputation (BKA).

Wounds cleansed with Hypochlorous acid at all dressing changes.

Prior Care: Wet-to-dry dressing used to cover the fresh surgical tissue resulted in unnecessary pain during dressing changes. Negative pressure wound therapy applied for 2 weeks after wet to dry dressing changes but was discontinued as too painful for the patient. Hydromorphone Intravenously 2mg prior to dressing changes.

PMDs: It was decided that a polymeric membrane dressing would be more suitable in reducing pain associated with daily dressings since PMDs help to focus inflammation into the primary injured tissue, reducing both wound and periwound edema and pain, while supporting healing. The WOC RN recommended standard PMDs as an option for reduced pain during dressing changes.

Results

PMD dressing significantly reduced wound pain from prior 8 (0-10) pain scale, to 2 during dressing changes. There was a 75% reduction of opioid administration secondary to the use of the PMD. The patient no longer needed Hydromorphone intravenous for pain. Pain medication was reduced to Oxycodone and Acetaminophen orally for pre dressing changes. As patient pain was reduced with PMDs, the pain medication was discontinued. Because the standard of care (SOC) post-surgically for wound dressings have been wet-to-dry dressings, patients would benefit from using PMD for reducing pain associated with treatment and dressing changes.

Pre-amputation bilaterally lower extremities
Legs are necrotic, inflamed and edematous

Pre-amputation of lower extremities

Post-Surgery
The patient was unable to tolerate wet to dry dressing changes and negative pressure wound therapy due to pain
Polymeric Membrane Dressings (PMDs) initiated for: pain management, inflammation control and to reduce swelling
Both legs amputated below the knee

After application of PMDs
Pain and swelling is reduced

Application of PMDs

PMD dressing significantly reduced wound pain from prior 8 (0-10) pain scale, to 2 during dressing changes

Discussion

PMD was successfully used by our wound care team on post-surgical wounds. Because of the moist milieu presented by PMD, a noticeable tissue proliferation increase was apparent. Ease of replacement during dressing changes provided comfort/relief. Daily dressing changes with PMD reduced wound pain, reduced opioid use, increased patient satisfaction, and provided a viable treatment for post-surgical wounds. Patient was satisfied with level of pain management with PMDs. It was easier to transition to skilled rehab facility because wound pain was reduced. PMDs were used for 10 days and then wound care management changed to negative pressure wound therapy (NPWT). NPWT was discontinued as too painful for the patient; then wound care changed to a methacrylate powder dressing and PMDs.

References

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