Early Experience with a Novel Vibrating Mechanical Debridement Tool (VMDT) for use on Diabetic Ulcers

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Introduction

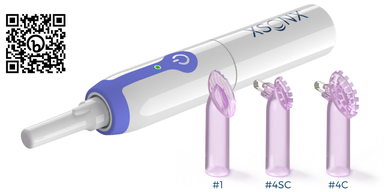
The novel vibrating mechanical debridement tool (VMDT) uses low sonic level frequency vibrations to help scrub and debride wounds. This tool is battery powered with a reusable handpiece that can be wiped clean. This novel hand-held tool uses vibrational technology in combination with debridement and scrubbing heads and has been used to cleanse wounds, safely disrupt biofilm and necrotic tissue. The purpose of the study was to evaluate this new tool in the normal patient care environment to determine functionality and patient acceptance.

Methods

5 patients (41-80 years old) with chronic wounds were treated at an outpatient wound care center. Wounds were diabetic ulcers. Wound age and wound bed status varied from clean to heavily contaminated. Wounds were assessed and cleaned/ debrided according to standard protocol. The VMDT replaced the standard method of curette, scalpel, and/or surgical debridement. Images were captured of the cleansing/debridement progress plus the patients were asked about overall satisfaction.

VMDT/ XSONX

XSONX is an innovative new tool for wound cleansing and debridement. XSONX is hand-held, battery powered and easy-to-use. It enables a more thorough debridement with a higher safety margin. XSONX has also been shown to reduce both pain and patient anxiety, through its mechanism of vibrational analgesia. XSONX can improve graft take, wound healing, and provide cost savings, while enhancing patient satisfaction.



Procedures

81 YEAR OLD MALE - PE PRE & POST XSONX DEBRIDEMENT

DIAGNOSIS
- Diabetic Foot Ulcers - Left & Right – Heel
- Pressure Injury/Decubitus Ulcer

MEDICAL HISTORY
- Vascularity: PT 1/4, DP 1/4

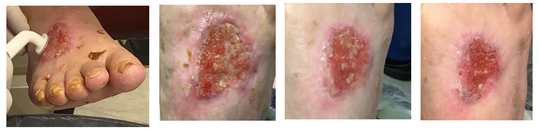
COMORBIDITIES
- History of Stroke
- COPD
- Type 2 Diabetes
- Hypertension

56 YEAR OLD FEMALE - RB PRE & POST XSONX DEBRIDEMENT

DIAGNOSIS
- Chronic Ulcer From Necrotizing Fasciitis Of Right Foot

MEDICAL HISTORY
- Vascularity: PT ¼, DP ¼

COMORBIDITIES
- Necrotizing Fasciitis Resulting In Hospital Admission & Surgical Debridement
- Small Cell Carcinoma Of Lungs
- Severe Peripheral Vascular Disease
- Lung & Breast Cancer
- COPD



70 YEAR OLD MALE - JP PRE & POST XSONX DEBRIDEMENT

DIAGNOSIS
- Diabetic Ulcer Of Heel W/Fat Layer Exposed – Right

MEDICAL HISTORY
- Vascularity: PT 1/4, DP 1/4

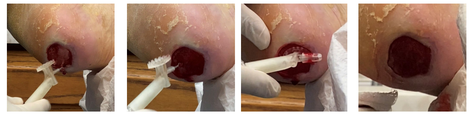
COMORBIDITIES
- Type 2 Diabetic
- Vascular Disease
- Hypertension

53 YEAR OLD MALE - DS PRE & POST XSONX DEBRIDEMENT

DIAGNOSIS
- Diabetic Ulcer Of Heel W/Fat Layer Exposed – Right

MEDICAL HISTORY
- Vascularity: PT 1/4, DP 1/4

COMORBIDITIES
- Oxygen Dependent
- Congestive Heart Failure
- Disease Of Thyroid
- Neuropathy

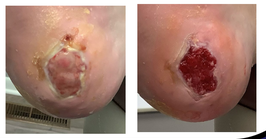


41 YEAR OLD MALE - JPU PRE & POST XSONX DEBRIDEMENT

DIAGNOSIS
- Diabetic Ulcer Of Heel W/Fat Layer Exposed – Right

MEDICAL HISTORY
- Vascularity: PT 1/4, DP 1/4

COMORBIDITIES
- Type 2 Diabetes
- Obesity
- Hypertension
- Neuropathy



Results

Clinically, the VMDT achieved a similar amount of cleansing/ debridement as traditional methods (scalpel and sharp curettes). Patient satisfaction/ compliance increased along with the pain reduction through vibratory analgesia.

Discusson

The VMDT provides adequate cleansing/ debridement and disruption of biofilm while increasing patient satisfaction. There could be a place in the physician's practice for this instrumentation and to also be used safely by other trained healthcare professionals

BENEFITS AS A CLINICAL TOOL

- Ergonomic handle design and easy to switch on and off
- Does not require excessive time to set or clean up
- Operates on standard batteries which are easy to find
- Features Scrubbing Head and a Large and Small Debriding Head to better meet specific needs

BENEFITS TO PROVIDERS

- Expands the number of providers who can provide wound care because it does not rely on surgical training
- Can be incorporated into a wound hygiene protocol along with an antimicrobial wound wash and specialized dressing

BENEFITS TO PATIENTS

- Gentle debridement, less painful for patients
- Safe, controlled depth of debridement not likely to damage healthy tissue
- Reduction of bioburden will potentially allow Improvement in healing time and improved skin graft efficacy

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