

Keynote Forum | Day 1 February 23, 2023

Wound Care Congress 2023



7th World Congress on
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February 23-24, 2023 | Dubai, UAE

WOUND HEALING AND CRITICAL CARE

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**Windy Cole***Kent State University College of Podiatric Medicine, USA*

The utility of a wireless electroceutical dressing in the treatment of chronic venous leg ulcers: A pilot study

Millions of Americans are afflicted with painful, open, draining ulcers on their lower extremities. Venous leg ulcers (VLUs), cause significant clinical and economic burden to the health care system and society.^{1,2} It is not uncommon for clinicians to see patients who have suffered for years with VLUs. VLUs are the result of chronic venous insufficiency, a malady caused by an abnormality of the veins in the lower extremity. Correction of the underlying venous hypertension is the crux of treatment for VLUs, but compression alone fails to allow for optimization of the wound healing environment.

Even with advanced wound care many VLUs fall short of achieving complete wound resolution. The author/investigator hypothesized that the addition of a wireless electroceutical dressing (WED) to standard of care could further support wound healing in chronic VLU patients. The WED harnesses V.Dox Technology (Vomaris Wound Care, Inc. Tempe, AZ) that mimics the electric potential found in the skin. When skin is wounded the physiologic electric field is disrupted.

Clinical evidence has shown that application of low level of exogenous electricity can support the body's natural electrical gradient, contributes to cell migration, and encourages wound healing. The contact layer of the WED is composed of elemental silver and elemental zinc in a dot-matrix pattern on a polyester substrate. In the presence of a conductive medium such as wound exudate, sterile saline, water or a wound hydrogel, silver and zinc ions are activated, and the dot-matrix pattern creates a microcell battery. Low-level electric fields are generated at the surface of the dressing. Electricity is generated via a redox reaction. This mechanism of action is dissimilar to

the 'release of ions' seen in traditional silver dressings.

The voltage between the dots is measured to be 0.2-1.0 V when in contact with wound fluid. These levels are non-hazardous and support the natural skin current. Biofilm is believed to be one of the most common causes of wound chronicity. It has been estimated that up to 90% of chronic wounds have biofilm bacteria. The WED has also been shown to effectively disrupt biofilm bacterial. VLUs are heavily exudative and are plagued by adherent biofilm formation at the wound base. Therefore, it would stand to reason that reducing biofilm bacteria with the use of the WED dressing would support more rapid wound healing.

The purpose of this study was to determine the effects of the WED on modulating biofilm, as detected by qPCR wound cultures, to support wound healing in chronic venous leg ulcers. This presentation will discuss the materials and methods, results and conclusions obtained through this research study. The presenter will also discuss the development of new ideas and the expansion of future agenda items based on this pilot study for the progress of science and scientific communities' knowledge of VLU management

Recent publications

1. Windy Cole, Thomas Wild et al- Topical autologous blood clot therapy: an introduction and development of consensus panel to guide use in the treatment of complex wound types. Wounds: a Compendium of Clinical Research and Practice, 01 Sep 2022, 34(9):223-228 DOI:10.25270/wnds/22011
2. Windy Cole and Stacey Coe et al-A Proposed Algorithm to Diagnose and Treat Lower Extremity Hematomas Wound Management & Prevention 2022 Jul;68(7):11-17.

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Biography

Windy Cole is a Proven healthcare Administrator, Medical Writer, Clinical Content Creator, Educator, Wound Care Clinician, Speaker, Researcher & Consultant with a 20+ years of experience.

Board certified in wound care by the ABWM. Focuses include healthcare

delivery, public health, policy development, strategic growth initiatives, wound management, clinical research, medical writing, consulting and medical education. Currently, Dr. Windy Cole is Director of Wound Care Research Kent State University, College of Podiatric Medicine.

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Marianne Degerman

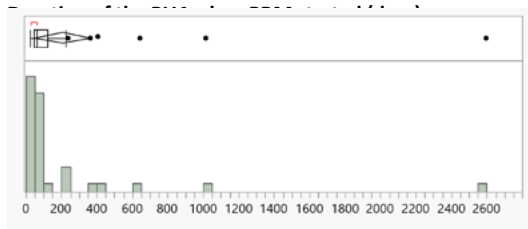
Skellefteå Municipality, Sweden

Photo biomodulation as additional treatment on pressure ulcer category 4, in frail elderly patients in municipality home healthcare

Introduction: Frail elderly are a high-risk population for developing pressure ulcer (PU). patients treated in municipality home healthcare living in nursing homes or in their home residence are the frailest. Home healthcare include palliative care. Laser photobiomodulation (PBM) has shown to have effect on wound and tissue healing. In the municipality there is an ongoing scientific study of PBM in addition to dressing of PU4. The Swedish registry RiksSar for ulcer treatment present national data from municipality primary home healthcare, primary healthcare and specialist hospital care, general PU data from the registry are presented as one PU group with the categories PU2, PU3 and PU4 together.

Methods: Home healthcare patients with 35 PU4 were in addition to dressing, treated two times per week, with PBM. Infrared GaAs, 904nm, with effect 60mW and 700Hz, targeting lymphatic area and ulcer area. PBM red visible, GaAlInp, 635nm, 75mW and 250Hz, targeting ulcer area.

Results:



Quantiles

100.00%	maximum	2597
99.50%		2597
97.50%		2597
90.00%		501,2
75.00%	quartile	119
50.00%	median	63
25.00%	quartile	42
10.00%		28
2.50%		21
0.50%		21
0.00%	minimum	21

Summary Statistics

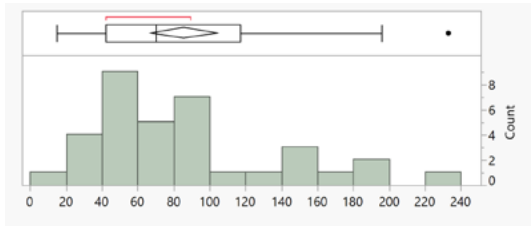
Mean	206,6
Std Dev	461,78
Std Err Mean	78,06
Upper 95% Mean	365,2
Lower 95% Mean	48,0
N	35



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Quantiles



Quantiles

100.00%	maximum	233
99.50%		233
97.50%		233
90.00%		172,2
75.00%	quartile	117
50.00%	median	70
25.00%	quartile	42
10.00%		28
2.50%		15
0.50%		15
0.00%	minimum	15

Summary Statistics

Mean	85,6
Std Dev	53,44
Std Err Mean	9,03
Upper 95% Mean	104,0
Lower 95% Mean	67,3
N	35

Median ulcer duration before PBM and median PBM treatment time to heal the PU4 was 133 days.

Conclusions: Median total healing time data for 2020 from the registry Rikssar was 167 days for the total group of PU. Median healing time of the 35 PU4 in the PBM group was faster despite the homogeneous severity category 4. This indicates that PBM may be an effective treatment of PU4.

Recent Publications

1. Degerman M, Öhman M, Bertilson BC (2022) Photobiomodulation, as additional treatment to traditional dressing of hard-to-heal venous leg ulcers, in frail elderly with municipality home healthcare. PLoS ONE 17(9): e0274023.
2. Taradaj J, Shay B, Dymarek R, Sopel M, Walewicz K, Beeckman D, et al. Effect of laser therapy on expression of angio- and fibrogenic factors, and cytokine concentrations during the healing process of human pressure ulcers. Int. J Med. Sci. 2018;15(11):1105-1112.
3. Kuffler. Photobiomodulation in promoting wound healing: a review. Regen Med. 2016;11:107-122.

Biography

Marianne Degerman is a project leader and researcher in the Municipality of Skelleftea Sweden. her main interests are healthcare in aging. In her current project she is focusing on hard to heal ulcers in frail elderly, with Photo biomodulation in addition to traditional ulcer treatment. Her work has been published and presented at various international conferences.

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David B Alper

*American Podiatric Medical Association, USA
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Initial wound evaluation and treatment in a podiatrist's office / who and what is a podiatrist?

The Podiatric Physician is often the “Gatekeeper” of Diabetic and PAD wounds of the feet – with the result that they will begin wound care and at the same time triage the patient to the appropriate vascular entity for circulation evaluation and, often, revascularization. Since Vascular surgeons will be receiving patients with care begun, it is vital that they understand what is in front of them as far as care, bandaging, ongoing treatment, etc. Part of this is for the vascular physician to understand WHAT a podiatrist is – their full scope of training, the treatment options available both before and after revascularization in order to close the wounds present. This lecture reviews the various initial treatments upon first evaluation, how the vascular surgeon should care for the wounds by following the podiatric protocols, and describes at length the training and skills of the podiatric physician.

Recent Publications

1. Matthew Biggerstaff, David Alper et al Results from the second year of a collaborative effort to forecast influenza seasons in the United States, *Epidemics* February (2018), DOI: 10.1016/j.epidem.2018.02.003
2. Mark Dredze, David Alper et al Results from the centers for disease control and preventions predict the 2013–2014 Influenza Season Challenge July (2016) *BMC Infectious Diseases* 16(1) DOI:10.1186/s12879-016-1669-x

Biography

David B Alper, DPM is an Emeritus surgical staff member of Mount Auburn Hospital (A Harvard Teaching Hospital) in Cambridge, MA. He is a member of the Board of Trustees of the American Podiatric Medical Association, and a Board Member of the American Diabetes Association- New England Division. He sits as a member of the Steering Committee of the Wound Care Community Collaborative (WCCC) and on the Communications Committee of CLI Global.

Dr.David also is the Designated Podiatric Consultant for “The Way To My Heart” organization – a worldwide PAD patient advocacy and educational organization. He is an adjunct professor at Northeastern University's Physician Assistant department, and lectures extensively to lay groups and through online programs on identifying, seeking care and home care for diabetic and vascular wounds.

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