

ABSTRACT: Presented at The Symposium on Advanced Wound Care (SAWC), Las Vegas, NV September 2013, and the Clinical Symposium on Advances In Skin & Wound Care (ASWC), Orlando, FL October 2013.

Activated Carbon Cloth in Direct Contact with VLU Granulation Speeds Healing: Suppression of Biofilm Bacteria and Detoxification of Inflammatory Exudate are Probable Mechanisms

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PROBLEM

Elastic compression, required to heal venous leg ulcers can complicate control of wound exudate, giving rise to lush biofilm, macerated skin, and slippery dressings. We recently reported that activated carbon cloth (ACC) as a thin contact layer under elastic compression improves VLU healing.¹

Active carbon has unique chemistry due to a massive surface area estimated to be $\sim 1000 \text{ m}^2 / \text{gram}$ that is swarming with electrons in surface orbitals. Polar molecules interact with surface electrons creating induced dipole chemical bonds, described by Fritz London a colleague of Einstein². These weak induced dipole bonds presumably, (1) disrupt the biofilm neighborhood by depriving bacteria of nutritional substrate from wound exudate, (2) bind

bacterial exo / endo toxins and inflammatory mediators such as matrix metalloproteinases that contribute to harmful wound inflammation.^{3,4}

This anecdotal case series asks two questions. Does ACC in direct contact with VLU granulation under elastic compression, (1) suppress biofilm inflammation and wound exudate skin damage, and (2) improve VLU healing?

METHODS

Five chronic VLUs treated with compression** and black ACC * *in direct contact* with wound surface.

RESULTS

Therapy details and healing is documented photographically. All VLUs healed.

CONCLUSIONS

Activated carbon cloth,* as a thin antimicrobial anti-inflammatory contact dressing, in concert with compression for chronic VLUs, (1) appears to control grossly visible wound biofilm build up and to control visible inflammatory changes, and to move exudate away from the periwound skin, (2) appears to improve healing of chronic VLUs, versus historical healing rates.

REFERENCES

1. S M Winkler, M J Winkler: *Activated Carbon Cloth in Contact with Venous Leg Ulcer Granulation Tissue is Synergistic with Fuzzy Wale Focused Elastic Compression Therapy*, Science Poster, SAWC Denver May 1, 2013.
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* Zorflex® Active Carbon Cloth, Calgon Carbon Chemviron Cloth Division, Tyne on Wear, UK

** EdemaWear®, Compression Dynamics LLC, Omaha, Nebraska