

ABSTRACT: Presented at The Symposium on Advanced Wound Care (SAWC), Las Vegas, NV October 2017

Title

Long Fiber Activated Carbon Cloth Skin Contact Layer Reverses Moisture Associated Dermatitis: Antimicrobial and anti-inflammatory mechanisms are not understood

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Summary

Skin maceration often complicates elastic compression of venous leg ulcers (VLUs). Bacterial colonization of macerated epidermis leading to skin break down is the feared coup de grace leading to an open VLU. We observed that activated long fiber carbon cloth* used as a skin contact layer often reversed peri wound moisture associated skin damage (MASD) when deployed under a layered compression dressing.**,¹

For decades, long fiber activated carbon cloth was used inside composite dressings to control odor*** and recently has proven effective as a skin contact layer that speeds wound bed preparation.^{2,3} Rayon cloth baked in a nitrogen environment acquires a thick patina of activated carbon via pyrolysis. Fibers thus transformed to activated carbon are 1. hydrophilic, making them

effective in transporting water, 2. have a massive effective surface area (> 100 meters² per gram), and 3. sport reactive surface electrons that bind all manner of molecules via London dispersion forces.⁴ These 3 activated carbon mechanisms act to decrease inflammation in macerated skin colonized with bacteria.¹

This anecdotal series asks, can a contact layer of long fiber activated carbon cloth* reverse moisture associated skin damage (MASD)?

Methods

Three cases of MASD, two lower extremities, and one case of anterior torso kyphosis skin fold intertrigo, were treated with long fiber activated carbon cloth in contact with skin.

Limitations/Conclusions

Photographs document presentation, treatment, and patient outcomes. Clearing of dermatitis was dramatic in each case.

Implications for Nursing Educational Practice

In three anecdotal cases, long fiber activated carbon cloth, an affordable skin contact layer, appears highly effective to reverse chronic MASD.

Educational Objectives****

Wound dressings with activated carbon cloth have long been used to control odor. T__ F__

Carbon cloth is affordable to treat moisture associated skin damage (MASD). T__ F__

Activated carbon cloth has a large absorptive surface that absorbs all manner of molecules in skin and wound exudate. T__ F__

References

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* Zorflex® Activated Long Fiber Carbon Cloth, Calgon Carbon, Chemviron Division, Tyne on Wear, New Castle UK, available in USA from NovaGran Wound Care Products, a division of PBE, Bowling Green, Ohio 43402

** EdemaWear® Fuzzy Wale Elastic Compression Stockinet, Compression Dynamics LLC, Omaha, Nebraska 68102

*** Actisorb® Acelity, Systengenix , Airebank Mills, Skipton, North Yorkshire, UK

***** Answers to learning Objectives – All are True.