

BIOELECTRIC DRESSING REDUCES COST OF CARE FOR INPATIENTS WITH ACUTE SURGICAL WOUNDS TREATED WITH NEGATIVE PRESSURE WOUND THERAPY

Kasturi Ganesh Barki, MD, Piya Das, MS, Richard Schlanger, MD, Lynn Lambert ,BS, Sashwati Roy, PhD, Gayle M. Gordillo, MD, Chandan K. Sen, PhD,

Davis Heart & Lung Research Institute and Comprehensive Wound Center, Department of Surgery, The Ohio State University Wexner Medical Center, Columbus, OH 43210

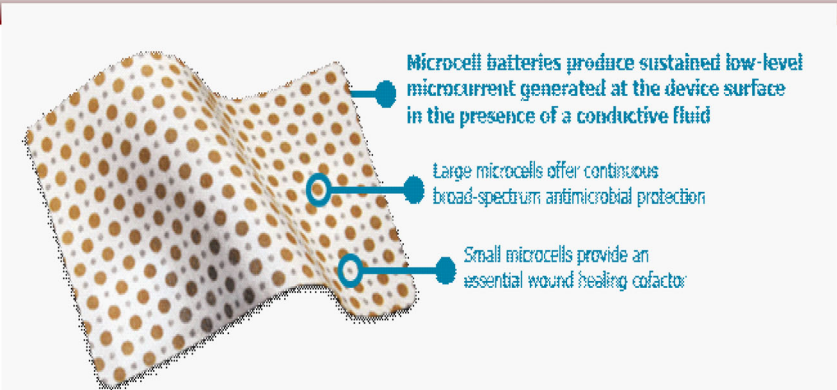
BACKGROUND

Up to 100 million surgical procedures are performed annually in the United States, generating post-operative wounds that often require specialized care.

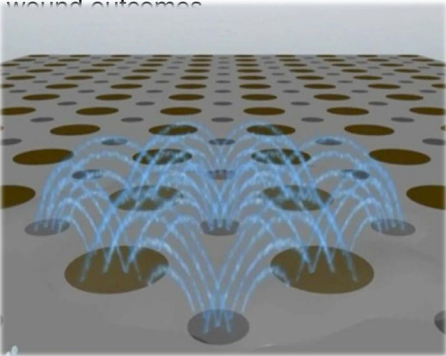
Surgical site infection, which occur in 20-40% of surgical patients, are the primary cause of morbidity and mortality following surgeries.They typically involve the use of costly treatments and increase hospital stay by an average of seven days .

According to the current standard of care, surgical wounds treated with Negative Pressure Wound Therapy (NPWT) involve three dressing changes per week to make sure that infection complications are minimized.

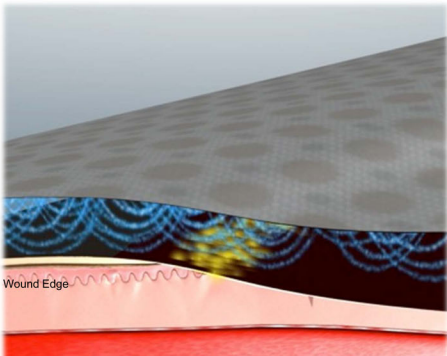
INTRODUCTION



- ❖ Bioelectric dressing that generates 1V electric field and demonstrates anti-bacterial and anti-biofilm properties.
- ❖ BED is indicated for treating partial and fullthickness wounds such as pressure ulcers, venous ulcers, diabetic ulcers, burns, surgical incisions,and donor and/or recipient graft sites.
- ❖ This work tested the hypothesis that inclusion of BED during NPWT may reduce the need for dressing change from thrice to once per week without any adverse effect on wound outcomes



Electrical fields at the surface of BED device



BED device with "dots" down on the wound surface

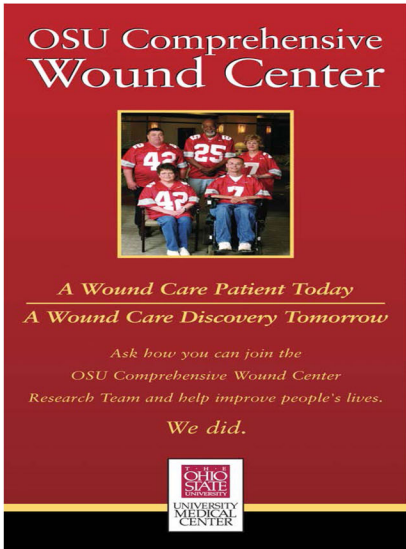
DESIGN & METHODS

Approved by the IRB and this is a registered (NCT01938066) ongoing randomized study on patients (N=30) who have undergone abdominal surgery and require NPWT as part of wound care.

Consented patients were randomized to two arms.
Arm 1 included patients who received NPWT with three dressing changes per week (5d).

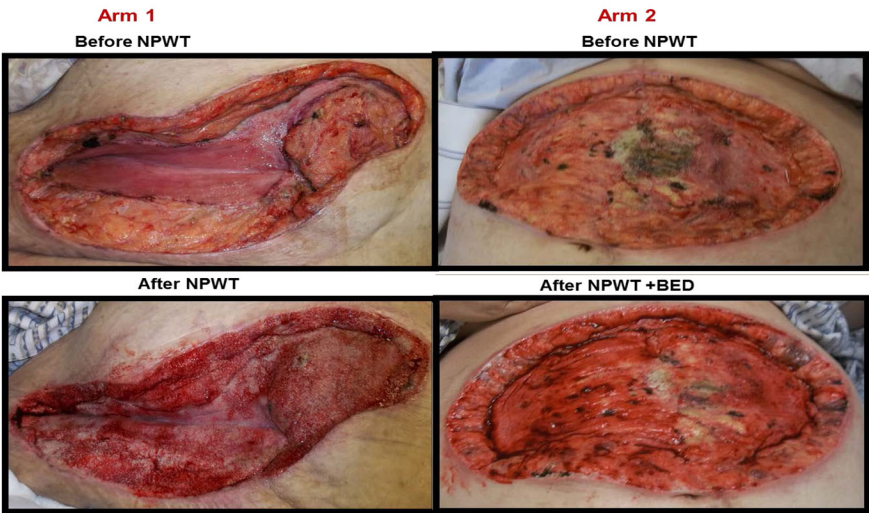
Arm 2 included patients where BED was added as wound dressing during NPWT but the dressing change frequency was reduced to once a week.

Wound size and infection status was monitored immediately before, after one week (5d) of NPWT, and after an average of 2 week of post-NPWT follow up.



VAC therapy system
↓
Foam dressing
↓
Cells and wound fluids harvested using repeated Compression of sponge with saline
↓
Separate cells and wound fluids using centrifugation
Resuspend the wound pellet with 50% human AB serum
↓
Collect wound fluids and cells

Wound digital images from Arm 1& Arm 2 participant



RESULTS

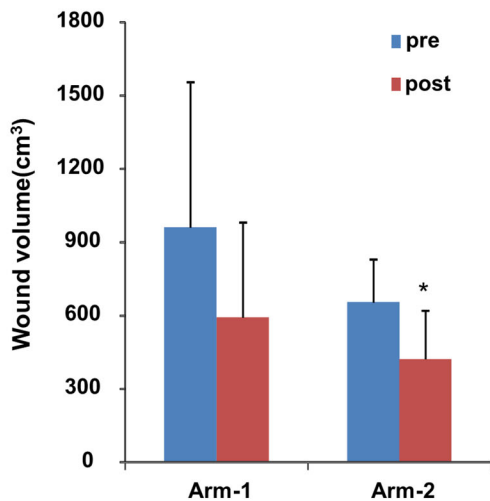
This preliminary data shows promising findings in terms of improved wound healing when BED is used as an adjuvant to NPWT alone.(Study ongoing)

Arm 1: Dressing changed 3 times per week which is the standard of care for NPWT(n=4).

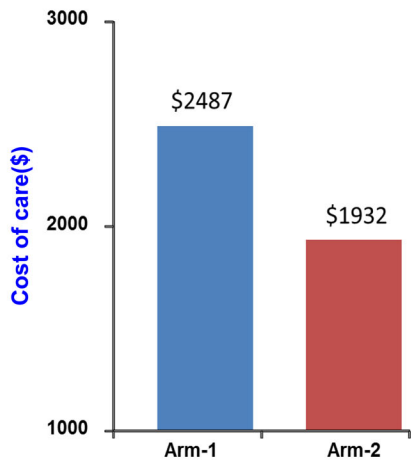
Arm 2: Dressing changed once in 5 days and receive BED as an adjuvant to NPWT(n=13).

Data are mean ± SD , * $p < 0.05$ compared with the pre-treatment group.

1 Comparison of wound healing rates between Arm1 and Arm2



2 Average cost of 5 day care for patients



SUMMARY

- ❖Inclusion of BED as an adjuvant with NPWT may reduce the need for dressing change from thrice to once per week without any adverse effect on wound outcomes.
- ❖Thus, use of BED during NPWT may reduce cost of care significantly.
- ❖In addition significant improvement in the wound healing rates is observed using BED along with NPWT, suggesting beneficial effect of such treatment on wound healing.

ACKNOWLEDGEMENTS

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