

Are commercial negative pressure systems worth the cost in open abdomen management?

Frazeo RC, Abernathy SW, Jupiter DC, et al. J Am Coll Surg 2013 April; 216(4):730-733.

Background

To compare a commercial negative pressure device AbThera Therapy with the Barker's vacuum packing technique (BVPT) for temporary closure in open abdomen management.

Method

Study design – Level III comparative retrospective review

Study population

- 37 open abdomen patients who had temporary abdominal closure with AbThera Therapy from 2010 to 2011.
- 37 open abdomen patients who were managed with the BVPT from 2009 to 2010.

Procedural control

The 37 patients managed with the BVPT were the most recent patients treated before the facility transitioned to using AbThera Therapy.

Results

Ultimate midline fascial closure ($p < 0.05$)

- 89% (33/37) AbThera Therapy group.
- 59% (22/37) BVPT group.

Univariate analysis identified only three statistically significant differences between the study populations:

- BMI was higher in the AbThera Therapy group (32 kg/m² vs 27 kg/m²).
- Mean age was higher in the AbThera Therapy group (55 years vs 47 years).
- Ultimate fascial closure was higher in the AbThera Therapy group (89% vs 59%).
- When multivariate analysis was done, only the type of temporary abdominal closure reached significance with an odds ratio of 7.95 (95% CI, 1.98 to 32.00) favoring AbThera Therapy.

According to the authors

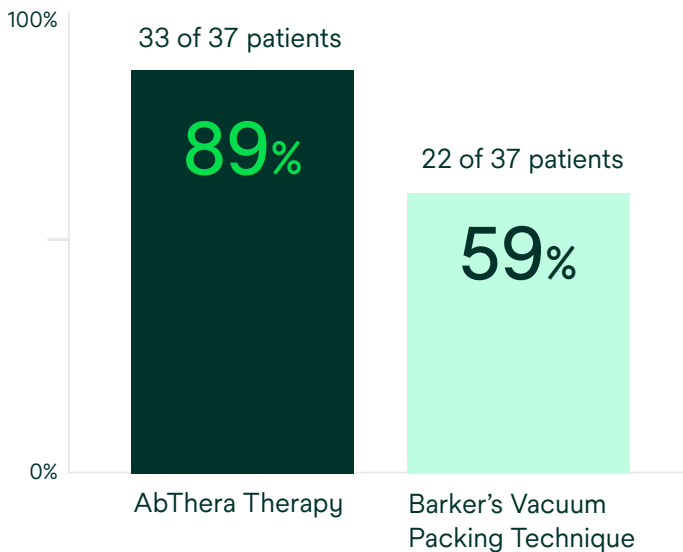
- Failure to achieve midline fascial closure leads to large ventral hernias in need of subsequent repair.
- The difference in closure rates between the techniques may have prevented an estimated 11 ventral hernia repairs.
- The cost of a ventral hernia repair may be calculated at \$16,000; therefore, the costs for ventral hernia repairs prevented may have resulted in a cost savings of \$176,000.

Conclusion

The authors concluded that significantly greater success with ultimate closure after open abdomen management was demonstrated by AbThera Therapy compared to BVPT. Although the device cost more initially, the cost of the device was offset by improved patient results and successful closure, resulting in savings.

Ultimate midline fascial closure

$p < 0.02$



Solventum Advanced Wound Care
12930 IH10 W
San Antonio, TX 78249
USA

Phone 800-275-4524
Web Solventum.com

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