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SYMPOSIUM

Analysis of the SNaP™ Wound Care System, A Negative Pressure Wound Device for Treatment of Diabetic Lower Extremity Wounds

Adam Landsman, D.P.M., Ph.D.

Abstract

Negative pressure wound therapy (NPWT) has become a widely used modality for the treatment of complex wounds. However, patient compliance is frequently difficult due to the need to carry a bulky, noisy electronic device. In this issue of *Journal of Diabetes Science and Technology*, Lerman and colleagues describe a new system that uses no electricity and is about the size of a deck of cards. It is designed to be stored in the clinic and applied almost as simply as a standard wound dressing. Four cases are reviewed to demonstrate that the device is efficacious and helps to encourage patient compliance. No statistically significant outcomes are presented. By removing compliance barriers, this device may encourage more frequent NPWT applications for small wounds.

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The next generation of negative pressure wound therapy (NPWT) has arrived. In an article entitled *The SNaP™ Wound Care System: A Case Series Using a Novel Ultraportable Negative Pressure Wound Therapy Device for the Treatment of Diabetic Lower Extremity Wounds* in this issue of *Journal of Diabetes Science and Technology*, Lerman and colleagues describe a new method for administering NPWT with a new device that uses no electricity.[1] The new SNaP wound care system basically consists of a syringe-like device that is capable of sustaining a fixed vacuum ranging from 75–125 mm Hg. Including the reservoir, the device is approximately the size and weight of a deck of cards. It is coupled by a hose—to a system that includes a wound contact material—and adhesive plastic barrier dressing. The authors describe their positive outcomes with a series of four cases and conclude that the device has helped them to close wounds by virtue of the fact that the device is easy to use, unobtrusive, and thereby greatly improves patient compliance.

A couple of things came to mind when reviewing this article. First is the idea of NPWT itself. Over time, NPWT has found a unique place among the tools used to close wounds. First and foremost, it has become a bridging tool. It is a device that one may select when a wound is in trouble, either because it is very deep or because it is not progressing. Negative pressure wound therapy has been shown to help develop granulation tissue, reduce maceration, and prepare a wound bed for skin grafts, primary closure, or treatment with an advanced biologic material. Numerous papers support the use of

Author Affiliation: Division of Podiatric Surgery, Cambridge Health Alliance, Harvard Medical School, Cambridge, Massachusetts

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Corresponding Author: Adam Landsman, D.P.M., Ph.D., Division of Podiatric Surgery, Cambridge Health Alliance, Harvard Medical School, 1493 Cambridge St., Cambridge, MA 02139; email address alandsman@challiance.org

NPWT for all these applications, to the point where this technology has become a cornerstone in the treatment of a variety of types of wound. Nearly every podiatric physician involved in wound care has tried NPWT for one of their patients, and most agree that this technology represents a major advancement in the treatment process.

Typically, NPWT is used 24 hours a day, with pressures ranging from 75–125 mm Hg. Within this context, some clinicians will select various contact materials (e.g., sponges or gauze) and may vary the pressure ranges intermittently or continuously. Historically, even the most portable NPWT devices have required a vacuum pump that needs either electrical or battery power to sustain it. The devices tend to be heavy, noisy, and generally cumbersome. As a result, compliance is frequently a concern.

The new SNaP device seems to have found a unique niche. Its suggested use is for smaller diabetic foot ulcers, rather than large abdominal wounds or sacral ulcers, for example. I anticipate that this new device will also find a place with surgeons performing split-thickness skin grafts, where the NPWT devices have been used for stabilizing these grafts. The device is purely mechanical and therefore never requires charging or lugging of heavy equipment. It operates with no noise at all, eliminating one of the most frequent complaints from users of the electronic NPWT systems. This compact vacuum system and reservoir is a self-contained unit, which appears to be easy to wear, so compliance is expected to be better than normal. It is also disposable, and this may reduce some of the risks of infection.

I really like the idea of having a device ready to go on the shelf that can be applied in the office and allow the patient to go home with it the same day. Early, aggressive treatment is usually associated with better healing rates, and this device goes a long way to get the patient on NPWT very quickly.

As with anything, there are also some compromises here. First, the device only offers a continuous NPWT mode. Intermittent, cyclic changes in pressure are not possible with this device. Also, there are only three pressure settings possible, but this is probably all that is needed in 99.9% of the cases. One nice thing about the electronic system is that, when suction is lost, the machine lets you know, usually with an alarm. However, with the SNaP device, there is no mention of how the patient would be able to tell when suction is lost.

All things considered, the SNaP device represents a major step forward in the treatment of small, difficult wounds, like diabetic foot ulcers. Certainly, one cannot judge the efficacy of the device from this small sample, but a few things are clear. First, from the standpoint of convenience and compliance, the SNaP device is a dramatic improvement over traditional electronic systems. Second, the fact that it can be readily available in the clinic will encourage its use and will probably lead to earlier and more aggressive treatments. I am anxious to review the results of their clinical trial to see if the SNaP fulfills the promise of a NPWT device that has the potential to change the way we use this therapy.

Reference:

1. Lerman B, Oldenbrook L, Ryu J, Fong KD, Schubart PJ. The SNaP™ wound care system: a case series using a novel ultraportable negative pressure wound therapy device for the treatment of diabetic lower extremity wounds. J Diabetes Sci Technol. 2010;4(4):825-30.