

Negative Pressure Wound Therapy OK for Children

BY BRUCE K. DIXON
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SCOTTSDALE, ARIZ. — Negative pressure wound therapy need not be restricted to adults, Dr. Bindi Naik-Mathuria said at the annual meeting of the Wound Healing Society.

"The results of our large retrospective review suggest that negative pressure wound therapy is effective in children of all ages and for a wide variety of wounds, and the therapy can be safely used in this population, with appropriate precautions," said Dr. Naik-Mathuria of the division of pediatric surgery, Baylor College of Medicine and Texas Children's Hospital, both in Houston.

In adults, negative pressure wound therapy (NPWT) removes excess wound fluid and exudate, increases wound vascularity, and promotes granulation tissue. Data on its use in children are limited.

This study, which prompted some debate during the presentation's question and answer period, evaluated a single institution's experience with a vacuum-assisted closure (VAC) system to manage a variety of wounds in children ranging in age from 7 days to 18 years.

Between 2003 and 2005, Dr. Naik-Mathuria and her colleagues identified 71 patients with 87 wounds. The gender ratio was evenly divided, and the average age was just short of 9 years. There were seven neonates in the VAC therapy group. "These numbers make this study one of the largest reported in pediatric patients to date and certainly the largest in infants and very young children," she said.

NPWT was used for various wound types, including pressure ulcers, dehisced surgical wounds, open sternal wounds, extremity wounds, wounds with fistula, and abdominal wall defects in neonates (gastroschisis, omphalocele, and abdominal compartment syndrome). "What's especially interesting about these cases is how negative pressure was used in creative ways to heal complex wounds [for] neonates and infants, and how it worked so well that additional surgery was, in many cases, avoided," said Dr. Naik-Mathuria, who cited examples:

► A 1-year-old with a large thickness wound following liver transplantation was too ill to undergo reoperation to close, requiring the application of a VAC dressing. The wound contracted significantly; granulation tissue filled the wound rapidly.

► A 1-year-old with necrotizing fasciitis was left with exposed vital structures of the lower leg after wide debridement. Instead of applying a complicated free flap, the surgeon used a local rotational muscle flap to cover the ankle joint and applied a VAC dressing. "Only 17 days later, granulation tissue filled the wound bed and provided a nice bed for skin grafting," she said.

"A total of 56 wounds were analyzed by type. The average decrease in wound volume was 80%, and 95% of wounds benefited from negative pressure therapy," she said, adding that for five wounds, follow-up data were not collected because the patients were transferred.

The four wounds that did not decrease

in volume involved an immunocompromised patient, a chronically contaminated ischial wound, and two patients with persistent underlying infections. "This prompted us to examine how infection played a role in healing the other wounds, and we noted that while 26 wounds had documented infections that were being treated at wrap placement, 88% decreased in size without the progression of infection," she said.

On average, therapy duration was 25

days. Outpatient use of NPWT was documented in 19% and the therapy was generally well tolerated. "In fact, there was no discontinuation of use because of lack of tolerance or patient request, though it was discontinued in one neonate who developed a coagulopathy, causing concern about bleeding with continued treatment," Dr. Naik-Mathuria explained.

Minor complications included skin rash, maceration, and pain or minor bleeding with dressing changes.

Since "there are no guidelines for appropriate negative pressure therapy use in children, we tended to use lower pressures—down to 50 mm Hg—in younger children and in wounds with exposed organs. The normal pressure used in adults—125 mm Hg—is what we used in children aged 4 and older," said Dr. Naik-Mathuria, adding that higher pressures can be used on denser tissues in the groin and extremities, while lower pressures should be used over the sternum and abdomen. ■



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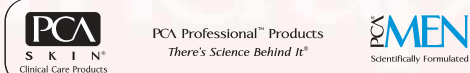
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