

# Biobrane Dressing Speeds Pediatric Burn Recovery

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SAN DIEGO — Use of Biobrane wound dressing in pediatric burn patients resulted in a short hospital stay and follow-up as an outpatient with few complications, results from a single-center study demonstrated.

Researchers reviewed the medical charts of 116 pediatric burn patients aged 0-18 years who received Biobrane wound dressing at the University Hospital trauma center in San Antonio, Tex., between 2002 and 2007.

Biobrane (Bertek Pharmaceuticals) is a synthetic nylon mesh that is bonded to silicone and coated with collagen peptides. It functions as an analogue to the dermis and its pores allow exudate to be drained. It has been shown to be a reasonable option in children, Dr. Cristiane M. Ueno

said at the annual meeting of the Wound Healing Society.

The dressing “usually can be trimmed away after 1 week as the wound heals, decreasing the healing time when compared with some other dressings,” Dr. Ueno of the University of Texas Health Science Center at San Antonio, said.



The child's burn is first cleaned with chlorhexidine and then bullae and nonviable tissue are removed (left). A Biobrane glove is then placed over the hand (right).

The average age of patients was 5 years, males outnumbered females 2:1, and more than two-thirds (68%) were Hispanic. Fifty-two percent of cases were scald injuries and 70% of the patients had second-degree burns.

Of the 116 patients who received Biobrane dressing, 58 had sustained burns to

the upper extremity. More than two-thirds were admitted to the hospital for only 1-2 days for dressing care and instruction on care of the injury. Only seven complications occurred from the use of Biobrane, including one case of bacteremia, two cases of local infection, two cases of cellulitis, and two cases of fever, Dr. Ueno said at the meeting, held in conjunction with a symposium on advanced wound care.

The majority of patients needed only oral pain medications or mild conscious sedation, not general anesthesia, while undergoing debridement and Biobrane application and subsequent dressing changes. This, combined with the low risk of complications, suggests that the dressing could lower costs and reduce hospital stays in the pediatric burn population, said Dr. Ueno, who had no conflicts to disclose. ■

## New Agents Found to Help Control External Bleeding

CORONADO, CALIF. — Two novel technologies are helping to control external bleeding when conventional methods such as direct pressure and gauze dressings fail.

These include products that contain chitosan or zeolite, Dr. Brant A. Putnam said at a meeting sponsored by the American College of Emergency Physicians.

Chitosan is a biodegradable, nontoxic carbohydrate derived from chitin, a naturally occurring substance. “It has a muco-adhesive property that binds everything together,” said Dr. Putnam, chief of trauma and surgical care at Harbor-UCLA Medical Center in Torrance, Calif. “It probably activates platelets, and it may vasoconstrict locally. Then there are interactions with the red blood cell surface that we don't quite understand, so I'm sure there will be more research to follow.”

Several animal studies have demonstrated its effectiveness as a hemostatic agent. In a human study published online Nov. 19, 2007, in the *Journal of Emergency Medicine*, paramedics used a hemostatic dressing made of chitosan (HemCon Bandage) in 34 wounds they couldn't control with direct pressure (doi:10.1016/j.jemermed.2007.05.043).

The bandage, which was approved by the Food and Drug Administration in 2003 and requires users to cut it to the proper shape prior to application, controlled bleeding in 25 of the cases (74%) within 3 minutes. User error was a factor in six of the seven failures.

“You have to make sure that you put the right side down on the wound in order for the hemostasis

to occur,” Dr. Putnam explained.

The other technology proving effective for external hemostasis includes products that contain zeolite, a derivative of volcanic rock. When applied to gauze and placed on wounds, zeolite works as a molecular sieve and captures all the water locally, creating an exothermic reaction, said Dr. Putnam, who is also associate director of the Harbor-UCLA Medical Center general surgery residency program.

“We think that it dehydrates the wound of all the water properties, leaving a high concentration of all the clot-promoting components: the coagulation factors, the proteins, the cells,” he explained.

The zeolite-based product QuikClot (Z-Medica Corp.), developed in 2002, is currently approved for external use only. But Dr. Putnam and his associates have used it on rare occasions to help pack life-threatening bleeding from internal wounds such as those caused by high-velocity gunfire. “I don't recommend that—I'm just saying that when we were faced with the life or death choice, we used it as part of packing internally, and the patients did very well,” he said.

A recent survey of QuikClot's use in 69 cases by the U.S. military in Iraq, in 20 cases by civilian trauma surgeons, and in 14 cases by civilian first responders demonstrated an overall efficacy of 92% (*J. Trauma* 2008;64:1093-9). The researchers speculated that the QuikClot failures were due to the coagulopathic state of a patient from massive resuscitation or the inability to get the product directly to the source of bleeding.

Dr. Putnam said that he had no relevant disclosures to make. ■

## Cost Analysis Gives Nod to Foam Dressing for Stage II Pressure Ulcers

SAN DIEGO — Treatment of stage II pressure ulcers with a self-adhesive polyurethane foam dressing was more cost effective than was treatment with standard saline-soaked gauze, according to a multicenter, randomized trial.

“The current wound care practice in the United States is still dominated by the traditional methods such as saline-soaked gauze or wet-to-dry gauze,” Dr. Wyatt G. Payne said in a poster presented at the annual meeting of the Wound Healing Society.

“Many facilities still use this low-technology, low-cost dressing treatment because many practitioners are not fully convinced that advanced wound care products provide fully the benefits they claim, and as such do not warrant the increased costs per dressing. The increased cost per dressing of advanced wound care products leads to the perception that they are expensive, when they may actually be a more cost effective alternative because they need changing less often,” he wrote.

Dr. Payne of the Bay Pines VA Healthcare System in St. Petersburg, Fla., and associates, randomized 36 patients with stage II pressure ulcers to receive Allevyn Thin self-adhesive polyurethane foam dressing (Smith & Nephew) or saline-soaked gauze. Each patient was assessed each week for 4 weeks, unless the ulcer closed.

Mean patient age was 73 years and more than half (61%) were men. The mean cost of

dressing and other materials for patients in the polyurethane foam dressing group was \$32 per week, compared with \$58 per week for those in the saline-soaked gauze group. “This implies that a switch from gauze to polyurethane foam would make it possible to treat 80% more patients with the same materials budget,” the researchers estimated.

Overall mean treatment cost per week was also lower for patients in the foam-dressing group, \$91, compared with a mean of \$209 for the saline-soaked gauze group. The savings of \$118 per patient “is consistent with a saving in the cost on nursing time of \$92 per week,” Dr. Payne reported at the meeting, which was held in conjunction with a symposium on advanced wound care.

“This represents more than 3 hours of nursing time per patient per week (assuming a me-

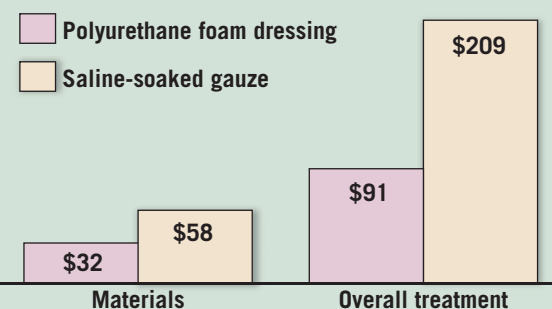
dian wage of \$28 per hour for a registered nurse),” he wrote.

Dressings were changed a mean of five times per week in the foam-dressing group, compared with a mean of 13 times per week in the saline-soaked gauze group. At the end of 4 weeks, 50% of the wounds in the foam-dressing group were closed, compared with 38% of those in the saline-soaked gauze group, but there was no evidence of a difference between the two groups in time to wound closure.

Total per patient costs over the 4-week evaluation period ranged from \$265 to \$315 in the foam-dressing group and from \$691 to \$781 in the saline-soaked gauze group. The number of days free of ulcer was 9 vs. 7, respectively.

Smith & Nephew funded the study. Dr. Payne said that he has no financial interest in the company. ■

### Mean Cost per Week of Stage II Pressure Ulcer Treatment Lower With Foam Dressing



Note: Based on a 4-week randomized study of 36 patients.  
Source: Dr. Payne