Versajet Reduces Blood Loss During Burn Excision

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CHICAGO — Use of the Versajet Hydrosurgery system was associated with less blood loss and a larger area of excision than was the Goulian-Weck knife in a retrospective study of 50 patients with burn wounds.

The average estimated blood loss was 174 mL for patients who had their wounds excised with the Versajet system, compared with 659 mL for wounds excised with a Goulian-Weck knife. The difference was significant, Dr. Laura S. Johnson said at the annual meeting of the American Burn Association.

The study's primary end point of blood loss in milliliters as a function of area excised in centimeters squared was significantly lower in the Versajet group than in the Goulian-Weck knife group (mean 0.28 cc/cm^2 vs. 1.75 cc/cm^2). This allowed for a significantly greater area of excision in each surgery (mean 622 cm^2 vs. 379 cm^2).

The findings suggest that the Versajet system could allow for earlier excision of burn wounds, perhaps as early as the resuscitation period, Dr. Johnson and her colleagues at the burn center of the Washington (D.C.) Hospital Center concluded.

Dr. James Jeng, associate director of the burn center, said in an interview that they've used the Versajet system since it gained U.S. approval for wound debridement roughly 2 years ago, and that its biggest benefit lies in its ability to discriminate between live and dead tissue.

"This knife is not dumb; it just doesn't cut where you put it, but discriminates between live and dead tissue based on tensile strength," he said. "Necrotic tissue has lower tensile strength, so we can dial down the strength [of the water jet] to partition live from dead tissue. It's pretty much replaced the cold knife for me. This is a poor man's laser ablation."

The Versajet system uses a pressure pump to force a stream of sterile saline through a small jet nozzle at the end of a handpiece, producing both a high-velocity stream and a local vacuum on the surface of the debridement area. The stream is directed backward across the operating window and into an evacuation collector tube in the handpiece, which also collects any debris or contaminants.

The review included 50 patients (mean age 40 years) with full- and split-thickness burns ranging in percentage of total body surface area from 5% to more than 50%. Excisions were performed as early as day 1, and were carried out over a 6-month period by Dr. Jeng.

Researchers calculated the estimated blood loss (EBL) by using blood-soaked laparotomy tapes for patients undergoing Goulian-Weck knife excision and by measuring the fluid in the evacuation tube and subtracting the amount of saline used during excision.

Dr. Johnson, a surgical resident, noted that the EBL for the Goulian-Weck knife group was higher than in published reports. However, the EBL for the Versajet group was significantly lower than traditional literature results for early excision, suggesting that the Versajet system does have benefit during this period, she said.

Dr. Jeng said that pre- and postoperative hematocrit levels don't take into account intraoperative fluid administration and equilibration issues, and that his group is looking into intraoperative optical recording and colorimetric cineanalysis for future studies.

The investigators received no funding for the study, and disclosed no relevant conflicts of interest. ■

COURTESY DR. JAMES JENG

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