

Saltier intravenous fluids reduce complications from surgery

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Adequate hydration via a saline drip is essential during surgery, but recent reports suggest that getting the balance of salt and water just right could have an important impact on patient recovery. In the largest study of its kind researchers at Thomas Jefferson University found that a slightly saltier intravenous drip (hypertonic saline), and lower total volume of fluid received, reduced the overall rate of complications by 25 percent after the complex Whipple surgery for pancreatic cancer.

"This relatively minor change in intravenous fluids has had a tremendous effect on the overall complication rate for our [patients](#)," says first author Harish Lavu, M.D., Associate Professor of Surgery at Thomas Jefferson University. "Based on these findings we have already changed our practice in the operating room to use hypertonic saline," he added.

Saline delivered intravenously during and after [surgery](#) helps to maintain a patient's fluid balance and blood pressure within the appropriate range. The increased salt concentration in the hypertonic saline is designed to keep the body in equilibrium by helping to reduce fluid buildup in the lungs, interstitial spaces and swelling in the extremities.

The hypertonic saline draws out the excess fluid that builds up in these tissues. "Too much swelling can compromise the delivery of blood and oxygen to the organs. That reduction can slow the healing process," says Dr. Lavu.

The current study is the largest of its kind and shows a benefit when

hypertonic saline is used for the Whipple operation, which can take from 5-9 hours to perform. Patients undergoing this operation for [pancreatic cancer](#) can have complications such as blood clots, pneumonia, wound infection, [urinary tract infections](#), and others.

A total of 264 patients were enrolled in the study, with 128 receiving standard fluid and 131 receiving a hypertonic saline solution. By examining all of the complications together, the researchers found a 25 percent reduction in overall complications in the group that received hypertonic saline. In absolute numbers, 93 patients in the hypertonic group had complications, compared with 123 patients in the standard fluid group.

"We are confident that this change in our surgical process will help our patients recover faster with fewer [complications](#)," says senior author Charles J. Yeo, M.D., The Samuel D. Gross Professor and Chair of the Department of Surgery at Thomas Jefferson University.

More information: H. Lavu et al., "The HYSLAR trial: A prospective randomized controlled trial of the use of a restrictive fluid regimen with 3% hypertonic saline (HYS) versus lactated ringers (LAR) in patients undergoing pancreaticoduodenectomy," *Annals of Surgery*, 2014.

Provided by Thomas Jefferson University

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