

Are on-scene IV fluids for trauma patients lifesavers or time-wasters?

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The research, currently available online in advance of the Feb. 2011 issue of *Annals of Surgery*, raises new questions about a medical practice developed decades ago that continues to be the standard of care despite lack of scientific research into its validity.

The researchers say that mandating pre-hospital IV fluids for all trauma patients — the case in many states, including Maryland — should be discouraged. Some groups are slowly considering changes to their guidelines.

“Giving IV fluids to patients before they go to the hospital can delay transport,” says Elliott R. Haut, M.D., an associate professor of surgery, anesthesiology and critical care medicine at the Johns Hopkins University School of Medicine and the study's leader. “Our study

suggests it may be better to get patients to the hospital faster. Starting fluids takes time and the IV fluids may cause harm on top of the timing issue.”

Intravenous fluids are typically given immediately to trauma victims whose blood pressure has sharply decreased due to blood loss. The rationale has been that fluids quickly raise dangerously low blood pressure in order to keep the body’s systems working, a concept that makes intuitive sense, says Haut. But, he adds, there is some evidence that IV fluids may actually be making matters worse in those patients in whom very low blood pressure temporarily stops bleeding. Rapidly raising blood pressure in these individuals could “pop the clot,” causing them to start bleeding again before they can get definitive care in the hospital.

For the study, Haut and his colleagues examined data from 776,734 trauma patients in the American College of Surgeons’ National Trauma Data Bank between 2001 and 2005. The patients were primarily male, white and under the age of 40. About half were given IV fluids at the scene. Patients who received pre-hospital fluids were 11 percent more likely to die than those who did not. The findings were especially marked in people who were shot or stabbed (25 percent more likely to die), had severe head injuries (35 percent more likely), and got emergency surgery once hospitalized (35 percent more likely).

Emergency medical personnel are required in many states to perform a variety of interventions before transporting patients to the hospital. In Maryland, for example, trauma patients must have their spines immobilized and be fitted with a cervical collar before transport, even if they have been, say, stabbed in the leg, or shot in the arm. IV fluids also must always be given. Some types of patients are required to be intubated at the scene, as well. Each step takes precious time, Haut notes, and in some cases, the time it takes to place an IV may exceed the

length of the trip to the emergency room.

“Most people know about the Golden Hour, the time after an injury when there is the highest likelihood for survival if patients receive prompt medical treatment,” says Haut, a trauma surgeon at The Johns Hopkins Hospital. “But for some people it may be the Golden 20 minutes and in others 10 minutes can make the difference between life and death. Many things can be fixed if you get patients to the [hospital](#) in time, but it’s hard to change people’s practices when the change means doing less.”

Haut emphasizes that IV fluids may be beneficial in some cases and that more research is needed to determine their value in patients with traumatic brain injury (TBI), for example. Even though these patients had worse outcomes with IV fluids in the new study, Haut says, previous experience has shown that episodes of low blood pressure can be very harmful for TBI patients and withholding fluids could lead to worse outcomes.

Provided by Johns Hopkins University

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