

EMERGING TRAUMA TRENDS: WHERE IS YOUR PRACTICE?



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CE Earn Up to 6.0 Hours. See page 311.

Trauma practice is dynamic in nature. Trauma performance improvement data, systems advancements, and the latest science and developing evidence result in new approaches and innovative trends in trauma care and patient outcomes. Multiple authors have studied translation of research into practice and state that it takes an average of 17 years.^{1,2} The Trauma Nursing Core Course (TNCC), 7th edition, contains a new chapter section, entitled “Emerging Trends,” to highlight some of that developing evidence not yet translated into practice.³ Let’s look at 3 of those emerging trends and see where they are today in current practice.

Tourniquets

The first use of battlefield tourniquets was documented in 1674.⁴ For years, the myth was that a tourniquet would result in an amputation and was considered to be a last resort. However, from 2001 to 2010, combat use of tourniquets increased survivability.⁴ In 2008, a United States combat hospital study found that when used appropriately and applied properly, the risks were outweighed by the benefits and reduced deaths.⁵ Modern military experience and events, such as the 2016 Boston Marathon bombing, have demonstrated the importance of their use to save lives. Police and emergency medical systems (EMS) personnel now carry tourniquets on their persons. TNCC skill stations include a demonstration of their use. The recent Hartford Consensus—together with the military, the National Security Council, Homeland Security, the Federal Bureau of Investigation, law enforcement, fire rescue, and EMS—instituted a national initiative: “Stop the Bleed” Campaign.⁶ The ABCs of bleeding, wound packing, and tourniquet use are the major teaching points empowering citizens with little or no medical training to help in a bleeding emergency.

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Tranexamic Acid

Hemorrhage is the most common cause of preventable death from trauma.⁷ And trauma patients with serious injuries who also exhibit hyperfibrinolysis experience higher rates of death (70% to 100%).⁸ The Crash-2 trials (Clinical Randomization of an Antifibrinolytic in Significant Hemorrhage), composed of 274 hospitals in 40 countries, looked at the effectiveness of controlling hemorrhage in trauma patients using tranexamic acid (TXA), an antifibrinolytic.⁹ They showed reduced risk of death in bleeding patients after trauma when given early (within 3 hours of injury). There was no increased risk for thromboembolic events. They also concluded that TXA is simple to administer and inexpensive to use.⁹ However, the United States military sought additional scientific evidence and convened the Military Application of Tranexamic Acid in Trauma Resuscitation Study (MATTERS), a retrospective cohort study using United Kingdom and US trauma registries. This study determined that the use of TXA, together with blood component trauma resuscitation, results in increased benefit for survival, particularly in patients who receive blood in larger amounts.⁸ One of the actions of antifibrinolytics is to inhibit plasmin, which is known to result in proinflammatory effects. There is some speculation today that perhaps survival is improved because of the reduction of the inflammatory response.⁸ Stay tuned.

A random check with colleagues revealed that TXA is being used in many major trauma centers as well as some community-sized hospitals. As for use in the pre-hospital environment, it seems sporadic. Netherlands EMS uses pre-hospital TXA. One East Coast EMS service reports that they do not use it because of short transport times, storage, and reimbursement problems. A colleague from the Southwest reports pre-hospital use of TXA in their area is mostly for research purposes.

Cervical Spine Stabilization and Clearance

As early as 1998, the widespread use of spinal immobilization was questioned in the literature.¹⁰ A retrospective review of 2 university hospitals compared outcomes in patients transported

fully immobilized and those transported without immobilization. Patients who were not immobilized experienced fewer neurologic disabilities.¹⁰ In 2000, owing to concern regarding the number of patients being exposed to radiographs, the National Emergency X-Radiography Utilization Study (NEXUS) developed criteria to clear the spine clinically.¹¹ And, in 2001, the Canadian C-Spine Rule developed an algorithm to determine which patients require c-spine radiographs.¹² In 2011, the Rule was revised to include which, if any, patients require c-spine immobilization. In 2012, the American College of Surgeons (ACS) and the National Association of EMS Physicians (NAEMSP) issued a joint position statement stating that there is no proof of any benefit as a result of using long backboards.¹³ A review of available data revealed only weak evidence to support using cervical collars and also revealed potential harmful effects with their use.¹⁴

At present, the International Liaison Committee on Resuscitation (ILCOR) is not recommending the routine application of cervical collars.¹⁵ What about practice? Fewer patients arrive via backboard, and physicians use criteria to clinically clear c-spines; this practice is resulting in fewer radiographs. One Midwestern trauma center has a protocol for nurses to remove backboards before patients are evaluated by physicians. One EMS service removed all backboards from their ambulances. EMS in the Netherlands does not use cervical collars, but sometimes they apply head huggers. Cervical collars are being used throughout the United States. The new phrase being used is “spinal motion restriction.”

Conclusions

Translating science into practice is a process that can take years. Tourniquet use was quickly noted to be a life-saving intervention and became a standard of care. Use of TXA is being implemented more slowly, and questions remain in the literature about its use. Cervical spine immobilization may ultimately turn into outdated practice. However, it is taking a long time for translation into practice. Is it more difficult to stop doing something because of lack of evidence because we have always done it that way or to do something new because it works?

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Submissions to this column are encouraged and may be sent to **Diane Gurney, MS, RN, CEN, CTRN, FAEN**
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Letters to the Editor

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