Case Study
Vascular Access

THE IV IN A LEAGUE OF ITS OWN

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Compromised Peripheral Vasculature & the Pre-hospital Setting...

As pre-hospital care providers we are called upon to deliver the best possible emergency care to those who are critically injured or ill, no matter how adverse the conditions may be. Operational challenges remain the constant in our profession and it must be our practice to hone our skills and arm ourselves with the latest innovations in patient care that significantly influence positive outcomes. On the EMS battlefront the most fundamental procedures can have the greatest impact on the morbidity and mortality of our patients and yet be the most difficult to attain. Achieving IV access is one such intervention that can be in a league of its own when it comes to difficulty in the pre-hospital setting.

Extreme Environments

First, consider environmental factors that can warrant the need for IV therapy in our operational arena. During a disaster relief mission such as Florida's recent barrage of hurricanes, prolonged power outages, the lack of running water, the extreme heat and post-storm clean up activities commonly result in many cases of heat-related illnesses. Increased fluid loss coupled with decreased fluid intake cause many to become dehydrated and hypovolemic. The ensuing nausea and vomiting which accompany such situations is further complicated by their inability to tolerate fluids orally. With patients in dire need of fluid replacement, pre-hospital care providers face the difficult task of gaining IV access in light of poor peripheral vasculature and dehydration.

Traumatic Injury & Shock

Next, think about your last critically injured trauma victim who was bleeding out and in shock. With the acute blood loss, the body responded by diverting blood away from the extremities and toward the vital organs to conserve life. As the veins constrict in this low-blood flow state, the need for IV fluid replacement increases... and so does the time it takes to start the IV. This can delay the delivery of much-needed fluid replacement and/or life-saving medications.

Cardiac Arrest

Similarly, successful cannulation of a peripheral IV can play a significant role in the resuscitation of patients who are having myocardial infarction with poor peripheral perfusion or those suffering sudden cardiac arrest with a no-blood flow state. The American Heart Association recommends that medications administered during cardiac arrest be via the IV or IO route. Here the IV is, at best, a time-intensive challenge. Even intraosseous infusion, as quick and effective as it may be, can still be problematic in larger, bariatric patients and/or those with extremity fractures. In such cases, IO access may not be attainable because the length of the IO needle falls short of the distance between the epidermis and the intraosseous space. Particularly in these cases, it is essential to have practical alternatives. In the race against time, the optimal choice for vascular access may lie somewhere in between the two methods.

The Alternative Solution

The patented BOA® Constricting Band from North American Rescue is a viable option to consider. This simple, yet effective solution offers a rapid, non-invasive advantage to obtaining venous access, even in a patient with little or no peripheral perfusion or cardiac output. Once applied as high on the upper extremity as possible, the rugged, compact BOA® works by a rolling mechanism which transfuses venous blood to the distal veins. This action causes the peripheral veins to become more visible or palpable which, in turn, improves first stick IV cannulation. The device is easily removed using a two-finger release access point. The addition of the BOA® to your toolbox can exponentially improve your proficiency in gaining first-round IV access in ALL your patients, particularly those difficult cases with compromised peripheral vasculature. The time saved by starting an IV on the first try may be just the advantage needed to expedite a positive patient outcome.

1. To find the correct size, place the BOA® (in its relaxed state) gently around the upper arm. It should measure $^{1}/_{2}$ to $^{2}/_{3}$ around the extremity.

2. Stretch BOA® straight out and place around upper arm. For the maximum effect, be sure to place as high up on the extremity as allowable.

3. Keep fingers underneath the connectors as you secure in place to prevent pinching of the skin.

4. Roll BOA® gradually down the arm. Insert IV/Saline Lock.

5. Hold inserted IV/ Saline Lock with one hand, press the "Quick Release" button and pull to remove the BOA®.

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