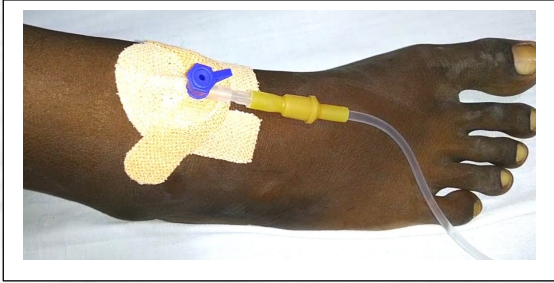


IV Update

A Review of Vascular Access & IV Infusion Topics
April 2021

Lower Extremity IV Insertion



When selecting a vein for IV insertion, in an adult there are multiple reasons why foot and lower extremity veins make poor choices and should only be used in emergency situations. The 2021 Infusion Therapy Standards of Practice, guidelines clearly state:

“Do not use veins of the lower extremities (with the exception of neonates and infants), unless needed for an emergent insertion, due to the risk of tissue damage, thrombophlebitis, and ulceration; remove as soon as possible.”

Because of basic anatomy of the circulatory system in lower extremities, any vein that is accessed in the lower extremity has a higher risk of developing DVT than the veins of the upper extremities do. If an IV is placed in a lower extremity location, the patient cannot safely ambulate as this activity significantly increases the risk of IV failure, infusate infiltration, and mechanical phlebitis leading to DVT formation.

The most common serious complication of DVT is when part of the blood clot breaks off and travels to the lungs, lodging in a pulmonary vessel and causing damage to the lungs. This may even cause death in some cases. One-third to one-half of patients who develop DVT's will suffer from long-term complications from damage caused by the DVT, some with life-long pain and circulatory issues.



DVT in leg on Rt.

Safety Concerns with Hypertonic Sodium Chloride

Hypertonic saline, or a saline solution with a Sodium Chloride concentration greater than physiologic concentration of 0.9%, (Example: 3% Sodium Chloride) can be given intravenously as a lifesaving treatment for patients with severe hyponatremic encephalopathy, traumatic brain injury, and cerebral edema. Serum sodium concentrations less than 120 (normal range 135-145) are generally considered severe, however development of symptoms is often dependent on how quickly the sodium level changes. For patients that exhibit concerning symptoms of hyponatremia, prompt treatment with hypertonic saline may be indicated.

Because hypertonic saline carries a risk of phlebitis and tissue ischemia when given through a peripheral site, hypertonic saline has traditionally been given primarily through central lines, but in some settings, timely insertion of a central line for this treatment may not be realistic. Hypertonic saline is now being given with greater frequency through peripheral IV catheters, but because this route does carry a degree of risk with infusion, there are some special considerations the administering nurse should consider.

1. Per INS recommendations, use the smallest gauge catheter that will accommodate the infusion in the largest accessible vein, avoiding locations of flexion.
2. Monitor the IV site frequently during the infusion for redness, swelling, tenderness, and ask the patient to report any pain.
3. Use infusion pumps rather than gravity infusion to assure correct flow rate.

Regardless of the infusion site, the most important assessments during the administration of 3% NaCl are neurologic signs, serum sodium concentrations, and fluid status.

Administration of 1 ml/kg of 3% NaCl will generally increase the serum sodium by 1 mmol/L. 3% NaCl can be given as a bolus or as a slow continuous infusion with a goal of increasing serum sodium more incrementally. Studies have shown that approximately 500 ml of 3% NaCl is required to treat hyponatremic encephalopathy in adults. The infusion amount must be tailored to each individual patient. Serum sodium levels must be promptly reported to the physician.

(Information Source: Journal of Infusion Nursing Vol.44;2. "Administration of 3% Sodium Chloride via a Peripheral Vein by N. Methany & M. Moritz)



*Thank you for your partnership in providing quality care in IV therapy to your patients.
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Photo by Jen Clason, AIMS RN