

7.12 Adult and Pediatric Vascular Access with Intraosseous (IO) Device – Public Comment November 2023

INDICATION

- Critically ill or injured patients
 - Cardiac arrest or impending arrest
 - Severe Hypotension with profound shock and poor perfusion;
 - Acute deteriorating level of consciousness.
- If vascular access cannot be established via peripheral IV in 2 attempts or less than 90 seconds (in scenarios listed above), then proceed with either IO or PVAD access.

CONTRAINDICATION

- Fracture to bone and/or splint distal to insertion site;
- Prior orthopedic procedure (total knee or shoulder replacement) or amputation;
- Previous IO attempt in same extremity;
- Pre-existing condition affecting extremity such as burns or infections;
- Routine IV access is obtainable (non-critical patients).

PROCEDURE

1. Choose either site:
 - a. Humeral Head
 - i. Place patient's hand over umbilicus on chosen side
 - ii. Place IO about 1 cm above the neck of humerus and at a 45-degree angle to the anterior plane and posteromedial
 - iii. Secure extremity

OR

 - a. Proximal Tibia
 - i. Landmark 2-3 cm below tibial tuberosity on anteromedial flat bony surface
2. Assemble needed equipment
3. Prep site with approved aseptic technique
4. Insert the IO needle:
 - a. Humeral Head
 1. Hold the arm steady.
 2. Grasp the needle with the obturator still in place and insert it through the skin at the selected site at a 90-degree angle to the skin surface.
 3. Place the IO about 1 cm above the surgical neck of the humerus
 - b. Proximal Tibia
 1. Hold the leg steady.

2. Grasp the needle with the obturator well in place and insert it through the skin at the selected site at a 90-degree angle to the skin surface.
5. When a needle is felt to a 'pop' or a lack of resistance into the bone marrow space:
 - a. Remove the obturator.
 - b. Attach a syringe with 0.5mg/kg of 2% Lidocaine solution (max dose 50 mg) and slowly flush the IO needle in patients who are conscious.
 - c. Attach a <10 mL syringe containing IV solution, to flush the IO needle 120 seconds following lidocaine administration.

OR

 - d. Remove the obturator; attach a primed IV solution set with or without a stop cock.
6. If unable to flush, continue procedure and watch carefully for extravasation and swelling while infusing fluids and/or medications
7. Secure the needle
 - a. Humeral Head
 - i. Secure IO catheter to skin
 - ii. Immobilize arm to limit shoulder movement.
 - b. Proximal Tibia
 - i. Secure IO catheter to skin
 - ii. Splint the leg as indicated to limit movement.
8. If infiltration occurs or needle is removed, stop the infusion, remove the needle, and apply a pressure bandage to the IO site. If another IO will be attempted, use a different bone.