

6.4

Intraosseous Access

ADVANCED EMT/PARAMEDIC STANDING ORDERS– ADULT & PEDIATRIC

Provider Level Approved

- Advanced EMT, commercial intraosseous introduction device (e.g., EZ-IO).
- Paramedic.

Definition

Intraosseous insertion establishes access in a patient where venous access cannot be rapidly obtained. The bone marrow space serves as a “noncollapsible vein” and provides access to the general circulation for the administration of fluids and resuscitation drugs. This protocol applies to all appropriate IO insertion sites.

Indication

- Drug or fluid resuscitation of a patient in need of immediate life-saving intervention and unable to rapidly obtain peripheral IV access.
- May be used as a primary vascular device in cardiac arrest.

Contraindications

- Placement in or distal to a fractured bone.
- Placement near prosthetic limb, joint or orthopedic procedure.
- Placement at an infected site.
- Inability to find landmarks.

Complications

- Infusion rate may not be adequate for resuscitation of ongoing hemorrhage or severe shock, extravasation of fluid, fat embolism, and osteomyelitis (rare).

Equipment:

- 15 – 19 gauge bone marrow needle or FDA-approved commercial intraosseous infusion device.
- Povidone-iodine or chlorhexidine solution and gloves.
- Primed IV tubing, IV stopcock, solution.
- 10 ml syringe with 0.9% NaCl.
- Pressure pump/bag or 60 ml syringe for volume infusion or slow push.
- 1 vial of 2% lidocaine (preservative free) .
- 5 mL syringe.

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Procedure 6.4

Procedure Continues

Protocol Continues

Approved sites:

- Per FDA-approved manufacturer's recommendation.

Procedure:

When using an FDA-approved commercial IO device, follow manufacturer's instructions.

1. Place the patient in a supine position.
2. Identify the bony landmarks as appropriate for device.
3. Prep the site.
4. Needle is appropriately placed if the following are present:
 - Aspiration with syringe yields blood with marrow particulate matter.
 - Infusion of saline does not result in infiltration at the site.
 - Needle stands without support.
5. Attach IV tubing, with or without stopcock.
6. For alert patients prior to IO syringe bolus (flush) or continuous infusion:
 - Ensure that the patient has no allergies or sensitivity to lidocaine.
 - If using an extension tubing without stopcock, prime with lidocaine 2% (preservative free).
 - SLOWLY administer lidocaine 2% (preservative free) through the IO device catheter into the medullary space.
 - Allow 2 – 5 minutes for anesthetic effects, if feasible:
 - Adult: 1 – 2.5 ml (20 – 50 mg) 2% lidocaine.
 - Pediatric: 0.5 mg/kg 2% lidocaine.
7. Flush with 10 ml of 0.9% NaCl rapid bolus prior to use:
 - Recommend use of a stop cock inline with syringe for bolus infusions.
 - Use a pressure bag for continuous 0.9% NaCl infusions.
 - Infuse emergent pressors using an IV pump.
8. Stabilize needle:
 - Consider utilizing a commercially available stabilization device as recommended by the manufacturer, **OR**
 - Stabilize needle on both sides with sterile gauze and secure with tape (avoid tension on needle).

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