Intraosseous Vascular Access

Indications for using the IO are listed in the appropriate protocol. The purpose of this protocol is proper insertion techniques. Our protocol will closely reflect the manufactures guidelines.

Adult vs. Pediatric
Adult - Any pt weighing 40 kg without the below contraindications.
Pediatric – Any pt weighing 3 kg but < 40 kg without the below contraindications.

An IO is NOT for prophylactic use!

Contraindications

Fracture of the bone selected for IO infusion (*consider alternate sites*)
Excessive tissue at insertion site with the absence of anatomical landmarks (*consider alternate sites*)
Previous significant orthopedic procedures (*IO within 24hours, prosthesis - consider alternate sites*)
Infection at the site selected for insertion (*consider alternate sites*)

Considerations

Flow rate: Due to the anatomy of the IO space you will note flow rates to be slower than those achieved with IV catheters.

Ensure the administration of an appropriate rapid syringe bolus (flush) prior to infusion.

NO FLUSH = NO FLOW

-Rapid syringe bolus (flush) the adult IO with 10 ml (pediatric IO with 5 ml) of NS. Repeat prn.

To improve continuous infusion flow rates always use a syringe, pressure bag or infusion pump

Pain: Insertion of the adult IO & pediatric IO in conscious patients has been noted to cause mild to moderate discomfort (usually no more painful than a large bore IV). However, IO Infusion for conscious patients has been noted to cause severe discomfort.

Prior to IO syringe bolus (flush) or continuous infusion in alert patients, SLOWLY administer Lidocaine 2% (Preservative Free) through the IO hub.

Adult IO Slowly administer 20 – 40 mg Lidocaine 2% (Preservative Free), allow to sit in bone marrow space for 30 seconds.

Pediatric IO Slowly administer **0.5 mg /kg not to exceed 40mg** Lidocaine 2% (Preservative Free), allow to sit in bone marrow space for 30 seconds.

Indications

IV fluids or meds are needed & peripheral IV cannot be established in 2 attempts or 90 seconds, **and** the pt exhibits one or more of the following:

a. Altered mental status
b. Resp compromise (SpO2) 80% after appropriate oxygen therapy, resp rate <10 or > 40x min.
c. Hemodynamic instability (SBP <90)

Adult and Pediatric IO devices can be considered PRIOR to peripheral IV attempts in the following situations:

a. Cardiac arrest
b. Profound hypovolemia with alteration of mental status
c. Pt in extremis with immediate need for delivery of medication and/or fluids
d. Burns
e. Status epilepticus
f. Profound hypoglycemia
g. Narcotic OD without vascular access

EZ-IO® Insertion Procedure

PROCEDURE: *If the patient is conscious, advise of EMERGENT NEED for this procedure and obtain informed consent*

1. Wear approved Body Substance Isolation Equipment (BSI)
2. Determine adult IO or pediatric IO indications
3. Rule out Contraindications
4. Locate appropriate insertion site (4 approved sites)
5. Prepare insertion site using aseptic technique
6. Chlorahexadine or Iodine swabs.
7. Prepare the IO driver and appropriate needle set
8. Stabilize site and insert appropriate needle set
9. Remove IO driver from needle set while stabilizing catheter hub
10. Remove stylet from catheter, place stylet in shuttle or approved sharps container
11. Confirm placement
12. Connect primed provided IO connector
13. Slowly administer appropriate dose of **Lidocaine** 2% (Preservative Free) IO to conscious patients
14. Syringe bolus (flush) the IO catheter with the appropriate amount of normal saline.
15. Utilize pressure (pressure bag or infusion pump) for continuous infusions where applicable
16. Begin infusion
17. Dress site, secure tubing and apply wristband as directed
18. Monitor IO site and patient condition

Intraosseous Vascular Access

Indications For intraosseous access anytime in which vascular access is difficult to obtain in emergent, urgent or medically necessary cases for up to 24 hours.

Adults (≥ 22 years old)

- Proximal humerus
- Proximal tibia
- Distal tibia

Pediatrics (≤21 years old)

- Distal femur
- Proximal humerus
- Proximal tibia
- Distal tibia

For patients ≥ 12 years old, the device may be extended for up to 48 hours in the U.S. when alternate intravenous access is not available or reliably established.