EZ IO PROTOCOL – Intraosseous Insertion

Purpose

To provide guidelines for assisting qualified, trained professionals with insertion, maintenance, and removal of intraosseous access/infusion, while ensuring patient safety. To provide guidelines for the administration of IV fluids and medications intraosseous (IO), utilizing the EZ-IO drill method.

Indications

Any adult or pediatric patient in cardiac arrest, medical or trauma-related, where peripheral IV access is not attainable.

Contraindications

Fracture of tibia
Infection at insertion site
Previous orthopedic procedure near site (i.e. joint replacement, IO within 48 hrs.)
Pre-existing medical condition (i.e. tumor at site, severe peripheral vascular disease)
Inability to locate landmarks (i.e. morbid obesity, excessive tissue, peripheral edema)

Procedure

1. Inform family of procedure, if present.
2. Apply BSI – including gloves and eye protection.
3. Prepare equipment to be used.
4. Attach pressure infuser device to IV bag, prime IV tubing, and inflate pressure bag to 300mm Hg.
5. Fill syringe with 10ml of NS, attach and prime EZ connect tubing. Leave syringe in place.
6. Locate insertion site – Only approved site is the **proximal tibia** – two finger widths below the patella, 1-2 cm medial of the tibial tuberosity.
7. Cleanse puncture site with ChloraPrep – Chlorhexadine Gluconate 2% with Isopropyl Alcohol 70%.
8. Attach EZ IO needle to driver and remove needle cap. Use adult needle for patients 40kg or greater, use pediatric needle for patients under 40kg. Stabilize extremity by holding the proximal joint to the insertion site (careful to not hold posterior of lower leg). Insert needle with drill at 90 degree angle using steady and gentle pressure. Stop drill when a sudden “give” or “pop” is felt upon entry into the medullary space, or when desired depth is obtained.
9. Disconnect the drill from the needle while using caution to stabilize the needle. Then remove stylet.
10. Attach EZ-IO connect tubing with a 10 ml syringe and confirm placement:
    a) May attempt to aspirate bone marrow from site (not a completely reliable indicator of non-placement).
    b) Flush with at least 10 ml of normal saline and observe for infiltration at site.
    c) IO needle should be firmly in the bone.
11. After confirmation of placement, secure IV tubing to leg with tape, begin pressurized infusion of IV solution, and continue to monitor for infiltration.
12. If administering medication, flush IO after each medication with 10 ml of normal saline.
13. Apply wrist band supplied, indicating to healthcare personnel the patient has an EZ-IO needle inserted.

REMOVAL OF EZ-IO

In the event you must remove the EZ-IO needle, attach syringe to the end of the needle and rotate clockwise as you pull it out. Hold pressure to insertion site with gauze and monitor for bleeding. Cover with bandage.

NOTE: EZ-IO insertion is only to be performed by paramedics who have successfully completed a competency assessment to insert and remove intraosseous needles using the EZ-IO drill method. A designated instructor from the CDEMSS will evaluate the paramedic on the user's knowledge and skills to meet performance standards.