SWEDISHAMERICAN EMS
STANDING MEDICAL ORDERS
EMT – Intermediate, EMT – Paramedic

SMO/PROCEDURE: Intraosseous Access with the Bone Injection Gun

Overview: In critical situations it may be difficult to establish an IV for the administration of fluids and/or medications. Intraosseous (IO) access using the Bone Injection Gun (B.I.G.) is an alternative to standard IVs and once established will deliver fluids and medications to the central circulation in the same concentration and at equivalent speeds as IV medications.

Indications

___ Peripheral IV is unavailable
and patient exhibits one or more of the following
___ Cardiac arrest
___ Hemodynamic instability
___ Patient in immediate need of medication and/or fluids

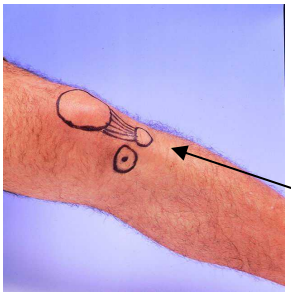
Contraindications

___ Fracture of the bone selected for IO site (consider alternate site)
___ Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate site)
___ Local infection at the IO site (consider alternate site)
___ Previous significant orthopedic procedures, including IO within 24 hours (consider alternate site)
___ Bone disorders: osteogenesis, osteoimperfecta, osteoporosis

Locating Appropriate Insertion Sites

Proximal Tibia Adult

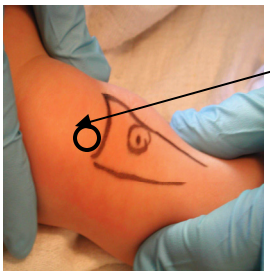
___ Locate the tibial tuberosity
___ Move 1 – 2 cm medially
___ Than move 1 cm proximally



Tibial Tuberosity

Proximal Tibia in Children

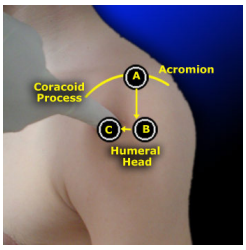
___ Locate the tibial tuberosity
___ Move 1 – 2 cm medially
___ Than move 1 – 2 cm distally



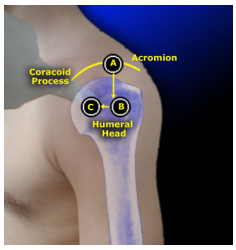
Humeral Head

___ The shoulder should be adducted
___ The palm placed on the umbillcuss

___ Draw imaginary line connecting Acromion and Coracoid Process
___ From midpoint of the line, go 2 fingers Distally
___ This is the Humeral Head



___ In some patient the area where the Humeral Head is closest to the skin is one finger Anteriorly (Toward the Chest)
___ Feel the Greater Tubercle



___ Once site is located
___ Confirm the exact position by verifying the Greater Tubercale's outer margins

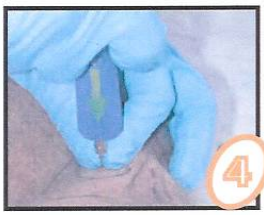
PROCEDURE

___ Observe universal precautions
___ Prepare equipment to be used
___ Identify the landmark for IO
___ Cleanse the puncture site
___ Adjust depth of penetration if necessary
___ Hold bottom of B.I.G. firmly at 90 degrees to IO site
___ Squeeze and pull out the safety latch
___ While continuing the firmly hold the bottem part, press down with the palm of your other hand
___ Pull up the B.I.G. slowly
___ Remove the trocar (stylet) needle
___ Secure with the safety latch
___ Flush with 10 – 20 ml of saline
___ Attach the IV and adjust the flow rate
___ Utilize pressure (pressure bag) for continuous infusion where needed
___ Secure with additional tape as needed.

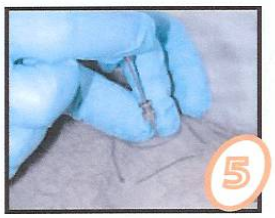
Hold firmly the bottom part, at 90 degrees to the leg

Squeeze and pull out the safety latch

While holding firmly at the bottom part, press down with the palm of your other hand



Pull up the BIG slowly



Remove the trocar needle

Secure with the safety latch

Flush with 10-20 cc of normal saline

Pain Management

__ IO infusions for conscious patients has been noted to cause severe discomfort
__ Lidocaine 2% may be administered to conscious patient for pain control before continuous IO infusion
__ Ensure patient has no contraindication for Lidocaine (e.g. third degree heart block)
__ Adult patients slowly administer 20 – 40 mg Lidocaine 2%
__ Pediatric patients slowly administer 0.5 mg/kg Lidocaine 2% (not to exceed 20 mg)

Documentation of adherence to protocol:

___ Site inserted
___ Change in patient condition, if any
___ Lidocaine dosage if used
___ Volume of fluids infused

Medical Control Contact Criteria

__ *Contact Medical Control if any question arise regarding he best treatment options for the patient.

PRECAUTIONS AND COMMENTS

___ The Proximal Tibia is the preferred site as the Humeral Head may be difficult to locate exact position
___ The Pediatric B.I.G. is adjustable for penetration depth using age as a guide:

0 – 3 years	0.5 – 1.0 cm
3 – 6 years	1.0 – 1.5 cm
6 – 12 years	1.5 cm

___ Also take the size of the patient into consideration, some children are as large as adults or the Pediatric B.I.G. may be used for a small frail elderly patient