

Ultrasound Guided Fascia Iliaca Compartment Block

I. Intro to US Guided Regional Anesthesia

Principle:

- Nerves run within fascial planes
- Deposition of local anesthetic within the fascial plane leads to Na⁺ channel blockade, blocking action potentials down the neuron
- Ultrasound guidance improves efficacy of block and safety when compared to landmark guided techniques

Local anesthetic:

- Choice of local anesthetic depends on desired length of action
- Length of analgesia exceeds that of anesthesia
- Long acting local anesthetics like ropivacaine and bupivacaine are ideal for FICB
- Dosing is key - calculate and double check
 - Use SafeLocal app

Drug	Max Dose	70kg Dose	Max Total Dose	Onset (min)	Duration
Ropivacaine 1% (10 mg/mL)	3 mg/kg	210 mg (21 mL)	300 mg	5-15	2-6 hr
Bupivacaine 0.5% (5 mg/mL)	2 mg/kg	140 mg (28 mL)	175 mg	10-15	4-6 hr

Cautions:

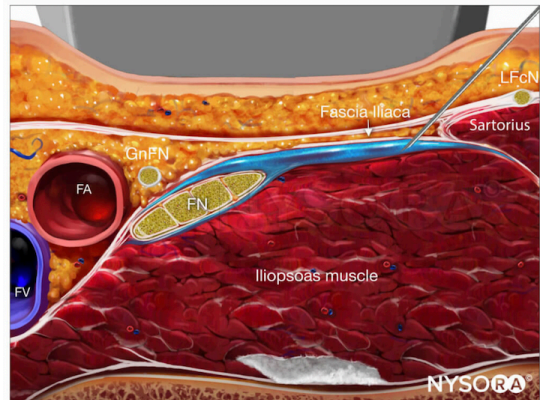
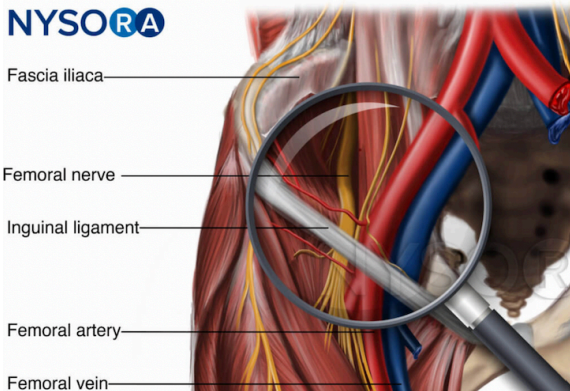
- Avoid interneuronal injection
- Avoid intravascular injection
- Be aware of Local Anesthetic Systemic Toxicity

Max dose mg/kg x kg/10 x 1/concentration

II. FICB Basics

Fascia Iliaca Compartment:

- Potential space between the iliopsoas muscle and its overlying fascia (fascia iliaca) in the region of the inguinal crease in which multiple nerves can be accessed by spread of large volume of local anesthetic



Femoral nerve (most reliably blocked):

- Sensory function:
 - Cutaneous aspects of anterior and medial thigh
 - Cutaneous strip of medial lower leg (saphenous nerve)
 - Osseous aspects of majority of femur
 - Articular innervation to hip joint
- Motor function: hip flexion (iliacus, sartorius), knee extension (quadriceps)

Lateral femoral cutaneous nerve (blocked if volume sufficient):

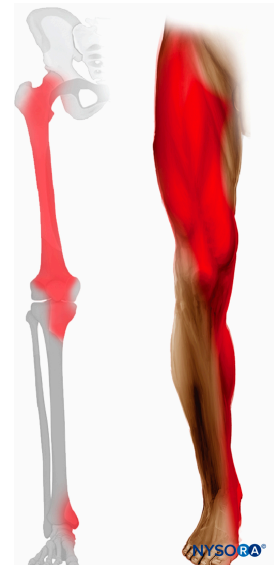
- Sensory only function: Cutaneous aspects of anterolateral thigh

Obturator nerve (not reliably blocked):

- Sensory function: Cutaneous aspects of medial thigh
- Motor function: hip adduction (adductor longus, brevis and gracilis muscles)

Compartment block = VOLUME based block:

- Need a large volume (40+ cc) to allow spread lateral, medial, cephalad
- Dose of local anesthetic based on weight (ideal body weight if obese)
- Then dilute to desired volume with normal saline



III. Procedural supplies

- Equipment found in the **ED Regional Anesthesia/Nerve Block (blue) Cart** located in EM1:
 - Echogenic blunt tip nerve block needle (ULTRAPLEX Echogenic needle; 4" 20G)
 - 30mL syringe(s)
 - Chloraprep
 - Sterile probe cover
 - Sterile gloves
 - Tegaderm
- **Additional supplies:**
 - 10mL NS Flushes
 - Local anesthetic to be obtained by RN from Pyxis
- **Rescue equipment:**
 - Airway supplies + medications
 - Intralipid in Pyxis (order placed as lipid bolus and infusion in Epic if administration is required)

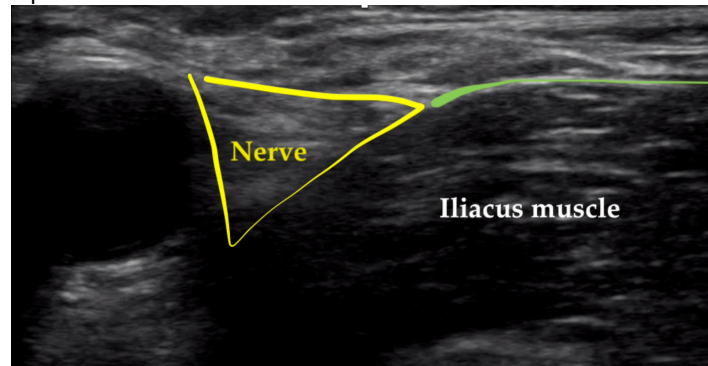
IV. Procedure

Pre-procedure:

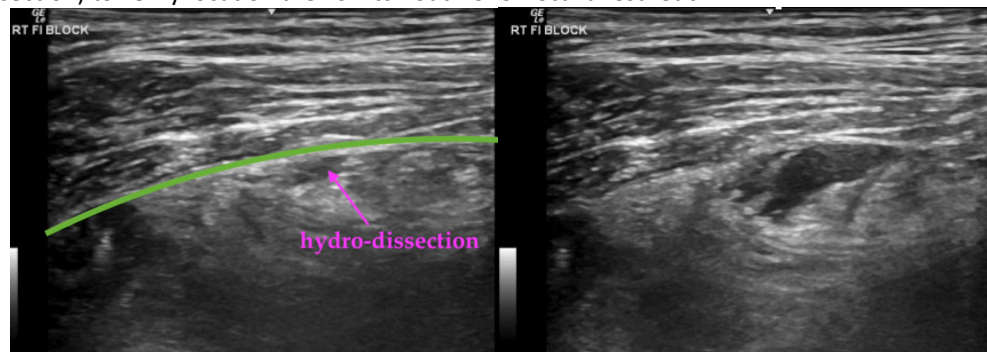
- Preform and document a focused neurologic and vascular exam
- Calculate weight-based dose of long-acting local anesthetic. Confirm with SafeLocal app. Dilute to 30-50cc with NS
- Confirm patient on cardiorespiratory monitoring and notify RN of procedure

Procedure:

- Perform scout scan to identify anatomy of interest including localization of femoral vessels, the adjacent femoral nerve, and the overlying fascia iliaca overlying the iliopsoas muscle. Trace the fascia iliaca laterally to where it becomes more superficial and distant from structures of concern



- Prep nerve block needle extension tubing with NS flush, keep NS syringe attached
- Prep the inguinal region with Chloraprep. Following performing hand hygiene, don sterile gloves and place a sterile probe cover on the US probe
- From a lateral approach, insert needle through skin using an IN-PLANE technique
- Advance medially toward the fascia iliaca
- Visualizing the entirety of the needle, watch for needle tip to pierce the fascial iliaca
- Ask assistant to aspirate and then inject a small volume of NS. Watch for spread of fluid just deep the fascial plane (hydrodissection) to verify location then switch out NS for local anesthetic



- Once appropriate positioning is confirmed, 5mL aliquots of local anesthetic are injected under direct US visualization, withdrawing after each aliquot, to ensure injection is not intravascular and has not migrated out of the fascial plane, until entire volume has been administered
- Remove needle and place a bandage at the puncture site
- Complete nerve block procedure note in Epic and worksheet in QPath with associated representative image

IV. Post-procedure Exam

- Patient will have improvement in pain within 15-30 minutes
- They will have numbness on sensory exam of the anterior and medial thigh
- Will note motor function loss at hip flexion and knee extension