Opioids and Nerve Blocks

3 common nerve blocks

Arun Nagdev, MD
Director, Emergency Ultrasound
Highland General Hospital
Clinical Associate Professor, UCSF
Multi-modal Pain Management

- Opioid crisis = system error
- Roadblocks in clinical care = key learning
- Acute pain should be managed by the Acute Care Specialist
1. Femoral Nerve Block

2. Posterior Tibial Nerve Block

3. Brachial Plexus Blocks
Femoral Nerve Block
Downstream Effects

Cutting edge medicine
Door-to-block time: prioritizing acute pain management for femoral fractures in the ED ☆ ☆☆

Brian Johnson, MD, MPH
Andrew Herring, MD
Swapnil Shah, MD, Michael Krosin, MD
Daniel Mantuani, MD
Arun Nagdev, MD

Kaiser California Funded Initiative
Regional Nerve Blocks Improve Pain and Functional Outcomes in Hip Fracture: A Randomized Controlled Trial

R. Sean Morrison, MD, *†‡ Eitan Dickman, MD, § Ula Hwang, MD, MPH, †‡ Saadia Akhtar, MD, † Taja Ferguson, MPH, † Jennifer Huang, MD, † Christina L. Jeng, MD, *** Bret P. Nelson, MD, † Meg A. Rosenblatt, MD, * Jeffrey H. Silverstein, MD, *α Reuben J. Strayer, MD, † Toni M. Torrillo, MD, * and Knox H. Todd, MD†‡‡

JAGS 2016

Pain control in the ED

- Control
- FNB
Pain Postoperative Day 3

- Rest
- Transfers
- Walking

- Control
- FNB
Anatomy & Innervation
Indications

- Hip Fracture
- Femur Fracture
- Debridement
- Large Laceration
- Abscess I&D
Pattern Recognition
Supplies and Procedure

Supplies for Femoral NB

1) 20cc lidocaine 1-2% with epi
2) 10-20cc Control Syringe
3) Chlorhexidine scrub
4) 22-20g 3.5 inch spinal needle
5) 25g needle for local skin wheal

Linear Transducer (high frequency)
Key Points

Under Fascia Iliaca

Stay Away from the Nerve
Normal Saline Hydro dissection
Normal Saline Hydro dissection
Posterior Tibial Nerve Block
Posterior Tibial Nerve
Indications

- Sole Laceration
- Burns
- FB / Abscess Removal
- Calcaneal Fracture
Anatomy and Innervation

- Medial Malleolus
- Tibial Artery
- Posterior Tibial Nerve
- Sural Nerve
- Posterior Tibial Nerve
- Saphenous Nerve
Tibial Artery
Medial Malleolus
Move Proximal to Access
Tibial Artery
Medial Malleolus

Tibial Artery

Posterior Tibial Nerve
Supplies and Procedure

Supplies for Post Tib NB

1) 10cc lidocaine 1-2% with epi
2) 10cc Control Syringe
3) Chlorhexidine scrub
4) 21 - 25g 1.5 inch needle
5) 25g needle for local skin wheal
In-plane Approach
Out-of-plane Approach
Key Points

- Color Doppler
- Slide up the leg
Great Needle Visualization
Brachial Plexus Anatomy
Prevertebral fascia overlying the interscalene groove

- skin
- SCM
- anterior scalene
- middle scalene
- C5
- C6
- C7
- C8
- artery
- vein

lateral
Anatomy and Innervation

Interscalene

Suprclavicular
Interscalene Brachial Plexus Block
Indications

- Humeral Fx
- Prox Arm Burns
- Deltoid Abscess
- Shoulder Dislocation
Pattern Recognition

IJ

SCM

Ant Scalene

Middle Scalene

IJ

CA
Supplies and Procedure

Linear Transducer (high frequency)

Supplies for Brachial Plexus NB

1) 20cc lidocaine 1-2% with epi
2) 10cc Control Syringe
3) Chlorhexidine scrub
4) 20 - 22g 3.5 inch spinal needle
5) 25g needle for local skin wheal
"Pop" and release as the needle passes through the prevertebral fascia.

- Skin
- SCM
- Anterior scalene
- Middle scalene
- Artery
- Vein
- C5
- C6
- C7
- C8
Anesthetic injection underneath the prevertebral fascia flows into the interscalene groove.
Summary

Multimodal approach to pain management

Practice localizing nerves on ultrasound

Learn in-plane needle technique

Start with the femoral nerve
Questions?