

# Regional Anesthesia Education Program 2013

## **1) Local Anesthetics: 1600hrs Aug 29<sup>th</sup> 2013 (Chris Arndt)**

Mechanism of action, Adjuvants, Dosage for blocks, Toxicity, LAST prevention and treatment, IVRA: Mechanism of action, Indications, Drugs and dosage, contraindications, advantages and disadvantages

Basic: Should know mechanism of LA action, dosages and LAST treatment (End of CA-1)

Intermediate: Should know indications and dosages for IVRA, LAST prevention (End of CA-3)

Advanced: Should know Adjuvants and evidence for them (Fellow)

## **2) Nerve localization techniques, Physics of Ultrasound, Potential pitfalls and artifacts: 1600hrs Sep 26<sup>th</sup> 2013 (Tony Yen)**

Nerve Localization Techniques

a) Explain principles, operation, advantages, and limitations of the peripheral nerve stimulator to localize and anesthetize peripheral nerves.

b) Explain principles, technique, and advantages and disadvantages of paresthesia-seeking, perivascular or transvascular approaches to nerve localization.

c) Explain principles, operation, advantages, and limitations of ultrasound to localize and anesthetize peripheral nerves

Physic of ultrasound:

a) Explain Ultrasound Generation, Frequency, and Wavelength; Ultrasound Interactions with Tissues; Resolution, Color Doppler

b) Discuss optimization of machine and probe for image acquisition.

Potential pitfalls and artifacts:

a) Discuss acoustic artifacts such as gain, lateral resolution, shadowing, enhancement, absent blood flow, tissue reverberation, needle reverberation, Bayonet, probe-skin.

b) Discuss anatomic pitfalls in tendon, muscle, blood vessels, lymph nodes, nerves, fat and edema

BASIC: Know nerve localization techniques and basic physics of ultrasound (End of CA-1)

INTERMEDIATE: Know machine and probe optimization (End of CA-2)

ADVANCED: Know common pitfalls and artifacts (End of CA-3)

## **3) Upper-Extremity Nerve Blocks: Basic, Intermediate, Advance: 1600hrs Oct 31<sup>st</sup> 2013 (Matt Charles)**

Aims:

Describe the anatomy and sonoanatomy

Describe the dermatome, myotome and sclerotomes

Evidence for the advantages and disadvantages of the block and/or approach

Describe the indications and contraindications

Describe advantage and disadvantage of continuous catheter

Workshop:

Basic: Supraclavicular, Interscalene (Should have experienced by the end of CA-1)

Intermediate: Axillary approach, Infraclavicular, Distal (Should be introduced by CA-3)

Advanced: Isolated nerve root block, Suprascapular, Axillary nerve, Cervical plexus, intercostobrachial (Fellows)

## **4) Lower-Extremity: Basic, Intermediate and Advance: 1600hrs Nov 28<sup>th</sup> 2013 (Brian Starr)**

Aims:

Describe the anatomy and sonoanatomy

Describe the dermatome, myotome and sclerotomes

Evidence for the advantages and disadvantages of the block and/or approach

Describe the indications and contraindications

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Describe advantage and disadvantage and evidence of continuous catheter

Workshop:

Basic: Femoral, Saphenous, Popliteal (Should have experience by end of CA-1)

Intermediate: LFC, Obturator, Anterior Sciatic (Should be introduced by end of CA-3)

Advanced: Lumbar Plexus, Parasacral, Labats, Subgluteal, Lateral Sciatic, Ankle blocks (fellow)

## Break in December

### 5) Truncal Blocks: Basic, Intermediate, Advance: 1600hrs January 30<sup>th</sup> 2014 (Nicholas Lam)

Aims:

Describe the anatomy and sonoanatomy

Describe the dermatome, myotome and sclerotomes

Evidence for the advantages and disadvantages of the block and/or approach

Describe the indications and contraindications

Describe advantage and disadvantage of continuous catheter

Workshop:

Basic: Ilioinguinal-hypogastric (Should be introduced by the end of CA-1)

Intermediate: Rectus sheath, TAP (Should be introduced by the end of CA-3)

Advanced: Intercostal, paravertebral, Pectoral Nerve Block (Fellows)

### 6) Non UGRA therapy: 1600hrs Feb 27<sup>th</sup> 2014 (Randy Rosett)

Systemic opioids, NSAIDS, COX-2, NMDA, Alpha 2 agonist, GABA agonist, NOS, other receptors

Discuss evidence and controversies of each therapy

Discuss management of chronic pain patient for surgery

Evidence for surgical local anesthetic management: field blocks, intra-articular injection/catheter, periarticular injection, incision pumps.

Basic: Opioids, NSAIDS, COX-2, NMDA, etc (End of CA-1)

Intermediate: Evidence and controversies of each therapy, Management of chronic pain patient for surgery (End of CA-3)

Evidence of surgical local anesthetic management: (Fellow)

### 7) Neuraxial blocks: Spinal and Epidural concepts: 1600hrs Mar 27<sup>th</sup> 2014 (Eli Torgeson)

Aims:

Spinal Anesthesia:

a) Describe the indications, contraindications, adverse effects, complications, and management of spinal anesthesia.

b) Recognize the cardiovascular and pulmonary physiological effects of spinal anesthesia.

c) Compare local anesthetics for intrathecal use: agents, dosage, surgical and total duration of action, and adjuvants.

d) Explain the relative importance of factors affecting intensity, extent, and duration of block such as patient position, dose, volume, and baricity of injectate.

e) Define postdural puncture headache, and describe symptoms, etiology, risk factors, and treatment.

f) Differentiate advantages and disadvantages of continuous spinal anesthesia.

Epidural Anesthesia (Lumbar, Thoracic, Caudal)

a) Describe the indications, contraindications, adverse effects, complications, and management of epidural anesthesia.

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- b) Compare the local anesthetics available for epidural use: agents, dosage, adjuncts, and duration of action.
- c) Differentiate between spinal and epidural anesthesia with regard to reliability, latency, duration, and segmental limitations.
- d) Explain the value and techniques of test dosing to minimize certain complications of epidural anesthesia.
- e) Interpret the volume-segment relationship and the effect of patient age, pregnancy, position, and site of injection on resultant block.
- f) Differentiate combined spinal-epidural anesthesia from lumbar epidural anesthesia, including advantages/disadvantages, dose requirements, complications, indications, and contraindications.
- g) Categorize outcome benefits of thoracic epidural analgesia for thoracic and abdominal surgery and thoracic trauma.
- h) Differentiate caudal epidural and thoracic epidural anesthesia from lumbar epidural anesthesia, including advantages/disadvantages, dose requirements, complications, indications, and contraindications.
- i) Explain the impact of antithrombotic and thrombolytic medications on neuraxial and peripheral anesthesia/analgesia with specific reference to the ASRA guidelines.

## **8) Neuraxial blocks: Basic, Intermediate, Advanced: 1600hrs April 24<sup>th</sup> 2014 (Firoz Vagh)**

Aims:

Describe the anatomy and sonoanatomy

Evidence for the advantage or disadvantage of neuraxial block for sick patients, arthroplasty, fractured hips etc

Neuraxial opioids: pharmacological difference in epidural and spinal, Pharmacological difference in lipid soluble vs water soluble, Evidence of duramorph

Workshop:

Basic: Landmark based Spinal, epidural (End of CA-1)

Intermediate: Prepuncture scan (Introduced by end of CA-3)

Advanced: Real time US-guided neuraxial block (fellow)

## **9) Advantages and Complications of regional anesthesia: 1600hrs May 29<sup>th</sup> 2014 (Brooke Baker)**

- 1) Evidence of Hemorrhagic complications
- 2) Evidence of Infectious complications
- 3) Evidence of Neurological complications: Neuraxial and Peripheral Nerve Injury
- 4) Evidence of Compartment syndrome
- 5) Evidence of Opioid induced respiratory depression
- 6) Evidence of Opioid induced hyperalgesia
- 7) Evidence of regional anesthesia improving outcomes

Basic: List the different complications and advantages of RA (End of CA-1)

Intermediate: Describe some evidence of each complication and advantage (End of CA-3)

Advanced: Describe the controversies in the evidence for advantages and complications (fellow)

## **10) Pediatric Regional Anesthesia and Pain Medicine: June 26<sup>th</sup> 2014 (Jenny Dillow)**

- 1) Pain assessment
- 2) Opioid and non opioid systemic therapy: difference from adults
- 3) Neuraxial analgesia: difference from adults, troubleshooting
- 4) Truncal blocks: difference from adults
- 5) Regional anesthesia: difference from adults

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Basic: Pain assessment and systemic therapy (End of CA-1)

Intermediate: Neuraxial blocks and troubleshooting neuraxial and peripheral catheter (End of CA-3)

Advanced: Regional and truncal blocks (fellow)

## **11) Additional topics: July 31<sup>st</sup> 2014. Ophthalmic anesthesia: (Mary Billstrand); Pulmonary and IVC ultrasound: (Alex Kim or Jeff Rossett)**

Ophthalmic anesthesia: Evidence for the performance, advantage and risk of 4 different eye blocks and sedation

Pulmonary and IVC ultrasound: Performance, utility and shortcomings of pulmonary and IVC ultrasound