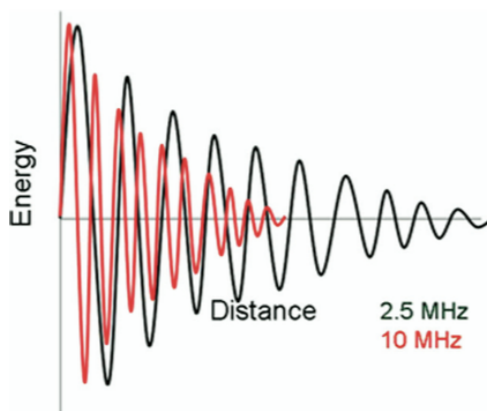


26. A single injection popliteal sciatic nerve block is performed under ultrasound guidance combined with peripheral nerve stimulation. The 21 gauge, 4 inch insulated needle appears to be at an ideal location between the common fibular and tibial components but no motor twitch is noted at a current of 1.5 mA (pulse duration 0.1 ms, frequency 2 Hz). Which of the following is the next best step for a successful sciatic nerve block?

- A. Advance the needle
- B. Retract the needle
- C. Turn up the current on the peripheral nerve stimulator
- D. Perform the nerve block in the current needle location

27. What does the following image represent?



- A. Attenuation
- B. Lateral resolution
- C. Axial resolution
- D. Specular reflection

28. Which of the following agents for spinal anesthesia has the best pharmacokinetic profile for outpatient surgery?

- A. Bupivacaine
- B. Chlorprocaine
- C. Lidocaine
- D. Tetracaine

29. A patient is receiving an epidural for a hemipelvectomy using a loss of resistance to air technique. CSF is noted at the needle hub after loss of resistance to air. An epidural is attempted at another level and is successful. Upon placing the dressing, the patient complains of a headache and nausea. How should the proceduralist manage the headache?

- A. Collect the patient's blood aseptically and perform an epidural blood patch with existing epidural catheter.
- B. Encourage the patient to remain supine and give the patient analgesics, including acetaminophen, NSAIDs, caffeine, and intravenous cosyntropin.
- C. Inject 2 to 3 mg of morphine through the epidural catheter now.
- D. Deliver a higher inspired oxygen, ask the intraoperative anesthesiologist to avoid nitrous oxide, and assure the patient that the headache will improve in 24 hours.

30. A patient received a difficult epidural placement for an open colectomy. A couple of days later, the patient complains of a headache that occurs within 15 minutes of getting up out of bed. In addition, she feels nauseated and her vision is blurred. Upon examination, the proceduralist notices a deviation of the eyes in a horizontal plane and an inability for the patient to abduct both eyes. What is the next best course of management of her headache?

- A. Offer her an immediate blood patch, as her neurologic signs are concerning for abducens palsy.
- B. Epidural blood patch is a high risk procedure so intravenous caffeine, hydration, and systemic analgesics should be offered first.
- C. Give intravenous cosyntropin 1mg. If this fails, then offer epidural blood patch after 24 hours.
- D. Consult neurologist, as some of her symptoms are atypical of a postdural puncture prior to proceeding with any intervention.

31. Which of the following is NOT TRUE of the use of 3 milliliters of lidocaine 1.5% with 1:200K epinephrine as a test dose for epidural placement?

- A. This dose is equivalent to 45mg of lidocaine, which when injected intrathecally, would result in a dense motor and sensory block within 10 minutes of injection.
- B. Epinephrine is for intravascular detection, and the concentration is 10mcg/ml (total dose of 30mcg), resulting in a heart rate increase of 10 beats per minute and systolic pressure increase of 30mmHg if intravascular.
- C. The effects of the test dose on detection of intravascular needle or catheter placement are blunted in elderly patients, patients under general anesthesia, and patients on beta-blockade.
- D. The use of benzodiazepines for sedation would make signs of systemic local anesthetic such as circumoral numbness or tinnitus less sensitive of a marker for intravascular injection.

32. A patient was involved in a motor vehicle collision and currently sustains fractures of his left fifth through eighth ribs anterolaterally resulting in greatly decreased inspiratory effort by the patient due to pain? He received a chest tube due to the presence of a pneumothorax on admission. CT scan of the head revealed subdural hematoma. Which of the following analgesic modalities would result in optimal analgesia for his rib fractures while minimizing risks?

- A. Continuous Epidural analgesia, local anesthetic only
- B. Continuous Epidural analgesia, opioid only
- C. Continuous Thoracic paravertebral analgesia
- D. Continuous Intercostal analgesia
- E. Continuous Interpleural analgesia

33. If you decide to place a thoracic epidural for postoperative analgesia in a patient undergoing a Whipple procedure, at which level should the epidural be placed to provide optimal analgesia (requiring the least amount of local anesthetic to achieve analgesia)?

- A. T4-5
- B. T7-8
- C. T10-11
- D. L1-2
- E. L5-S1

34. A patient is scheduled for thoracic endovascular aortic repair (TEVAR), and the vascular team is requesting a spinal drain in order to improve postoperative neurologic outcomes. The patient is currently taking warfarin for atrial fibrillation. What parameters must be met based on ASRA anticoagulation guidelines?

- A. Discontinue warfarin for 3 days and ensure that the INR is no greater than 1.5 prior to proceeding, wait a minimum of one hour between spinal drain placement and IV heparin dosing
- B. Discontinue warfarin for 3 days and ensure that INR is no greater than 1.1 prior to proceeding, wait a minimum of one hour between spinal drain placement and IV heparin dosing
- C. Discontinue warfarin for 5 days and ensure that INR is no greater than 1.5 prior to proceeding, wait a minimum of one hour between spinal drain placement and IV heparin dosing
- D. Discontinue warfarin for 5 days and ensure that INR is no greater than 1.1 prior to proceeding, wait a minimum of one hour between spinal drain placement and IV heparin dosing

35. Which of the following risk factors during neuraxial blockade for perioperative pain management has NOT been noted to be associated with catastrophic neurologic injury from spinal hematoma in addition to coagulopathy?

- A. increasing age
- B. spinal cord or vertebral column abnormality
- C. nonsteroidal anti-inflammatory agents
- D. difficult needle placement

36. Which of the following statements is NOT true with regards to a neuraxial (spinal, subdural, or epidural) hematoma?

- A. The most common presenting symptom of a neuraxial hematoma is back pain.
- B. The risk of neuraxial hematoma development is greatest upon placement block and catheter removal.
- C. Decompressive laminectomy is the treatment for neuraxial hematoma, and neurologic recovery is more likely when this is performed within 8 hours of symptom onset.
- D. It is local anesthetic, not opioids, in the neuraxial space that results in motor/sensory changes, and local anesthetic infusions must be discontinued in order to properly assess for neurologic function if assessing for presence of epidural hematoma.

37. Which of the following statements regarding sonoanatomy of the brachial plexus is NOT true?

- A. As many as 1/3rd of patients have a C5 nerve root that travels through the anterior scalene muscle prior to joining the C6 root to form the superior trunk.
- B. Branches from the thyrocervical trunk, frequently the transverse cervical artery, may pass across the brachial plexus above the clavicle and should be kept in mind and identified when performing supraclavicular and interscalene nerve blocks.
- C. Axillary veins are easily compressed when performing an axillary nerve block and may not be apparent even when aspirating prior to injection of local anesthetic.
- D. A 'double bubble' sign of local anesthetic inferior to the axillary artery is associated with a high rate of success for the infraclavicular block.
- E. All of the above statements are TRUE

38. Which of the following statements regarding potential complications related to blocks of the brachial plexus is FALSE?

- A. Although the amount of 0.75% ropivacaine via a catheter required to perform a successful ultrasound-guided interscalene block has been determined to be approximately 7 ml, we still lack the ability to predict or guarantee against phrenic nerve blockade.
- B. Pneumothorax and phrenic nerve paresis have been reported as complications of infraclavicular brachial plexus blockade.
- C. Complications of interscalene block include total spinal anesthesia, quadriplegia, and death.
- D. Axillary brachial plexus block includes the risk of pneumothorax
- E. The path of the transverse cervical artery, from the thyrocervical trunk, may interfere with supraclavicular brachial plexus block in patients.

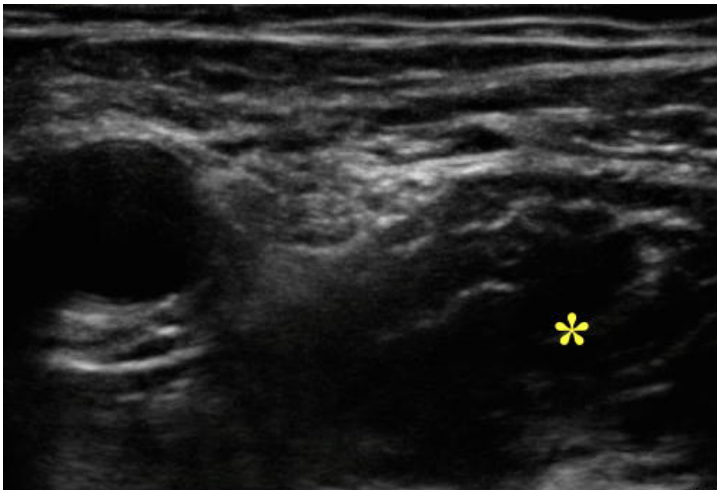
39. Which of the following statements regarding adjuvants to local anesthetics is FALSE?

- A. Adjuvants such as dexamethasone and dexmedetomidine have been shown to preferentially extend the duration of peripheral nerve block at the lumbar plexus when compared to the brachial plexus
- B. For the adjuvant clonidine, the number needed to harm (NNH) with regards to sedation, bradycardia, and dizziness is less than 15.
- C. With regards to extension of duration of analgesia evidence suggests that intravenous dexamethasone is comparable to perineural dexamethasone.
- D. Epinephrine is generally regarded as a marker of intravascular injection, rather than an extender of duration of analgesia for long-acting local anesthetics.

40. Performing a femoral nerve block at the distal aspect of the femoral triangle (8-12cm below the inguinal crease) with lower local anesthetic volumes has a greater likelihood of anesthetizing which of the following branches of the femoral nerve?

- A. Nerve to vastus intermedius muscle
- B. Nerve to vastus medialis muscle
- C. Saphenous nerve
- D. b and c

41. Which of the muscles surrounding the femoral nerve (at the inguinal crease) is the asterisk denoting?

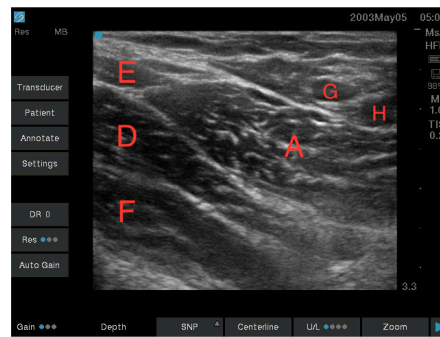
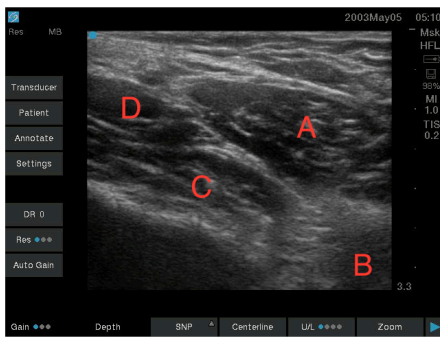


- A. pectineus muscle
- B. sartorius muscle
- C. iliopsoas muscle
- D. adductor brevis muscle

42. Which of the following statements is NOT correct about the lateral femoral cutaneous nerve (LFCN)?

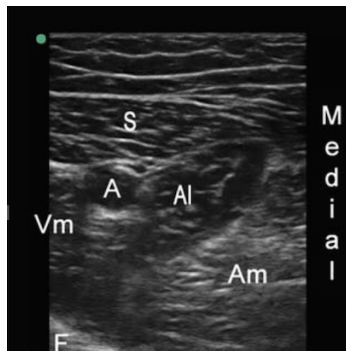
- A. It usually arises from the ventral ramus of the L2 and L3 nerve roots
- B. It is at high risk for injury with the anterior approach to a total hip arthroplasty.
- C. Its course and sensory distribution is variable
- D. It is a mixed sensory/motor neuron

43. In the images below, the first depicting the image acquired for a subpectineal approach to the obturator nerve block, and the second delineating the anterior and posterior divisions of the obturator nerve after it has divided, which of the following is NOT true?



- A. The structure labeled 'A' is the pectineus muscle
- B. The structure labeled 'B' is the superior pubic ramus
- C. The structure labeled 'C' is the obturator externus muscle
- D. The structure labeled 'D' is the adductor longus muscle

44. At which level in the anterior thigh does the following image represent?



- A. inguinal crease
- B. apex of the femoral triangle
- C. middle of the adductor canal
- D. at the level of the adductor hiatus

45. With a 75 kg, 170 cm patient in the lateral decubitus position, an 18 gauge, 10 cm insulated Tuohy needle is inserted 4 cm lateral to the spinous process of the L4 vertebral body, as approximated by the intercrystal line for performance of a lumbar plexus block guided by peripheral nerve stimulation. The peripheral nerve stimulator is set to a current of 1.7 mA, pulse duration 0.1 ms, and a frequency of 2 Hz. After the needle is advanced approximately 4.5 cm perpendicular to the patient's skin, a paraspinal motor response is noted. Which of the following statements regarding the lumbar plexus block is TRUE?

- A. The needle is too far lateral and should be retracted and redirected medially
- B. The needle is too inferior and should be retracted and redirected cephalad
- C. The physician should expect to contact the transverse process of L4 within 1 cm of further advancement
- D. This motor twitch is expected and the needle should continue to be advanced with a focus on anterior thigh motor response

46. A 42 kg, 87 year old female presents to the emergency room after being discovered on the floor next to her bed in her nursing home. Initial evaluation in the emergency department reveals a femoral neck fracture and the patient is brought to the operating room for a total hip arthroplasty. The patient is unable to give a detailed history due to significant cognitive dysfunction. Records from her nursing home show a past medical history of Alzheimer's dementia, cachexia, stage 3 chronic kidney disease with a GFR of 50. Her medications do not include any antiplatelet agents or direct acting anticoagulants. The anesthetic plan includes a lumbar plexus block (LPB) and sciatic nerve block for intra-operative anesthesia and post-operative analgesia. Which of the following statements is FALSE?

- A. Known complications of LPB include intravascular injection, renal injury, retroperitoneal hematoma, and, in the case of surgical anesthesia, need for conversion to general anesthesia
- B. The combination of LPB and sciatic nerve block increases the risk of local anesthetic systemic toxicity due to a large dose of local anesthetic
- C. LPB has been shown to be effective for post-operative analgesia following total hip arthroplasty
- D. The initial needle insertion site for the LPB is 2 cm lateral to and inferior to the posterior superior iliac spine (PSIS)

47. Based on the most recent comprehensive review of lower extremity blocks for total knee arthroplasty, which of the following regional anesthetic combinations has resulted in the best analgesia and effect ON OPIOID CONSUMPTION after knee arthroplasty surgery?

- A. Femoral and obturator and sciatic nerve block
- B. Adductor canal and sciatic nerve block
- C. Periarticular infiltration
- D. Epidural analgesia

48. Which of the following is TRUE of intercostal nerve blocks?

- A. Intercostal nerve blocks result in more than 24 hours of analgesia after single injection of 3-5 ml of bupivacaine 0.25%
- B. Depositing local anesthetic at the anterior axillary line results in consistent coverage of the lateral cutaneous branch of the intercostal nerve.
- C. When performing the intercostal block medial to the posterior angle of the rib, local anesthetic should be injected between the internal intercostal fascia and the external intercostal muscles
- D. As compared to a paravertebral block or epidural block, an intercostal block is much less likely to block the sympathetic chain.

49. The posterior wall of the thoracic paravertebral space consists of which of the following structures?

- A. Parietal Pleura
- B. Visceral Pleura
- C. Lateral Costotransverse Ligament
- D. Superior Costotransverse Ligament

50. When compared to thoracic epidural analgesia, thoracic paravertebral analgesia results in all of the following EXCEPT:

- A. A reduced extent of sympathectomy and incidence of hypotension.
- B. A reduced incidence of urinary retention
- C. A reduction in the dermatomes anesthetized for the same dose and volume of local anesthetic
- D. A reduction in inotropy and chronotropy with T1 to T4 blockade