

51. Which of the following statements regarding the ilioinguinal-iliohypogastric (II-IH) nerve block is FALSE?

- A. The II-IH originate from L3 and pass anterior to the quadratus lumborum.
- B. The II-IH emerge near the anterior superior iliac spine, which is an important surface landmark for II-IH blockade.
- C. This block is commonly performed for inguinal herniorrhaphy analgesia.
- D. The II-IH block is not associated with motor weakness of the lower extremity.
- E. A useful landmark for II-IH blockade on ultrasound is the deep circumflex iliac artery.

52. Which of the following procedures is the subcostal TAP (transversus abdominis plane) block most effective for analgesia?

- A. Cesarean section
- B. Ventral hernia repair
- C. Laparoscopic cholecystectomy
- D. Pancreaticoduodenectomy (Whipple)

53. Which of the following statements regarding the quadratus lumborum (QL) block is NOT true?

- A. The QL1 block is performed by injecting local anesthetic on the anterolateral surface of the QL.
- B. The QL2 block is performed by injecting local anesthetic on the posterolateral surface of the QL.
- C. The transmuscular QL block (also called the QL3 block) is performed by injecting local anesthetic between the QL and psoas major, on the anteromedial side of the QL.
- D. Variability in cephalad spread of local anesthetic after different QL approaches may be due to differences in the anatomical configuration of connective tissue such as the aponeurosis of the thoracolumbar fascia.
- E. All of the above are TRUE

54. Which of the following is TRUE of PECS I and PECS II block?

- A. It aims to anesthetize the lateral and medial pectoral nerves, the intercostobrachial nerves, the intercostal nerves (~T3-T6) and the long thoracic nerve.
- B. These blocks require low volumes of local anesthetic in order to achieve effective analgesia.
- C. For modified unilateral radical mastectomy, a PECS I and PECS II block should be adequate as the sole anesthetic for surgery
- D. None of the above is true

55. The serratus plane block has been described with local anesthetic deposition either above or below the serratus anterior muscle. Which of the following statements is NOT accurate?

- A. Deposition of local anesthetic deep to rather than superficial to the serratus anterior muscle more likely results in blockade of the long thoracic nerve.
- B. Though limited, data exists noting that serratus plane block has been shown to reduce opioid consumption and decrease the incidence of post operative nausea and vomiting in patients undergoing breast tumor resection in the immediate postoperative period.
- C. For blocks above the serratus anterior muscle, the muscle overlying the serratus anterior muscle is along the midaxillary line at the level of the 5<sup>th</sup> or 6<sup>th</sup> rib is latissimus dorsi muscle.
- D. For blocks performed deep to the serratus anterior muscle, the muscle beneath the serratus anterior muscle along the midaxillary line at the 5<sup>th</sup> or 6<sup>th</sup> rib is the external intercostal muscle, though this can also be performed with a needle between serratus anterior muscle and rib.

56. A hand surgeon opts to perform index finger mass excision using a Bier block. Which of the following agents is the most suitable for this purpose?

- A. 0.25% bupivacaine
- B. 0.5% lidocaine
- C. 2% lidocaine
- D. 0.5% ropivacaine

57. Which of the following statement is true regarding the occurrence of epidural and/or spinal hematoma:

- A. The incidence of spinal/epidural hematoma is more frequent than 1 in 22,000 in a patient who is not anticoagulated.
- B. Coagulation status of the patient upon removal of an epidural catheter is important as many report the bleeding to have occurred at that time point.
- C. Bowel and bladder dysfunction are early and frequent signs of epidural/spinal hematoma formation
- D. Prolonged sensory and motor deficits are common as a result of normal variability in response to neuraxial blockade and should not raise concerns.

58. Which of the following statements is TRUE of infectious complications of neuraxial anesthesia based on the 2017 ASA/ASRA Practice Advisory for the prevention, diagnosis and management of infectious complications associated with neuraxial techniques:

- A. A randomized controlled trial reported no difference in catheter tip colonization when sterile gowns are worn compared to no sterile gowns.
- B. A randomized controlled trial reported a difference in the rate of positive bacterial cultures from the catheter tip or injection site when chlorhexidine is compared with povidone-iodine.
- C. A randomized controlled trial demonstrated infections and epidural abscesses are directly linked to a specific in-dwelling catheter duration.
- D. Observational and case control studies demonstrated that catheter tip bacterial colonization rates are higher in caudal insertion site compared to a lumbar insertion site

59. Which of the following statements is TRUE of the use of tourniquet and neurologic injury:

- A. Tourniquet related nerve injury is mostly a result of ischemia
- B. Electron microscopic examination of nerves that were subjected to tourniquet usually demonstrates no changes in structure.
- C. Incidence of tourniquet related nerve injury is higher in the upper extremity compared to lower extremity
- D. Tourniquet related nerve injury is always transient and it only involves sensory nerves

60. In comparing neuraxial anesthesia (NA) to general anesthesia (GA) for orthopedic surgery, which of the following statements is FALSE?

- A. According to a large Cochrane database review of NA vs GA for hip fracture surgery, there was insufficient evidence available to rule out clinically important differences in outcomes, although NA seemed to reduce the incidence of postoperative confusion.
- B. According to a large database of patients undergoing surgery for hip fractures in New York, NA was superior to GA with regards to inpatient pulmonary complications and inpatient death post-operatively.
- C. Deep sedation when combined with NA can be a risk factor for post-operative delirium and should be considered when investigating NA vs GA for orthopedic surgery.
- D. According to a large American College of Surgeons National Surgical Quality Improvement Program database study of patients undergoing total hip arthroplasty, spinal anesthesia was associated with an increase in stroke, cardiac arrest, and blood transfusion when compared to GA.

61. Which of the following statement is TRUE regarding the perioperative management of an elderly patient with a hip fracture:

- A. General anesthesia is associated with increased morbidity and mortality compared to regional anesthesia.
- B. Extensive workup and optimization is necessary prior to surgery.
- C. Early mobilization and delirium prevention are major determinants of hospital length of stay
- D. Prolonged regional anesthesia is associated with increased fall risk and should be avoided.

62. An 81 year-old male is undergoing right total knee arthroplasty under spinal anesthesia. During insertion of cement, the patient's blood pressure drops from 134/72 to 84/54. What is the most common reason for the observed hypotension?

- A. Fat embolus syndrome
- B. Venous thromboembolism
- C. Absorption of the volatile monomer of methyl methacrylate
- D. Sympathectomy secondary to spinal anesthesia

63. During total hip arthroplasty in an otherwise healthy 64 year-old, what is the LEAST RECOMMENDED treatment when hypotension and hypoxemia is noted after cementation?

- A. Switch from isoflurane to nitrous oxide
- B. Increase fluid administration
- C. Increase inspired oxygen concentration
- D. Administer ephedrine

64. A 92 year-old male with past medical history of coronary artery disease and diabetes mellitus type II presents for total shoulder arthroplasty. Given his significant co-morbidities and age, you elect to perform a sitting, awake total shoulder arthroplasty under interscalene block. During the case, his vital signs change, and you suspect a Bezold-Jarisch reflex. This is classified as:

- A. Hypotension, bradycardia, and syncope
- B. Hypotension, tachycardia, and agitation
- C. Hypertension, bradycardia, and syncope
- D. Hypertension, tachycardia, and agitation

65. An 84-year-old female with a past medical history of CAD, DM type II, history of transient ischemic attack, and GERD presented for a total hip arthroplasty. She elected to proceed with a spinal anesthetic. In the recovery unit postoperatively, she became sluggish and appeared to be in a daze. You suspect hypoactive delirium. Which of the following patient attributes is the strongest predictor of delirium?

- A. Age
- B. Blood transfusion
- C. Presence of a foley catheter
- D. History of TIA

66. Which of the following statements about Enhanced Recovery after GI surgery is FALSE?

- A. The pre-operative phase includes 'prehabilitation,' nutritional supplements, minimizing bowel preparations, and patient education/expectation management.
- B. The intra-operative phase includes relative fluid restriction, opioid-sparing analgesia, post-operative nausea and vomiting prophylaxis, and deep vein thrombosis prophylaxis.
- C. The post-operative phase includes multimodal analgesia with opioid minimization, deep venous thrombosis prophylaxis, minimization of intravenous fluids, standardized early removal of in-dwelling urinary catheters, early mobilization, and early oral intake.
- D. Epidural anesthesia and post-operative analgesic is the standard of care for minimally invasive robotic colon resection.

67. Which of the following statement is TRUE regarding safety and compatibility of catheters in MRI:

- A. The safety and compatibility of all catheters in the MRI has been well established.
- B. The degree of heating and magnetism of stimulating and wire-reinforced catheters is similar whether the catheter is subject to a 1.5 tesla or a 3 tesla MRI scanner.
- C. Arrow epidural catheter made by Teleflex with inner steal coil wire is MRI compatible based on their website.
- D. Injury as a result of movement (magnetism) and heating inside the MRI magnet are of clinical concern with stimulating and wire-reinforced catheters, and has been demonstrated in in vitro studies.

68. Which of the following statements is TRUE of the use of gastric ultrasound to determine gastric contents:

- A. Recently ingested solid tends to look hypoechoic with a "starry night" appearance
- B. Performing gastric ultrasound in the sagittal plane and semi-recumbent position is better at estimating gastric volume than in right lateral decubitus position.
- C. Gastric volume is estimated using the cross-sectional area of the antrum at rest, and appears to be age-dependent
- D. Ingestion of milk results in a gastric antrum that appears round with the fluid content within appearing hypoechoic.

69. Of the following opioids, which will result in the LONGEST duration of action when given neuraxially?

- A. Hydromorphone
- B. Sufentanil
- C. Fentanyl
- D. Morphine

70. The Pericapsular Nerve Group Block (PENG) attempts to anesthetize branches of which nerve?

- A. Femoral
- B. Lateral femoral cutaneous
- C. Obturator Nerve
- D. Sciatic Nerve

71. A 57-year-old female with a history of anxiety and depression treated with amitriptyline and fluoxetine presents to the PACU after undergoing bilateral mastectomies under general anesthesia. She received preoperative placement of paravertebral blocks for analgesia and was administered meperidine in the PACU for shivering. You are called to evaluate the patient after she suddenly becomes agitated, tachycardic and tremulous. On exam, she is mildly febrile with myoclonus and hyperreflexia. Which of the following diagnoses is MOST likely?

- A. Local anesthetic systemic toxicity
- B. Malignant hyperthermia
- C. Serotonin syndrome
- D. Neuroleptic malignant syndrome

72. Which of the following nerves does NOT provide innervation to the hip joint?

- A. Obturator
- B. Femoral
- C. Sciatic
- D. Lateral femoral cutaneous

73. All of the following anatomical considerations of the breast are TRUE except:

- A. The cutaneous innervation of the breast is mostly derived from the T2 to T5 intercostal nerves with variable contributions from T1 and T6.
- B. The cutaneous innervation of the breast follows a dermatomal pattern of innervation.
- C. A block of the nerves of the brachial plexus may be necessary in anesthetizing patients for breast surgery.
- D. Blockade of the intercostobrachial nerve is important for pain during axillary lymph node dissection.

74. All of the following are TRUE regarding cryoneuroablation EXCEPT:

- A. Similar to alcohol and phenol nerve ablation techniques, neuroma formation is a common complication of cryoneuroablation.
- B. The extent and duration of pain relief from cryoneuroablation is directly related to the degree of cold obtained and the length of time of exposure.
- C. The mechanism of cryoneuroablation involves Wallerian degeneration of the nerve, which disrupts the nerve structure but leaves the myelin sheath and endoneurium intact.
- D. The application of cold to tissues creates a conduction block similar to local anesthetics, which provides the basis for the mechanism of pain relief provided by cryoneuroablation.

75. Which of the following is the LEAST significant risk factor associated with local anesthetic-induced myotoxicity?

- A. Specific local anesthetic administered
- B. Prolonged exposure to local anesthetics
- C. Higher concentrations of local anesthetics
- D. Use of perineural adjuncts like clonidine