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LOCAL ANESTHETIC SYSTEMIC TOXICITY

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PHASES OF CARE

Preoperative, intraoperative, postoperative

PROCEDURES

All procedures requiring the use of local anesthetics

PERIOPERATIVE ROLES

Perioperative nurse, anesthesia care provider, surgeon

METHODS

- Local anesthetics are commonly used in the perioperative environment to control pain from invasive procedures.
- Systemic toxicity from the injection or overdose of local anesthetics is a rare but potentially fatal complication.
- Factors that contribute to LAST include the site of the injection, the injection technique, the type of anesthetic and dose injected, and the individual receiving the local anesthesia.
- There are 5 categories of LAST manifestation: central nervous system (eg, confusion), cardiovascular (eg, hypertension), hematologic (eg, methemoglobinemia), allergic (eg, rash), and local tissue responses (eg, numbness).

IMPLICATIONS

- While caring for any patient receiving local anesthesia, the surgical team should constantly assess him or her for altered mental status, agitation, loss of consciousness, seizures, and cardiac collapse.
- Supporting the patient’s cardiac status and maintaining an airway are a constant priority with LAST. In addition, IV infusion of lipid emulsions (ie, an emulsion of soybean oil, egg phospholipids, and glycerin) can reverse the effects of LAST on the heart and central nervous system.

KEY RESOURCES

- Full-Text Article
- AORN Guideline for Care of the Patient Receiving Local Anesthesia
- AORN Guideline for Medication Safety

KEY TAKEAWAYS

Perioperative nurses must understand how local anesthetics work, how to determine dosages used, the signs and symptoms of LAST, and how to respond if it occurs. The ability to recognize and immediately treat LAST is crucial to the patient’s survival. Perioperative nurses who recognize the symptoms of central nervous system toxicity will assist in providing early treatment and prevent cardiac toxicity or other more advanced symptoms that increase the risk of negatives outcomes, including death.
Epilepsy: Clinical Review and Surgical Options
Beth Karasin, MSN, APN, AGACNP-BC, RNFA, CNOR; Mark Karasin, DNP, BA, RN, AGACNP-BC, CNOR

PHASES OF CARE
Preoperative, intraoperative, postoperative

RELEVANT SPECIALTY
Neurosurgery

PROCEDURES
Lesional and nonlesional brain resection, lobectomy, hemispherectomy, corpus callosotomy, multiple subpial transection, deep brain stimulation, vagus nerve stimulation, responsive neurostimulation, laser thermal ablation, radiosurgery

PATIENT POPULATION
Patients with epilepsy

BACKGROUND
• Epilepsy is a complex ailment of the brain characterized by recurring seizures. A wide spectrum of conditions may manifest as seizures and do not lead to a diagnosis of epilepsy. A patient is diagnosed with epilepsy when he or she has had multiple seizures of unelicited etiology.
• Antiepileptic drugs are the first line of treatment for patients with epilepsy; however, some patients may not respond to pharmacologic treatment (a condition called drug-resistant epilepsy) and may require surgical intervention.

IMPLICATIONS
• The surgical options for patients with epilepsy are categorized as resection, transection, neurostimulation, thermal ablation, and radiation procedures.
• Perioperative nurses caring for patients with epilepsy must be knowledgeable about the appropriate responses to seizure activity (eg, preventing patient injury, timing the seizure, assessing and orienting the patient).
• Perioperative nurses caring for patients with epilepsy should be aware of proper nursing interventions during status epilepticus (ie, a seizure that lasts more than 5 minutes or recurrent seizures without recovery in between). Interventions include maintaining airway patency, cycling vital signs, ensuring a functional IV, and anticipating administration of medications.

KEY RESOURCES
Full-Text Article
Epilepsy Foundation: Information for Professionals

KEY TAKEAWAYS
Epilepsy is a debilitating disorder of the brain that can have a major effect on a patient’s quality of life. Surgery may be an option for patients who do not respond to pharmacologic treatment, and it is important for perioperative nurses to understand how to care for patients with epilepsy.
Phases of Care
Preoperative, intraoperative, postoperative

Perioperative Roles
Perioperative nurse, anesthesia care provider, surgical technologist, environmental cleaning personnel

Key Words
Environmental cleaning, disinfection, hazardous cleaning products, no-touch technology, green cleaning

KEY RESOURCES
Full-Text Article
AORN Guideline for Environmental Cleaning
AORN Guideline for a Safe Environment of Care, Part 1
Environmental Cleaning Tool Kit
Clinical FAQs: Environmental Cleaning

HOW-TO GUIDE
• Exposure to hazardous chemicals present in cleaning products commonly used in the perioperative setting can result in acute and chronic health effects for personnel, including
  o irritation to the skin, eyes, nose, throat, and lungs;
  o burns (to the skin or eyes);
  o sore throat;
  o coughing;
  o asthma or difficulty breathing; and
  o wheezing.
• Perioperative personnel should choose the least hazardous cleaning product to accomplish the type of cleaning required.
• All health care workers who handle cleaning products should receive training, including information about the health hazards of the products; how to handle, use, store, and dilute products; what to do if a spill occurs; what personal protective equipment is necessary; and how to use the hazard information, explanation labels, and material safety data sheets.

STRATEGIES FOR SUCCESS
• Multidisciplinary teams should determine which cleaning products will be used based on multiple factors (eg, dwell times, compatibility with equipment, cost and safety). They should also assess green, low-toxicity, and no-touch products and technologies (eg, improved hydrogen peroxide, ultraviolet light) in the context of their facility for efficacy and safety as possible alternatives to harmful cleaning chemicals.

KEY TAKEAWAYS
Environmental cleaning is essential to provide a safe setting for patients undergoing surgery. However, health care workers who handle environmental cleaning products need to be aware of the potential health hazards. It is important for multidisciplinary teams to establish environmental cleaning programs that include protection of workers.
CLINICAL ISSUES
Esther M. Johnstone, DNP, MSN, RN, CNOR

PURPOSE
To provide answers to AORN members’ clinical questions based on current evidence.

What is the purpose of the heating, ventilation, and air-conditioning (HVAC) system in an OR?

- The purpose of the HVAC system is to reduce the amount of environmental contaminants (e.g., microbes, dust, lint) in the OR and to control the air pressure, air quality, humidity, and temperature of the OR in comparison with those of the surrounding areas.
- These functions help to prevent the spread of airborne contaminants.

Key Resources: AORN Guideline for a Safe Environment of Care, Part 2; Guideline Implementation: Environment of Care, Part 2

What is the recommended number of air changes per hour for ORs? What is the purpose of positive pressure airflow in an OR?

- Air changes (of both outdoor and recirculated air) in the OR should be maintained at a minimum of 20 changes per hour, with a minimum of four outdoor air changes per hour (or the applicable rate at the time of the HVAC system’s design or most recent renovation).
- Maintaining positive pressure airflow in the OR promotes an airflow direction from ceiling to floor.
- Equipment and supplies should not be placed near return vents because unobstructed airflow out of the OR is required to maintain the correct air pressure.

Key Resources: AORN Guideline for a Safe Environment of Care, Part 2; AORN Joint Interim Guidance: HVAC in the Operating Room and Sterile Processing Department

For more details and to find questions and answers on the topics below, read the full column.

- Why is it important for a perioperative RN to be included on a multidisciplinary product selection committee?
- As a newly licensed RN and a recent graduate of an associate degree nursing program, I am interested in perioperative nursing. However, I am finding it difficult to obtain an entry-level position. Most of the hospitals in my area require a bachelor of science in nursing (BSN) degree. Does AORN support the BSN for entry into nursing?
- Should all new perioperative RNs be assigned a mentor?