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NOTE: An advisory opinion adopted by AZBN is an interpretation of what the law requires. While an advisory opinion is not law, it is more than a recommendation. In other words, an advisory opinion is an official opinion of AZBN regarding the practice of nursing as it relates to the functions of nursing. Facility policies may restrict practice further in their setting and/or require additional expectations related to competency, validation, training, and supervision to assure the safety of their patient population and or decrease risk.

OPINION: KETAMINE ADMINISTRATION
APPROVED: DATE: 11/15
REVISED DATE: 5/20, 7/21
ORIGINATING COMMITTEE:
SCOPE OF PRACTICE COMMITTEE

Within the Scope of Practice of ☒LPN ☒RN ☒APRN

ADVISORY OPINION
KETAMINE ADMINISTRATION

STATEMENT OF SCOPE

It is NOT within the Scope of Practice of a Registered Nurse (non-CRNA) to administer IV Ketamine for the purposes of anesthesia. For ketamine given for sedation, refer to the Sedation: Deep, Moderate, and Palliative Advisory Opinion.

It is NOT within the Scope of Practice of a Registered Nurse (non-CRNA) to administer IV or intranasal Ketamine via bolus dose for analgesia, except in areas capable of monitoring and managing complications of unintended sedation as per the Sedation: Deep, Moderate, and Palliative Advisory Opinion.

SCOPE OF PRACTICE:

It is within the Scope of Practice of a Registered Nurse (RN) to administer sub- anesthetic IV or intranasal Ketamine for the purposes of pain control (analgesia) and depression.

It is within the Scope of Practice of a Registered Nurse (RN) to administer IV ketamine for sedation. For use in sedation, refer to and follow the Sedation: Deep, Moderate, and Palliative Advisory Opinion.

I. GENERAL REQUIREMENTS:

A. Written policies and procedures are developed and maintained by the employer/facility. These policies must include, but are not limited to:
    1. Low-dose (sub-anesthetic) Ketamine must be prescribed within applicable legal and policy constraints by a credentialed and privileged licensed independent practitioner (LIP).

2. ACLS/PALS provider is readily available in the facility from the time the medication is initiated until completion of the continuous infusion, intranasal, or IV bolusA validated sedation scale is used (e.g., Richmond Agitation Sedation Scale, Sedation Agitation Scale) to monitor for unintended sedation.
3. Guidelines and equipment for patient monitoring, drug administration, and addressing potential complications.
4. IV Ketamine infusion is prepared by pharmacy.
5. IV Ketamine is infused via a dedicated IV line using an IV infusion pump preferably with smart pump technology.
6. Only RNs who have completed an instructional program and have had supervised clinical practice can administer Ketamine.

B. Specific requirements related to route/purpose of administration:
   1. Continuous IV, IV bolus, or intranasal Ketamine for **moderate/deep sedation**:
      a. RNs must follow the Sedation: Deep, Moderate, and Palliative advisory opinion.

   2. Low-dose (sub-anesthetic) continuous IV or intranasal Ketamine for **chronic pain or treatment- resistant depression**:
      a. RNs may adjust the rate of infusion per a patient-specific order only.
         i. Nurse driven titration to clinical endpoints as part of a dose range order is NOT allowed for this indication Ketamine IV bolus is NOT allowed prior to initiation, nor during infusion.
         ii. Standing orders or protocols are NOT used.
      b. RNs have the right and obligation to refuse to administer continuous IV Ketamine infusion that may induce moderate or deep sedation or anesthesia when the intent is for chronic pain or depression.
      c. Minimum monitoring requirements include pulse oximetry, vital signs and level of sedation.

   3. Low-dose (sub-anesthetic) IV bolus (piggyback) or intranasal Ketamine for analgesia:
      a. ACLS/PALS provider is readily available in the department from the time the medication is administered until completion of the procedure.
      b. Minimum monitoring requirements include pulse oximetry, vital signs and level of sedation preparation, onset, duration, desired effect, sub-anesthetic dose range, indications, contraindications, medication interactions, side effects, and adverse reactions.

II. COURSE OF INSTRUCTION

A. Only the RNs who have the knowledge and have demonstrated competency may administer low dose (sub-anesthetic) IV or intranasal Ketamine for the purposes of pain control (analgesia), depression, and sedation. The instructional program includes but is not limited to

1. Anatomy and physiology of the respiratory system including principles of oxygen delivery, gas exchange, transport and uptake.
2. Use of specialized monitoring equipment, sedation scale, pain scale, and smart pump

functionality
3.Ketamine: Drug classification (general anesthetic, controlled substance Preparation, onset, duration, desired effect, sub-anesthetic dose range, indications, contraindications, medication interactions, side effects, and adverse reactions
4. Recognition of potential clinical complications and appropriate nursing interventions including unintended sedation.
5. Levels of sedation (minimal, moderate, deep, and anesthesia) with an emphasis on minimal sedation.
6. Nursing care responsibilities including but not limited to assessment, frequency of vital signs, monitoring and documentation.

B. Completion of education and competency is available on file with the employer.

III. RATIONALE:

Clinical studies have shown that low-dose continuous IV Ketamine may provide analgesia among opioid tolerant patients experiencing refractory post-operative pain, neuropathic pain, and chronic pain and that administration of low-dose IV Ketamine have has resulted in improvement in mood and suicidal thinking. In addition, clinical evidence of the safety and side effect profile of low-dose Ketamine is like opioids. Institutions have incorporated the use of low-dose Ketamine into acute pain management practices to reduce the potential risk of chronic opioid use. A Registered Nurse may acquire the knowledge and skill required to safely administer Ketamine (an anesthetic agent) at sub- anesthetic doses.

IV. DEFINITIONS:

Anesthetic agents are medications which cause partial or complete loss of sensation with or without loss of consciousness.

Immediately available is defined as being present in the facility and not otherwise engaged in any other uninterruptable procedure or task.

IV bolus is a small volume of medication or large volume solution that is given rapidly intravenously (IV) to hasten or magnify the response.

IV push is the direct injection of medication via an IV. The rate of injection is determined by the type of the medication being given and the patient's response.

Licensed independent practitioner (LIP) is a physician, dentist, nurse practitioner, nurse midwife, certified nurse anesthetists, or any individual permitted by law and the organization to provide care and services without direction or supervision within the scope of the individual's license.

Minimal sedation (anxiolysis) is a drug-induced state during which patients respond normally to verbal commands, may have impaired cognitive function or coordination but respiratory and cardiovascular functions remain stable.

Moderate sedation (procedural or conscious sedation) is defined as "a drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained. Centers for

Medicare and Medicaid Services (CMS) consistent with American Society of Anesthesiologist (ASA) guidelines, does not define moderate or conscious sedation as anesthesia" (CMS, 2011).

Deep sedation is a drug-induced depression of consciousness during, which patient cannot be easily aroused but responds purposefully, following repeated or painful stimulation. While, cardiovascular function is usually maintained, the ability to independently maintain respiratory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate, therefore the patient must be intubated and mechanically ventilated.

*Reflex withdrawal from a painful stimulus is NOT considered a purposeful response.

General anesthesia is a drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. General anesthesia affects the patient's ability to maintain an adequate airway and respiratory function and may impair cardiovascular function.

Palliative sedation is the monitored use of medications at end of life *intended to provide relief of intolerable and refractory symptoms but not to intentionally hasten death.* This distinction separates it from euthanasia and/or assisted suicide where the intent is solely to end life. A refractory symptom is one that cannot be controlled in a tolerable time frame despite use of therapies and seems unlikely to be controlled by further therapies without excessive or intolerable acute or chronic side effects/complications.

Rapid sequence intubation (RSI) or drug assisted intubation (DAI) is an airway management technique in which a powerful sedative or anesthetic induction agent is administered virtually simultaneously with a paralytic agent.

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