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Pain Care Fast Facts: 5-Minute Clinical Inservice

IV KetAMINE for Perioperative Analgesia

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What is ketamine?

KetAMINE is an N-methyl-D-aspartate (NMDA) antagonist that can inhibit induction and maintenance of central sensitization ("wind-up") after painful stimuli. Ketamine has traditionally been used as dissociative anesthetic for moderate sedation and as a component of general anesthesia for surgical procedures. More recently, a number of studies have detailed the success of ketamine in lower (sub-anesthetic) doses as an analgesic given either IV, or in some cases orally.

How does ketamine help with pain control?

The presence of ionotropic glutamate receptors, such as NMDA receptors on peripheral sensory axons could be the basis of peripheral ketamine-induced analgesia. There is a substantial amount of evidence that glutamate via NMDA receptors play a pivotal role in the development and maintenances of central hyperactive pain states such as hyperalgesia, allodynia, and spontaneous pain. Ketamine blocks the NMDA receptor and has been shown to produce analgesia and prevent the development of tolerance. Ketamine has been shown to have an opioid-sparing effect during the first postoperative days following a number of orthopedic, abdominal and maxillo-facial surgeries. Analgesic effects may persist for months after surgery.

How is IV KetAMINE administered for perioperative pain?

→ Only the Anesthesiology can order IV boluses or continuous infusions of ketAMINE.

→ The recommended dose of ketAMINE is an IV bolus of 0.5mg/kg given between induction and skin incision, followed by a continuous infusion of 0.1mg to0.15mg/kg/hr (or between 5 and 12mg per hour) for 24 to 72 hours.

→ Nurses should assess patients as ordered. Generally speaking patients should be assessed for pain relief, sedation, and side effects every 2 hours for the first 8 hours and then every 4 hours during the course of therapy.

The most common concerns about ketAMINE as an analgesic relate to its mind-altering effects (dysphoria, dissociative feelings, alertness disturbances and sensory changes such as dizziness, anxiety, confusion, vivid dreams, and delirium). Effects are dose related and in the setting of postoperative analgesia, most trials did not find a difference in adverse psychotomimetic effects. There have been no reported serious events in reported ketAMINE doses used at low doses for postoperative pain. However, in larger doses or overdose there have been reports of reduced cardiac and pulmonary performance in severely ill patients and of arrhythmias.

References

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