

C-17 Sub-Anesthetic Ketamine for Perioperative Analgesia

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Objective

After completion of this session, the participant will be able to:

- Formulate an anesthetic plan incorporating sub-anesthetic dosing of ketamine.

Case Stem Question

Ketamine produces potent anesthesia, sedation and analgesia while maintaining cardiopulmonary stability and airway patency with an impressive benefit-to-risk ratio. This is unique compared to other anesthetic agents.

Guiding Questions for Discussion

1. Purpose of Ketamine for perioperative management:
2. History of Ketamine:
3. Chemical Structure:
4. Administration and Bioavailability:
5. Distribution, Metabolism, and Excretion:
6. Dosing:
7. Cardiovascular Systemic Effects:
8. Pulmonary Systemic Effects:
9. Neurological Systemic Effects:
10. Side Effects, Toxicities, Interactions, and Abuse:
11. Proposed Mechanisms of Action/Molecular Targets:
12. Clinical Uses in Medicine:
13. Anesthesia:
14. Hemodynamic Instability:
15. Pediatrics:

16. Traumatic Brain Injury:
17. Bronchospasm:
18. Trauma Medicine:
19. Analgesia and Sedation:
20. Burn Medicine:
21. Acute Pain:
22. Postoperative Pain:
23. Cancer Pain:
24. Non Cancer(Chronic) Pain:
25. Depression:
26. PTSD:
27. Use of Ketamine by the Armed Forces:

References

SOURCES:

1. Ketamine: 50 Years of Modulating the Mind; Li and Vlisides; Frontiers in Neuroscience; 2016
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4. Ketamine Toolkit: Questions and Answers for Your Medical Director; Next Generation Combat Medic; 2017
5. S(+) Ketamine; Trimmel, H; Wiener Klinische Wochenschrift; 2018
6. Ketamine for Major Depression; Meisner, R; Harvard Health Blog; 2019
7. Intravenous sub-anesthetic ketamine for perioperative analgesia/ Andrew Gorlin,MD et al/Journal of Anesthesiology Clinical Pharmacology/Apr-Jun 2016
8. Consensus Guidelines on the Use of Intravenous Ketamine Infusions for Chronic Pain From the American Society of Regional Anesthesia and Pain Medicine, the America's Academy of Pain Medicine, and the American Society of Anesthesiologists/Steven Cohen,MD et al/Regional Anesthesia and Pain Medicine/July 2018
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10. Ketamine: A Review of an Established Yet Often Under-appreciated Medication , Kung, J, et al. Anesthesia Patient Safety Foundation Newsletter, 6/2020
11. Perioperative Methadone and Ketamine for Postoperative Pain Control in Spinal Surgical Patients: A Randomized, Double-blind, Placebo-controlled Trial, Murphy, G, et. al., Anesthesiology, 5/2021
12. In Vogue: Ketamine for Neuroprotection in Acute Neurologic Injury, Bell, Anesthesia and Analgesia, 4/2017
13. Ketamine and It's Emergence in the Field of Neurology, Carillon, L., et. al.: Cureus, 07/2022