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The clinical role of NMDA receptor antagonists for the treatment of postoperative pain.

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Abstract

Recent advances in the understanding of postoperative pain have demonstrated its association with sensitization of the central nervous system (CNS) which clinically elicits pain hypersensitivity. N-methyl-D-aspartate (NMDA) receptors play a major role in synaptic plasticity and are specifically implicated in CNS facilitation of pain processing. Therefore, NMDA receptor antagonists, and specifically ketamine commonly used in clinical practice, have been implicated in perioperative pain management. At subanesthetic (i.e. low) doses, ketamine exerts a specific NMDA blockade and hence modulates central sensitization induced both by the incision and tissue damage and by perioperative analgesics such as opioids. However, the mechanisms underlying ketamine anti-hyperalgesic effect are not totally understood, and neither is the relationship between central sensitization and the risk of developing residual pain after surgery. This chapter examines the role of low doses of ketamine as an adjuvant drug in current perioperative pain management and questions the anti-hyperalgesic mechanisms involved.

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