Dexmedetomidine: One Approach for Multimodal Opioid-Sparing Analgesia

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Structured Abstract

Background
Inadequate postoperative pain can hinder surgical recovery, impairing patient functionality and quality of life. The unfavorable side effects associated with a purely opioid based anesthetic have led anesthesia practitioners towards identifying alternative pharmacologic strategies to optimize postoperative analgesia. Respiratory depression, excessive sedation, postoperative nausea and vomiting (PONV), and gastrointestinal disturbances remain some of the most notable opioid related side effects. Alternatively, dexmedetomidine is one alpha-2-agonist that offers analgesic qualities without the associated aforementioned side effects. Dexmedetomidine has been used as a multimodal approach to anesthesia, offering suitable analgesia for control of postoperative pain.

Clinical Question
What role does dexmedetomidine play as an anesthetic adjunct, and is dexmedetomidine a safe and effective option for reducing postoperative pain?

Evidence Based Discussion
Significant findings exist amongst the literature for the use of dexmedetomidine to complement the effects of anesthesia and offer synergistic analgesia. A comprehensive review of the available evidence validates dexmedetomidine's safe and effective pharmacologic profile thus, making it an appealing option for optimizing patient recovery and enhancing postoperative pain control. Significant findings from the literature along with the desired goals for this case scenario, made dexmedetomidine the multimodal analgesic strategy of choice. Desired goals identified for this specific case description included reducing the likelihood for the occurrence of PONV, minimizing opioid totals and avoiding excessive sedation and finally, optimizing surgical recovery thus, the use of dexmedetomidine demonstrated sound applicability.

Translation to Practice
The use of perioperative dexmedetomidine offers a variety of promising benefits as an anesthetic adjunct. The pharmacologic properties of dexmedetomidine afford both opioid and anesthetic sparing qualities in addition to providing satisfactory analgesia. Select literature also discusses the association between the use of dexmedetomidine and a reduction in postoperative opioid consumption and postoperative nausea and vomiting (PONV). Synthesis of the current literature available supports the use of dexmedetomidine as a multimodal approach strategy for optimizing analgesia in select patients.

It is imperative to identify which age groups, patient populations, and which surgical procedures dexmedetomidine will employ the greatest benefit. Further research is essential in order to evaluate which patient populations dexmedetomidine affords the greatest benefit for optimizing postoperative analgesia. Additionally, future research and promising areas of focus should include the development of a criteria-based checklist for the perioperative use of dexmedetomidine; a checklist of inclusion and exclusion criteria which can identify patients who would benefit from the use of dexmedetomidine in addition to those who may not fit that mold.

Keywords: dexmedetomidine, multimodal analgesia, opioid sparing, postoperative analgesia

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