Dexmedetomidine as an Adjunct in Peripheral Nerve Blocks: Improving Providers' Knowledge and Identifying Barriers to Use

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Introduction

- There are multiple different techniques used to provide safe pain management for patients undergoing surgery. Peripheral nerve blocks are a commonly used technique for providing pain management both during and after surgery (Chen et al., 2023).
- Local anesthetics are the hallmark of a peripheral nerve block, different adjunct medications have been used to change the nerve block to varying degrees and success.
- Common adjuncts include dexamethasone, opioids, ketorolac, and alpha-2 adrenergic receptor agonists (Chen et al., 2023).
- An adjunct that is gaining popularity is dexmedetomidine, sold under the brand name Precedex®. (Chen et al., 2023). It has the benefit of prolonging the effect of the block (Liu et al., 2022)
- Common side effects reported are bradycardia, hypotension, and sedation when used in a peripheral nerve block (Liu et al., 2022).

Purpose, Aims and Objectives

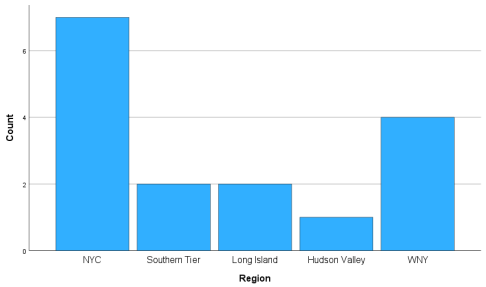
- The purpose of this study is to determine anesthesia providers' opinions regarding the use of dexmedetomidine in peripheral nerve blocks
- The goal is to establish an effective use of dexmedetomidine in the clinical environment to help both anesthesia providers and patients achieve adequate pain management during and after surgery.

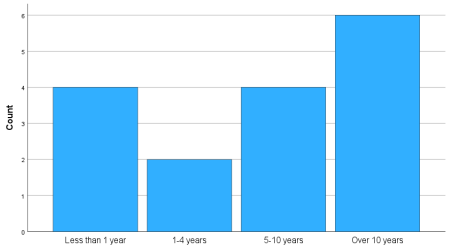
Project Design and Methods

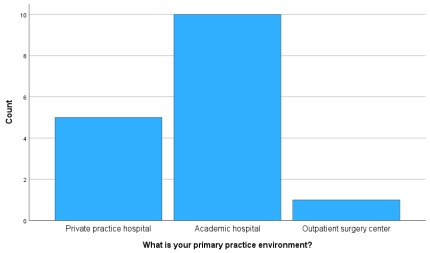
- A mixed method cross-sectional study to determine provider attitudes regarding dexmedetomidine use in peripheral nerve blocks.
- An online survey was distributed to anesthesia providers through the New York State Association of Nurse Anesthetists (NYSANA)
- Inclusion criteria included: Anesthesia provider practicing in NYS and performing nerve blocks.
- Exclusion criteria was non-anesthesia provider, SRNA, practicing outside of NYS and/or not performing nerve blocks.
- All responses were submitted anonymously and collected through the online survey site SurveyMonkey®
- Participants were also asked years of experience, practice environment and region to determine any differences

Results

A total of 16 participants met eligibility criteria







- Chi-squared tests were performed to determine statistical significance of the results
- The association between nerve blocks and region was statistically significant, $\chi^2(16)=28.876$, $p=0.025$
- The association between using dexmedetomidine and practice environment was statistically significant $\chi^2(6)=18.327$, $p=0.005$
- The association between using dexmedetomidine and region were not statistically significant, $\chi^2(12)=14.130$, $p= 0.292$
- The association between using dexmedetomidine and years of experience was not statically significant, $\chi^2(9)=11.636$, $p=0.235$
- Common reported roadblocks include
  - Hospital culture/ attending attitudes
  - Hemodynamic changes
  - Lack of prior use/comfort
  - Being currently satisfied with current adjuncts

Discussion

Lack of use and attending preference were two barriers that were reported the most. Additionally, dexamethasone was mentioned as a preferred adjunct by 9 participants. A significant barrier to dexmedetomidine use was the fact that there are adjuncts that are more commonly used so providers are more comfortable using the adjuncts they are used

Conclusion

Dexmedetomidine is an adjunct that is beginning to be used in peripheral nerve blocks. However, there are many different barriers that prevent its frequent use. Lack of comfort and experience with dexmedetomidine, attending preference and being more comfortable with other adjuncts are the primary barriers identified with this survey. Reducing these barriers would require evidence that dexmedetomidine is a superior adjunct than what is currently being used

Strengths and Limitations

Strengths include:
- large variety of regions represented
- Currently emerging treatment

Limitations include:
- Lack of responses
- No physician participation
- New York State only

Scan for references