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## Postoperative Pruritis from Neuraxial Anesthesia

Paige Buckner

*Southern Illinois University Edwardsville*

Kaleigh Kuhlman

*Southern Illinois University Edwardsville*

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## DNP Executive Summary

### **Introduction**

Post-operative pruritus from using neuraxial opioids is a commonly overlooked issue among patients receiving neuraxial anesthesia for operations. Patient satisfaction is greatly affected by experiencing pruritus after surgery, and an eastern Illinois level 2 trauma hospital did not have any standard protocol for treatment options. Therefore, a protocol was researched, written, and presented to the anesthesia group to reduce the incidence of opioid-induced pruritus. Additionally, education was provided on dexmedetomidine as an alternative to opioid use for neuraxial anesthetics.

### **Literature Review**

Opioid-induced pruritus is present after administering neuraxial opioids (Tubog, 2019). Although pruritus is not an imminent threat to a patient's health, it is an uncomfortable sensation that dramatically affects patient satisfaction (Nguyen, 2021). Pruritus is defined as severe skin itching (Cleveland Clinic, 2021). The literature is currently still being developed. Thus a definitive treatment is not clear at many facilities. This project aimed to review the current literature to identify strategies for the prevention and treatment of opioid-induced pruritus from neuraxial anesthesia. The most popular treatment identified for opioid-induced pruritus in neuraxial anesthesia is nalbuphine, an opioid agonist-antagonist (Larsen & Maani, 2022).

Additionally, the literature suggested alternative drugs to use in place of opioids in neuraxial anesthesia. The most commonly suggested drug as an alternative was dexmedetomidine, an alpha-1 agonist, due to pruritus not being part of its side effect profile (Rai & Bhutia, 2017). However, the literature on the use of dexmedetomidine in neuraxial anesthesia is limited and inconsistent.

### **Project Methods**

#### **Setting**

The project group met as scheduled for the presentation time and date. The external stakeholder for the project was present and aware of progress as the presentation was being formulated. The partners

involved in the project were in constant communication and fulfilled the requirements asked of them. The information was presented to an anesthesia practice , in Quincy, Illinois. . This group consists of both CRNAs and Anesthesiologists. The information was presented via a PowerPoint presentation. Data for the evaluation was collected using Qualtrics surveys formulated by the presenters. The sample size consisted of 15 providers, thus providing a limitation in data collection

### **Tools**

Several tools were utilized to present and evaluate the information researched. The implementation consisted of a PowerPoint presentation with tables and information from the literature review to present the written protocol appropriately. Prior to the start of the presentation, the audience was asked to complete a pre-survey created. The survey was made using Qualtrics software through Southern Illinois University-Edwardsville. The survey consisted of 14 questions, inquiring about experience regarding treatments of nalbuphine for pruritus, use of dexmedetomidine in neuraxial anesthesia, and overall experience with neuraxial anesthesia. Once the audience completed the survey, the presentation was given.

The presentation was approximately 25 minutes long and was followed by a thorough question-and-answer session and discussion between presenters and the audience members. Once the presentation and discussion concluded, the audience was asked to complete a post-survey created using the same tools as the pre-survey. The post-survey was 11 questions that asked some basic content-related questions, as well as personal beliefs and opinions regarding the information presented. The goal was to educate the audience and then assess the likelihood of the anesthesia providers' use of nalbuphine and dexmedetomidine in their practice.

### **Limitations**

There were several limitations of the project that affected the implementation. First, the literature review was extremely limited in data consistent with the project's goal, thus creating difficulty in presenting the data. Second, the project topics are newer and not as well researched yet, adding limitations. Specifically, no American studies with quality data and consistent variables have been

published regarding dexmedetomidine. Third, the available data did not include information on dexmedetomidine's maternal/fetal effects. Finally, the literature review did not find any FDA approval for the use of dexmedetomidine for intrathecal use, only intravenous usage.

The audience size for the presentation consisted of 15 individuals-both CRNAs and Anesthesiologists- which created a smaller sample size than anticipated. The project did not have any aspect that allowed for immediate implementation or presentation, making it difficult to measure the impact of the information presented. In addition, the survey allowed the audience to write opinions for some of the questions, thus causing inconsistency in replies to the survey.

Having current data that was consistent in variables would have improved the quality of our data presented. Additionally, a larger sample size would have allowed for more responses to the survey.

## **Evaluation**

The results of the survey were extremely positive. The discussion portion of the presentation proved the information being presented was well-received. There were 15 participants in the pre-survey and 14 participants in the post-survey. Per the survey results, approximately 86.7 % of anesthesia providers at the eastern Illinois hospital perform neuraxial anesthesia several times per week. Hundred percent of the participants have all used opioids in neuraxial anesthesia, and 86.7% have had patients experience pruritus from neuraxial opioid use. Furthermore, 86.7% of providers surveyed said that pruritus from neuraxial opioid use impacts patient satisfaction. When asked about the use of nalbuphine and dexmedetomidine, positive results ensued. 71.4% of providers surveyed said they had used nalbuphine as a pruritus treatment. Although none of the providers surveyed have ever used dexmedetomidine in their personal practice, 78.6% of surveyed responses stated they would recommend dexmedetomidine to another provider and are interested in using the drug in their practice in neuraxial anesthesia. The only hesitation with using dexmedetomidine in neuraxial anesthesia was the lack of overall consistent data.

Considering the data collected through the survey and feedback received during the discussion portion, it was gathered that the anesthesia providers at this eastern Illinois hospital are extremely open-

mindful regarding new information and data for improving practice. The project had several difficulties in the literature review, and despite the information having several limitations, the feedback showed promise for change in practice.

### **Impact**

Regarding the impact, there was no immediate result from the presentation. The presentation sparked in-depth discussion amongst the providers at the implementation hospital in eastern Illinois. Our project did not include any immediate change in practice due to the presentation focusing more on current practice education and suggesting newer data. The predicted long-term effect is the continued discussion of changing practices regarding the use of nalbuphine and dexmedetomidine. The hope for a long-term effect is that once more data has been published, the providers at the implementation hospital in eastern Illinois will change their practice to include dexmedetomidine in neuraxial anesthesia.

Furthermore, the proposed project did not break any laws or suggest unethical practice. The presentation disclosed the off-use label of nalbuphine as a treatment for pruritus, as well as noting the limitations in data and protocols for using dexmedetomidine for neuraxial anesthesia. The project considered cost as a significant advantage for dexmedetomidine compared to other drugs currently being used at the implementation hospital in eastern Illinois.

### **Summary**

In conclusion, the presenters believe this project positively impacted the providers at the implementation hospital and could spark a change in their practice. Given the lack of substantial data regarding nalbuphine and dexmedetomidine, there is hope to see more research completed on this topic in the future, making anesthesia providers more comfortable with using those drugs. The data collected from the pre and post-surveys showed a positive reaction among the anesthesia providers that they are interested in implementing nalbuphine or dexmedetomidine into their practice.

Based on the information gained throughout this project, the recommendations include collecting more research as it is published on this topic over the next few years. As more research is published, the stronger the argument could be to include nalbuphine and dexmedetomidine in the practice of anesthesia

providers. With more use of dexmedetomidine, neuraxial narcotics could fall behind in daily use with the hope that postoperative pruritus complaints from patients would decline.

### **Author contact Information**

Kaleigh Kuhlman, SRNA

(217)-257-6846

[kakuhlman@siue.edu](mailto:kakuhlman@siue.edu)

Paige Buckner, SRNA

(270)-519-2291

[pbuckner@siue.edu](mailto:pbuckner@siue.edu)

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