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Use of Regional Anesthesia in Outpatient Surgery

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Introduction

Regional anesthesia offers advantages for outpatient surgery due to its proven effectiveness in pain relief and reduction of complications. This leads to shorter recovery room times and lower rates of hospital readmission. However, there is a lack of epidemiological studies that specifically examine the use of Peripheral Nerve Blocks (PNBs) in this context. Hence, the main aim of this study was to provide an overview of the overall utilization of various types of PNBs among all eligible cases in the outpatient setting in the United States.

Description

More than half of surgical procedures in the United States are now conducted on an outpatient basis, often in specialized ambulatory surgery centers that handle a large number of cases. Regional anesthesia is particularly advantageous in this setting as it has been shown to improve pain relief and reduce complications, resulting in shorter recovery room stays and lower rates of hospital readmission. Unfortunately, there is a lack of comprehensive epidemiological studies on the overall use of Peripheral Nerve Blocks (PNBs) in this context. The existing studies tend to focus on specific surgical procedures or anatomical locations.

Conversely, nationwide epidemiological data analyzing the use of regional anesthetics and analgesics across various anatomic sites and surgical procedures could offer insights into practice patterns, variances in healthcare delivery, as well as regional and facility-specific distinctions. Conducting extensive research is crucial in determining the prevalence of PNBs in outpatient settings, enabling policymakers, administrators, and educators to make informed decisions based on valuable data.

NACOR serves as a voluntary submission registry that involves institutions collaborating to share anesthesia-related data and outcomes for the purpose of evaluating the quality of care at both local and national levels. The database is deidentified to comply with the Health Insurance Portability and Accountability Act, ensuring the protection of personal information. The University of California, San Diego institutional review board exempted the database from the consent requirement. NACOR receives case-level administrative, clinical, and quality-capture data from anesthesia practices and healthcare facilities across the United States on a monthly basis.

Electronic data is collected and mapped to the NACOR schema using a publicly available data dictionary. Upon arrival, the data undergo manual and automated reviews to detect missing elements, mis-coding, and inadvertent corruption. NACOR contains a wide range of data, including patient demographics, billing details, procedural information, diagnostic data, and provider specifics. The study conducted adhered to the relevant EQUATOR guidelines and involved a retrospective observational analysis of PNB prevalence in outpatient surgery.

In this retrospective study, we present an analysis of the utilization rates of different regional anesthesia techniques for ambulatory surgery based on data from the national database, NACOR. This study represents the first comprehensive investigation into the frequency of PNB in the outpatient setting. The majority of facilities offering these services were community hospitals and freestanding surgery centers, with university hospitals representing a smaller proportion. The overall utilization rates of PNB for cases suitable for this technique were relatively low, at approximately 3%. Among the various types of PNB, nerve blocks targeting the brachial plexus, femoral nerve, and sciatic nerve were the most commonly performed. Orthopedic procedures accounted for the majority of outpatient surgeries where PNBs were utilized. Notably, there has been a significant increase in the frequency of regional anesthesia procedures from 2010 to 2015. However, while the total number of continuous PNBs has risen, the proportion of continuous PNBs compared to single injections has not shown a corresponding increase. These findings are crucial for understanding practice trends, patterns, and potential disparities in healthcare delivery.

Regional anesthesia in the outpatient setting has the potential to greatly enhance perioperative outcomes, providing better postoperative pain relief, lower risk of complications like nausea and vomiting, quicker recovery, decreased resource utilization, and shorter discharge times. Despite these benefits, only 3% of surgical procedures suitable for regional anesthesia and analgesia currently utilize peripheral nerve blocks, whether single-injection or continuous. The reasons behind this low adoption rate are unclear and warrant further investigation through detailed analysis.

In spite of the infrequent utilization of PNB in general, there is a significantly higher prevalence of regional anesthesia use in certain orthopedic surgeries.

For instance, regional anesthesia was administered in 40% of shoulder arthroscopies and 32% of anterior cruciate ligament reconstructions. However, continuous PNB was only used in approximately 10% of these cases that received a nerve block. In the future, research and initiatives could concentrate on identifying the obstacles to enhancing the utilization of continuous PNBs for specific outpatient orthopedic procedures.

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Conclusion

In spite of the infrequent utilization of PNB in general, there is a significantly higher prevalence of regional anesthesia use in certain orthopedic surgeries.