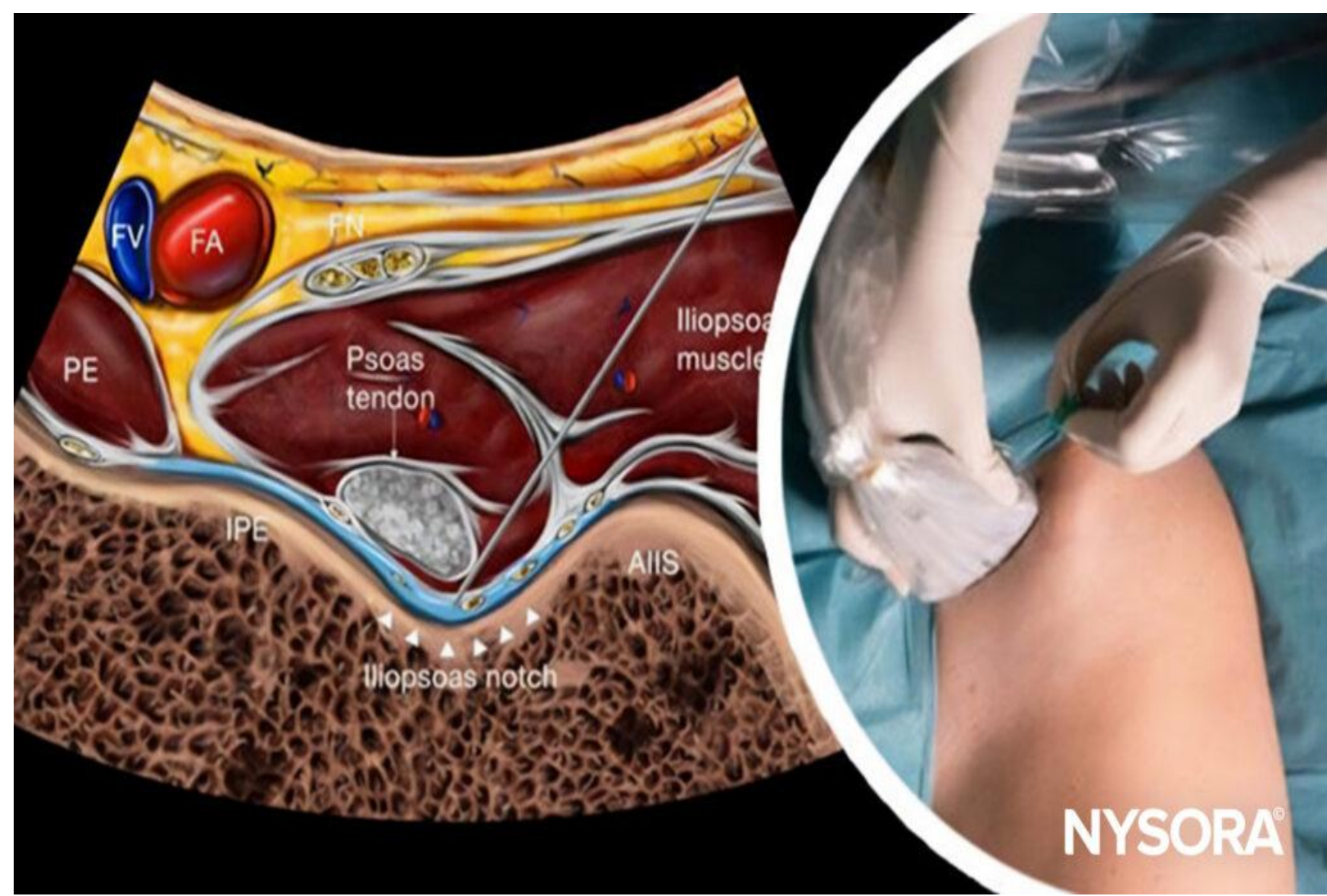




Impact of PENG Nerve Blocks on Postoperative Outcomes in Anterior Hip Surgery

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Background

- Total hip arthroplasty (THA) is projected to become one of the most common elective surgeries, with over 2.5 million cases in the U.S. alone. The number of hip replacements doubled between 2000 and 2010. These surgeries present challenges for regional anesthesia due to complex innervation, significant pain, and the need to maintain mobility for faster recovery (Kukreja et al., 2020).
- Anterior hip surgeries have become increasingly common procedures for addressing various hip conditions. However, achieving effective postoperative pain management while minimizing opioid consumption and ensuring patient safety remains a challenge (Morrison et al., 2021).
- The innervation of the hip joint is intricate, making it difficult to achieve effective analgesia after hip surgery with a single regional anesthesia technique. The pericapsular nerve group (PENG) block is an interfascial plane block designed to target the branches of the femoral and accessory obturator nerves (Kukreja et al., 2020).
- The PENG block is an easy regional technique to perform in the supine position with motor-sparing benefits (Kukreja et al., 2020).
- Various regional nerve block techniques have been developed to decrease opioid use and minimize these adverse effects. The PENG block has emerged as a promising technique, targeting the articular branches of nerves supplying the hip joint (Morrison et al., 2021).
- Inadequate pain management not only hinders post-surgery recovery but also elevates the risk of cardiovascular and thromboembolism complications and the development of long-term chronic pain. Therefore, it is imperative to provide adequate pain management during the perioperative period to enhance the overall effectiveness of the recovery process (Martínez Martín et al., 2023).

PICOT Question

In adult patients undergoing anterior hip surgery (P), how does the use of PENG nerve blocks in conjunction with general anesthesia (I) compared to general anesthesia alone (C) affect postoperative pain scores, perioperative opioid consumption, time out of bed, and hours to discharge (O) within the first 24 hours postoperatively (T)?

Review of Literature

- Five Common themes were identified in the Review of literature
- Regional anesthesia adjuncts are gaining prominence, with an increasing number of anesthesia providers incorporating them alongside general anesthesia to mitigate postoperative pain (Kukreja et al., 2020).
 - Providing effective regional analgesia for hip pain is challenged by the intricate innervation of the joint, stemming from multiple nerve sources (Morrison et al., 2021).
 - Inadequate pain management not only impedes postoperative recovery but also increases the risk of postoperative complications, as well as the potential for chronic pain development. Therefore, providing effective pain control during the perioperative period is essential for improving the overall recovery process (Martínez Martín et al., 2023).
 - Pain scores favored PENG group when compared to analgesics-only group, but the difference could only be detected in the early post-operative period (Frag et al., 2022).
 - Current evidence is not enough, and further high-quality randomized controlled trials with larger sample sizes are required (Frag et al., 2022).

Framework

- Revised Iowa Model:
- Nine step process with decision points and feedback loops
 - Uses questions about current practice to develop evidence-based practice changes
1. Identify triggering issues/opportunities
 2. State the question or purpose
 3. Is this topic a priority?
 4. Form a team
 5. Assemble, appraise, and synthesize the body of evidence
 6. Is there sufficient evidence?
 7. Design and pilot the practice change
 8. Identify and sustain the practice change
 9. Disseminate the results

Methods

- Retrospective Chart Review
- UWO-IRB approval date: January 2, 2024
- Level 2 Trauma Hospital in Northeast WI
- Sample Population:
- Patients, N=43
 - Males, n=22
 - Females, n=21
 - Mean age, n=64.5
 - Mean BMI, n= 29.86
 - Anesthesia type:
 - General anesthesia alone, n=9
 - General anesthesia + PENG Block, n= 34
 - Location of surgery
 - Right side, n=21
 - Left side, n=21
 - Bilateral, n= 1
 - Data Collection: Data was collected over a 6 month timeframe
 - Inclusion criteria:
 - Adult patients scheduled for anterior hip surgery
 - General anesthesia as the primary anesthetic method, with or without a PENG block
 - ASA classification I-IV
 - Scheduled total hip replacement
 - Exclusion criteria:
 - Posterior surgical approach
 - Emergent or unscheduled surgery
 - Spinal anesthesia
 - Partial hip replacement

Results

Preliminary results are ongoing, as data collection continues to ensure balanced group sizes for the general anesthesia + PENG group and the general anesthesia alone group. The data analysis is currently in progress.

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