

# Editorial Commentary: Neuraxial Anesthesia Improves Pain After Hip Arthroscopy but Risks Ambulatory Discharge Delay



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**Abstract:** Hip arthroscopy continues to be one of the fastest-growing orthopaedic procedures nationally, and pain control following these procedures can be challenging. As regional anesthesia techniques for this population have shown to have limited benefits, pain management for hip arthroscopy focused on multimodal analgesia and preventive analgesia, interventions that reduce postoperative hyperalgesia. The use of neuraxial anesthesia such as spinal and epidural anesthesia, established preventive analgesic anesthetic techniques, has demonstrated to improve postoperative pain in orthopaedic surgery when compared with general anesthesia. This promising finding highlights that despite potential disadvantages of neuraxial anesthesia, such as a small risk for complications or delayed resolution of the neuraxial block that could delay discharge, neuraxial anesthesia could be a suitable anesthetic technique for ambulatory orthopaedic surgery.

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Hip arthroscopy continues to be one of the fastest-growing orthopaedic procedures at our own institution as well as nationally.<sup>1</sup> In addition, as most of these cases are done in the outpatient setting, we depend on an anesthetic and surgical plan that ensures quick and reliable discharge following the procedure.

Pain control following hip arthroscopy can frequently be challenging.<sup>2</sup> While regional anesthesia techniques have proven to dramatically improve outcomes such as patient satisfaction, postoperative pain scores, and decreased recovery room time and opioid consumption in other orthopaedic procedures such as knee and shoulder arthroscopy and total joint replacement,<sup>3,4</sup> the evidence for regional anesthesia use in patients undergoing hip arthroscopy has been disappointing. Various regional anesthetic techniques such as femoral nerve, fascia iliaca, quadratus lumborum, and lumbar plexus blocks have been investigated,<sup>5,6</sup> but the impact on pain control was minimal, and undesired side effects, such as an increased fall risk, potentially outweigh the benefits. The main difficulty of achieving good pain

control of the hip with regional anesthesia techniques is most likely related to the complex sensory innervation of the hip with contributions from both the lumbar and sacral plexus.

Considering these challenges, we had to expect that pain management for hip arthroscopy would subsequently focus on two other strategies to improve pain after surgery and reduce opioid use: the aggressive use of multimodal analgesia and the use of preventive analgesic interventions. The concept of multimodal analgesia refers to using multiple different classes of analgesics with varying mechanisms of actions to improve pain, decrease opioid use, and minimize side effects from each class. Preventive analgesia describes the phenomenon that an analgesic intervention administered throughout the perioperative period inhibits the development of hyperalgesia following pain, thus reducing pain after surgery.<sup>7</sup> While several pharmacologic substances such as ketamine, gabapentinoids, and dexmedetomidine have shown to have preventive analgesic effects, neuraxial anesthesia has proven to be the most potent preventive analgesic intervention due to the reliable blockade of nociceptive input.

This issue of *Arthroscopy* includes the investigation “Neuraxial Anesthesia is Associated With Decreased Pain Scores and Post-Anesthesia Care Unit Opioid Requirements Compared With General Anesthesia in

University of California, San Francisco.

The authors report no conflicts of interest in the authorship and publication of this article. Full ICMJE author disclosure forms are available for this article online, as [supplementary material](#).

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0749-8063/201697/\$36.00

<https://doi.org/10.1016/j.arthro.2020.10.028>

Hip Arthroscopy<sup>8</sup> by Turner, Whalen, Beilfuss, Hetzel, Schroeder, and Spiker, which demonstrates that the use of neuraxial anesthesia decreased intraoperative and postoperative opioid use and improved early pain scores in the recovery room following hip arthroscopy. The findings of this study highlight the potential benefits for the use of neuraxial anesthesia in hip arthroscopy and match the findings in other orthopaedic procedures such as total hip and knee joint arthroplasty.<sup>9</sup> Most notably, the authors report lower pain scores at discharge in the neuraxial anesthesia group, suggesting a potential preventive analgesic effect. Unfortunately, the data are limited to the immediate postoperative period until discharge, so it remains unclear whether this effect is still present following discharge. This study will hopefully motivate researchers to investigate the potential of neuraxial anesthesia in this patient population in more detail and to address the limitations of this study by conducting a prospective, randomized trial with longer follow-up and a standardized analgesic protocol.

Ambulatory surgery centers have an incentive to work efficiently to maximize revenue. Any change in practice will ultimately be measured by whether it saves time or resources. The authors emphasize in their article that the time expense for performing a neuraxial blockade was similar to performing general anesthesia, but their institution has a dedicated team outside of the operating room that performed all neuraxial blocks, a setup not available in other ambulatory centers. The wider acceptance of neuraxial anesthesia for ambulatory surgery has mostly been limited by concerns of delayed recovery and the risk of complications that may affect discharge goals. We were excited to see that recovery times were comparable between groups in Turner et al.'s study, but time to discharged exceeded what might be the standard in most institutions, and the available literature on the impact of neuraxial anesthesia on postanesthesia care unit recovery length and discharge times when compared with general anesthesia is at least controversial.<sup>10</sup> In our own experience, the use of neuraxial anesthesia in ambulatory surgery patients is limited by variation and sometimes delay in resolution of sensory and motor block and a small but troublesome risk for adverse events that may have an impact on same day discharge. The incidence of postdural puncture headache in the present study (approximately 5%) is in line with the reported incidence in the literature but may be seen as unacceptably high for an ambulatory setting by many providers.

In summary, we are excited to see more evidence that anesthesia technique can have positive impact on

patient outcomes such as postsurgical pain. The findings of Turner et al.'s study are encouraging and will hopefully motivate research to determine whether the use of neuraxial anesthesia has positive effects that go beyond the recovery room. We commend Turner et al. institution's transition to use of spinal anesthetic for hip arthroscopies, as we consider spinal anesthesia in most cases as the best anesthetic technique for orthopedic surgery: it is safe, easy to perform, has shown to improve patient outcomes, and can be done fast. We would be enthusiastic to see further proof that neuraxial anesthesia can be an attractive anesthetic option in the treatment of ambulatory patients undergoing hip arthroscopy.

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