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ADVANCES IN ANESTHESIA

Role of Regional Anesthesia and Analgesia on Perioperative Outcomes in Patients with Hip Fracture

Bridget Perrin Pulos, MD, Jiabin Liu, MD, PhD, Mark D. Neuman, MD, MS, Nabil M. Elkassabany, MD, MSCE*

Department of Anesthesiology and Critical Care, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA

Keywords

• Hip fracture • Orthopedic trauma • Geriatric fractures • Anesthesia • Postoperative • Pain management • Patients' outcomes

Key points

- Perioperative management of patients with hip fracture may impact patients' outcomes. Whether neuraxial anesthesia improves patient outcomes is still debated.
- This manuscript summarizes evidence supporting or refuting any advantage for regional anesthesia, specifically reviewing evidence for the effect of regional anesthesia on mortality, complications, and health care cost.
- Peripheral nerve blocks are becoming more popular option to integrate into the pain management protocol in this patient population.
- Peripheral nerve blocks may offer some advantage in terms of using less opioids and potentially less side effects.
- The current article reviews the different techniques used and summarizes studies addressing patients' outcomes using nerve blocks and their effect on post-operative cognition and function.

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*Corresponding author. University of Pennsylvania, 3400 Spruce Street, Dulles 6, Philadelphia, PA 19104. *E-mail address*: Nabil.Elkassabany@uphs.upenn.edu

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BACKGROUND

Hip fractures are a common problem for older adults, both in the United States and across the world. There are an estimated 300,000 hip fractures each year in the United States and 1.6 million worldwide, with the number growing each year as the population ages and the prevalence of osteoporosis increases [1]. Hip fractures are associated with potentially devastating outcomes. At 1-year follow-up, 25% of hip fracture patients will have died, and 50% of patients who previously lived independently will die or require nursing home placement [2]. It is estimated that the cost of hip fractures among older adults in the United States is more than $5.4 billion annually [3,4].

The majority of hip fracture patients will require surgery. In a 2008 metaanalysis of 257,367 patients, a delay in surgery for greater than 48 hours after admission was associated with a 41% greater 30-day all-cause mortality, and a 32% higher 1-year all-cause mortality [5]. It is currently recommended that patients undergo surgery as soon as possible once they have been optimized medically [6].

Given the scope of the problem and the public health ramifications both in terms of morbidity and mortality and medical costs, better ways of treating patients with hip fractures are needed.

CHOICE OF ANESTHESIA AND OUTCOME

The most widely used options for the primary anesthetic modality during surgery include general anesthesia and central neuraxial (spinal or epidural) anesthesia. The question of whether neuraxial or general anesthesia provides superior patient outcomes after hip fractures remains to be definitively answered. Potential outcome benefits of neuraxial anesthesia techniques include avoidance of intubation and mechanical ventilation, decreased blood loss, better perioperative analgesia, less opioid use, and potentially less postoperative cognitive dysfunction (POCD) in this elderly population [6]. General anesthesia, in contrast, is thought to provide improved hemodynamic stability and thus may be potentially safer for patients. However, current studies have shown differing results and expert opinions are varied [7]. As a result, professional society guidelines are not able to definitively recommend 1 anesthetic technique over another, leading to a wide variation in anesthetic practice [8]. It has been hypothesized that this lack of standardization in practice may play a role in the persistently high rates of morbidity and mortality after hip fracture surgery [6]. The American Academy of Orthopedic Surgeons guidelines state that strong evidence supports similar outcomes for general or spinal anesthesia [8]. In 2011, the Guideline Development Group from the National Institute for Health and Care Excellence in the United Kingdom recommended that more studies are needed to answer the question as to the cost effectiveness of neuraxial versus general anesthesia on postoperative morbidity and mortality in patients with hip fracture, specifically randomized control trial designs [9].