BRITISH JOURNAL OF HOSPITAL MEDICINE

Is fascia iliaca compartment block or intravenous opioid analgesia better when positioning patients with fractured neck of femur for spinal anaesthesia?

Patients with a fractured neck of femur require effective analgesia to improve positioning before the administration of spinal anaesthetic. This article discusses the evidence to show whether fascia iliaca compartment block or intravenous opioid analgesia is preferable in this situation.

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How to cite this article:
Heard R, Clements P. Is fascia iliaca compartment block or intravenous opioid analgesia better when positioning patients with fractured neck of femur for spinal anaesthesia?Br J Hosp Med. 2021. https://doi.org/10.12968/hmed.2020.0459

Introduction

Neck of femur fractures are relatively common in older people. The frailty, loss of physiological reserve and multiple comorbidities associated with this group lead to a high morbidity and mortality. Surgical repairs such as hemiarthoplasty or dynamic hip screws are almost always indicated for analgesia and early rehabilitation, and these reduce the risks associated with immobility and prolonged hospital admissions. Timely repair is therefore of the utmost importance and although evidence for the preferred anaesthetic technique (spinal or general anaesthesia) has been inconsistent, spinal anaesthesia should be considered for all patients to reduce the risk of postoperative delirium (Association of Anaesthetists of Great Britain and Ireland et al, 2012).

Pain on movement can make placing the patient in either the sitting or lateral decubitus position for spinal anaesthesia challenging, leading to a technically difficult procedure. Inadequate pain relief may also lead to physiological changes which increase the risk of cardiovascular events. Effective analgesia can improve positioning and therefore the chance of a successful spinal anaesthetic. This poses the question of whether a fascia iliaca compartment block (both ultrasound and landmark technique) is beneficial over intravenous opioid (fentanyl or alfentanil) analgesia for positioning?

Benefits of the fascia iliaca block

Both intravenous opioid analgesia and ultrasound-guided or landmark technique fascia iliaca compartment block provide some pain relief for patients during positioning for spinal anaesthesia. However, research suggests that much greater pain relief is provided, in both the short and long term, for patients undergoing fascia iliaca compartment block. Madabushi et al (2016) compared visual analogue scores immediately before and after fascia iliaca compartment block and intravenous opioid analgesia in 60 patients and found a statistically significant reduction in post-procedural mean visual analogue scores in the fascia iliaca compartment block group compared with those of the intravenous opioid analgesia group. Furthermore when comparing postoperative analgesia requirements, Diakomi et al (2014) found a significant reduction in postoperative morphine requirements; notably, in the first 24 hours, 97% of their intravenous opioid analgesia group required opiates compared to 42.9% in the fascia iliaca compartment block group. The length of time before the first postoperative dose of morphine was required also increased in the group who had received the fascia iliaca compartment block.

A systematic review of literature by Hsu et al (2018) demonstrated that fascia iliaca compartment block provided more optimal positioning of patients for a spinal anaesthetic, with a greater sitting angle achieved and increased anaesthetist satisfaction of position which facilitated faster administration of spinal anaesthesia. Fascia iliaca compartment block has also been found to be safe, with no significant haemodynamic changes during positioning or throughout surgery and no significant reactions reported. The side effects of intravenous opioid analgesia, such as nausea, respiratory depression and increased risk of delirium, are also avoided in fascia iliaca compartment block.

Disadvantages of the fascia iliaca block

Yun et al (2009) demonstrated that the overall anaesthetic time was considerably longer in the group who received the fascia iliaca compartment block at 27.7 minutes, compared with 12.1 minutes in the intravenous opioid analgesia group, because there was a greater onset time for the block before being able to position the patient for spinal anaesthesia. Intravenous opioid analgesia had a rapid onset of pain relief, with initial analgesia achieved within 2 minutes. Fascia iliaca compartment block was also associated with incomplete pain relief as a result of a partial block, but this was not associated with an increased need for further analgesia.

Yun et al (2009) also concluded that there may be an overall increased cost associated with a fascia iliaca compartment block because of the prolonged anaesthetic time, the need for more equipment such as insulated needles, and the requirement for trained personnel to perform the block. This was supported by Hsu et al (2018), particularly if the ultrasound-guided technique was being used.

Conclusions

Fascia iliaca compartment block appears to provide greater analgesia, patient satisfaction and more optimal positioning for spinal anaesthesia compared with intravenous opioid analgesia. It also reduces the need for opiates which can cause significant side effects, particularly in the older patient with comorbidities. The overall anaesthetic time is prolonged with fascia iliaca compartment block, and has been associated with an increased cost, but this has not been studied further. Anaesthetist satisfaction of patient positioning for spinal anaesthesia was greater when a fascia iliaca compartment block was performed. Overall, it appears that fascia iliaca compartment block is beneficial over intravenous opioid analgesia in providing pain relief for positioning patients with a fractured neck of femur for spinal anaesthesia.

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