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JUST THE FACTS

Just the Facts: Fascia iliaca compartment block for hip fracture pain management

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Case

An 80-year-old female has a trip and fall in her home landing on her left hip and she is brought to the emergency department (ED). The paramedics note a shortened and externally rotated left leg. She is in mild discomfort at rest, but significant discomfort with leg movement.

What are the options for analgesia in this patient? What are the risks and benefits of these treatments?

Opioids are commonly prescribed for patients with hip fractures because they are rapid in onset and titratable. However, elderly patients who receive opioid analgesia for hip fractures are at risk for complications. Non-opioid medications are a useful adjunct for rest pain, but are insufficient for movement pain. The fascia iliaca compartment block (FICB) can effectively manage both rest and movement pain without the systemic side effects of opioids. While FICBs are unlikely to completely eliminate the use of opioids, they have been shown to significantly decrease the need for them [1]. This block can be performed prior to X-ray in situations where clinical suspicion is high (i.e. shortened, externally rotated leg with a history of a fall), to help manage the pain of obtaining an X-ray.

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What are the contra-indications for a FICB?

Most patients with a hip fracture are eligible for a FICB, however contra-indications must be considered. Allergy to local anesthetic, depending on the severity of the reaction, may also preclude the use of a FICB. Overlying infection would risk extending the infection into the deeper tissues of the leg. Because of this, sterile technique should be employed. Recent hip surgery, major pelvic trauma, a local hernia or previous femoral bypass surgery could all distort anatomy making the block difficult to perform and if performed, be higher risk for complications. Anticoagulation therapy or bleeding disorders increase the risk of bleeding, although therapeutic anticoagulation should not automatically preclude this block. The decision to perform the block in a patient on anticoagulation therapy should be tailored to the individual patient. If performed, an ultrasound guided block would be safer.

What local anesthetic do I use to perform the block? What is a safe dose to use?

The ideal local anesthetic should have a rapid onset and long duration of action. Ropivacaine fulfills these criteria [2]. If you do not have access to this local anesthetic, providers should choose a slower onset, long acting local anesthetic such as Bupivacaine, over a fast onset, short acting local anesthetic such as Lidocaine. Providers are discouraged from combining local anesthetics, as their toxicities are CUMULATIVE, so you can NOT use up to the potentially toxic dose of two local anesthetics. Local anesthetic systemic toxicity is a potentially lethal complication of nerve blocks [3].

Do I need an ultrasound guidance to perform this block?

Ultrasound guidance is the preferred and superior technique for a FICB if the equipment and the skills are available, however this block can be done reasonably safe and effective without ultrasound. The need to directly visualize the nerve before injecting is lessened because the block is filling a fascial compartment as opposed to infiltrating directly adjacent to a nerve. A systematic review of prehospital provider administered FICBs demonstrated a success rate of 90% across 254 landmark-based FICBs with only one complication of transient tachycardia [4]. Landmark-based FICBs are commonly performed in Australian and New Zealand EDs.

What are the risks and side effects of a FICB? What kind of monitoring do these patients need?

FICB risks include infection, bleeding, and nerve injury. Intravascular injection of a large volume of anesthetic may be dangerous, potentially causing local anesthetic systemic toxicity. This complication is incredibly rare [2], however cardiac monitoring before, during and post-procedure are recommended to detect local anesthetic systemic toxicity. Proper documentation including marking the time, date, name and dose of local anesthetic on the patient's skin is important to ensure all care providers are aware the block was performed.

What are the barriers for patients to receive a FICB in the ED? How do you overcome them?

Barriers for FICBs include: unfamiliarity with the procedure and contra-indications, uncertainty about local anesthetic dosing, lack of experience with ultrasound for nerve blocks, fear of complications, and lack of time. These barriers can be overcome through quality improvement processes, demonstrated by The Australia and New Zealand Hip Fracture Registry. In 2018, 84% of hip fracture patients in Australia and New Zealand received a nerve block, and 69% of them received it before surgery [5].

Many Australian and New Zealand EDs have a printed procedure guide readily available for review prior to completing the procedure. Practitioners are encouraged to use ultrasound, but if they are not comfortable, the landmark-based technique is acceptable and encouraged. Their EDs often have all necessary supplies bundled to save time. Mid-level providers may administer the block so the patient can still receive it even if the physician is too busy. Some sites have declared this diagnosis a 'surgical emergency' to create the culture that this procedure is a high priority intervention. The importance of this procedure is regularly communicated with staff, to maintain the culture of the importance of this procedure (Fig. 1).

Case resolution

Your ED has created a policy around FICBs in the ED in collaboration with Orthopedics and Anesthesia. There is a supply bundle in the suture carts with everything you need to perform the procedure, including a visual procedure guide. Because of your high clinical suspicion of hip fracture, you decide to perform the procedure prior to X-ray. You notify your nursing staff that you are performing the block so the patient can be monitored for complications. After performing the FICB, you document the time, as well as the name and dose of local anesthetic on the patient's skin. The patient's pain score prior to the procedure was 7/10, and 20 min after the block is down to 2/10. She tolerates being moved for X-ray quite well, and does not require any opioid analgesia in the ED. You diagnose an inter-trochanteric hip fracture on X-ray, consult Orthopedic surgery and communicate to them that you have managed her pain with a FICB.

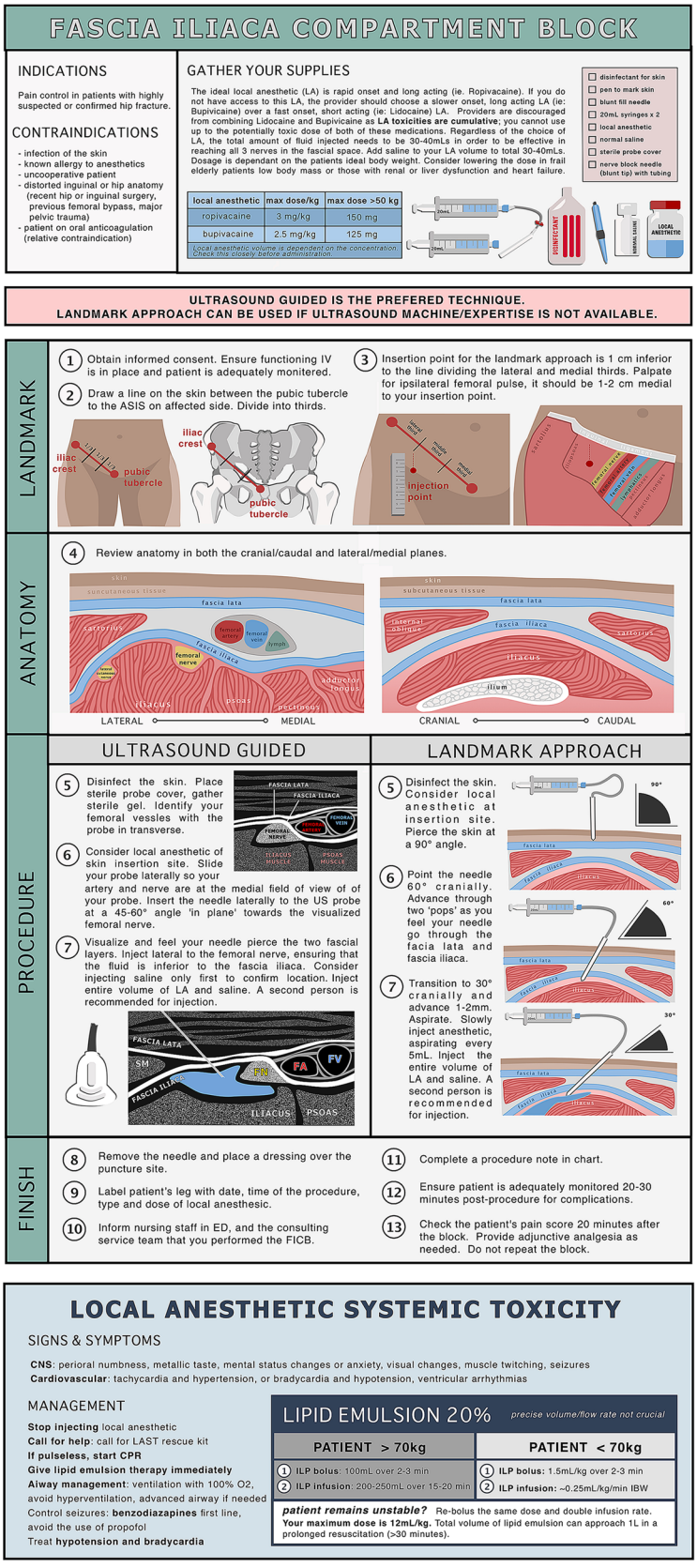

Fig. 1 Fascia iliaca compartment block procedure guide

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