



Flaggermusen Organ for Norsk forening for ultralyddiagnostikk

Nurse led ultrasound guided femoral nerve block in hip fracture patients – a study of task shifting

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Hip fracture is associated with acute distinct pain in the proximal part of the affected extremity. Patients who experience severe pain have a higher risk of delirium, are harder to mobilize. Factors that leads to increased length of stay, and reduced health related quality of life. Traditionally, an anaesthesiologist performs an ultrasound guided femoral nerve block in hip fracture patients in the emergency departments. Unfortunately, because of corresponding interest and anaesthesiologist needed to task that are more urgent. This often leads to delay of the best pain relief and sometimes no nerve block at all.

Cognitively intact patients with untreated pain are nine times more likely to develop delirium, as opposed to patients whose pain is adequately treated [1]. Further, delirium is shown to be an independent marker for increased mortality after hospital admission [2]. Therefore, optimizing acute pain assessment and management is important. An ultrasound-guided femoral nerve block performed in hip fracture patients is a valuable alternative to systemic analgesic as it provides analgesia to the fractured area, thereby facilitating reduction in systemic opioid administration [2]. We believe that shifting Ultrasound guided femoral nerve block from anesthesiologists to registered nurses working in the emergency department can secure patient with hip fractures sufficiently and timely pain relief.

The World Health Organization [3] endorses a task shifting approach to make more efficient use of the available human resources for health. Recently, several examples of task shifting have been described, suggesting that properly trained registered nurses can provide as high-quality primary care as physicians [4] and can have favourable patient safety outcomes [5].

Our main hypothesis is that; a single shot ultrasound guided femoral nerve block performed by nurses in the emergency department compared to todays practice will result in better pain relief first 120 minutes after admission. Therefore, in the emergency department at Vestfold Hospital Trust we are conducting a single center randomized controlled trail comparing standard of care with nurse led ultrasound guided femoral nerve block. In September 2019, we started the training of the nurses in the emergency department. The data collection for this randomized controlled trial started in February 2020 and is still including patients. The primary endpoint is to evaluate cumulative pain score during rest and during passive movement (until a maximum of 30-degree flexion in the hip) in patients with hip fracture during stay in the emergency department at 120 minutes after admission, thereby comparing nurse-led ultrasound-guided femoral nerve block, versus standard of care. We will also assess development of delirium and total use of opiates in both groups.

Except for the one-day training, none of the registered nurses have any previous experiences in performing ultrasound-guided

femoral nerve block. Therefore, we also developed a questionnaire presented to the nurses immediately after completed procedure. The trained registered nurses scores how they visualized the anatomical structures, the quality of the spread of local anesthetic, and if they experienced that the patients benefited from the procedure and if the procedure was easy or demanding.

This study has potential to point out a new direction for use of registered nurses and use of ultrasound in point of care interventions.

References

- [1] McCusker J, Cole M, Abrahamowicz M et al. Delirium predicts 12-month mortality. *Arch Intern Med* 2002; 162: 457–463
- [2] Jones J Jr, Southerland W, Catalani B. The Importance of Optimizing Acute Pain in the Orthopedic Trauma Patient. *Orthopedic Clinics* 2017; 48: 445–465
- [3] WHO. Task Shifting – Global Recommendations and Guidelines [web page]. Geneva, Switzerland: WHO Document Production Services. 2008. [cited 2020 18.12]. 96]. Available from: https://apps.who.int/iris/bitstream/handle/10665/43821/9789241596312_eng.pdf
- [4] Laurant M, van der Biezen M, Wijers N et al. Nurses as substitutes for doctors in primary care. *The Cochrane database of systematic reviews* 2018; 7: CD001271-CD
- [5] Hirzallah FM, Alkaissi A, do Céu Barbieri-Figueiredo M. A systematic review of nurse-led weaning protocol for mechanically ventilated adult patients. *Nurs Crit Care* 2019; 24: 89–96