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Femoral nerve block in a representative sample of elderly people with hip fracture: A randomised controlled trial

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ABSTRACT

Introduction: The number of elderly people with hip fracture and dementia is increasing, and many of these patients suffer from pain. Opioids are difficult to adjust and side effects are common, especially with increased age and among patients with dementia. Preoperative femoral nerve block is an alternative pain treatment.

Aim: To investigate whether preoperative femoral nerve block reduced acute pain and opioid use after hip fracture among elderly patients, including those with dementia.

Patients and methods: In this randomised controlled trial involving patients aged ≥70 years with hip fracture (trochanteric and cervical), including those with dementia, we compared femoral nerve block with conventional pain management, with opioid use if required. The primary outcome was preoperative pain, measured at five timepoints using a visual analogue scale (VAS). Preoperative opioid consumption was also registered.

Results: The study sample comprised 266 patients admitted consecutively to the Orthopaedic Ward. The mean age was 84.1 (±6.9) years, 64% of participants were women, 44% lived in residential care facilities, and 120 (45.1%) had dementia diagnoses. Patients receiving femoral nerve block had significantly lower self-rated pain scores from baseline to 12 h after admission than did controls. Self-rated and proxy VAS pain scores decreased significantly in these patients from baseline to 12 h compared with controls ($p < 0.001$ and $p = 0.003$, respectively). Patients receiving femoral nerve block required less opioids than did controls, overall (2.3 ± 4.0 vs. 5.7 ± 5.2 mg, $p < 0.001$) and in the subgroup with dementia (2.1 ± 3.3 vs. 5.8 ± 5.0 mg, $p < 0.001$).

Conclusion: Patients with hip fracture, including those with dementia, who received femoral nerve block had lower pain scores and required less opioids before surgery compared with those receiving conventional pain management. Femoral nerve block seems to be a feasible pain treatment for elderly people, including those with dementia.

Introduction

With population ageing, the number of people with hip fracture and dementia is increasing [1–3]. Recent studies have shown that the proportion of patients with hip fracture and dementia is about 30–45%[4–6]. Many individuals in the newly emerging population of frail elderly people have multiple comorbidities and major needs for specialised care [1,3,7,8].

In patients with hip fracture, preoperative pain is often treated with opioids, which are difficult to adjust and are associated with many side effects, especially with increasing age and in patients with dementia [8–12]. Studies have shown that patients with cognitive impairment/dementia receive less analgesic treatment than do cognitively intact patients [10,13,14]. Untreated pain following hip fracture is associated with increased risks of complications such as delirium, depression, sleep disturbance, and decubitus ulcers [15–17].

Therefore, improved routines for pain control are important for patients with hip fracture. Femoral nerve block (FNB) is effective and easy to administer; it reduces acute pain (according to pain scores) and the need for opioids, with few treatment-related adverse effects [18]. Previous FNB trials, however, have been small and have excluded patients with dementia [15,19–22]. Our

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hypothesis is that patients with hip fracture receiving FNB before surgery assess lower pain scores and require less amount of opioids. Therefore our aim of this study was to investigate whether preoperative FNB reduces acute pain and the use of opioids among elderly patients with hip fracture, including those with dementia.

Patients and methods

This prospective randomised controlled trial (RCT) included patients aged ≥70 years with radiographically verified hip fracture who were admitted consecutively to the Orthopaedic Ward of the University Hospital of Northern Sweden between April 2009 and September 2011. Patients with cognitive impairment or dementia were not excluded. Exclusion criteria were infection or previous vascular surgery in the inguinal area, which in this study was a contraindication to FNB.

Of 472 patients admitted to the Orthopaedic Ward who met the inclusion criteria, 167 were excluded due to failed inclusion routines, 25 declined to participate, 6 were excluded for medical reasons, 4 were randomised to FNB but did not receive the treatment, and 4 participants dropped out. Thus, 266 patients were

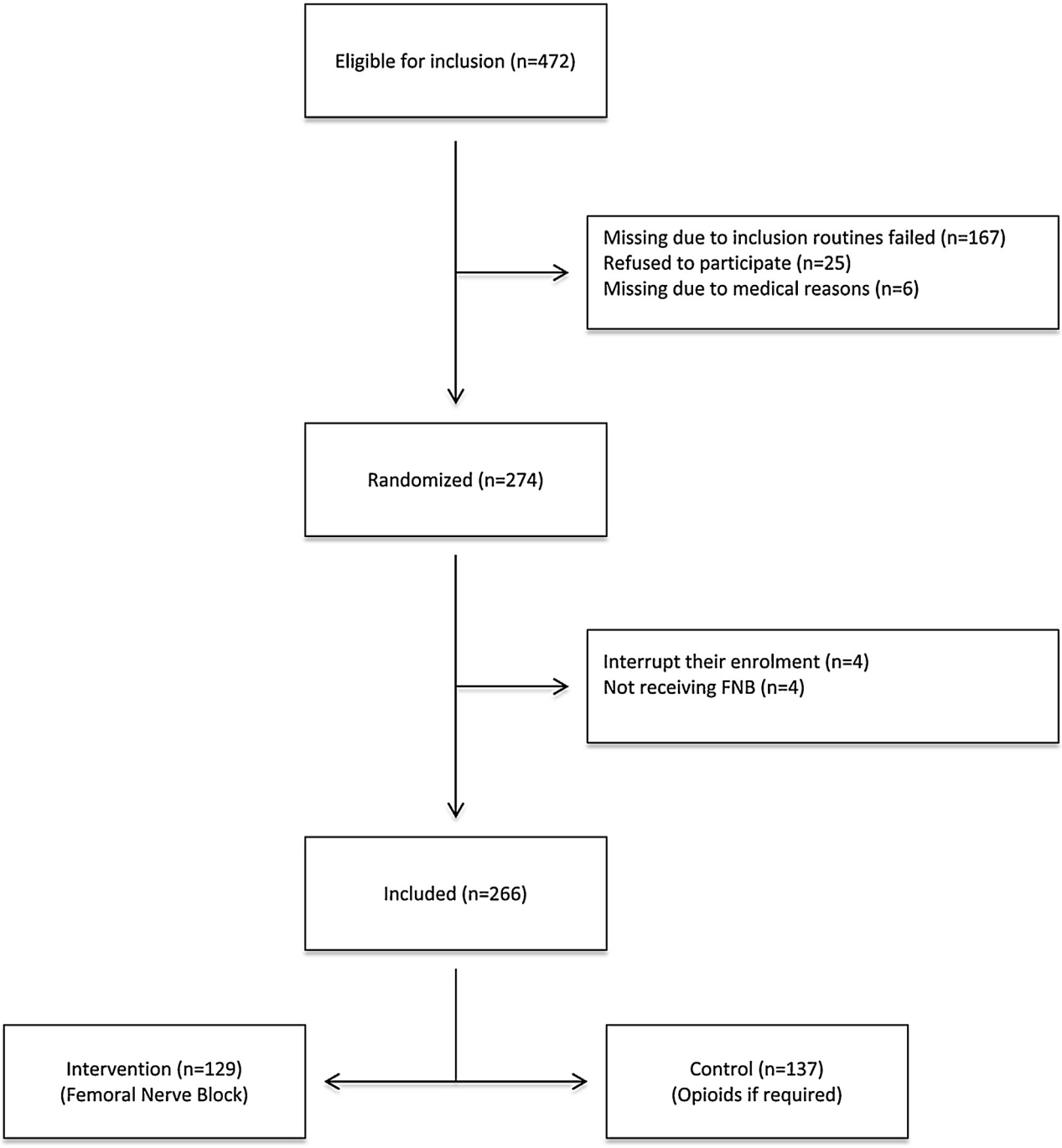

Fig. 1. Flow chart for the randomization.

FNB = Femoral Nerve Block.