

A nurse-led service for pre-operative pain management in hip fracture

This article outlines a nurse-led service to improve pre-operative pain management in patients with hip fracture

AUTHOR Mandy Layzell, MA, PGCert (Ed), RGN, is lecturer practitioner, Acute Pain Service, Poole Hospital NHS Foundation Trust, and Health and Social Care, Bournemouth University.

ABSTRACT Layzell, M. (2009) A nurse-led service for pre-operative pain management in hip fracture.

Nursing Times; 105: 3, 16–18.

This article follows an In-depth piece published in last week's issue, which explored issues around pain management in older people following fractured neck of femur. It also discussed using femoral nerve block for pain relief in this group of patients. This Changing Practice article outlines the establishment of a nurse-led service to improve pre-operative pain management using femoral nerve block.

RATIONALE FOR SETTING UP A NURSE-LED SERVICE

Changes in health care have provided opportunities for nurses to develop and lead new services (see Background box). Traditionally, doctors working in anaesthesia or A&E were taught how to perform a femoral nerve block (FNB) and if they had time patients would be given a block before being transferred to general wards.

Local audit data and feedback from nursing staff revealed that pain management for older patients with hip fracture was inadequate. Patients often experienced excruciating pain, and very few received a nerve block in A&E.

We felt it could be possible to train nurses to perform the nerve block and that a nurse-led service would deliver a higher standard of care owing to the development and accumulation of expertise. The net result would be more effective analgesia and a reduction in adverse effects from opioids.

A number of studies support the use of FNB for pain relief following fractured neck of femur (Fletcher et al, 2003; Haddad and Williams, 1995).

IMPLICATIONS FOR PRACTICE

- As the older population increases and the number of falls and fractures also increases, new approaches to pain management are vital.
- Experienced nurses working in pain management are ideally placed to develop and lead new services and

enhance skills, with the ultimate aim of improving pain management and relieving patients' suffering.

- This service has shown that femoral nerve blocks can provide effective pain relief for patients and give nurses opportunities to develop skills.

DEVELOPING THE SERVICE

Previous audit data highlighted that pain management for patients admitted following trauma was problematic, in particular for those admitted following a fall and a fractured neck of femur.

Ideally patients should be operated on within 48 hours of admission. However, the reality was that during the last year (2007–2008) in the trust 59–88% of patients were operated on within this time period. Delays in surgery meant that pain management for those patients affected was challenging.

PROTOCOL DEVELOPMENT AND TRAINING

Implementing change in healthcare services requires substantial effort and needs to be driven by a team that is motivated and enthusiastic. The acute pain team was keen to take on this challenge of developing advanced skills and move into new arenas of health care that would benefit this group of patients.

Before the FNB service was implemented, it was essential to develop a protocol and also to gain approval from the hospital executive committee, doctors, nursing staff and managers. Initially we made a presentation to the hospital executive committee, and sent letters to consultants, ward sisters and relevant managers explaining the proposal and inviting them to respond.

We anticipated that there would be some

objections but, surprisingly, there was unanimous approval and encouragement to set up the service.

As this service was to be completely nurse-led, it was important to acknowledge professional responsibility and accountability. The NMC (2008) requires that 'care should be delivered on the best available evidence or best practice' and that individual practitioners must have 'the knowledge and skills for safe and effective practice when working without direct supervision'. We ensured that these essential requirements were built into the protocol.

A training manual was produced for the staff. It included the following:

- Explanations of the procedure for pain management using FNB;
- The equipment needed;
- Patient information sheet;
- Patient group directives for lidocaine and levobupivacaine;
- Details on the audit data collection process.

Only nurses working in the acute pain team were eligible to train and provide this service. If the pilot study proved successful the training would be offered to nurse practitioners working on trauma wards and in A&E.

EVALUATING THE SERVICE

The trust agreed to allow the service to run as a 12-month pilot project. Extending it beyond this was subject to review by



the hospital executive committee after the pilot had been completed and the data had been evaluated. In order to demonstrate the nurse-led service's safety and effectiveness we needed to perform a clinical audit. Owing to staff numbers and working hours it was not feasible to collect a large amount of data, so for this to be accurate and meaningful we had to decide exactly what data could realistically be collected. The data collected is outlined below:

- Date and time of admission;
- Date and time of nerve block;
- Pain scores pre and post-block – the subjective nature of pain was assessed using a numerical verbal pain score, with 0 being no pain and 10 the worst pain experienced;
- Passive hip flexion using a goniometer to provide a measurement of the impact of pain on function recorded pre and post-block hip flexion. This requires two members of staff: one person lifts the affected leg to the point of pain and the other records the measurement;
- Analgesia use eight hours pre and post-block;
- Complications – such as arterial puncture, intravascular injection, signs of toxicity and collapse.

TRAINING

As this service was to be completely nurse-led, it was necessary for the healthcare team to undergo comprehensive

training in the following areas:

- Taking consent for patients with and without capacity;
- IV cannulation;
- Advanced resuscitation skills.

In addition, training was needed in administering local anaesthetic under a patient group directive. Named anaesthetists competent in the technique and equipment carried out training and staff assessment.

Competency, as agreed by the trust, was based around a knowledge and skills framework as well as a successful completion of 10 supervised blocks. The acute pain team clinical lead carried out a review of skills, initially monthly for four months and then six-monthly. It took 18 months from the initial agreement by the hospital executive committee to starting the pilot study.

PROBLEMS WITH TRAINING

This new service required nurses in the team to practise at an advanced level by working independently and using their skills of assessment, treatment, evaluation and data collection. The protocol provided the team with the background knowledge needed to assess suitable patients for the procedure, instructions on how to ensure that the nerve block is performed competently and how to deal with complications if they arose.

In practice there are likely to be situations which do not neatly fit into the protocol guidelines. In the early days some clinical situations were encountered which made the assessment criteria unclear and clarification from a medical colleague had to be sought.

Physical examination is not normally part of nurses' scope of practice. This meant the nurses needed time and practice to become familiar with examination to identify the relevant anatomy to establish the location of the femoral artery.

For logistical reasons the blocks would have to be performed single-handed or not at all. This was possible to do safely but would need careful planning, considerable skill and dexterity. Traditionally two people undertake the procedure – one performs the block and an assistant operates the specialised electronic equipment to locate the femoral nerve.

The biggest problem encountered with

BACKGROUND

- Nurses' role has changed over recent years with the introduction of specialist roles, reduction in junior doctors' hours and increasing demands on the NHS to provide better access and services.
- Specialist clinical roles have contributed enormously to improving services and advanced practice roles have taken this one step further.
- Pain management following a fractured neck of femur can be difficult to manage with traditional analgesics. In addition, there are problems with nurses' assessment of pain, particularly in patients with cognitive impairment (Layzell, 2009).

training was the unpredictability of when appropriate patients would present in A&E or be transferred to the ward. Admission numbers range from 0–5 per day and can take place at any time of the day or night. As the acute pain team only works between Monday to Friday 8am–4pm, patients were missed.

In order to provide consistency in teaching and technique for performing an FNB, two anaesthetists carried out the staff training. However, this created another problem. Time was spent waiting for the anaesthetist to be free to supervise the block. Some members of the team worked on a part-time basis, which meant it took several weeks to be supervised performing the number of blocks required for training. The team also had to ensure they did not neglect other areas of their day-to-day role and so consequently the pressures from increased activity during training were high. Owing to the problems encountered, this initial training took several weeks to complete.

EVALUATING THE PILOT

As discussed, only basic audit data was collected owing to nurses' limited time. During the pilot project, a total of 807 patients were admitted to the hospital with a fractured neck of femur and the team was able to perform FNBs on 224 of these (see Table 1). Data was only recorded if

TABLE 1. ADMISSIONS FOR HIP FRACTURE PATIENTS AND BLOCKS PERFORMED

	PATIENTS ADMITTED	BLOCKS PERFORMED
Jan	66	16
Feb	53	12
Mar	74	10
Apr	70	12
May	72	13
Jun	77	31
Jul	72	27
Aug	68	21
Sep	69	16
Oct	66	21
Nov	63	25
Dec	57	20

TABLE 2. RESPONSE TIME TO PERFORMING FNB

	NUMBER AND PERCENTAGE OF PATIENTS (OUT OF 224 PATIENTS)
Block performed on day of admission	99 (44%)
Block performed within 24 hours	59 (26%)
Block performed >24 hours	64 (29%)
Incomplete data	2 (<1%)

the patient received a nerve block. Those who either refused or were not suitable for a block, or who went to theatre on the day of admission, were not included in the database.

Ideally an FNB is best performed on admission to A&E. However, the team only works on weekdays and from 8am–4pm. In spite of this, approximately 70% of patients received a block within 24 hours of admission (see Table 2).

The subjective nature of pain was assessed using a numerical verbal pain score, with 0 being no pain and 10 the worst pain experienced. Scores were collected before the block was performed and two hours after. As some patients were likely to have communication difficulties, due to cognitive impairment, if they could not give a pain score we also recorded this. Around one-third of patients were not able to give a valid pain score. Of those who could, it was found that an average three-point reduction on the 0–10 scale could be achieved.

To provide a measurement of the impact of pain on function we recorded hip flexion pre-block and again two hours post-block. Following the nerve block, patients were able to tolerate an average of 20° increased passive hip flexion.

In addition to pain scores and passive hip flexion, we collected data on analgesia requirements eight hours before and after the patients received the blocks. Generally a reduction in opioid use was demonstrated. However, we felt this was not an accurate record of patient need as patients were totally dependent on first being able to ask ward nursing staff for oral analgesia and, second, on ward nurses being free to administer this.

On the safety aspect of specialist nurses performing these blocks, in general wards only one accidental arterial stab occurred. No other adverse events or complications were recorded.

FEEDBACK FROM STAFF

To support the audit data, a questionnaire was given randomly to healthcare staff involved in the care of this group of patients, including physiotherapists and nursing and medical staff. They were asked their opinion on whether they felt the FNB provided pain relief and if it allowed patients to move, eat and sleep more easily than traditional methods of pain relief.

Nursing staff felt that patients who had had a block appeared to experience a reduction in pain and improvements in mobility (in bed), nutrition and sleep.

Comments taken from the staff questionnaire include the following:

- 'Patients find it easier to move in bed and confused patients' awareness of their surroundings is improved';
- 'Don't have to rely on NSAIDs and Oramorph [morphine salts oral solution] which can give [many] complications; can move without screaming in pain';
- 'In many patients recovery appears to be much quicker in terms of mobilisation as well as experience being improved pre-op'.

FEEDBACK FROM PATIENTS

To date we have not carried out any further routine audit from patients' perspectives on the nurse-led service – although many thank us for performing the nerve block as their pain is greatly reduced while they wait for theatre.

One patient said: 'I was in a lot of pain and it wasn't pleasant – after the nerve block, I felt as though my whole leg was made of wood, but I had no more pain. It was very effective and lasted about 24 hours. If you're in pain and somebody gets shot of it for you, you're very grateful.'

CONCLUSION

The relief from pain is a basic human right, and for nurses and other healthcare professionals caring for patients in pain it is an important and often overlooked part

of everyday nursing care. I hope that our experience will inspire other teams across the UK to follow our example and help to relieve suffering and improve outcomes for this significant group of vulnerable patients.

Providing this nurse-led service in the trust has been extremely rewarding, first because patients are so grateful and impressed that healthcare staff are actually showing an interest in their pain relief. Previously, most of these patients suffered significant pain on movement, severely restricting sitting up to eat or drink.

Second, our work has helped to raise our profile around the trust and boost our relationship with other members of the healthcare team. Nurse practitioners and senior nurses in A&E and on the wards have shown a keen interest in taking on this advanced nursing role. This would enable patients admitted out of hours and at weekends to receive a block as close to admission as possible. ■



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