Fascia iliaca Block
“Middlemore Hospital Journey”

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• Regional nerve blockade for early analgesic management of elderly patients with hip fracture

• Middlemore hospital journey with the Regional nerve blocks
Hip Fractures

Hip Fracture patients are high risk
- 8% Mortality at 30 days (MMH 4% -6%)
- 25% Mortality at 1 year
- 50% reduced mobility at 1 year

Older, comorbid, male, impoverished patients do worse

The care we provide can alter outcomes for a vulnerable group
Hip Fractures Are Painful

- Patients who experience greater pain are at a higher risk of delirium
  (Abou Setta AM, Annals of Internal medicine 2011;155: 234-45)

- Slower to mobilise, longer hospital stay and poorer health related quality of life
  (Morrison RS, Pain 2003; 103:303-11)

- Pain increase surgical stress response, contributing to the morbidity and mortality
  in fragile patients  
  (Griffiths et al Acta Anaesthesia Scand 2010; 54;661-662)

- Cognitively intact patients with untreated pain are more likely (9x) to develop
  delirium in frail older adults  

- Undertreated pain is a risk factor for delirium in frail older adults
Optimal Analgesia

- **Humane** thing to do for a vulnerable group
- Hip Fracture Patients have complex analgesic needs
  - Chronic pain is common
  - Cognitive dysfunction prevents accurate assessment and monitoring
  - Altered mentation creates clinical hesitancy
  - Untreated pain has flow on effects – **Increased morbidity and mortality**
- **Opioids can be harmful**
Optimizing Analgesia

• Hip fracture pain is typically undertreated
  • Holdgate et al. 2010 – 36 Australian Hospitals n = 464
  • Time to analgesia was slow
  • 15% had no pre-hospital analgesia
  • 29% had no analgesia in ED
  • IV Morphine was the most common form of analgesia
  • Cognitive impairment and communication difficulties cited as most important barrier to providing analgesia

• Similar findings in the USA
  • 50% of Hip Fracture patients with moderate to severe pain were inadequately analgesed
  • Those with advanced dementia received ~1/3 the amount of Morphine as others
Analgesia Provision

- **Opioids**
  - AAGBI advise caution due to increased risk for over-sedation leading to Hypoxia and Respiratory Infections
  - Any use of opioid can increase delirium in the elderly
    - Yang et al 2017
    - OR 3.01, 95% CI 1.30 - 6.94
  - Conversely, untreated pain can cause delirium
    - Vaurio et al, A&A 2006,
    - Increase in pain from baseline to postop day one conferred increased risk of delirium
    - OR 1.1, 95% CI 1.01 - 1.2

Is it possible to find the delicate balance?
Analgesia Provision

Nerve Blocks

- Nerve blocks improve outcomes for patients with Hip Fractures
- Useful both at presentation and perioperatively
- Patients are more comfortable
- Rapid onset, site-specific analgesia
Nerve Blocks

- Femoral Nerve, Combined, Psoas Compartment and Fascia Iliaca Blocks ALL provided better analgesia compared to opioids
  - Abou-Setta et al. Annals of Internal Medicine 2011
- FIB reduces morphine consumption by 41%
- Allows for improved positioning for Spinal anaesthesia
- Reduces delirium – Mixed bag of studies
- May improve functional outcomes and reduce hospital stays
  - Attributed to reduced pain and reduced opioid consumption
Which Block?

• Fascia Iliaca blocks are emerging as block of choice.
• FIB probably reduces Delirium the most
• FIB has been shown to be equivalent to 3-in-1 FNBs
• Ultrasound guidance improve sensory loss in anterior and lateral thigh by 33-50% over double pop technique ‘going blind off land marks”
• Ropivocaine produces less effective motor block but equally effective sensory block than bupivacaine and has less cardiac and CNS system
• Over the past decade the literature has moved towards implementation of FIBs
  • Easy
  • Reliable
Hip Fracture Care Clinical Care Standard

1. A patient presenting to hospital with a suspected hip fracture receives care guided by timely assessment and management of medical conditions, including diagnostic imaging, pain assessment and cognitive assessment.

2. A patient with a hip fracture is assessed for pain at the time of presentation and regularly throughout their hospital stay, and receives pain management including the use of multimodal analgesia, if clinically appropriate.

3. A patient with a hip fracture is offered treatment based on an orthogeriatric model of care as defined in the Australian and New Zealand Guideline for Hip Fracture Care.

4. A patient presenting to hospital with a hip fracture, or sustaining a hip fracture while in hospital, receives surgery within 48 hours, if no clinical contraindication exists and the patient prefers surgery.

5. A patient with a hip fracture is offered mobilisation without restrictions on weight-bearing the day after surgery and at least once a day thereafter, depending on the patient’s clinical condition and agreed goals of care.

6. Before a patient with a hip fracture leaves hospital, they are offered a falls and bone health assessment, and a management plan based on this assessment, to reduce the risk of another fracture.

7. Before a patient leaves hospital, the patient and their carer are involved in the development of an individualised care plan that describes the patient’s ongoing care and goals of care after they leave hospital. This plan is developed collaboratively with the patient’s general practitioner. The plan identifies any changes in medicines, any new medicines, and equipment and contact details for rehabilitation services they may require. It also describes mobilisation activities, wound care and function post-injury. This plan is provided to the patient before discharge and to their general practitioner and other ongoing clinical providers within 48 hours of discharge.
• Consider adding nerve blocks if systemic analgesia does not provide sufficient pain relief, or to limit opioid dosage.

• Nerve blocks should be administered by trained personnel.

• Do not use nerve blocks as a substitute for early surgery.

• Consider intraoperative nerve blocks for all patients undergoing surgery.

*Impact* – likely to lead to better pain control in the immediate post-operative period.
Middlemore Hospital Journey

- ANZSGM conference in Sydney, June 2018 - Nerve blocks such as FIB for elderly hip fracture patients should be integrated to **routine** multimodal acute pain management protocols.
  
  (Dr S.G. Gaux, anaesthetist, Director of rehabilitation and pain medicine from St Vincent’s Hospital, Sydney)

- In MMH Emergency Department – ANZHFR registry data showed limited utilisation of regional analgesia with only 18% of hip fracture patients in 2016 and 35% of patients in 2017 receiving a nerve block (FIB)
  - The reason for this is unknown

- **Approached the anaesthetist**
  - Evidence for the role of regional nerve block for acute pain associated with hip fracture
  - Do Fascia-iliac block make any difference?
  - Should MMH ED be delivering increased rate of regional nerve blocks?
  - Literature searched
Cochrane 2017

**Pneumonia – Reduced**
- Moderate quality evidence
- 3 RCTs  n=131
- RR = 0.41 (95% CI 0.19-0.89)
- NNT = 7 (95% CI 5-72)

**Pain – Reduced**
- High quality evidence
- 8 RCTs  n=373
- By 3.4/ 10 on average within 30 minutes

**Delirium – No difference**
- Very Low quality evidence
- 7 RCTs  n= 676
- RR = 0.69 (95% CI = 0.38-1.27)

**Myocardial Infarction – No difference**
- Hindered by low numbers
Conclusions

• Blocks are good
  • Reduce pain
  • More effective than standard systemic analgesia alone
  • Reduce pneumonia
Middlemore Hospital Journey

• Meeting with ED clinical head, Anaesthetist, Orthopaedic coordinator and myself on 1/08/2018

• Discussed about the low proportion of hip fracture patients were receiving a regional nerve blocks at MMH ED according to the ANZHFR registry data
  - Alarmed to hear the low administration rate of FIB
  - Checked how the data was collected
  - ED physicians were unaware of low nerve blocks delivery
Middlemore Hospital Journey

- ED Senior Medical Officers were informed by group e mail
- Change the culture
- Set up the FIB packs
- ED Physicians mainly administer FIBs
- Use of FIB rate has doubled up, one month after the meeting (September 2018 till date)
Nerve block administered prior to surgery

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<th>2018 (Sept–December)</th>
<th>2019 Jan to date</th>
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<tr>
<td>Middlemore Hospital</td>
<td>18%</td>
<td>35%</td>
<td>71.2%</td>
<td>72%</td>
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<td>New Zealand Average</td>
<td>25%</td>
<td>36%</td>
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<tr>
<td>Australia Average</td>
<td>58%</td>
<td>66%</td>
<td>Not available</td>
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Percentage of patients receiving nerve block before and/or at the time of surgery from Aug 2018 – July 2019
Middlemore Hospital Journey (Continued)

• Recently rolled out the hip fracture bundle (FIB pathway plus fast track neck of femur fracture path way)

• Train FIB with USS guided technique to Emergency department CNS

• To feedback the administration rate of FIB to ED every 3 months from the registry data

• Provide NHI of hip fracture patients who did not get the nerve block preoperatively
Take Home Message

ANZHFR data is a powerful tool for tracking performance and enabled to drive changes to achieve improvement in hip fracture care.

The data are used to generate real-time feedback that contributors can use to review the hip fracture care they provide.

Sites are encouraged to use on a regular basis to evaluate the hip fracture care provided.
References


References

• Scurrah, A et al. Regional nerve blockade for early analgesic management of elderly patients with hip fracture – a narrative review Anaesthesia (2018) 73, 769-783


• Perioperative Mortality in New Zealand: Seventh report of the Perioperative Mortality Review Committee (2018)