Development of a pain management pathway for adults with complex acetabular & pelvic trauma, a quality improvement project in a major trauma centre in London

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Introduction

Evidence suggests that good acute pain management in major trauma improves outcome and the converse is also true [1]. Chronic pain is present in as much as 80% of pelvic trauma and can be prevented by early analgesic intervention in the acute phase. This is true for both surgical and conservative management [2], [3].

Multimodal analgesia helps to avoid the complications of opiate based analgesic regimes including physical dependence, ileus, respiratory depression and hyperalgesia. Regional anaesthesia is well documented to offer significant benefits in the polytrauma patient. Early gabapentinoids are also recommended if there are no contraindications and if neuropathic pain is present [4].

Opiates have adverse effects that will affect the quality of anaesthetic services and should be avoided where possible. Neuraxial blockade is avoided in our centre as perineal sensation requires examining and monitoring immediately post operatively. Local audit conducted at St George's University Hospital in 2016 showed a reduction in post operative morphine consumption and pain scores in our patients by using Quadratus Lumborum Blocks (QLB) as part of their multimodal perioperative analgesic regime [5].

Methods

We standardized analgesic management based on latest evidence and reviewed audit data in order to formulate a pathway. The final pathway was produced over several developmental meetings with anaesthetists (trauma & pain specialists), surgeons, specialist nurses and physiotherapists. The pathway is made to resemble a checklist. Each step can be ticked when completed, so as to avoid overlooking certain steps in the pathway.

Discussion

The latest NICE guidance for management of pelvic fractures was published in February 2016 [6]. This did not address analgesic regimes in details nor did it extend to beyond the acute admission period. Our work is novel in this respect as it encompasses the pain management through admission till discharge and follow-up. During follow-up, any patients with chronic pain issues will be identified and managed appropriately.

This acute pain management pathway forms a part of a larger multidisciplinary team care pathway being developed by the Pelvic team at St George's University Hospital. The idea is to establish a care pathway for patients with serious pelvic injuries from injury to recovery so that standardized care can be commenced at referring hospitals before definitive care in our tertiary centre and for the patients to have appropriate follow-up.

We anticipate that this pathway will improve patient outcomes both objectively and subjectively. This pathway is currently established and will be audited in the near future.

Results

The analgesic pathway is presented in the figure below

Analgesic Pathway for Pelvic & Acetabular Fractures (Adults >40kg)

ON ADMISSION- (Orthopaedic Team) please tick box when completed

- Take patient history- In particular mechanism of injury
- Must list current medications- doses and frequencies
- Continue all routine medications
- Perform a pain assessment and document pain scores
- Document neuropathic pain if features are present¹
- Stepwise analgesic ladder + multimodal analgesia thinking adjuvant agents
- Consider Fascia Iliaca Blocks (FIB) for acetabular fractures (both operative and non operative cases)
- If pain persists at moderate/ severe level despite regular analgesia, consider referral to Inpatient Pain Team
- Pregabalin 75mg po bd- consider in patients <65 years old, and check renal function is normal before commencing

INTRAOPERATIVELY- (Anaesthetic Team) please tick box when completed

- Quadratus Lumborum Block (QLB) single shot blocks for open procedures (not for percutaneous)
- Unilateral block if one side incision
- Bilateral for Pfannenstiel incision or bilateral incisions
- Levobupivacaine 0.25% 20ml per side (40mls total for bilateral procedures)
- Paracetamol 1g IV
- Morphine 1-20mg maximum IV titrate as appropriate
- Ketamine (up to 0.5mg/kg) IV, caution in the elderly
- Consider Magnesium Sulphate 8 mmol IV

POSTOPERATIVELY- (Orthopaedic & Anaesthetic) please review and tick when completed

- Morphine + Ketamine PCA: 50mg Morphine + 50mg Ketamine in 50mls total volume (=1mg/ml concentration of both) 1ml bolus with 5-minute lockout
- Simple analgesics- Paracetamol 1g po qds regularly but NOT NSAIDs²
- Indomethacin 50mg po tds for 6 weeks²
- Lansoprazole 30mg po od during indomethacin use
- Pregabalin 75mg po bd for 1 week then review
- Regular analgesia and pain assessments, if pain persists at moderate/severe- refer to Inpatient Pain Team if not already done so
- Stepwise reduction of analgesia as inpatient
- Aim to wean off strong opiates
- Pain management review recommended at surgical follow-up clinic post discharge (at 6 & 12 week)³

* 1. FEATURES OF NEUROPATHIC PAIN

- Pain & sensations described as burning, lancinating, pins and needles, numbness, inability to sense normal temperature
- Abnormal sensations- DYSESTHESIA
- Pain from non-painful stimuli- ALLODYNIA

2. Indomethacin is used by orthopaedic surgeons to prevent Heterotrophic Ossification (HO). For this reason additional NSAIDs should NOT be prescribed

3. May need chronic pain referral if features of chronic pain persist at follow-up

References

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