

Assessing and Improving Pain Relief in Post-Operative Hip and Knee Arthroplasty

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Background

Adequate analgesia post-operatively is key to early mobilisation, reduced infection rates, shorter hospital stay and ultimately, reduced morbidity.

A patient survey conducted in Warwick Hospital in July 2014 demonstrated that many patients undergoing an elective total hip replacement (THR) or total knee replacement (TKR), experienced moderate to severe pain post-operatively, resulting in poor mobilisation and delayed discharge. Wide variation in post-operative analgesic doses was also noted.

Thus, a post-operative analgesic protocol was designed with Oxycotin as a twice daily regular medication (see Figure 1) with Oxynorm as a PRN medication for hip and knee arthroplasty. An audit was subsequently conducted to investigate whether this protocol improved pain scores in the post-operative period.

Methods

- Use protocol to prescribe Oxycotin BD and Oxynorm PRN post-operative analgesia
- Follow up patient on morning after operation
- Record patient pain rating: 'mild', 'moderate' or 'severe' for evening of operation and morning after
- Record pre/intra/post-operative analgesia intake
- Compare pain scores with July 2014 survey

Looking Forward

- Meta-analysis has shown superior analgesia of femoral nerve blockade when compared to epidural and patient controlled analgesia².



- Thus, a new pain protocol and audit involving femoral nerve blockade as the intraoperative analgesia is underway.
- 0.125% bupivacaine used in nerve block. Results so far are promising.

Oxycotin is a slow release preparation of Oxycodone, an opioid analgesic. Oxycotin used regularly has been shown to improve pain relief post joint arthroplasty¹. Oxycotin delivers a steady release of Oxycodone over 12 hours and provides a bi-phasic absorption profile².

Oxynorm is a normal release preparation of Oxycodone, a pure opioid receptor agonist. Oxynorm analgesia lasts between 4-6 hours

Figure 1: Regular and PRN medications used for post-operative THR and TKR analgesia protocol. Oxycotin dose given at 5-20mg BD (dose at discretion of Anaesthetist) while Oxynorm given as PRN.

Aim

To bring >50% patients out of moderate/severe pain in the first 48hrs after hip and knee arthroplasty, so as to enable faster joint mobilisation, reduced hospital stay and better patient experience.

Re-Audit

Re-audit carried out (n=35; 13 THR, 22 TKR) with the following changes:

- Oxycotin prescribed at 15 or 20mg only
- Oxynorm replaced by Oramorph – not a controlled drug → easier and more rapid administration
- First dose of Oxycotin given immediately after surgery in the recovery room. If afternoon surgery, the same or reduced dose given depending on the time and patient factors. The second dose was given at 22.00 the same day.

Result?

> 43% patients still in moderate/severe pain

Possible causes?

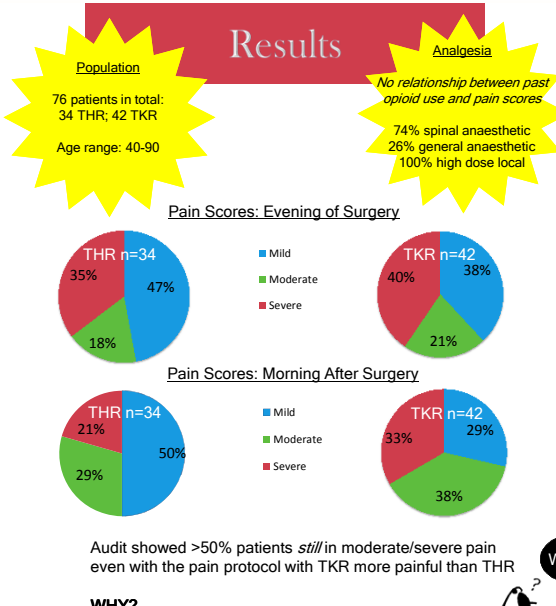
- Inconsistency in timing of visiting patients
- Differences in pain thresholds
- Small sample size
- Painful surgery

Conclusion

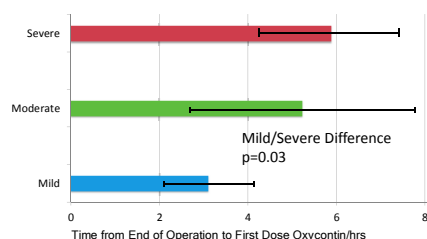
Arthroplasty is a painful procedure that is often conducted in a difficult population, the elderly. Mobilisation of hips and knees post-arthroplasty is key to aiding recovery. Mobilisation demands adequate analgesia.

Our target was to get >50% of patients out of moderate/severe pain in the first 48hrs post-operatively. We were unsuccessful so far.

Nerve blockade may prove to be a better method of intra-operative analgesia, resulting in better post-operative pain relief.



- Oxycotin prescribed in too low doses** only 16% of patients received 20mg Oxycotin
- Delay in PRN Oxynorm administration** Oxynorm is a controlled drug which requires two nurses to sign it out of storage. Busy nurses → delayed administration
- Delayed first dose Oxycotin** till 22:00 to prevent waking patient in the night for second dose of BD regime:



References

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