

A National Survey of Enhanced Recovery (ERAS) for Total Hip and Knee Replacement (THKR): Analgesia & Anti-Fibrinolytics

J Turner, A Carney, J Vernon. Nottingham University Hospitals NHS Trust

BACKGROUND

ERAS programmes improve patient safety, recovery after surgery, reduce length of stay and save money [1, 2.] Many ERAS protocols for lower limb arthroplasty include anti-fibrinolytics and oral analgesics. [3] There is no published evidence regarding the optimum combinations and doses of these drugs. We wished to survey national orthopaedic centres to help optimise our own ERAS protocol.

METHODS

Paper survey forms were completed voluntarily by attendees at BSOA ASM 2012. Participants were informed that anonymized data may be subsequently presented.

RESULTS

- Attendees returned 54 survey forms covering 31 institutions.
- 70% of institutions have well established ERAS for THKR (IwE).
- 66% of those include Tranexamic Acid (TXA).
- The most common fixed dose of TXA was 1g.
- 50% of IwE's use Gabapentin or Pregabalin.
- 35% of IwE's had experienced significant side effects with Gabapentin or Pregabalin.
- 98% use oral opioids for post-operative analgesia
- 66% of IwE's routinely mobilise their patients on the day of surgery.

NUH LOWER LIMB ERAS TM ANALGESIA GUIDELINE		Notes
Total Hip/Knee Replacement		
preoperative:	Consider paracetamol NSAID ² Zomorph TM 10mg or 20mg	
perioperative	Spinal anaesthesia +/- intrathecal diamorphine ⁴ Consider surgical peri-articular local anaesthetic injection or, in selected patients, use nerve block(s) Consider local anaesthetic infusion pump for 48 hours (for total knee replacement) Consider tranexamic acid 10mg/kg (max 1g) at induction and at release of tourniquet / end of surgery	Prophylactic IV anti-emetics (see NUH guideline) Tranexamic acid- caution in patients at risk of thromboses, DIC, seizures
postoperative analgesia:	Paracetamol 1g qds po/IV Consider NSAID ² Oramorph TM 10-20mg 2 hourly pm Zomorph TM 10mg or 20mg 12 hourly three post-op doses only ³ Consider Cryocuff TM (TKR) Consider gabapentin ⁶	IV paracetamol dose adjustment: <50kg 15mg/kg qds >50kg with risk factors for liver damage 1g tds If on NSAID prescribe lansoprazole 30mg od Limit Zomorph TM doses by crossing off further doses on chart
adjunctive medication:	Consider ondansetron 4mg tds whilst on Zomorph TM Consider senna 2 tablets at night whilst on Zomorph TM Attach PONV and laxative stickers to drug chart Encourage oral fluids	Cross off ondansetron once Zomorph TM discontinued Ensure regular review of drug chart by doctor
pain control inadequate: e.g. Post-operative pain score >2/3	Increase Zomorph TM at 10mg increments per dose. Continue and review 24 hourly Increase Oramorph TM at 5 or 10mg increments Call Pain Team if problem persists	QMC 780-6546. CHN 780-6924
discharge analgesia:	Paracetamol 1g qds oral Consider NSAID ² +/- weak opioid or Oramorph TM if warranted	Continue lansoprazole following discharge if still taking NSAIDs Do not routinely discharge on Zomorph TM

1. Enhanced Recovery after Surgery
2. NSAIDs (Non-steroidal anti-inflammatory drugs). Caution in elderly, renal impairment.
NSAID should be ibuprofen 400mg qds or pre-admission NSAID. Depending on clinical preference, celecoxib may be used in a dose of 200mg bid for 5 days only.
Ensure lansoprazole 30mg od or other PPI is prescribed for gastroprotection.
3. ZomorphTM refers to modified release 12-hourly morphine
OramorphTM refers to immediate release morphine solution
4. Spinal diamorphine to be given only by an anaesthetist or under direct supervision of an anaesthetist.
5. Patients already taking regular strong opioids should continue with these and may need higher doses post-operatively. Dose of opioid will depend on age, renal function and physical state of patient. If patient has co-morbidities with morphine consider using OxycodoneTM 5-10mg 12-hrly and 5-10mg OxycodoneTM 2hrly pm.
6. GABAPENTIN
Patients under 65 yrs old may benefit from oral gabapentin 300mg qds dose, 600mg pm dose for 5 days post op. Give pre-op dose of 300mg orally. May reduce neurologic pain. Side effects include drowsiness.
Guidance derived from Derwent Analgesic Pathway, Bournemouth. For review 1/7/14
A.Carney, J.Vernon, J.Thomas 14/6/12 version xii

DISCUSSION

- As 70% of trusts analysed have well-established ERAS for THKR, we hope the data provides a realistic reflection of national ERAS standards.
- The use of TXA is common but the dose prescribed is not standardised. Further work is needed to define the ideal dose and regimen.
- Gabapentin / pregabalin use is not routine, perhaps because 35% of respondents reported seeing significant side effects.
- The use of synthetic oral opioids postoperatively is common. (55.5% use short acting and 42.5% use long acting agents).
- The day 0 mobilisation rate is impressive at 66%, however the ability to achieve this depends on the timing of the operation during the day.

CONCLUSION

There are areas of common practice between centres (uptake of ERAS, TXA use), with more significant variance in the analgesic regimens used. Further research should look at establishing a 'gold standard' analgesic plan between centres to enhance patient outcome.

REFERENCES

1. Larsen K et al. Accelerated perioperative care and rehabilitation intervention for hip and knee replacement is effective: a randomised clinical trial involving 87 patients with 3 months of follow-up. *Acta Orthopædica* 2008;79:149-59.
2. Larsen K et al. Cost-effectiveness of accelerated perioperative care and rehabilitation after total hip and knee arthroplasty. *J Bone Joint Surg Am* 2009; 91(4): 761-72
3. Bhayani S, Vernon J, Carney A. A National Survey of Enhanced Recovery after Surgery Programmes for Lower Limb Arthroplasty. *Anaesthesia* 2012; 67: 688