Regional analgesia in total hip arthroplasty: Evidence and recommendations

Background

The PROSPECT initiative provides evidence-based and procedure-specific recommendations for postoperative pain management, formulated through an international collaboration of surgeons and anaesthetists.

Total hip arthroplasty (THA) is performed on high-risk surgical populations, typically patents are older and have significant co-morbidities – therefore, pain control should be balanced to optimise functional recovery and reduce postoperative morbidity and mortality.

Regional analgesic techniques are commonly used in THA, but each method has benefits and drawbacks.

PROSPECT presents evidence and recommendations for regional analgesia in total hip arthroplasty.

Methods

A systematic review of the literature was performed according to the protocol of the Cochrane collaboration. MEDLINE and Embase were searched from 1966–July 2004 using predefined search terms.

Studies included in the review were randomised trials of regional techniques in THA.

All included studies were required to report pain scores using a visual analogue scale (VAS) or verbal rating scale (VRS).

All pain scores were converted to VAS 1–100 mm. Other outcomes were recorded where available. Results are reported as significant where p<0.05; n = number of studies.

Supplementary information from similar orthopaedic procedures and clinical practice was also assessed.

Recommendations for regional analgesia in THA, based on the evidence, were formulated by consensus of the PROSPECT working group.

Results

A total of 32 studies examined regional anaesthesia in THA: epidural analgesia [12], spinal analgesia [14], peripheral nerve blocks [6]. Ten studies examined spinal analgesia versus epidural or peripheral nerve block analgesia.

Epidural analgesia, n=12 (Table 1)

Continuous epidural analgesia (EA) or epidural analgesia and GA reduced pain scores on movement and at rest compared with general anaesthetic (GA) + IV morphine on demand.2, 3

Peripheral nerve block, n=4 (Table 3)

Bulbous perineal block + GA reduced intra-operative fentanyl pain scores,10 postoperative morphine use, and blood loss compared with GA alone.15

Spinal analgesia, n=14 (Table 2)

Bulbous perineal block + GA reduced intra-operative fentanyl pain scores, postoperative morphine use, and blood loss compared with GA alone.15

Spinal analgesia versus poaas compartment block or epidural analgesia (n=2)

Bulbous perineal block pain scores, and spinal use, but increased urinary retention by 3-fold compared with bulbous compartment block.4

Continuous spinal analgesia reduced pain scores at rest and on movement, supplementary analgesic use and the incidence of PONV compared with epidural analgesia.12

Conclusions

Regional techniques have superior analgesic efficacy and decrease postoperative morbidity compared with systemic regimens.

Peripheral neural blocks provided effective analgesia, and are associated with fewer adverse effects from neuroaxial or perineural analgesia.

On balance of risks and benefits, peripheral neural blocks are recommended for routine use with general anaesthesia in THA, to be delivered either as a continuous infusion, or by PCA or on-demand.

Spinal analgesia (EA or spinal) may be used, because it provided effective pain relief and reduction of analgesic use, but urinary retention should be monitored.

Spinal analgesia provided greater pain relief, and produces a more profound nerve block, than epidural analgesia.

Epidural analgesia provides a less favourable risk/benefit profile in most patients, but may be considered for patients at risk of cardiopulmonary complications.

All regional techniques for anaesthesia/analgesia have a recognized fail-safe rate, which must be considered when planning pain relief for THA.

Further comparative studies of regional techniques are warranted, to assess pain, mobility and hospital stay.

References