Local Infiltration Analgesia in Knee Arthroplasty

av

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Akademisk avhandling

Avhandling för medicine doktorsexamen i medicinsk vetenskap med inriktning kirurgi, som enligt beslut av rektor kommer att föras offentligt fredag den 16 mars 2012 kl. 09.00, Wilandersalen, Universitetssjukhuset Örebro

Opponent: Lars Weidenhielm, Professor Karolinska Institutet, Överläkare Ortopedkliniken, Karolinska Universitetssjukhuset

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Abstract


Local infiltration analgesia (LIA) is a new technique for postoperative pain management following knee arthroplasty. LIA involves a long-acting local anesthetic (ropivacaine), a non-steroid anti-inflammatory drug (ketorolac) and epinephrine infiltrated into the knee joint during surgery and injected postoperatively via a catheter.

In the first two studies, LIA was compared with placebo in unicompartmental (I) and total (II) knee arthroplasty. Postoperative pain levels, morphine consumption and the incidence of side effects were lower in the LIA groups. In addition, we found a shorter length of hospital stay in the LIA group following unicompartmental knee arthroplasty compared with placebo (I), while the time to home readiness was shorter in the LIA group following total knee arthroplasty (II). In this study, we found that the unbound venous blood concentration of ropivacaine was below systemic toxic blood concentrations in a sub-group of patients.

In the third study, LIA was compared with intrathecal morphine for postoperative pain relief following total knee arthroplasty (III). Pain scores and morphine consumption were lower, length of hospital stay was shorter and patient satisfaction was higher in the LIA group.

In the final study, we investigated the effect of minimally invasive surgery (MIS) compared with conventional surgery in unicompartmental knee arthroplasty (IV). Both groups received LIA. We found no statistically significant differences in postoperative pain, morphine consumption, knee function, home readiness, hospital stay or patient satisfaction.

In conclusion, LIA provided better postoperative pain relief and earlier mobilization than placebo, both in unicompartmental and total knee arthroplasty. When compared to intrathecal morphine, LIA also resulted in improved postoperative pain relief and earlier mobilization. Minimally invasive surgery did not improve outcomes after unicompartmental knee arthroplasty, when both groups received LIA.

Keywords: Knee arthroplasty, minimally invasive surgery, ropivacaine, ketorolac, intrathecal morphine, local infiltration analgesia.

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