Introduction: Gabapentin has previously been investigated as a single-dose adjunct to morphine for postoperative pain management, and has been found to reduce postoperative morphine consumption (PMC) [1-4]. However, there is a need to determine the efficacy of perioperative gabapentin, as a complement to patient controlled analgesia (PCA) morphine, in reducing PMC in patients undergoing primary total hip arthroplasty (THA). The primary objective was to determine if gabapentin given preoperatively, and continued for two days postoperatively, would decrease PMC.

Methods: This was a double blind, randomized-controlled trial that was approved by the local Research Ethics Board and Health Canada. After obtaining informed consent, patients aged 19-90 undergoing primary THA in single joint were recruited. Exclusion criteria included: allergies to any study medication, contraindication to spinal anesthesia, chronic pain syndrome, and chronic analgesic use. The trial was conducted in 93 eligible THA patients, randomized into either the intervention group or the control group. The patients in the intervention group (n=45) received gabapentin 600mg orally (PO) preoperatively and 200mg postoperatively on the day of surgery (total 800mg on day 0), and continued on gabapentin 200mg three times daily (total 600mg/day) for two days, whereas patients in the control group (n=48) received placebo in a similar fashion. During the preoperative period, all patients received 30mg of ketorolac intravenously (IV) and acetaminophen 1000mg PO. Postoperatively, all patients received IV PCA with morphine and received the following adjuncts: ketorolac 15mg IV every 6 hours (q6h), and acetaminophen 1000mg PO q6h. All patients received spinal anesthesia with isobaric or hyperbaric bupivacaine with fentanyl. No local infiltration or other opioids were permitted during the study.

Results: The primary outcome measure for the study was morphine consumption, whereas secondary outcomes included: pain scores on visual analogue scale (VAS), side effects (nausea and vomiting, pruritis, sedation, dizziness, visual disturbance, and death), range of motion, and patient satisfaction. The amount of morphine consumed two days postoperatively was not significantly different between the treatment and control groups (p>0.05). Interestingly, for day 1, mean difference for PMC was 6.44mg (95% CI 0.76-12.12), which was statistically significant (p<0.05) for gabapentin group. All secondary outcomes assessed did not show a difference between the treatment and the control groups.

Discussion: This trial demonstrated that overall gabapentin does not reduce PMC and side effects in patients undergoing THA. Even though PMC in day 1 was slightly lower for gabapentin than placebo, which is consistent with previous literature [4], the amount of PMC reduced has no clinical value. Multimodal analgesia may account for the similar primary and secondary outcomes found in both intervention and control groups.