ISAKOS

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

10th Biennial ISAKOS Congress • June 7-11, 2015 • Lyon, France

Paper #170

Multimodal Pain Management in Total Knee Arthroplasty : A Prospective Randomized Controlled Trial

Sahnghoon Lee, MD, PhD, KOREA
Seong Hwan Kim, MD, KOREA
In Woong Park,
Kee Yun Chung, KOREA
Ki Bum Kim,
Hyuk-Soo Han, MD, PhD, KOREA
Sang Cheol Seong, MD, PhD, KOREA
Myung Chul Lee, MD, PhD, Prof., KOREA

Department of Orthopedic Surgery, Seoul National University College of Medicine
Seoul, KOREA

Summary:
The duloxetine showed efficacy in acute pain control with less opioid consumption after total knee arthroplasty. The Pregabalin and Gabapentin had better efficacy in acute pain control with similar opioid consumption compared with control group. Administration of these new medications could be helpful to control acute pain and to enhance rehabilitation after total knee arthroplasty.

Abstract:
Multimodal pain management was introduced as adjunctive pain control methods in an attempt to control pain with less reliance on opioids and fewer side effects. Gabapentin and pregabalin act on the a2 subunit of the presynaptic voltage gated calcium channels, resulting pain reduction. Duloxetine, as serotonin and norepinephrine dual reuptake inhibitor, suppresses transmission of painful peripheral stimuli by inhibiting input to the spinal dorsal horn neurons, resulting pain control. The purpose of this study was to evaluate prospectively the effect of those new marketed medicine as members of multimodal pain management regimen after total knee arthroplasty. One hundreds thirty eight patients who underwent unilateral total knee arthroplasty under spinal anesthesia were included in this randomized prospective trial. Four groups were defined : group 1 as control, group 2 as pregabalin-used group, group 3 as gabapentin-using group and group 4 as duloxetine-using group. The routine pain control that was performed for the control group included intraoperative capsular injection (Ropivacaine 24cc, Epinephrine 0.6cc, Morphine 5cc, Trolac 2cc, Cefazolin 10.6cc, Normal saline 17.8cc), Intravenous patient controlled anesthesia (IV-PCA; Fentanyl 2000 microgram + Normal Saline, total 100 ml), single Cox-2 inhibitor a day orally. The pregabalin was administered orally as 300mg(150mg*2) until 10days after surgery, then tapered with reduced doses as 150mg (75mg*2) last four days. Total administered days were 14 days after surgery. The gabapentin was administered orally as 1200mg (400mg*3) until 14 days after surgery. The duloxetine was administered orally as 30mg a day until 14 days after surgery. Total injected opioids via IV-PCA were evaluated using digital-count devices to assess the opioid-sparing effect of each medication by the time of 24 hours and 48 hours after surgery. VAS scores, postoperative range of motion (ROM), side effects including nausea, vomiting, and dizziness were evaluated at 24 and 48 hours, 1 and 2 weeks after surgery. The VAS scores in the group 2, 3, and 4 were significantly lower than that of control group at 24hrs after surgery. At 2 weeks after surgery, there was no difference among groups in VAS score. Total opioid consumption was not different among groups except group 4 at 48hrs after surgery. Only the duloxetine group showed less amount of total opioid consumption. Postoperative recovery of ROM was not different among the groups except group 4 with better ROM.The duloxetine showed efficacy in acute pain control with less opioid consumption after total knee arthroplasty. The Pregabalin and Gabapentin had better efficacy in acute pain control with similar opioid consumption compared with control group. Administration of these new medications could be helpful to control acute pain and to enhance rehabilitation after total knee arthroplasty.