Does a Single Dose Dexmedetomidine for Procedural Sedation

Reduce Post-operative Pain in Total Knee Arthroplasty?

P. Stratigopoulou, A. Analytis, T. Mavromattis, A. Lampadariou
Anesthesiology Department
LAIKO GENERAL HOSPITAL OF ATHENS, GREECE

Background and Aims:

Dexmedetomidine has demonstrated benefits in sedation and post-operative pain control without respiratory depression. A loading dose (1ug/kg) and infusion is commonly used, which may cause dose-dependent heavy sedation and hypotension in the post-anesthetic care unit (PACU). We hypothesized that a single dose (0.5ug/kg) for sedation during spinal anesthesia will reduce opioid consumption without side-effects after total knee arthroplasty (TKA).

Methods:

Fifty four patients undergoing spinal anesthesia for TKA were randomized to receive normal saline (NS, n = 27) or 0.5 ug/kg dexmedetomidine (DG, n=27) intravenously prior to spinal anesthesia. The primary outcome was morphine consumption in the first 24 hours following surgery. Secondary outcomes were a numeric rating scale for pain, motor and sensory blockade regression, intra-/post-operative side-effects and length of stay in the PACU.

Results:

The mean (SD) morphine consumption after 24 hours in DG was 35.4mg(13.6) vs 47.2mg(19.5) in NS group (Mean difference 11.8mg; 95% CI 2.631-21.028; P <0.01). More patients in DG experienced hypotension intraoperatively (24 vs. 17; p = 0.02) and in PACU (22 vs. 15; p=0.04) compared to NS group. There were no significant differences in pain scores at 6, 12, and 24 hours, time to motor and sensory blockade regression, bradycardia, post-operative side effects and length of stay in the PACU.

Conclusions:

A reduced single dose dexmedetomidine was associated with a significant decrease in morphine use in the first 24 hours and no difference in length of stay in the PACU following total knee arthroplasty. A single dose of dexmedetomidine in patients receiving spinal anesthesia can produce effective intraoperative sedation and postoperative analgesic effects without significant side-effects and may offer a more effective dosing strategy compared to infusion regimens.