

Oral Dexamethasone Reduced Pain after Total Knee Arthroplasty: A Randomized Placebo-Controlled Trial

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INTRODUCTION:

Corticosteroid has been known of its capacity to control pain after total knee arthroplasty (TKA). Ambulatory TKA becomes more popular nowadays. Oral dexamethasone (DEX) has good bioavailability. There was no study of oral DEX for controlling pain after TKA. The purpose was to investigate the efficacy and adverse events of oral DEX in controlling pain for patients undergoing unilateral TKA.

METHODS:

We randomized 120 patients undergoing TKA into three groups. DEX-16 group received 16 mg of oral DEX, DEX-8 group received 8 mg of oral DEX and placebo group. All patients received their drugs in the morning before surgery and once a day for 5 days. The postoperative pain control and rehabilitation protocols were identical. The primary outcome was pain level (visual analog scale [VAS], 0-10) at rest and during motion up to 2 weeks after surgery. Secondary outcomes were, rates of postoperative nausea and vomiting (PONV), fasting blood sugar (FBS) level, serum C-reactive protein (CRP) level, the amount of opioid consumption, WOMAC score, knee range of motion (ROM) and surgical wound complication. ANOVA test and t-test were used for analysis.

RESULTS:

Both DEX-16 and DEX-8 groups had a lower average VAS of 2 points at rest and during motion from 18 hours to 6 days after surgery compared with placebo ($p < 0.05$). There was similar pain level between the 2 doses of oral DEX. Rates of PONV was approximately 4 times less in DEX groups compared with placebo ($p < 0.05$). DEX-16 group had higher average FBS level of 20 mg/dL compared with DEX-8 and placebo groups at 2nd day after surgery ($p < 0.05$). The CRP level was approximately 2 times lower in DEX groups compared with placebo at 1st and 2nd day after surgery ($p < 0.05$). Opioid consumption, WOMAC score, ROM were also similar ($p > 0.05$). Two patients in DEX-16 and placebo groups had periprosthetic infection.

DISCUSSION AND CONCLUSION:

Either 8 or 16 mg of oral DEX for 5 days reduced postoperative pain, PONV and inflammation after TKA. But 8 mg of oral DEX had less elevation of FBS level compared with 16 mg. With the ease of administration, higher efficacy, lower complication, and lower cost, 8 mg of oral DEX is a suitable choice for acute postoperative pain management after TKA, particularly those with contraindications to other medications and ambulatory fashion.