# Low-Dose Ketamine following Periacetabular and/or Femoral Osteotomy is Associated with a Significant Reduction in Postoperative Opioid Requirements

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INTRODUCTION: Previous studies have sought to determine the effect of inpatient ketamine therapy on postoperative pain in a variety of surgical specialties. The purpose of this study was to determine the effects of postoperative ketamine analgesia following periacetabular osteotomy (PAO) and/or de-rotational femoral osteotomy (DFO) on opioid requirements, pain, and discharge time.

METHODS: Prospective data was collected on 145 postoperative patients who underwent a PAO and/or DFO by the senior author from January 2021 to December 2022. In 2021, patients (n = 91) received a traditional postoperative multimodal pain regimen. In 2022, postoperative low-dose ketamine (0.1-1 mg/kg/hr) was added to the multimodal analgesic approach for up to 48 hours postoperatively (n = 81). The ketamine and control groups were matched based on procedure. Total opioid consumption was collected using morphine milligram equivalents (MME). Postoperative pain was calculated using the Defense and Veterans Pain Rating Scale (DVPRS) analyzed as average score per day. Data on both mean MME and DVPRS were analyzed for up to seven days postoperatively. Linear mixed statistical analysis was performed to determine the significance of low-dose postoperative ketamine on postoperative pain and opioid utilization.

RESULTS: Patients who did not receive ketamine following PAO and/or DFO utilized a mean of 181 MMEs and had a mean DVPRS score of 4.18. Patients who received postoperative ketamine required a mean of 119 MMEs and had a mean DVPRS score of 4.34. The ketamine group was found to consume a significantly lower total MME dose per day ($p<0.001$). There was no significant difference in mean DVPRS score between the ketamine and control groups ($p=0.42$). In addition, there was no significant difference in day of discharge ($p=0.79$).

DISCUSSION AND CONCLUSION: Patients who received postoperative ketamine following PAO and/or DFO had a significant decrease in MME when compared to a control group of patients who did not receive ketamine. Surgeons should consider adding ketamine to their postoperative multimodal pain control protocol to decrease opioid consumption, while adequately addressing postoperative pain.