

Low-Dose Short-Term Scheduled Ketorolac Reduces Opioid Use and Pain in Orthopaedic Polytrauma Patients: A Randomized Clinical Trial

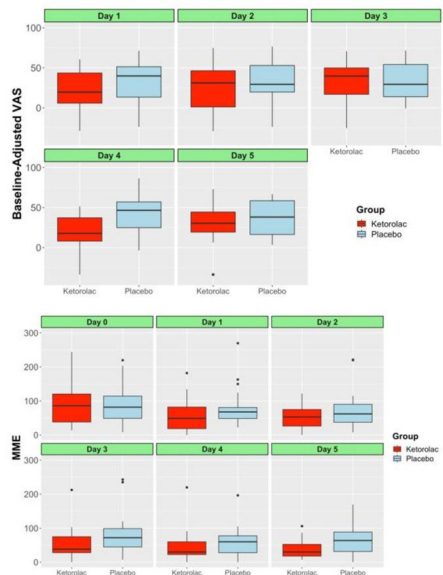
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Purpose: The posttraumatic inflammatory response after orthopaedic injury is a complex process that can lead to posttraumatic pain. A double-blinded, randomized controlled trial was conducted to determine whether scheduled low-dose, short-term ketorolac is associated with reduced length of stay, opioid use, and pain in orthopaedic polytrauma patients.

Methods: Orthopaedic trauma patients 18-70 years of age with a New Injury Severity Score (NISS) >9 and without contraindication to nonsteroidal anti-inflammatory drugs (NSAIDs) were recruited from a Level I trauma center. Patients were randomized to the ketorolac or placebo group with the ketorolac group receiving 15 mg of IV ketorolac every 6 h for up to 5 inpatient days and the placebo group receiving 2 mL of IV normal saline in a similar fashion. The main outcome measurements were length of stay (LOS), morphine milligram equivalents (MME), and daily visual analog scale (VAS) scores. Group-level summary statistics were calculated for clinical and demographic variables, and differences between the 2 groups were evaluated using two-sample t-tests for quantitative measures and Fisher’s exact tests for categorical measures, as appropriate. Due to right-skewness, LOS and MME values were log-transformed before analysis and summarized using medians and interquartile ranges for each group. The VAS model was adjusted for baseline levels as a covariate, which differed significantly between groups.

Results: In total, 70 participants were enrolled, with 35 randomized to the ketorolac group and 35 to the placebo group. Study groups were balanced with respect to age, body mass index, and NISS. LOS was not significantly different between groups ($P = 0.275$). Over the 5-day treatment period, the ketorolac group experienced a 32% reduction in average MME ($P = 0.013$) and a 12-point reduction in baseline-adjusted mean VAS ($p = 0.037$) compared to the placebo group.

Conclusion: Scheduled low-dose, short-term IV ketorolac was associated with significantly reduced inpatient opioid use and pain in orthopedic polytrauma patients with no significant difference in LOS and no apparent short-term adverse effects. The results support the use of scheduled low-dose, short-term IV ketorolac for acute pain control among orthopaedic polytrauma patients. Future studies are needed to delineate lasting clinical effects and potential long-term effects, such as fracture healing.



See the meeting website for complete listing of authors’ disclosure information. Schedule and presenters subject to change.