

# Postoperative Pain Management with Metamizole after Orthopedic Surgery: A Systematic Review

Michael Braman, B.Bm.E.<sup>1</sup>, Collin Freking, B.S.<sup>1</sup>, Laura Jackson, M.S., Ph.D.<sup>1</sup>, Johnathan Dallman, M.D.<sup>1</sup>, Archie Heddings, M.D.<sup>2</sup>

<sup>1</sup>University of Kansas School of Medicine-Kansas City, Kansas City, KS

<sup>2</sup>University of Kansas Medical Center, Kansas City, KS, Department of Orthopedic Surgery and Sports Medicine

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**Introduction.** Postoperative pain control is critical in orthopedic surgery. While efficacious analgesics, opiates have rapid tolerance and addictive potential. Metamizole is a non-opioid analgesic that primarily works by inhibiting COX-3, commonly used in Europe and South America, but banned in the U.S. due to concerns about agranulocytosis risk. However, large meta-analyses have not shown significant agranulocytosis when compared to other commonly used analgesics. The purpose of this review was to assess the analgesic efficacy of metamizole and potential use in orthopedic surgery.

**Methods.** An electronic review was conducted using PubMed, Web of Science, Cochrane, Embase, OVID Medline in October 2023. Studies for inclusion were limited to those in which metamizole use was a primary focus and patients were undergoing orthopedic surgery.

**Results.** 1,112 studies were identified and 15 met inclusion criteria. The use of metamizole as a single agent or in combination therapy was described to be superior or noninferior to alternative analgesics in 10 (66.7%) studies. Metamizole decreased rescue analgesia in 5 (33.3%) of the articles. Compared to other drugs, metamizole did not have significant differences in incidence or severity of side effects and no patients experienced agranulocytosis.

**Conclusions.** Metamizole was efficacious and non-inferior to other non-opioid analgesics by demonstrating an opioid sparing effect in over a third of included studies. Further, no cases of agranulocytosis were seen across the studies. These results indicate the potential for metamizoles use as part of analgesia in the setting of orthopedic surgery. Future studies should focus on larger cohorts to continue to assess efficacy and risk of agranulocytosis.