# AN OPTIMAL INTRAOPERATIVE KETAMINE DOSAGE FOR POSTOPERATIVE PAIN MANAGEMENT

**Anna M. Allred and Brittney L. Rhodes**

## Abstract

**Purpose:** Postoperative pain is defined as a form of acute pain that arises after surgical manipulation and trauma accompanied by an inflammatory reaction and commencement of an afferent neuronal cascade. Clinicians have multiple methodologies regarding management of postoperative pain. The purpose of this systematic review is to evaluate whether there is an optimal intraoperative intravenous ketamine dose to effectively manage postoperative pain.

**Methodology:** A literature search was completed of studies published in peer-reviewed journals dating 2012 to 2021. Search engines utilized were CINAHL, ProQuest, ScienceDirect, Medline, Ovid, and Cochrane as well as a grey literature search. Article titles and abstracts were reviewed for relevance and were omitted if they were not written in English and did not relate to ketamine administration, postoperative pain, or the adult population. The Joanna Briggs Institute critical appraisal tools were utilized to critically appraise the full-text articles. A total of ten studies passed and were included in this review.

**Results:** Results were mixed in identifying a sole optimal dose of intraoperative ketamine to manage postoperative pain. Most of the literature supports the use of low-dose ketamine in this regard. Based on the results of the available literature, ketamine administered intraoperatively as a bolus dose of 0.2-0.5 mg/kg or as an infusion at 0.1 mg/kg/hr can alleviate postoperative pain.

**Implications for Practice and Research:** Currently, there is not enough consistent evidence to lobby for or against a practice change regarding the administration of ketamine intraoperatively to manage postoperative pain. Perioperative healthcare providers should selectively offer this pain management strategy based on their professional judgment and patient-specific situation. Studies comparing different doses of ketamine would be beneficial. Future studies should also be performed with consistently larger sample sizes as this offers more reliable results with greater accuracy.