Perioperative intravenous ketamine for acute postoperative pain management in adult cancer patients undergoing solid tumor resection

Systematic review and metaanalysis

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Background and Goal of Study

Materials and Methods

Systematic review and metaanalysis of randomized controlled clinical trials searched in Central, Medline, Embase, Lilacs and exploring gray literature, following the Cochrane recommendations.

The outcomes were the analgesic efficacy measured by analog visual scale from 0-100 during the first postoperative 24 hours and the cumulative opioid requirements in the same period.

Surgery is the principal treatment for adult oncology patients. Suboptimal acute pain management increases morbidity and chronic pain.

Opioid drugs
They have the potential of decreasing innate and adaptive immune response for neoplastic processes.

Main Objective
To evaluate the efficacy of perioperative intravenous ketamine for acute postoperative pain management and opioid sparing effect on adult oncology patients undergoing solid tumor resection.

The security outcome was intended to report adverse effects of the intervention, and the implication for chronic postoperative pain and tumoral recurrence.

The search was conducted independently by two investigators. The information was extracted using a standard template, which also evaluated the risk of bias.

Results and Discussion

We included 5 randomized clinical trials over 101 studies found.

The metaanalysis of analgesic efficacy showed reduced pain intensity at rest during the 6 (MD -12.58 [-22.42, -2.73]) and 12 postoperative hours (MD - 10.55 [-19.76, -1.34]) but not at 24 (MD -7.34 [-16.19, 1.52]).

The opioid sparing effect was not significant at 24 hours (MD -4.67mg [-12.62, 3.28]). However, the calculated heterogeneity with I2 was greater than 80%, even using a sensitivity analysis.

There was not a clinical difference for adverse events and postoperative nausea and vomiting. One of the trials concluded a decreased postoperative chronic pain at 6 months. There was no report of oncologic recurrence.

Conclusion

Perioperative intravenous ketamine in adult oncologic patients undergoing solid tumor resection has an analgesic efficacy during the first 12 postoperative hours, without opioid sparing effect, despite significant heterogeneity between the studies. There is lack of evidence around the tumor progression.

Pain Intensity at rest: 6 postoperative hours.

Pain Intensity at rest: 12 postoperative hours.

Pain Intensity at rest: 24 postoperative hours.

Cumulative morphine consumption: 24 postoperative hours.

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