

The Effectiveness of Interventional Neuromodulation in Reducing Opioids Use: A Systematic Review and Meta-Analysis

Crystal Lee, BS¹, Kevin W. Tang, BS¹, Haijun Zhang, MD^{1,2}

1. Rutgers New Jersey Medical School 2. Department of Anesthesia and Perioperative Care

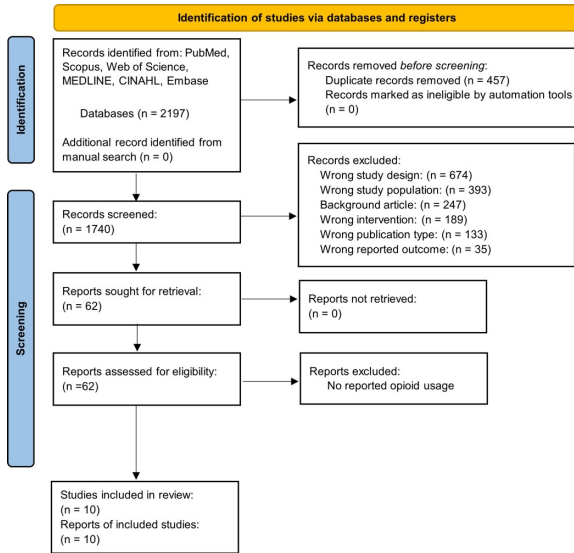
BACKGROUND

Chronic pain poses a significant challenge to patient well-being and treatment refractory pain has been well understood to be a significant contributor towards opioid usage. Neuromodulation offers a promising alternative, aiming to reduce pain and pharmacological dependency, though more research is needed on its efficacy in opioid reduction. A systematic review and meta-analysis identified ten studies showing varying degrees of reduced opioid use post-neuromodulation, highlighting the need for further investigation to understand the impact of neuromodulation on opioid management comprehensively.

DISCUSSION

Results showed heterogeneous reduction and/or elimination of opioid use amongst all studies ($I^2 = 87.55\%$, $p < 0.001$). However, further meta-analysis of treatment comparisons of four studies that reported opioid use outcomes in post-neuromodulation and conventional medical management (CMM) cohorts showed an increased odds ratio of opioid reduction in patients treated with neuromodulation versus CMM ($I^2 = 45.79\%$, $p = 0.137$). There were limited studies that included opioid use data for both treatment and control groups; however, all studies reported an increased proportion of reduction in opioid use in the post-neuromodulation cohort. We recommend further studies to closely follow-up opioid use in patients after neuromodulation and record ancillary parameters such as baseline and follow-up morphine milligram equivalent (MME) to further characterize the effectiveness of neuromodulation on reducing opioid use.

METHODS



RESULTS

Figure 1: Proportional meta-analysis of opioid use reduction after neuromodulation

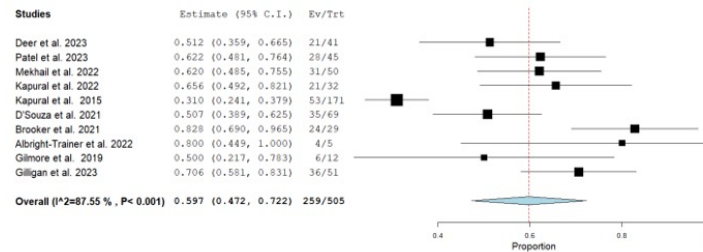
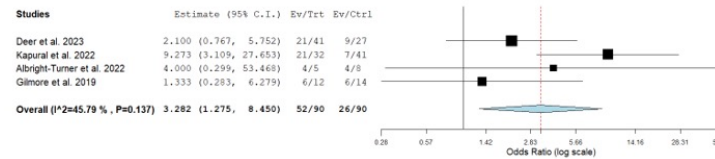


Figure 2: Meta-analysis of opioid use reduction after neuromodulation versus conventional medical management



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