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Efficacy of Intravenous Ketamine Versus Intravenous Tramadol on Post-Spinal Anesthesia Shivering Management: A Scoping Review

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ABSTRACT

Introduction: Shivering is prevalent in 40-60% of patients undergoing spinal anesthesia, resulting in adverse outcomes and increased healthcare expenses. Ketamine, an N-methyl-d-aspartate receptor antagonist, and tramadol exhibit analgesic properties, potentially mitigating post-spinal shivering. This scoping review aimed to compare the efficacy of intravenous ketamine and tramadol in reducing the prevalence of shivering following spinal anesthesia by exploring existing literature on the subject.

Search Strategy: In early 2024, a retrospective meta-analysis was conducted to compare the effects of intravenous ketamine and intravenous tramadol on the prevalence of shivering after spinal anesthesia. This rapid scoping review, conducted over 16 weeks, used the Arksey and O'Malley framework and adhered to the STORIES guidelines. A systematic and comprehensive search among researchers used Medical Subject Headings (MeSH) to identify terms, searching databases such as Scopus, Web of Science, PubMed, Cochrane, Google Scholar, and Semantic Scholar.

Results: A total of 1,316 articles were identified in the search strategy. After removing the 58 duplicate articles, 1,258 studies were included in the title and abstract screening. Of these, 6 conference papers, 42 systematic reviews, 94 book chapters or animal studies, and 2 theses were excluded. Afterwards, 97 studies were reviewed for full text. Of these 97 studies, 78 were unrelated to the research question, 1 was a language difference, and 11 lacked full-text availability. Finally, 6 studies—5 randomized controlled clinical trials and 1 prospective cohort study—from Iran, Pakistan, India, Egypt, and Ethiopia, involving patients aged 18 to 65 years, were included in the final review. In 4 and 2 studies, ketamine (66/6%) and tramadol (33/3%) had a superior effect in correction management, respectively.

Conclusion and Discussion: The scoping review highlights the efficacy of ketamine and tramadol in reducing shivering post-spinal anesthesia, with divergent side effects. Ketamine is more effective and has fewer adverse reactions (nausea, vomiting, and bradycardia) than tramadol. However, association of ketamine with increased hallucinations warrants consideration. Tailored drug selection based on patient condition and associated side effects is crucial. Research challenges entail diverse study designs, demographics, drug doses, and outcome measures, necessitating further investigation for comprehensive understanding and emphasis on safety assessment.

Keywords: Ketamine, Shivering, Tramadol

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