Hemodynamic Effects of Acetaminophen Injection in Patients Admitted to the Intensive Care Unit

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ABSTRACT

Introduction: Injectable acetaminophen (paracetamol) is an effective drug for reducing pain and fever. Vast changes in the hemodynamic status of patients hospitalized in the intensive care unit (ICU) are always considered one of the most important challenges in their care process. The present review investigated the hemodynamic effects of acetaminophen injection in patients hospitalized in the ICU.

Methods and Materials: We examined 15 articles that met the inclusion criteria in this systematic review. Google Scholar, SID, PubMed, Elsevier, Scopus, Web of Science, and Science Direct databases were searched using the keywords “after intensive care”, “risk factors”, “intensive care unit”, “cognitive problems”, “related synonyms” between 2000 and 2024. The search was performed without language restrictions, and articles without abstracts or full text and conference articles were excluded. Two researchers initially screened articles by reviewing titles and abstracts, then read the full text of eligible articles to determine their inclusion in the study. The third person supervised the process of data extraction.

Results: A review of studies showed hemodynamic changes following intravenous acetaminophen injection, but its action mechanism was poorly understood. In most studies, the mean arterial pressure decreased following the injection. Cases involving systolic and diastolic blood pressure were also documented. Several studies focused on implementing therapeutic measures for hypotensive episodes, such as the injection of crystalloid solutions or vasoconstrictors (vasopressin).

Conclusion and Discussion: Hemodynamic changes following acetaminophen injection show that the public belief about its safety is flawed. Using this drug in patients at risk of hemodynamic changes requires special attention, and the treatment team must be aware of the risks and appropriate treatment measures. However, adjusting the medication based on the benefit-harm principle may be appropriate for certain patients.

Keywords: Acetaminophen, Hemodynamics, Intensive care units

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