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Rapid tranquilization of the agitated patient in the ED: A Bayesian network meta-analysis

Background: Rapid, safe and effective tranquilization of the acutely agitated patient is a common and major challenge in the ED. Multiple pharmacological agents have been studied, alone or in combination, but head-to-head comparisons of all agents are limited. The objective of the current study was to attempt to identify the most optimal agent(s) for rapid tranquilization of the agitated patient in the ED.
Methods: We conducted a systematic review and Bayesian network meta-analysis of randomized controlled trials that examined the efficacy of various sedative agents, alone or in combination, for rapid tranquilization of the acutely agitated ED patient. We searched PubMed, Embase, and Web of Science up to November 2020 and used the Cochrane Risk of Bias version 2 tool for quality assessment of included studies. Subsequently, we conducted network meta-analyses to calculate the odds ratios (ORs) with 95% credible intervals (CrI) for the outcome of adequate sedation within 30 minutes. We used surface under the cumulative ranking (SUCRA) curves to rank various sedative agents in terms of efficacy.
Results: Twenty-one studies evaluating 14 single or a combination of agents in 3,169 patients were included. Midazolam plus droperidol is most likely to be the superior combination therapy for rapid tranquilization (SUCRA 94.6%) followed by midazolam plus olanzapine (91.4%). Ketamine is most likely to be the superior single agent therapy (88.7%) for rapid tranquilization.
Conclusion: Midazolam plus droperidol is most likely to be the superior combination of pharmacological agents for rapid tranquilization of the acutely agitated patient in the ED within 30 minutes, and ketamine is most likely to be the superior single agent. Direct comparison of midazolam plus droperidol and ketamine is recommended.

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