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Block 10 CAT

Article:

Ketamine as a first-line treatment for severely agitated emergency department patients

Riddell J, Tran A, Bengiamin R, Hendey GW, Armenian P. American Journal of Emergency Medicine
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Question:

Primary objective was to compare the effectiveness and safety of ketamine to benzodiazepines and benzodiazepines plus haloperidol for sedation in agitated ED patients. Secondary objective was to compare adverse events, repeat/rescue dosing, and vital sign changes among the groups.

Study Type:

Single center, prospective, observational study

Method:

106 agitated ED patients between 18-65 years of age were enrolled at an urban level 1 trauma center that sees 115,000 patients a year. Of these, 98 met eligibility criteria. Pregnant patients, patients in custody, and those who could not receive cardiac/respiratory monitoring were excluded. All patients were acutely agitated and received sedating medication. A previously validated sedation scale was employed to record sedation levels at intervals of 0, 5, 10, and 15 minutes after medication administration. The time to when providers subjectively decided that adequate sedation was achieved was also recorded. Due to the observational nature of the study, standardized dosing of sedating medication was not assured. A retrospective chart review was performed to assess the secondary outcomes of adverse events, repeat/rescue dosing, and vital sign changes.

Results:

Patients who received ketamine tended to be significantly younger with median age 29 versus the other groups with median age >40. Additionally, the majority of the study's sample was male. No significant difference in race, substance use, psychiatric history, final disposition, initial agitation score, or medication re-dosing was found among the groups. At each time interval after medication administration (5, 10, 15 min), a significantly greater amount of patients in the ketamine group were no longer agitated when compared to the other groups. Interestingly, however, there was no significant difference in time to subjectively adequate sedation between ketamine and the other groups. A significant reduction in pulse rate was noted with midazolam; however, no further significant differences in vital sign changes were noted among all groups.

Limitations/Issues

There were significant limitations secondary to the study's observational nature. The patients were not randomized, leading to significantly higher proportion of younger patients in the ketamine group. Additionally, the majority of the study was male. Uniform dosing of medication was not employed. The authors also note that the study was not powered to assess the secondary outcomes adequately. Additionally, agitated patients in the ED are often treated with an antihistamine in combination with a benzodiazepine and haloperidol. The addition of an antihistamine was not addressed in this study. Also,

this was a relatively small sample size at a single center and may not be generalizable to other patient populations. Finally, this study did not take into account pre-hospital medication by EMS.

Conclusion/Discussion:

Given the positive results of this limited study, it is likely reasonable to utilize ketamine as a first line agent in agitated ED patients. However, care should be taken to recognize the limitations and inherent biases noted above.
