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Letters to the Editor

☐ NOT ONLY AGE, BUT ALSO NARCOTIC AGENTS AND TYPES OF PROCEDURE COULD AFFECT KETAMINE DOSAGE

☐ **To the Editor:**

With great interest we read the article by Forrester et al. showing that younger children (<3 years of age) received higher total dosages of ketamine for procedural sedation as compared with older children (3−18 years of age) (1). Although this study might be useful to anticipate the dose of ketamine during procedural sedation in children, caution is warranted in interpreting the results.

First, the authors have concluded that children < 3 years of age received more frequent ketamine doses as well as higher standardized repeat doses as compared with older children. However, the results would be modified by the use of narcotics—those who received a narcotic would receive a significantly lower dose of ketamine. As narcotic agents could enhance the selective actions of ketamine, the age-related differences in the dosage and timing of ketamine administration might reflect narcotic use (2,3). To address this concern, further analysis with stratification by age and use of narcotics would be beneficial.

Second, the kind of emergency procedures that required sedation differed across the different age groups. Indeed, sedation was commonly used for laceration repair or abscess drainage in younger children, whereas it was used for fracture reductions in older children. Thus, the dosages of ketamine might depend on the degree of invasiveness of the procedure. Therefore, we also suggest that a stratified analysis by the type of procedure would be beneficial to enhance the study inferences.

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REFERENCES

1. Forrester KR, Thomas SM, Gupta NK, et al. Repeat intravenous ketamine dosing in children undergoing emergency department procedural sedation. J Emerg Med 2019;56:1–6.
2. Pruskowski KA, Harbourt K, Pajoumand M, et al. Impact of ketamine use on adjunctive analgesic and sedative medications in critically ill trauma patients. Pharmacotherapy 2017;37:1537–44.
3. Lilius TO, Jokinen V, Neuvonen MS, Niemi M, Kalso EA, Rauhala PV. Ketamine coadministration attenuates morphine tolerance and leads to increased brain concentrations of both drugs in the rat. Br J Pharmacol 2015;172:2799–813.

☐ REPLY TO "NOT ONLY AGE, BUT ALSO NARCOTIC AGENTS AND TYPES OF PROCEDURE COULD AFFECT KETAMINE DOSAGE"

☐ **To the Editor:**

We thank Drs. Suzuki and Goto for their insightful Letter to the Editor regarding ketamine dosing in children. We agree that ketamine requirements might be affected by narcotic administration. The data found in our study support this belief. As we stated in the article, "Among all patients, those who received a narcotic received significantly less ketamine (in mg/kg/h) when compared with those who did not receive a narcotic (1.8 mg/kg/h [IQR 1.1–2.8] vs. 2.1 mg/kg/h [IQR 1.2–3.3], respectively, $p = 0.04$)."

We also agree that ketamine requirements might depend on the degree of invasiveness of the procedure being performed. As stated in their letter, in our study, we indeed found that sedation was more commonly used for laceration repair or abscess drainage in younger children, whereas it was more commonly used for fracture reductions in older children.

A stratified analysis factoring in age, narcotic administration, and procedure type would aid in further accounting for these variables. In analyzing the data for our study, we did explore these potential relationships, however, we found that the sample size for many of the strata were too small to reach statistically meaningful conclusions.

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☐ REMEMBER ATROPINE FOR "KILLER B'S"

☐ **To the Editor:**

With great interest we read the article from Sercan and Selahattin titled "Respiratory failure due to plant poisoning: *Nicotiana glauca* Graham" in the latest issue of *The Journal of Emergency Medicine* (1). Anabasine is an alkaloid found in the plant *Nicotiana glauca* and is chemically similar to nicotine. Toxicity manifests as a cholinergic syndrome that includes weakness, hypertension, tachycardia, convulsions, and muscle fasciculations, due to overstimulation of nicotinic acetylcholine receptors in the central and peripheral nervous system. However, prolonged depolarization at the receptor diminishes the responses and results in hypotension, bradycardia, paralysis, and coma (2). We are not informed about pupil size nor occurrence of bradycardia and hypotension when the patient deteriorates. In that case, atropine can be used for treatment of bradycardia. The authors describe some symptoms that may also indicate muscarinic overstimulation (vomiting, salivation, and bronchorrhea). Muscarinic symptoms can be remembered by the mnemonic DUMBELS, which is an acronym for Diarrhea, Urination, Miosis, Bronchospasm/bronchorrhea/bradycardia, Emesis, Lacrimation, and Salivation/sweating/secretion. Atropine is a muscarinic agonist and is able to reverse muscarinic symptoms. Atropine is especially useful when facing high-risk symptoms like bronchorrhea and bradycardia (killer B's). Although treatment in this case was supportive, please remember atropine as an antidote, especially when confronted with a cholinergic crisis with possible signs of muscarinic symptoms, including the killer B's!

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REFERENCES

1. Sercan Y, Selahattin KG. Respiratory failure due to plant poisoning: *Nicotiana glauca* Graham. J Emerg Med 2018;55:e61–3.
2. Hoffman RS, Howland MA, Lewin NA, Nelson LS, Goldfrank LR. Goldfrank's toxicologic emergencies. 10th edn. New York: McGraw-Hill Education; 2015.