

Washington University Emergency Medicine Journal Club
IM Ketamine for Prehospital Sedation of the Agitated Patient

Vignette

You are working a night shift in EM-1 and have just started to catch up after signout, consisting of more than a few inebriated patients awaiting sobriety, when you hear commotion out in the hall. EMS and police are bringing in a large, screaming, flailing, adult male patient handcuffed to the stretcher. The paramedics report that the patient is known to them as a schizophrenic and the family called due to bizarre behavior and not taking his medications.

As the security team puts on their gloves for what is likely to be a hazardous transfer of the patient to room 8, the nurse asks “5 and 2?” As you are about to say yes, the paramedics report that about 5 minutes ago they gave the patient 5mg IM haloperidol and 10mg IM midazolam. Judging by the severely agitated patient in front of you, the medications have not kicked in. Now the decision is to give more drugs, wait for the medication already given to work, or just transfer the patient kicking and screaming. While mulling it over, you see that other patients and their families are alarmed, none of the staff in the area are able to complete their tasks, and your pod is essentially paralyzed.

Recalling many such similar incidents in the past, you wonder if there is a better way. Is there a different therapy option that might reduce the chances for injury of the patient and providers? How about something that is more rapid in onset than our old “5 and 2”? You remember hearing that ketamine is now being stocked on some ambulances for this purpose. When you wake up the next day after your shift you decide to look into the evidence behind prehospital ketamine for agitated patients.

PICO Question

Population: Adult patients with severe agitation requiring chemical sedation in the prehospital setting

Intervention: IM or IV ketamine

Comparison: Other chemical sedative agents such as haloperidol, droperidol, or midazolam

Outcome: Successful sedation, transport times, need for intubation, provider safety, cost

Search Strategy

PubMed was searched using the terms “prehospital ketamine agitation,” resulting in 13 articles (<http://tinyurl.com/gv3bfsv>). The reference sections of these articles

were searched for additional citations, and the four most relevant articles were chosen.

Article 1: [Scheppke KA, Braghiroli J, Shalaby M, Chait R. Prehospital use of i.m. ketamine for sedation of violent and agitated patients. West J Emerg Med. 2014 Nov; 15\(7\):736-41. *Answer Key.*](#)

Article 2: [Cole JB, Moore JC, Nystrom PC, Orozco BS, Stellpflug SJ, Kornas RL, Fryza BJ, Steinberg LW, O'Brien-Lambert A, Bache-Wiig P, Engebretsen KM, Ho JD. A prospective study of ketamine versus haloperidol for severe prehospital agitation. Clin Toxicol \(Phila\). 2016 Aug;54\(7\):556-62. *Answer Key.*](#)

Article 3: [Olives TD, Nystrom PC, Cole JB, Dodd KW, Ho JD. Intubation of Profoundly Agitated Patients Treated with Prehospital Ketamine. Prehosp Disaster Med. 2016 Sep 19:1-10. *Answer Key.*](#)

Article 4: [Keseg D, Cortez E, Rund D, Caterino J. The Use of Prehospital Ketamine for Control of Agitation in a Metropolitan Firefighter-based EMS System. Prehosp Emerg Care. 2015 January-March;19\(1\):110-115. *Answer Key.*](#)

Bottom Line

The limited evidence available on the use of ketamine for prehospital sedation of agitated patients suggest a rapid onset of action (median 5 minutes to adequate sedation vs. 17 minutes with haloperidol), but a much higher rate of intubation. Intubation rates in the 4 papers we looked at ranged from 6% to as high as 63%. While it is quite likely that the high intubation rates seen in all of these papers was due to lack of familiarity with ketamine and its dissociative effects, such a high complication rate is quite concerning. Further research will need to demonstrate lower rates of intubation in facilities more familiar with ketamine, and successful education to prevent intubation in other facilities, before more widespread use should be considered.