



MEDICAL CONTROL POLICY STATEMENT/ADVISORY

No. 2016-04
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MDHHS Position on Ammonia Inhalants

ALL SVMCA PROVIDERS:

Please see the attached memo regarding the use of ammonia inhalants in the pre-hospital setting. The SVMCA concurs with this position as there is no evidence that the inhalants can contribute to a positive impact on patient care.

I will also attach two of the three citations from the MDHHS memo to this document for your review. All may be viewed as well by following these links:

Memo

https://content.govdelivery.com/attachments/MIDHHS/2016/09/26/file_attachments/627508/Ammonia%20Inhalants%20Memo.pdf

Bledsoe JEMS Article

<http://www.jems.com/articles/print/volume-33/issue-3/administration-and-leadership/clinical-alert-my-patient-faki.html>

JEMS Ammonia Article

<http://www.jems.com/articles/2004/04/ammonia-inhalants.html>

A handwritten signature in black ink, appearing to read 'Eric Snidersich'.

Eric Snidersich, BS EMT-P
EMS Manager, SVMCA

Attachments:

1. MDHHS Ammonia Inhalant Memo – 09/22/16
2. Bledsoe JEMS Article
3. JEMS Ammonia Article



STATE OF MICHIGAN
DEPARTMENT OF HEALTH AND HUMAN SERVICES
LANSING

RICK SNYDER
GOVERNOR

NICK LYON
DIRECTOR

September 22, 2016

TO: Medical Control Authorities
EMS Agencies
EMS Personnel

FROM: Kathy Wahl, Director Division of EMS and Trauma

SUBJECT: Ammonia Inhalants

This memo is in response to a question requesting an opinion of the QA Task Force on the use of ammonia inhalants. For several reasons which will be outlined below, it is the opinion of MDHHS, Division of EMS and Trauma leadership and the Quality Assurance Task Force, that the use of ammonia inhalants is prohibited.

- The use of ammonia inhalants has been considered punitive and/or harmful in many instances.
- There is no approved use for ammonia inhalants to treat a medical condition. Patients suffering from head injuries, shock or strokes may also withdraw from the noxious stimulus.
- Ammonia can worsen pre-existing respiratory conditions.
- “There are other hazards associated...The violent physical response to ammonia may compromise the integrity of the spinal canal in patients with potential cord injury. The wild and forceful motions of the extremities may also pose challenges to patient and caregiver safety...Ammonia use may also produce coughing, nausea and vomiting which can increase the risk of aspiration in patients with an impaired gag reflex.” (JEMS, 2004)
- Regardless of the reason a patient may be “pretending” to be unconscious, there is generally a medical or behavioral health reason, and all patients deserve to be treated with dignity and respect. (Bledsoe, 2008)
- Ammonia can be harmful and in some cases fatal. It is not an innocuous agent. (Bledsoe, 2008)
- There is no indication for the use of ammonia inhalants in either the State of Michigan protocols or the National Model EMS Clinical Guidelines. (National Association of State EMS Officials, 2014)

In summary, as care providers, it is the role of EMS providers to treat all patients in a non-judgmental manner and to follow the rule of, “first do no harm.” Ammonia inhalants are not included in the list of approved supplies or protocols for EMS and therefore should not be carried by EMS agencies or personnel.

References

- Bledsoe, B. (2008). Clinical alert: Is my patient faking? *Journal of Emergency Medical Services*.
<http://www.jems.com/articles/print/volume-33/issue-3/administration-and-leadership/clinical-alert-my-patient-faki.html>
- Journal of Emergency Medical Services. (2004). Ammonia inhalants. *Journal of Emergency Medical Services*.
<http://www.jems.com/articles/2004/04/ammonia-inhalants.html>
- National Association of State EMS Officials. (2014). *National Model EMS Clinical Guidelines*.
<https://www.nasemso.org/Projects/ModelEMSClinicalGuidelines/documents/National-Model-EMS-Clinical-Guidelines-23Oct2014.pdf>

Clinical Alert: Is My Patient Faking?

Regardless, remember two of the most fundamental aspects of medicine

By Bryan Bledsoe, DO, FACEP, FAAEM, EMT-P

Fri, Feb 29, 2008 | JEMS Editorial Board member

At some point in your EMS career, a patient will fool you. It will make you angry and more suspicious of other patients. Some providers take such deceit as a personal affront and change their behavior. I've seen providers practice various pain-evoking maneuvers to try and determine whether their patient was faking. This is nothing new.

When I was a paramedic, we used the old "hand-drop" technique, which involves moving the forearm over the face of a supposedly unconscious patient and letting it go. In theory, an unconscious patient's hand would fall onto their face, but in the feigning patient, the hand would magically miss their face.

Others preferred the "fluttering-eyelash" technique. If you lightly touched the patient's eyelid and it fluttered, they were really awake and faking. Some providers used a hard sternal rub. I've also seen some physicians and nurses use the "nipple-squeeze technique." And then, there's ammonia. Some EMS personnel will pop an ammonia inhalant and hold it under the nose of a patient at the drop of a hat.

But what's the point? The patient must still be treated and transported. From my experience, it seems the purpose of these so-called "tests" is to have an excuse to skip normal patient care and treat the patient with an air of indignity. This may destroy any trust the patient has in you as a health-care provider.

The Ethics Behind the Profession

Ethically, we should be advocates for our patients, whether we like them or not. The EMT Code of Ethics states, "The Emergency Medical Technician provides services based on human need, with respect for human dignity, unrestricted by consideration of nationality, race creed, color or status."

The EMT Oath states, "I will follow that regimen, which, according to my ability and judgment, I consider for the benefit of patients and abstain from whatever is deleterious and mischievous, nor shall I suggest any such counsel." Thus, ethically, we must assume patients are telling the truth.

Although we may suspect that a patient is being less than honest, such thoughts shouldn't impact our patient care or decision making. Before we determine a patient is feigning illness or injury, we must first exclude all other possible medical and psychiatric causes. More often than not, there's a medical or psychiatric reason for the patient's behavior.

Case 1

I remember a case that occurred many years ago when a woman in her mid-30s was brought in from a bar. She had been drinking and complained of one leg jerking. The EMS personnel were sure she was faking. After all, who had ever heard of one leg jerking?

The nursing staff immediately bought into the idea that the patient was faking. She was treated curtly by the nursing staff and was placed in a room where she could be observed behind the curtains. It appeared that, when unobserved, her leg would stop jerking.

I evaluated her and decided to order some intravenous diazepam just in case the jerking was indeed a seizure. The nursing staff then teased me about being "too compassionate." They further speculated that the patient was most likely drug seeking, probably for the diazepam I had given her.

Her labs and drug screen came back negative (except for alcohol). I ordered a CT scan of her head and thought I saw something in the midline. The radiology resident agreed and suggested an MRI of the patient's brain, which I ordered. It showed the presence of a large brain tumor (meningioma) that crossed the midline of her brain, near the portion of her motor cortex that controlled her leg.

The ED staff became quiet and remorseful. Subsequently, everybody bent over backwards to treat her with respect and dignity. This resulted from the nursing staff's guilt and the realization that this poor woman might have had an inoperable brain tumor. In actuality, she should have been treated with respect and dignity as soon as EMS arrived on scene, and this should have continued in the ED.

Case 2

In November 2006, in Ann Arbor, Mich., a political protest was under way at the University of Michigan. For some reason, the protest became unruly. The police intervened, several people were arrested and a man was injured when he was pushed to the ground. Another protester, Catherine Wilkerson, MD, saw the man go down and went to his aid.

The first-arriving EMS crew provided appropriate care. Soon, a supervisor for the ambulance service arrived and quickly decided the patient was faking. He broke an ammonia inhalant under the patient's nose and said, "You don't like that, do you?" When he didn't get the response he wanted, he broke another and repeated the procedure.

When Wilkerson attempted to stop the paramedic supervisor from administering more ammonia, she was removed by police and later arrested and charged with interfering with an EMS crew and police.

The patient was transported to the hospital, extensively evaluated and diagnosed with a cerebral concussion, in addition to facial contusions. It turned out he wasn't faking at all.

The local district attorney pushed the case. Wilkerson wouldn't settle for lesser charges, and the case went to trial in December 2007. After days of testimony, the jury found Wilkerson not guilty of all charges. Interestingly, ammonia inhalants were removed from the ambulance service after the story hit the press.

Case 3

Although it's not an EMS story, another highly publicized case points out the problems with ammonia inhalants. In Panama City, Fla., a 14-year-old boy was admitted to a community juvenile boot camp after stealing his grandfather's car. The boot camp was designed to get young offenders on the right track before they end up in the prison system. The teenager, Martin Lee Anderson, wasn't keeping up on the initial morning run that the detention officers were monitoring.

When he fell down, several detention officers and a boot camp nurse began to break ammonia inhalants, hold Anderson down and cup the inhalants around his nose. They continued this until they used at least five or six inhalants -- over a five to six minute interval -- all caught on videotape. Anderson never got up. CPR was started, and he was taken to a community hospital, where he died.

It was later determined Anderson had sickle cell trait, a condition that decreases the amount of oxygen carried in the blood. After the incident, Florida Governor Jeb Bush ordered the state's attorney in Tampa to investigate. Although the initial autopsy in Panama City found that Anderson had died of "natural causes," the second autopsy in Tampa found that Anderson died of asphyxia due to repeated ammonia inhalation. Florida ended up paying the Anderson family \$5 million.

The Objective Approach

At some point in your career, you'll encounter patients who will feign illness or injury. But it's not the role of prehospital providers to determine whether a patient's complaints are legitimate. Assume that such complaints are real and treat the patient accordingly.

Sometimes it's necessary to elicit a pain response in a patient with altered mental status. But do it objectively and compassionately. It's best accomplished through a trapezius muscle squeeze, supraorbital pressure or mandibular pressure.

The trapezius squeeze is applied by grabbing approximately 1" to 2" of the trapezius muscle near the base of the neck between the thumb and index and long fingers, squeeze and twist.

To apply supraorbital pressure, feel for the notch along the ridge of the orbital rim near the underside of the eyebrow. Using a thumb, apply firm upward pressure to the notch. Mandibular pressure is applied with the index and middle finger pushing upward and inward at the angle of the mandible. Supraorbital pressure and mandibular pressure shouldn't be applied if a facial injury is present or suspected.

The Problem With Ammonia

There's absolutely no role for ammonia inhalants in prehospital care. We addressed this in the March 2003 issue of JEMS. Ammonia is toxic. It causes closure of the glottis and can activate the mammalian diving reflex (i.e., apnea, bradycardia).

Ultimately, ammonia can lead to hypoxemia. In most patients, this may not pose a problem. But if the patient has a disease that interferes with breathing or oxygen delivery (e.g., asthma, anemia, sickle cell trait), the results can be fatal. And, as occurred in the case of Anderson, the presence of the disease may not be known.

Conclusion

Remember two of the most fundamental aspects of medicine: First, always serve as an advocate for your patient. Never assume your patient is faking. Second, primum non nocere (first, do no harm). Never administer a treatment or procedure that will possibly harm your patient.

By

**Bryan Bledsoe, DO, FACEP, FAAEM, EMT-P JEMS Editorial
Board member**

Ammonia Inhalants

Not to be taken lightly

Fri, Apr 30, 2004 |

A book called *The Music of the Primes* recently crossed my reading table. It's the tale of how millennia of mathematicians have tried to unravel the mysteries of prime numbers (numbers not divisible by anything except themselves, such as 1, 2, 3, 5, 7, etc.). I'm not a math guy whatsoever, but the book was interesting in that it showed how mathematicians think and that many of them are just plain nuts. What struck me was how many times someone had thought they made a great discovery just to find that the same result had been presented some time earlier by someone else. It was like a sense of immortality found and then lost, with the heartache more painful each time.

It seems clear that one of the dangers of working in isolation is that you never know who else is writing what. Take the Case of the Month column in *JEMS*. When I was first asked to participate in it, I happily banged out a few cases, stockpiling them so I could send them off effortlessly when asked. This would give the folks at *JEMS* the impression that I was a virtuoso, able to generate pages of meaningful material at the drop of a hat. In fact, they were supposed to think that because I was so good at immediate production, they should give me real money to tour EMS systems throughout the world (well, they still ought to do that).

So I've got this backlog of cases, and while they sit and long for attention, the magazine moves on. And while I've got a case study about ammonia capsules patiently waiting its turn, the Nemesis (read as Bryan Bledsoe) manages to sneak in a whole article about ammonia and other rabble-rouser agents (This Procedure Stinks, March 2003 *JEMS*). This makes my case study redundant and not publishable for quite a while. But still it calls to me.

Suddenly I realized that I don't have to wait for the print version of *JEMS*. After all, I've got Web space. Take that, Texas-boy.

Introduction

Night shift workers often feel, if I'm awake, everyone should be. Perhaps that's the reason we focus so much energy in prehospital care on trying to rouse patients with altered levels of consciousness. We've discussed the hazards of one element of the

coma cocktail (flumazenil) in a previous case report. The ubiquitous ammonia capsule may also pose unforeseen hazards.

Case report

At least the coffee has chased down the donuts by the time you get the early morning call. Man down in the lot behind a bar. You know the address well, for you've been there before. Professionally, that is. It's 7:22 a.m., and you mention to your ride-along EMT student that going to this place during the day will be a novel experience.

You arrive to find a disheveled white male lying face up in the dirt surrounded by police and firefighters. Your initial assessment reveals that the patient has an intact airway and good pulses, and his vital signs are within normal limits. He rouses minimally to a sternal rub, with a groan, and shows no reaction to your voice. He has multiple contusions of various ages over his face and hands, and the overpowering odor of a beverage commonly associated with alcohol assaults your senses. Nobody seems to know how long he has been there, and, despite the efforts of the police, nobody seems to know who he is. The one thing you're sure of is that he's drunk, and that you've got an EMT student to impress, so it's time to break out the ammonia and demonstrate your prehospital skills.

The patient responds as expected when you snap open the capsule, with a loud grunt and wild thrashing of the head and neck. Yep, he's just a drunk. But you're cognizant of the bruises, and there's the student to think of, so you properly logroll and immobilize the patient. As you do, you note some bruising on the back of the head and neck.

You transport the patient without incident, and you're getting a cup of coffee from the ED nurse's lounge when one of the doctors beckons you into the X-ray room. Hey, look at this, he says, pointing out a C6 fracture on the radiograph. Pretty cool, huh? Can't move his arms or legs. Good thing you tied him down. You smile, hoping that the paralysis was there before you administered the ammonia.

Discussion

Ammonia (NH₃) is a direct respiratory irritant. When an ammonia capsule is broken open under a patient's nose, the irritative effect on nasal and pharyngeal mucous membranes produces a sudden, violent avoidance response. The head and neck thrash about, recoiling from the stimulus. If the patient is not restrained, the arms protectively cover the face and swipe at the nose, while the body quickly curls away from the capsule.

If you're looking for it to produce a response, it usually does. But the response to ammonia really doesn't mean very much. Arousal from the inhalation of ammonia fumes is non-specific irritant and cannot be linked to the use of any particular agent (like naloxone for opiates) or a specific disease state. Patients with strokes, in shock, with head injuries or intoxications may all respond similarly to the use of ammonia, but in no case is the response of help in sorting out the cause of an altered level of consciousness, nor in determining optimal care plans for different emergency conditions.

There are other hazards associated with the prehospital use of ammonia. As noted, ammonia is a direct respiratory irritant. Patients with respiratory distress or airway compromise due to airway edema from infection or inflammation may acutely worsen with administration of this drug (there's a reason hazmat teams are wary of ammonia spills). The violent physical response to ammonia may compromise the integrity of the spinal canal in patients with potential cord injury. The wild and forceful motions of the extremities may also pose challenges to patient and caregiver safety. Ammonia inhalation will increase intracranial pressure, making it relatively contraindicated in patients with head injury or intracranial bleeding (and it's often impossible to accurately diagnose these conditions in the field). Ammonia use may also produce coughing, nausea and vomiting, which can increase the risk of aspiration in patients with an impaired gag reflex.

A further point concerns the need for a neurologic assessment both before and after spinal immobilization. Any time one is to subject a patient to a clinical procedure, the relevant parts of the history and exam must be documented before and after the procedure has been performed. It doesn't have to be a major production simply asking the patient to move their fingers and toes and asking if they can feel your touch may be enough. It's crucial to recall that even the patient with an altered LOC can still be assessed for neurologic deficits by measuring pain response in the extremities (the withdrawal from pain is a reflex response not dependent upon conscious control or sensation).

Conclusion

The key to prehospital medicine is careful patient assessment accompanied by strict attention to the ABCs. The aggressive use of such agents as ammonia may place patients at risk. The only thing that should impress an EMT student is knowledgeable patient care.

All this being said, I do have to share one amusing ammonia factoid. Where I did my residency, we had an enlightened view of ammonia. In the spirit of equality and fairness

that characterizes our Constitution and the Natural Rights of Man, everyone deserved a chance to get some. I remember walking around with a pocketful of capsules in my lab coat and how tough it was to drive home the day I accidentally sat on them in the car. But mostly I remember a diagnostic technique called walrusing the patient, in which one of the white mesh-covered capsules was placed in each nostril, and the two tusks were then broken against the septum. In the days when CT scanning was something you could get only after calling the radiologist to come in from home, and even then it had better not be after midnight because the results wouldn't be available by morning, this was the only sure way you had to guarantee the patient had a real head injury. We found the method worked best when the staff recited Jabberwocky to the melody of White Rabbit in the background. Ah, for simpler times.

By

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