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Don't Be Shocked

July 18, 2004, *New York Times* article reported on the death of Kris Lieberman, a former landscaper in Pennsylvania. Something had caused Lieberman to snap emotionally. For 45 minutes, he had reportedly crawled around in a pasture, delirious, moaning and pounding his head against the ground. He's the type of memorable patient that EMS providers on the job for more than 10 years have occasionally encountered.

In Lieberman's case, police officers arrived carrying a relatively new piece of police weaponry, the Taser M26, a specialized "gun" with a laser beam that resembles a radar gun. A Taser disables the target via two electrified barbs that embed in the clothing and skin and cause the muscle groups to contract uncontrollably and shut down during a five-second burst of electricity.

While the officers were trying to calm the 32-year-old Lieberman, he lunged at them. They electrified the Taser probes twice. Reportedly, Lieberman briefly tried to resist or fight, but suddenly collapsed and died.

This month, Steve Whitehead takes a close look at the Taser and its implications for EMS (on p. 56). There's no doubt that the Taser quickly restrains unruly patients and eliminates the need for police to fatally shoot subjects under many circumstances. However, increased use of the Taser has brought with it a cloud of controversy over when it should (and shouldn't) be used. Nationally, about 100,000 officers carry and use Tasers, 20 times the number in 2000. Most carry the M26.

More than 70 cases similar to Lieberman's have been reported since 2001; all the victims collapsed and died after being shocked. Taser International, the sole manufacturer of Tasers, says the weapons aren't lethal, even for individuals with known heart conditions or pacemakers. The company claims the deaths resulted from drug

overdoses or other factors and would have occurred anyway.

That claim may be correct, but the fact remains that Taser has scant evidence supporting it. The company's primary safety studies on the M26 consist of tests on a single pig in 1996 and on five dogs in 1999 by company-paid researchers, not independent scientists.

The *Times* article points out a 1989 Canadian study that found stun guns induced heart attacks in pigs with pacemakers. A 1999 study by the Department of Justice on an electrical weapon much weaker than the Taser found that it might cause cardiac arrest in people with pre-existing heart conditions.

An article in the Jan-Mar 2005 *Topics in Emergency Medicine* discusses excited delirium in combination with other factors, such as drug and alcohol use, the individual's physical condition and the use of physical and mechanical restraints (including Tasers), that could lead to sudden in-custody death syndrome (SICDS).¹

These authors reference several issues that I want you to be aware of, because you'll begin to see how these factors could relate to the deaths occurring after Taser use. First, you need to be aware that *excited delirium* is a term used to describe the manifestations of extreme drug abuse. Not a recognized medical or psychiatric condition, it was originally a descriptive phrase

coined by medical researchers to describe the extreme end of a continuum of drug abuse effects.²

It's best to keep the term linked to the condition being described, such as "cocaine-induced excited delirium," so it's not mistaken for a recognized medical or psychiatric condition.

The next important area I want you to be aware of is that existing statistics and non-Taser research appear to show that some individuals may be more prone to cardiac arrhythmias after physical or mechanical restraint, and this result may be predictable based on their history and certain physical findings.

Here's what we already know: Anything that interferes with the body's ability to breathe by affecting the chest wall, diaphragm and muscles of the rib cage and abdomen causes a hypoxic state, which changes the body chemistry and can create a fatal heart rhythm.³

Certain individuals in states of acute psychological agitation and hyperactivity, and exhibiting a form of behavior disturbance in excess of what the police normally witness (unusually aggressive) don't respond appropriately to reasoning or commands and exhibit unusual strength. They may also be hyperthermic and have fluctuating levels of consciousness. It's these individuals who should trigger a red flag in your mind.

These patients may have other conditions that predispose them to excited delirium, such as exhaustion, dehydration and organic brain disease.

You'll also often see that police intervention or restraint prompts the person to launch into extreme, destructive behavior. They may also be on antipsychotic drugs (neuroleptics), such as Thorazine, Haldol, Risperdal or Zyprexa. Although these drugs help control the person's psychotic

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TABLE 1: Washoe County (Nev.) Sheriff's Department Risk Assessment Scale

Alcohol intoxication	1
Acute alcohol intoxication	3
History of alcohol abuse	2
Cocaine intoxication	4
Methamphetamine intoxication	3
Drug intoxication (other)	2
History of mental illness	2
Bizarre behavior	2
Shouting	2
Paranoia	3
Violence against others	2
Above normal physical strength	2
Sudden tranquility or lethargy	2
Moderate physical activity	2
Intense physical activity	3
Obesity	1
"Big belly"	2
Profuse sweating	4
Shivering	4
Ineffective results after OC (pepper) spray use	2
Cyanosis of the lips or nail beds	5
Confusion/disorientation	3

Score 16 or above: Subject is at *EXTREME RISK* for sudden in-custody death syndrome (SICDS). Immediate medical attention is necessary.

Score 10-16: Subject is at *HIGH RISK* for SICDS. Immediate evaluation by EMS personnel is necessary. Medical treatment may be warranted. Subject must be closely monitored.

Score 5-10: Subject is at *MODERATE RISK*. Have another officer familiar with the Risk Assessment Scale and SICDS check the patient. Police and detention staff should monitor subject.

Score 0-5: Subject is at *LOW RISK*. Personnel should watch for signs of distress that would overrule the assessment scale.

Important: Regardless of overall score, the following conditions necessitate immediate medical attention: Profuse sweating and shivering; loss of consciousness; seizure; respiratory rate below 6 per minute; severe headache; chest pain; obvious respiratory distress; and gagging, choking or coughing lasting more than four minutes after OC spray.

behavior, they are often accompanied by serious side effects, such as arrhythmias, vascular collapse and asphyxia. These side effects may also include an impaired gag reflex and laryngeal-pharyngeal dystonia (a neurological movement disorder characterized by involuntary muscle contractions that force certain parts of the body into abnormal, sometimes painful, movements or postures).

Psychotic or psychiatric patients often have pre-existing cardiac disease or general physical disability secondary to their lifestyle. When these patients enter a state of excitable mania, the increased release of epinephrine and norepinephrine and the increased vagal and adrenergic stimulation may increase myocardial excitability and lead to fatal arrhythmias.¹

Of the 73 fatalities reported after Taser use, according to one newspaper investigation, commonalities were present in many of them (e.g., drug use in 39 of the 40 deaths involving the 18-30 age group and existing medical problems in six of 30 deaths involving the 31-40 age group), and 11 of the deaths seemed to occur immediately after Taser use. Further, in a 1998 Canadian study, people with psychiatric illness or those using cocaine appeared to require more oxygen and potentially suffered a rapid anoxic death when restraint was used.¹

We know that cocaine affects the brain's neurotransmitters and leads to a loss of thermoregulatory control, alters thought processes and causes coronary artery spasm. We also know that body temperature has a strong correlation to disruption of the central nervous system's regulatory process and leads to a loss of thermal regulation and hyperthermia. And we know that cocaine disrupts the dopaminergic function and may precipitate agitation, delirium, aberrant thermoregulation, rhabdomyolysis and sudden death.¹ Therefore, if a person isn't breathing rapidly, sweating or tired after a struggle with the police, but the officers are tired, out of breath and sweating, there's a good chance the individual may crash on you.

My point: Although little research exists regarding the effect of electricity on people in an excited delirium, we do know that if a person is predisposed to cardiac arrhythmia because of medical history or the conditions presented here, the use of electricity to control them may contribute to a lethal end result. Therefore, these patients should be considered to be in a life-threatening condition.

In addition, when you hear a patient yelling, "I can't breathe," it may be a warning that their increased heart rate and inability of the diaphragm to expand for proper oxygenation may be spiraling them into sudden death.

To help determine which individuals being taken into custody need to be closely observed, the Washoe County (Nev.) Sheriff's Department (WCSD) utilizes a point system they developed in 1994. The scoring system alerts police that a subject needs to be closely monitored and has greatly improved the quality of care WCSD provides to manic subjects. (See Table 1.)

Don't be shocked when, despite the best intentions of the police, individuals being tased, restrained and taken into custody suddenly lapse into cardiac arrest. The job of law enforcement and EMS personnel is to recognize individuals with unusual physical and psychological indicators that may be leading up to such a scenario. Anything that prevents the reoxygenation of their heart and lungs will cause these patients to struggle, have an increased demand for oxygen and, after a relatively short time period, often cause respiratory collapse and cardiac arrest.

Stay alert for these patients when called to assist your police officers, and let them know when you think it's time to turn a tased or restrained perpetrator into a patient. **JEMS**

References

1. Robinson D, Hunt S: "Sudden in-custody death syndrome." *Topics in Emergency Medicine*. 27:36-43, 2005.
2. Benner A, Isaacs SM: "Excited delirium: A two-fold problem." *Police Chief Magazine*. June 1996.
3. Reay DT: "Suspect restraint and sudden death." <http://www.fbi.gov/publications/leb/1996/may966.txt>.