

Review, Clinical Update, and Practice Guidelines for Excited Delirium Syndrome

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ABSTRACT

Excited delirium syndrome (ExDS) is a term used to describe patients experiencing a clinical condition characterized by bizarre and aggressive behavior, often in association with the use of chronic sympathomimetic drug abuse. The agitated and disruptive behavior of persons with ExDS often results in a call to police resulting in an arrest for disorderly conduct. The suspect's inability to comply with police commands during the arrest frequently results in a struggle and the use of physical or chemical control measures, including the use of conductive energy weapons (CEWs). Deaths from this hypermetabolic syndrome are infrequent but potentially preventable with early identification, a coordinated aggressive police intervention, and prompt medical care. Preliminary experiences suggest that ExDS is a medical emergency treated most effectively using a coordinated response between police officers and emergency medical providers. Once the person suspected of experiencing ExDS is in custody, medical providers should rapidly sedate noncompliant patients with medications such as ketamine or an antipsychotic drug such as haloperidol in combination with a benzodiazepine drug such as midazolam or diazepam. Once sedated, patients should undergo a screening medical assessment and undergo initial treatment for conditions such as hyperthermia and dehydration. All patients exhibiting signs of ExDS should be transported rapidly to a medical treatment facility for further evaluation and treatment. This article reviews the epidemiology, clinical presentation, diagnosis, and treatment options for ExDS.

KEYWORDS: *excited delirium, excited delirium syndrome, delirium, sudden death, in-custody death, hyperthermia, sympathomimetic drug use, cocaine, phencyclidine, lysergic acid diethylamide, ketamine, haloperidol, TASER, conductive energy weapon, Agitated Chaotic Event™, ACE, medical emergency, emergency medical services, police*

Introduction

ExDS is a term first attributed to the Miami Medical Examiner's Office in 1985. It was used to describe a class of

patients who experienced bizarre and aggressive behavior in association with an altered mental status, often in combination with other symptoms that included disrobing or wearing clothing inappropriate for conditions, failing to comply with verbal commands by police, yelling or making guttural sounds, attacking inanimate objects, attraction to light, and a propensity to break glass. When attempts were made to restrain these individuals, they often exhibited "superhuman" strength and an unwillingness to yield despite overwhelming force. One study reported that four officers were on average required to subdue these individuals (range 3–6).

Police officers must continually adapt to changing threats that include contact with emotionally unstable and potentially violent individuals, often in association with mental illness or drug abuse. When these individuals violate the law and fail to comply with lawful orders, police officers and citizens are placed at risk for physical harm during and unfolding, dynamic, and potentially life-threatening encounter. Police and medical practitioners are increasingly recognizing these types of encounters as medical emergencies that require the education and training of police officers, emergency medical services (EMS) responders, and hospital staff in how best to manage these encounters effectively.

Medical experts continue to disagree about whether ExDS is a unique medical condition warranting its own diagnosis or is a variant of an existing psychiatric disorder. Those advocating that ExDS is a unique condition note that it occurs in susceptible individuals in association with the use of stimulants, especially cocaine, though cases have occurred in association with methamphetamine, PCP, and LSD. Cocaine use is known to cause increases brain levels of the neurotransmitters dopamine and serotonin. Increased levels of these neurotransmitters are responsible for the addictive properties of this drug and contribute to hyperactivity and hyperthermia. Chronic cocaine use induces a physiologic change in the regulation of dopamine and serotonin, which may be neuroprotective. Persons who experience ExDS may have an unusual genotype or phenotype that prevents

the protective adaptation to cocaine use. This failure to alter neurotransmitter regulation to cocaine or other stimulant use results in high dopamine levels and a hyperactive autonomic nervous system, which may predispose to ExDS.¹

The American College of Emergency Physicians (ACEP) and the National Association of Medical Examiners (NAME) recognize ExDS as a unique clinical syndrome. The American Medical Association (AMA) and the American Psychiatric Association (APA) do not, and it is not listed in the *International Classifications of Disease, Ninth Revision* (ICD-9). Under existing ICD-9 codes, ExDS can be classified as 296.00S Manic Excitement; 293.1J Delirium of Mixed Origin; 292.81Q Delirium, drug induced; 292.81R Delirium, induced by drug; 307.9AD Agitation; 780.09E Delirium; 799.2AM Psychomotor Excitement; 799.2V Psychomotor Agitation; or 799.2X Abnormal Excitement. The upcoming ICD-10 is also without a specific ExDS code, relying instead on the F10–F19 group of Mental and Behavioral Disorders due to Psychoactive Substance Use or F43 Reaction to Severe Stress, and Adjustment Disorders.

History of Police In-custody Deaths and Excited Delirium

In-custody deaths always evoke controversy. Deaths in-custody from undetermined causes typically occur suddenly and unexpectedly, and autopsy findings provide minimal physical findings to explain it. This unexpected nature of these events and the absence of objective evidence supporting a clear cause of death challenge the reputations of police departments and strain relations within their community. Allegations of police brutality and conspiracy to conceal police activities frequently occur, and some have asserted that ExDS is a hoax to cover up the inherent dangers of CEWs (TASER).² Law enforcement and correctional officers involved in such events are frequently stigmatized and experience professional pressure and personal stress.

Investigations into in-custody deaths occurring over the past two decades have concluded that these occurrences are very rare. Since the 1990s, the majority of in-custody deaths arise from an undetermined cause. Most occur in association with a series of factors that include a history of stimulant use, a struggle, the use of restraints, and the existence of coexisting disease. When combined, the result can be sudden death.³ Many of the previously unexplained in-custody deaths are now attributed to ExDS.

ExDS is not a new medical condition. A chronic form of ExDS was observed commonly in psychiatric institutions from 1850 to 1950. Originally termed lethal or malignant catatonia, Bell's mania, manic delirium,

exhaustion death, exhaustion psychosis, fulminating psychosis, and exhaustive syndrome, this condition affected predominantly women with psychiatric disorders.⁴ These patients presented with agitation, anorexia (lack of appetite), fever, and increasing confusion. Mortality occurred in 75% to 100% of cases, and death was attributed to exhaustion. With the introduction of antipsychotic medications such as chlorpromazine and haloperidol, this condition virtually disappeared until the 1980s, when it reemerged as an acute form in association with stimulant use, primarily cocaine, methamphetamine, and phencyclidine.

In a historical analysis of death in custody, Grant and colleagues conducted a retrospective review spanning 34 years. The Maryland Office of the Chief Medical Examiner reviewed a cohort of 145,425 cases occurring between 1939 and 2004. From their review, they were able to identify only 202 (0.14%) in-custody deaths.⁵ They concluded that cardiovascular disease was the most common cause of in-custody deaths until the 1970s, except for the 1940s, where the primary causes of in-custody death was due to complications from syphilis and tuberculosis. Suicide while in custody predominated in the 1980s, with 44% due to hanging.

“Undetermined” as a cause of death emerged in the 1980s and became the dominant cause of death from the 1990s. Most of these deaths were attributed to drug intoxication involving cocaine (36%) and narcotics (31%). The authors concluded that death while in-custody was rare historically, that death from undetermined causes did not emerge until the 1980s, and that death from an undetermined cause accounts for the majority of in-custody deaths since 1990. The authors suggested that unexpected death in custody coincided with an increase in the abuse of stimulants. Within the last few years, some have proposed abandoning the term “excited delirium syndrome” in favor of “agitated chaotic event™” (ACE), a term that better describes this condition and avoids the social stigma associated with this condition.⁶

The same authors conducted a similar study attempting to identify the frequency of in-custody ExDS deaths. They performed a retrospective review of 353,029 deaths reviewed by the Maryland Office of the Chief Medical Examiner spanning 1939 to 2005.⁷ The authors identified 62 custodial death cases that listed excited or agitated delirium as a cause of death and/or who died while demonstrating characteristics associated with ExDS. Of the 62 cases, 48 (77%) occurred between 1980 and 2005. The mean age of the decedents was 38 years (range 18 to 71 years). Ninety-four percent were male, and 63% were African American. Forty-one (66%) deaths occurred while in the custody

of law enforcement, 10 (16%) deaths occurred in a correctional facility, and 11 (18%) deaths occurred in a mental health facility. Physical restraints were used in 36 (58%). When physical restraint was required, 29 (81%) occurred while in the custody of law enforcement. Toxicology was positive in 37 (60%), negative in 17 (27%), and not performed in 8 (13%).

Of those manifesting the signs of ExDS who died in custody, death occurred typically within 1 hour of first contact with the police. More than 75% of these persons died at the scene or during initial transport.⁸ An important sign of impending cardiopulmonary arrest while in custody was the sudden and unpredicted cessation of struggling against restraints.⁹ This cessation of struggling has been termed the “period of peril.”¹⁰ During this time, all resistance and exertion stop and the subject appears calm. In the 2 to 5 minutes immediately following intense activity, there is a surge in catecholamine levels that may reach 10 times baseline levels. High catecholamine levels can cause serum potassium levels to fall as potassium moves into cells. This fall in serum potassium may predispose these patients to cardiac arrhythmias and sudden death.¹¹

Safety of CEWs in Association With ExDS

Law enforcement officers increasingly use CEWs as an effective intermediate use of force tool intended to induce compliance with police commands and to affect an arrest. The effectiveness of these weapons is evidenced by a 10-year experience showing a reduced incidence of injuries to suspects and police officers and a reduction in claims for excessive force compared with other uses of force techniques such as empty hand techniques and use of a baton.¹²

A CEW in widespread police use is the TASER X26® (Taser International; www.taser.com). When deployed, it uses compressed nitrogen to fire two small probes tethered by thin wires to distances of 25 feet, up to distances of 35 feet. The weighted probes possess barbs 9mm in length designed to penetrate the skin or become lodged on clothing. Each cartridge has a serial number and, when deployed, leaves multiple identifiable tags at the scene. When fired, the weapon delivers a 5-second burst of approximately 400 volts (1,200 V peak), delivered at a current of approximately 2.1 mA, and at 19 pulses per second.¹³ The device can also deliver an open circuit voltage of up to 50,000 volts to conduct across air or clothing. When the contact distance between probes exceeds 4 inches, neuromuscular incapacitation occurs through the activation of type A- α motor neurons that control skeletal muscle contraction. Maximum incapacitation occurs when probe spread exceeds 9 to 12 inches.¹⁴ When the distance between probes is

small (less than 4 inches) or when used in “drive stun” mode, the device is intended to induce compliance by producing pain without neuromuscular incapacitation. The perceptions of pain, discomfort, and sensory overload occur from the activation of type III A- δ myelinated sensory fibers.¹⁵

Despite the relative safety of CEWs observed during more than 2 million probe deployments during operations and in training, there remains concern that these weapons may contribute to the sudden death associated with ExDS.¹⁶ In a study of 1,201 cases of suspects subjected to the use of TASER, 99.75% had no significant injuries.¹⁷ A Canadian study in 2008 identified 326 deaths in North America associated with TASER use from media reports and independent research, 20 of which occurred in Canada.¹⁸ The authors noted that this statistic did not, by itself, establish a causal relationship between the use of a TASER and sudden death. More recently, a panel of medical experts was convened in Canada to conduct an independent evaluation of existing research aimed at examining the medical and physiological impacts of CEWs.¹⁹ They noted in their report:

- “Some animal studies suggest CEWs can induce fatal cardiac arrhythmias (abnormal heart rhythm) when a number of discharge characteristics, either alone or in combination, are in place: probe placement on opposite sides of the heart (i.e., current is delivered across the heart), probes embedded deeply near the heart, increased charge, prolonged discharges, or repeated discharges. These studies indicate the biological plausibility of adverse health outcomes following CEW exposure.
- A small number of human cases have found a temporal relationship between CEWs and fatal cardiac arrhythmias, but available evidence does not allow for confirmation or exclusion of a causal link. If a causal link does exist, the likelihood of a fatal cardiac arrhythmia occurring would be low, but further evidence is required to confirm the presence and magnitude of any risk.
- The roles of co-factors common to real-world CEW incidents (e.g., intoxication, exertion, restraint) and other co-factors (e.g., body type, existing health complications) that may increase susceptibility to adverse effects have not been adequately tested to properly establish an understanding of increased vulnerability in humans.”

While some studies have produced results implicating that CEWs could potentially contribute to in-custody death, large-scale prospective studies involving human subjects exposed to CEWs for up to 15 seconds have failed to demonstrate any clear causal relationship between TASER use and laboratory abnormalities,

physiologic changes, cardiac arrhythmias, or myocardial ischemia.¹⁹ Advocates for the use of CEWs further argue that these weapons reduce injuries to suspects and police officers by terminating situations that might otherwise culminate in sudden in-custody death in association with ExDS.

Despite ongoing arguments for and against the safety of CEWs, the scientific evidence remains insufficient to determine whether the use of CEWs increases the probability of sudden in-custody death in the presence of co-factors such as mental illness or ExDS. However, it is reasonable to conclude that the weapon's proven effectiveness in inducing compliance and promoting officer safety outweighs concerns for the minimal likelihood that a CEW will be the sole cause of a sudden in-custody death. Further research is needed in order to more fully determine whether there is a causal association between CEW use and in-custody death. Until future investigations are able to clarify this concern, police officers and medical practitioners should assume that persons exposed to a CEW discharge exceeding a cumulative exposure of 15 seconds, especially when used in association with prolonged struggling, altered mental status, and suspected drug intoxication, are experiencing ExDS and promptly refer these individuals for medical evaluation and treatment.²⁰ The Model Electronic Control Weapons (ECW) Policy from the International Association of Chiefs of Police (IACP) advocates a medical evaluation for persons subjected to a CEW when, "he or she has been exposed to more than three ECW cycles, . . . exposed to the effects of more than one ECW device, . . . believed to have been exposed to a continuous cycle of 15 seconds or more, . . . [or] exhibits signs of 'excited delirium.'"²¹

Diagnosis of ExDS

While there is no uniform definition of ExDS, this syndrome should be suspected in any individual exhibiting abnormal behavior including agitation and six or more of 10 criteria identified by Hall et al.²² In their study of more than 1 million police encounters during a 2-year period, they identified features associated with ExDS. These included a high tolerance to pain, tachypnea, sweating, agitation, hyperthermia to touch, noncompliance with police commands, absence of fatigue, unusual strength, dressing inappropriately for conditions, and an attraction to mirrors or glass (see Tables 1 and 2 for a list of differential diagnoses and ExDS criteria). Police officers and medical personal should have an additional heightened suspicion for ExDS whenever the person exhibiting signs of ExDS is male (mean age 36 years) or is suspected of using or withdrawing from the use of stimulants, such as methamphetamine, PCP, LSD, and especially cocaine. The National Institute of Justice

Table 1 *Differential Diagnosis of Excited Delirium*

Differential Diagnosis of Excited Delirium
Drug or alcohol intoxication
Drug or alcohol withdrawal
Hypoxemia
Electrolyte disorder
Thyroid storm
Sepsis
Seizure disorder
Traumatic brain injury
Heat stroke
Serotonin syndrome
Neuroleptic malignant syndrome

Table 2 *Features Associated With Excited Delirium Syndrome*

Feature	Frequency, % (95% confidence interval)
Tolerance to pain	100 (83–100)
Tachypnea	100 (83–100)
Sweating	95 (75–100)
Agitation	95 (75–100)
Hyperthermia to touch	95 (75–100)
Noncompliance to police commands	90 (68–99)
Lack of tiring	90 (68–90)
Unusual strength	90 (68–90)
Dressed inappropriately for environment	70 (45–88)
Attraction to mirrors or glass	10 (not reported)

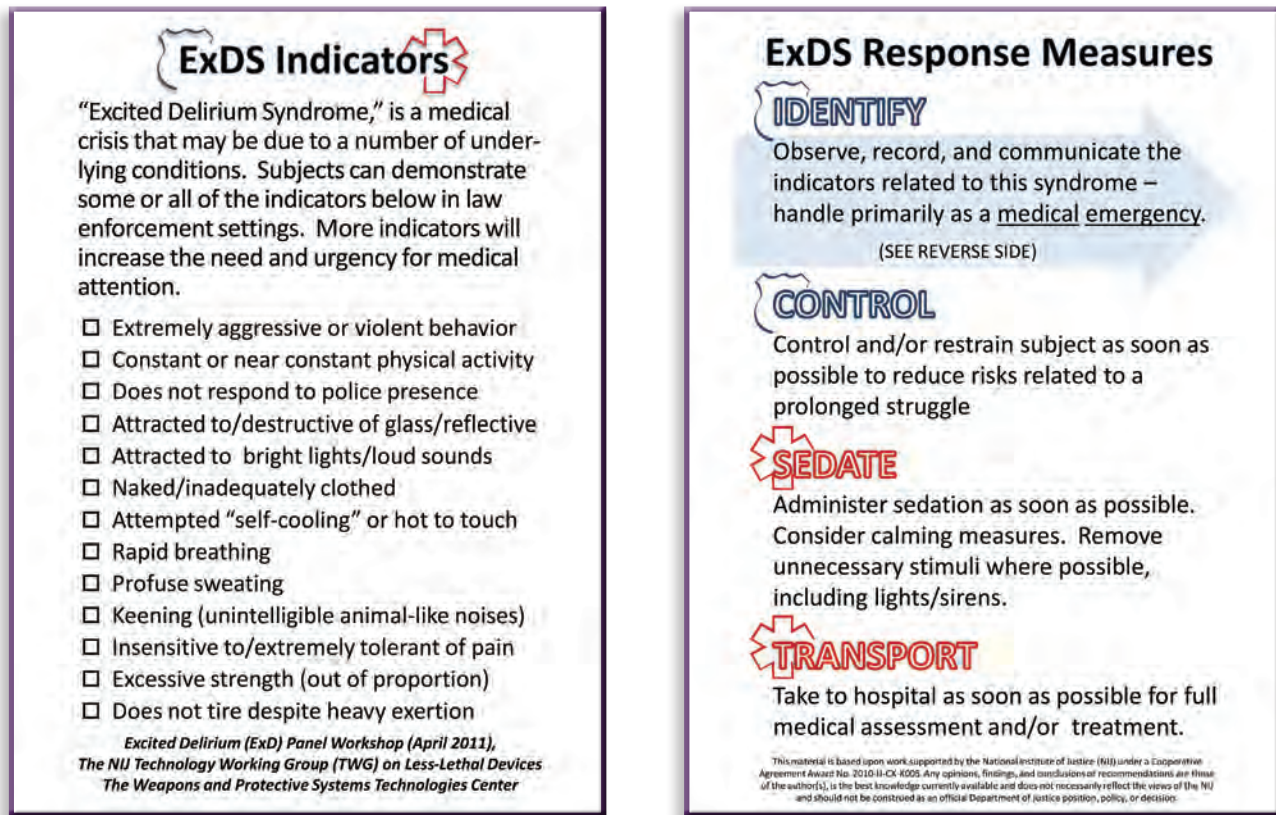
Technology Working Group on Less Lethal Devices has prepared an Excited Delirium pocket card useful for police officers and EMS responders (Figure 1).²³

Treatment of ExDS

The priorities for the initial treatment of patients with ExDS are control and restraint, rapid sedation, and transport to a hospital for definitive care. In the absence of clinical studies on the best treatment for this potentially lethal condition, clinicians must rely on consensus-driven guidelines.

The appropriate response to patients with ExDS should begin with dispatch. When an operator receives a call involving someone manifesting signs of ExDS, the call center should simultaneously dispatch law enforcement and EMS teams.²⁴ First responding EMS units should stage at a safe location until police officers have evaluated the call and rendered conditions safe for EMS to

Figure 1 National Institute of Justice Pocket Reference Card on Excited Delirium.



enter and render care. Dispatchers should also ensure that an adequate number of police officers are dispatched to safely control the situation. As discussed previously, an average of four officers is required to effectively achieve control of a typical suspect with ExDS.

First arriving officers responding to a disturbance of the public peace or disorderly conduct should initially assess individuals for indicators of ExDS. If signs of ExDS are present, then officers should take into consideration that the subject may be irrational, potentially violent, and dangerous. The law enforcement objectives of initially responding officers are to protect the public and the suspect from harm and contain the suspect until additional police and EMS resources arrive. If EMS has not been dispatched, then officers should request that they respond. If possible, first responding officers should contain the disturbance and employ deescalation techniques and minimize unnecessary stimuli that can further excite or provoke the suspect. Deescalation techniques include avoiding the use of emergency equipment (lights and sirens) and of canines and not shouting at the suspect, all of which may escalate an unstable situation. Persons with ExDS may not understand and comply with verbal commands and may resist usually effective control tactics such as pepper spray, impact batons, joint locks, kicks, and punches.²⁵ Officers must acknowledge

that subjects manifesting signs of ExDS are experiencing an acute, potentially life-threatening condition.

Forceful restraint is nearly always required in ExDS. Once the necessary police and EMS resources are in place, suspects failing to respond to verbal commands and resist arrest should be taken into custody quickly and efficiently in a manner that minimizes a struggle. In many instances, inducing neuromuscular incapacitation with a CEW may be the safest and most efficient manner to achieve control. While there is no medical evidence to suggest that prone or supine restraints have any detrimental effects on these individuals,⁹ minute ventilation is generally above normal and officers should assess for respiratory distress. If present, the officer should place the suspect in a position that does not restrict breathing. Breathing is least affected by placing the individual on his side in the recovery position. Once police officers achieve physical control and disarm the suspect of any weapons, EMS providers should be permitted to conduct a medical survey, administer sedation to reduce struggling, if needed, and initiate resuscitative measures as indicated.

Patients who continue to resist despite with verbal calming and deescalation techniques should be sedated because continuing to struggle with physical restraint is associated with a high risk for sudden death, particularly

in persons who are obese, under the influence of stimulant drugs, and have underlying medical disease.²⁶ The ideal medication for this purpose would be administered intramuscularly (IM) or intranasally (IN), have a rapid onset of action, be of short duration, be effective on most agitated or violent persons, and be free of hemodynamic instability and respiratory depression. While a medication meeting all these criteria does not exist, sedation can be accomplished by administering benzodiazepines, antipsychotics, or a dissociative agent such as ketamine (Table 3).

Table 3 Medications Useful to Treat Acute Excited Delirium

Medication	Route of Administration	Typical Dose, mg	Onset, min	Duration, min
Midazolam	IN	5	3–5	30–60
	IM	5	10–15	120–360
	IV	2–5	1–5	30–60
Lorazepam	IM	4	15–30	60–120
	IV	2–4	2–5	60–120
Diazepam	IV	5–10	2–5	15–60
Haloperidol	IM	10–20	15–30	180–360
	IV	5–10	10	180–360
Ketamine	IM	4–5mg/kg	3–5	60–90
	IV	2–4mg/kg	1	20–30

Note: IM, intramuscular; IN, intranasal; IV, intravenous.

Ketamine is an anesthetic administered by intravenous or intramuscular injection to stimulate *N*-methyl-D-aspartate (NMDA) receptors producing analgesia and a dissociative state. This drug preserves airway reflexes and does not suppress ventilation. Case reports describe excellent clinical results with an overall reduction in the hyperadrenergic state.^{27–29} Side effects of this drug include salivation, laryngospasm, and emergence delirium.³⁰ These side effects appear less common with the subanesthetic doses used to treat ExDS. Earlier concerns for increasing intracranial pressure in traumatic brain injury have been discounted.³¹

Benzodiazepine medications useful in the treatment of ExDS include lorazepam, midazolam, and diazepam. Benzodiazepine drugs act on the γ -aminobutyric acid (GABA) receptors; the main inhibitory neurotransmitters in the brain. These medications may be given orally (PO) or via IM, intravenous (IV), or intraosseous (IO) injection. Midazolam can also be administered via the IN route. When administered IM, the onset is slow and the drug may interact with other medications to cause respiratory depression and hypotension. Administering benzodiazepine drugs by serial IV doses and titrating to effect are preferred to other routes in order to achieve the desired effects without incurring oversedation.

Antipsychotic medications, such as haloperidol, bind to dopamine receptors in the brain to produce sedation. Administered PO, IM, or IV, antipsychotic medications have

a long history of safety in patients with delirium. This class of drugs may increase the QT-interval of the cardiac cycle, which can give rise to ventricular arrhythmias, including ventricular fibrillation and ventricular tachycardia. In rare cases, antipsychotic medications can trigger the neuroleptic malignant syndrome (NMS), resulting in hyperthermia. The benefits of using antipsychotic medications such as haloperidol in patients with ExDS generally outweigh the low risk of medication side effects, particularly when limited to a single dose for initial control.

In the absence of consensus on the best approach for prehospital sedation, we must rely on anecdotal experience by EMS providers. Recent experience suggests that efforts at rapid sedation with haloperidol benzodiazepines have been disappointing, and ketamine is emerging as an increasingly popular chemical restraint for the prehospital sedation of violent patients. Two recent studies using ketamine for the prehospital sedation of agitated or violent patients demonstrate that a single IM dose of ketamine 4 to 5mg/kg is greater than 90% effective in achieving effective behavior control with a low incidence of side effects.^{32,33} Preliminary experiences suggest that respiratory complications associated with using ketamine are acceptably low and are more likely to occur in association with higher doses, when combined with midazolam, or with other prior drug use.^{31–33} It is unknown whether smaller doses would achieve a similar degree of sedation or reduce drug side effects. Once IV access is obtained, patients requiring further sedation can receive additional doses of ketamine or other drugs such as midazolam or haloperidol.

EMS providers must be prepared to aggressively evaluate and initiate care to prevent ExDS patients from spiraling into metabolic failure, which may progress to cardiac arrest. As soon as safely possible, the patient should undergo an initial assessment that includes monitoring of vital signs, pulse oximetry, cardiac monitoring, glucose measurement, and careful physical examination including attention to breathing and skin temperature. Intravenous access should be obtained when possible, and IV fluids and supplemental oxygen should be administered, if needed.²³

Medical providers should assess all patients with ExDS for hyperthermia. If the skin is hot to the touch, assume hyperthermia and initiate active cooling methods such as ice blankets, packing the head, neck, and groin with ice, or instilling chilled IV fluids. Rectal temperature, while diagnostic for hyperthermia, is not practical in this setting, and other measures of determining core temperature are unreliable.³⁴ If IV access is not possible, patients able and willing to drink can be cooled and hydrated with chilled water or sports drinks, especially if there will be an extended time to hospital evaluation and care.

Patients who comply with instructions and who are able to sit or lie quietly are less likely to progress to more severe forms of ExDS.

Patients with ExDS are likely dehydrated due to decreased fluid intake and increased insensible losses from high levels of activity, an increased core temperature, hyperventilation, and diuresis. The administration of IV fluids such as normal saline or balanced electrolyte solutions such as lactated Ringer's, Plasmalyte-A, or Normosol can be used to correct dehydration and may prevent or treat underlying electrolyte disorders and rhabdomyolysis. There is no evidence that administration of sodium bicarbonate affords any benefit in the treatment of this condition or its complications. Intravenous fluids may be administered at rates of 1 to 1.5mL/hr until resuscitated and then no more than to 500mL/hr initially. Patients with ExDS may have a coexisting cardiomyopathy and may be at a theoretical risk for fluid overload and congestive heart failure.³⁵ Under circumstances where transfer to a medical facility is delayed and urine output and laboratory values are unmonitored, IV fluids should be limited to 3 to 6 L/day. All patients exhibiting signs of ExDS should be transported emergently to a hospital for further evaluation and treatment.

Conclusion

ExDS is an uncommon but potentially life-threatening medical condition that occurs in association with stimulant use. It is characterized by bizarre and aggressive behavior and an altered mental status and in combination with other symptoms that include disrobing or wearing clothing inappropriate for conditions, failing to respond to verbal commands by police, yelling or making guttural sounds, attacking inanimate objects, attraction to light, and a propensity to break glass. When attempts are made to restrain these individuals, they often exhibit "superhuman" strength, and an unwillingness to yield to overwhelming force.

Deaths from this syndrome are infrequent but potentially preventable with early identification and a coordinated aggressive police intervention and prompt medical care. Preliminary experiences suggest that if in-custody suspects continue to struggle, then medical providers should rapidly sedate these patients with combinations of IM ketamine or an antipsychotic drug such as haloperidol and a benzodiazepine drug such as midazolam or diazepam administered IV. Once sedated, patients should undergo a more comprehensive medical assessment and when necessary, treatment measures initiated for hyperthermia and dehydration. All patients exhibiting signs of ExDS should be transported rapidly to a medical treatment facility for further evaluation and treatment. Further research is needed to better understand the

etiology of this syndrome and to identify best practices to threat it.

Disclosures

The authors have nothing to disclose.

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