Chemical Restraint and Patient/Provider Safety

UNM EMS Consortium
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Objectives

- Discuss management of hypo and hyperthermia and its components.
- Define hyponatremia, heat exhaustion & heat stroke.
- Discuss bites and envenomation
- Discuss what can occur at altitude
- Awareness of other environmental hazards

US Bureau of Labor and Stats: DATA

TABLE 1—Cases by Gender and Age Group With Percentage and Median Days of Lost Work Time for Violence-Related Injury Among Emergency Medical Services Personnel (n = 1630): United States, 2012–2015

Gender and Age	2012	2013	2014	2015	Total No. (%)	Median Days of Lost Work Time
Gender						
Male	390	180	200	230	1000 (61.3)	14
Female	170	150	210	100	630 (38.7)	7
Total	560	330	410	330	1630	
Age, y						
20–24	90	[a]	[a]	20	[a]	4
25–34	150	140	90	120	500 (30.7)	5
35–44	180	60	190	100	530 (32.5)	10
45–54	110	120	50	60	340 (20.9)	17
Total of all selected ages	550	[a]	[a]	330		12

Note. The totals will not necessarily add up because of the way data are reported by the Bureau of Labor Statistics.

[a]The numbers of cases among those aged 20 to 24 years for 2013 and 2014 are unknown.

TABLE 2—Violence-Related Injury Among Emergency Medical Services Personnel (n = 1630) per Year by Nature of Injury, Body Part, and Event or Exposure: United States, 2012–2015

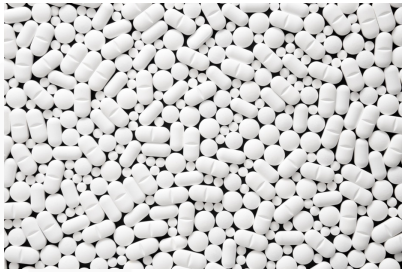
Injuries	2012	2013	2014	2015	Total, No. (%)
Total cases	550	350	400	330	1630 (100)
Nature of injury					
Traumatic injuries	530	330	390	320	1570 (96)
Fractures	20	30	20	[a]	[a]
Dislocations	[a]	[a]	20	[a]	[a]
Sprains, strains, tears	200	130	120	120	570 (35)
Surface wounds	30	30	40	110	210 (13)
Soreness	210	30	140	[a]	[a]
Other trauma	70	110	50	90	320 (20)
Other nature	20	20	10	10	60 (4)
Body part injured					
Head	20	[a]	110	60	[a]
Trunk	120	130	50	50	350 (22)
Upper extremities	140	90	110	110	450 (28)
Lower extremities	140	[a]	50	20	[a]
Multiple body parts	110	70	50	70	300 (18)
Other body part	20	60	30	20	130 (8)
Event or exposure[b]					
111 Intentional injury by other person	150	70	220	130	570 (35)
1113 Hitting, kicking, beating, shoving	60	60	120	130	370 (23)
1119 Intentional injury by other person—other	80	[a]	[a]	[a]	[a]
120 Injury by person—unintentional or intent unknown	380	180	160	190	910 (56)
1214 Injured by physical contact with person while restraining, subduing—unintentional	100	60	50	80	290 (18)
1215 Injured by physical contact with person while moving that person—unintentional	100	50	40	50	240 (15)
1219 Injury by other person—unintentional or intent unknown—other	50	20	30	[a]	[a]

The spectrum of the problem

And some pathophysiology of why its bad

Categories (that can change)

Reasons people are agitated



Agitated but cooperative

- What types of patients are like this?
  - Granny with dementia
  - 17 yo that drank just a little too much
  - Moderate head injury perseverating

Disruptive without danger

- Patient types
  - 33 yo who drank way too much
  - On something + altercation
  - Psychiatric disease + substance
- Prehospital challenges

Characteristics of severe agitation

- Chemical imbalances result in **tachycardia, tachypnea, and hyperthermia**
- Hyperthermia becomes a harbinger of death in this syndrome
- Patients at high risk of sudden fatal arrhythmia and respiratory arrest
- Patients lack the capacity to understand the consequences of their behavior

Why this is life threatening

- Profound acidosis (sprinting a marathon)
- Dependent on ventilation
- They cannot understand instruction
- Our options are limited
  - Usually start with what?

The challenge this presents

- Patients that are combative and dangerous
- Intersection of law enforcement (public safety) and medical care (medical emergency)
- Safety for providers and patient
- Somebody must identify this person as a patient

Philosophy

Somebody must identify the agitated person as a patient- that is **You**

Tension


Autonomy: we shouldn't sedate people against their will
Beneficence: we should help our patients

Agitated patients…

- Frequently state they don't want to go to the hospital
- Are variable degrees of combative about it
- Lack Capacity:

To have CAPACITY you must…

1. Ability to understand one's current situation and condition
2. Make a decision (clear/consistent)
3. Reason or rationalize the decision
4. *Clearly understand* and accept the consequences of the decision

For patients experiencing a behavioral emergency, sedating them is our medical treatment

Coordinated approach when possible

Medications ready to go

What options do you have?

Non-meds

- Seatbelts
- Restraints
- Verbal redirection/de-escalation

Benzodiazepine or Sedatives

Antipsychotics

Agitated but cooperative

- Low dose medications:
  - Benzodiazepines

What's your underlying pathophysiology

Verbal De-escalation

- **S**upport – “Let’s work together…”
- **A**cknowledge – “I see this has been hard for you.”
- **V**alidate – “I’d probably be reacting the same way if I was in your shoes.”
- **E**motion naming – “You seem upset.”

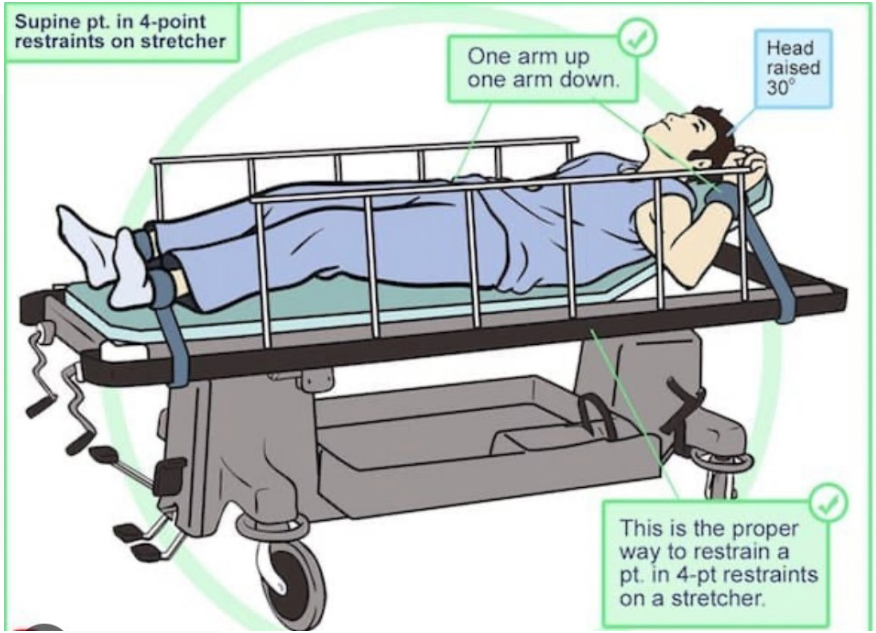
Communication

- ~ 90% of all emotional information and >50% of the total information in spoken English is communicated not what we say, but by body language and tonation (how we say what we say).

- One person delegated (particularly with good rapport)
- Attempt to Ensure a quiet environment
- Monitor your own emotional and physiologic response (remain calm)
- Maintain at least 2 arm's lengths of distance between you and the patient with an exit door close by and in the opposite direction of the patient
- Hands should be visible and not clenched

Agitated & Disruptive

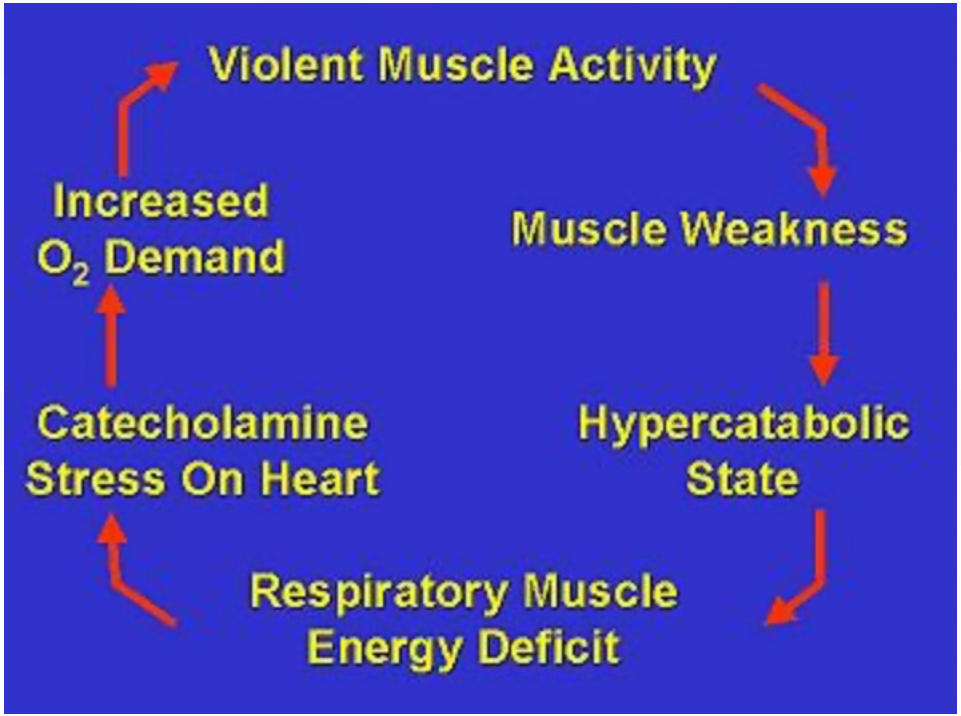
- IV/IM medications
  - Benzodiazepines
    - Midazolam
    - Diazepam
  - Antipsychotics
    - Droperidol
    - Haldol



What's your underlying pathophysiology

Ways not to Restrain a Patient

Physiologic risk to be aware in Physical and Chemical Restraint



ETOH and sedatives

- Risk of O_2 desaturation (not intubation) with + ETOH:
  - Wilson et al 2012, Cole 2017: **Olanzapine** > haloperidol > Ketamine
  - Isbister et al 2010: **Midazolam** > combo > droperidol

*Consider using Droperidol or Haloperidol if + ETOH and agitated.

** Olanzapine + benzo's increase airway ADE's

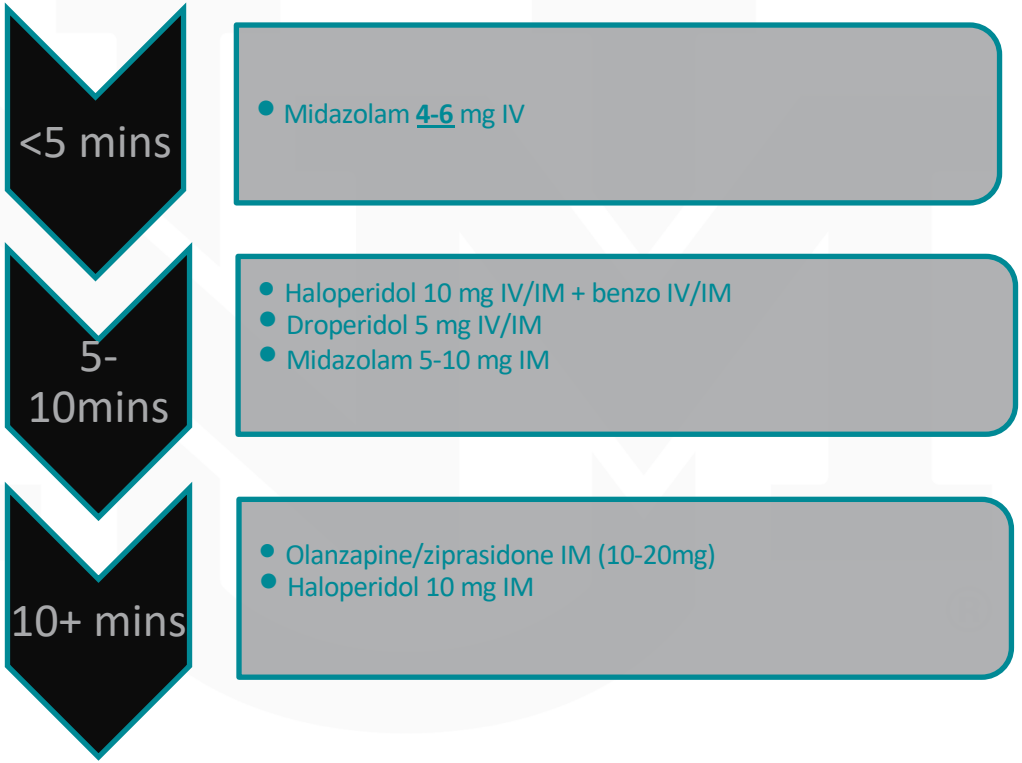
Delirium with severe agitation

- Midazolam
- Droperidol
- Ketamine
  - Dissociative

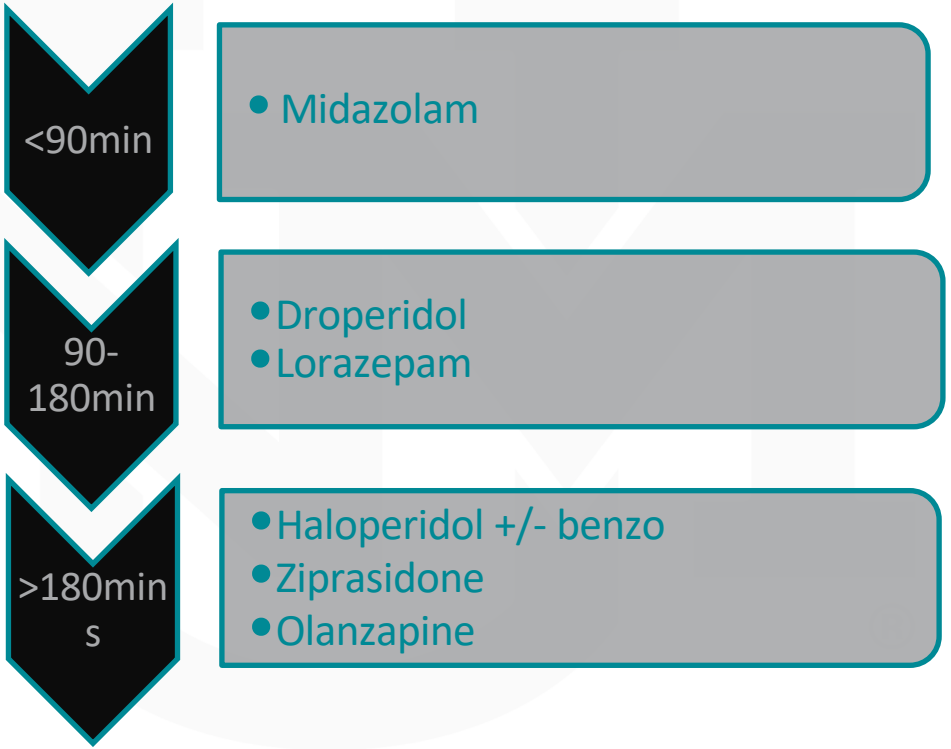
Key management steps

- Identify the patient is a patient and is at risk
- Talk about a coordinated effort with law enforcement
- Have a plan for restraint **and** sedation
- NEVER prone a patient
- Minimize the amount of time a patient is held down with force
- Manage the patient like a patient with critical illness

Onset


<5 mins
Midazolam 4-6 mg IV
5-10mins
Haloperidol 10 mg IV/IM + benzo IV/IM
Droperidol 5 mg IV/IM
Midazolam 5-10 mg IM
10+ mins
Olanzapine/ziprasidone IM (10-20mg)
Haloperidol 10 mg IM

Duration



*Wash-out of other substances significantly affect duration of sedation

Summary

Identify	Identify the spectrum of agitation • Agitated but cooperative • Agitated and disruptive • Delirium with severe agitation
Treat	Treat agitation
Know	Know your options and the potential complications of the meds

Summary

- Be mindful of your surroundings
- New environments present different challenges
- Make sure you are safe

What questions do you have?