Ketamine: Prehospital Applications

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Conflicts and Interests

My 20 year history of prehosp & ED ketamine use

If you can trust your medics to use drugs that totally remove their patients God given ability to breathe..

What is the big deal about Ketamine?

Ketamine - Pharmacology

- Dissociative anesthetic
- Sedative AND Analgesic
- Typically no respiratory depression
- Wide variety of effects depending on dosing (mild analgesic to general anesthetic)
- Huge LD50 ie safe at even 10-100x intended dosing

Medical Urban Legends – Myths Use in Patients with:

- Head injuries –elevated ICP
- Seizures
- Psych disorders
- Cardiac issues CAD

Other issues

- Laryngospasm
- Hypersalivation/ Bronchorrhea
- Catecholamine release
- Emergence Phenomena

Laryngospasm

Hyper-salivation

Catecholamine Release

The Dreaded Emergence Phenomena

Prehospital applications

- Analgesic
- Procedural sedation & Extrication
- Induction Agent for RSI
- PISA = Post Intubation Sedation & Analgesia
- Behavioral Emergencies - ExDs

Ketamine comes in multiple concentrations – A med error waiting to happen

Stock only the 100mg/ml concentration for prehosp

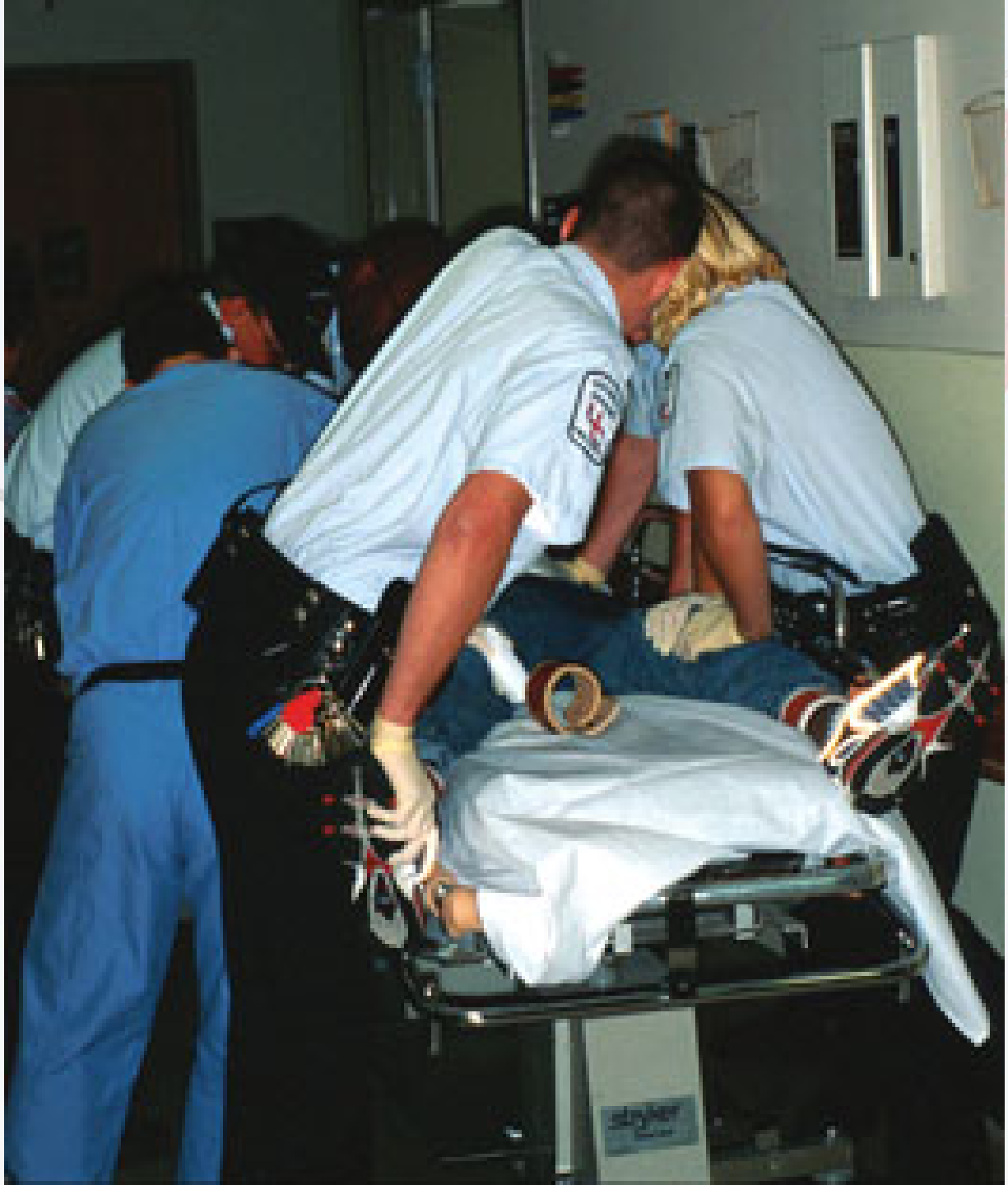
Why?

EMS CALL

- Approx 30 y/o male – In local bar “ Acting strange and then just snapped” Screaming and violent. Throwing chairs and bar glasses
- Tased 4 times, 2 officers injured in takedown and restraint (pt weighs 70 kg)
- Pt hogtied facedown on EMS gurney, given 10 Haldol IM, little effect. Still agitated, kicking-bleeding from wrists and ankles (BG 140)
- Will be at your door in 3 minutes.

On Arrival to ED

- Truly out of control – 4 officers holding him on gurney as it is wheeled by
- IV ? Vital Signs – Sure Buddy! HR 145
- Pt incoherent, screaming. No response to any outside stimuli
- He will injure himself or someone else unless something is done quickly
- YOUR CALL



Options ? Route ?

Narcs?

- Benzos?
- Neuroleptics?
- RSI –intubation
- Or……

Ketamine
Behavioral Emergencies

Ketamine –Behavioral Emergencies

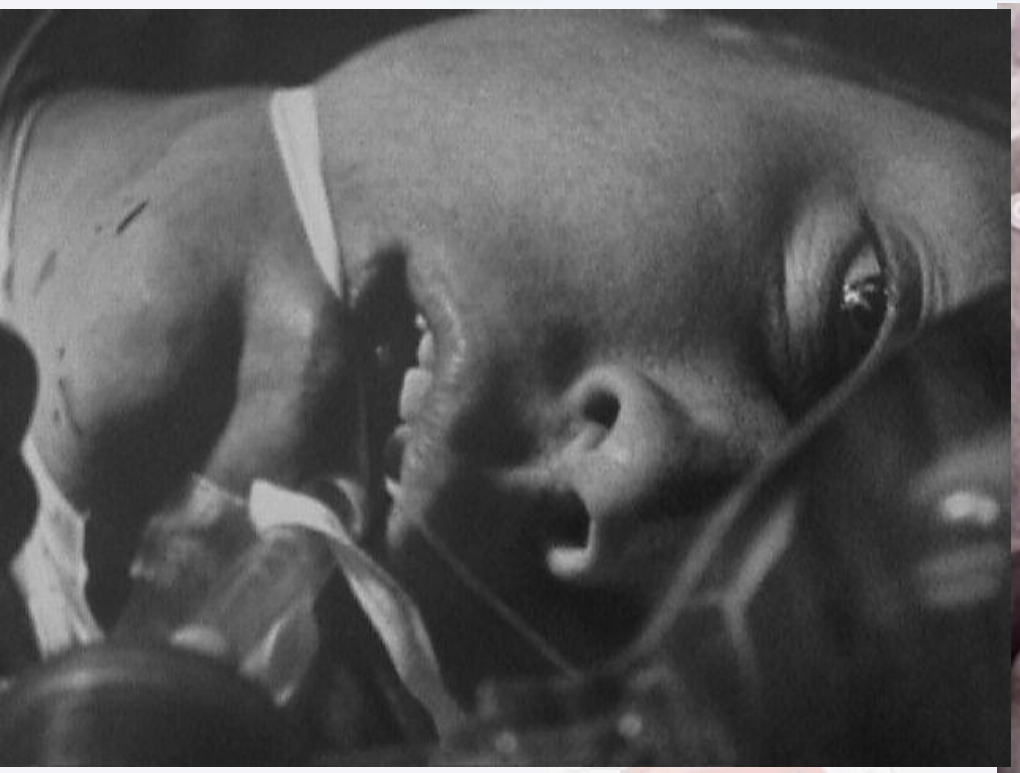
- First choice when things are getting dangerous - Define dangerous
- Nothing works faster IM (Typically no IV)
- Dose 4-6 mg/kg IM
- Always use 100mg/ml concentration

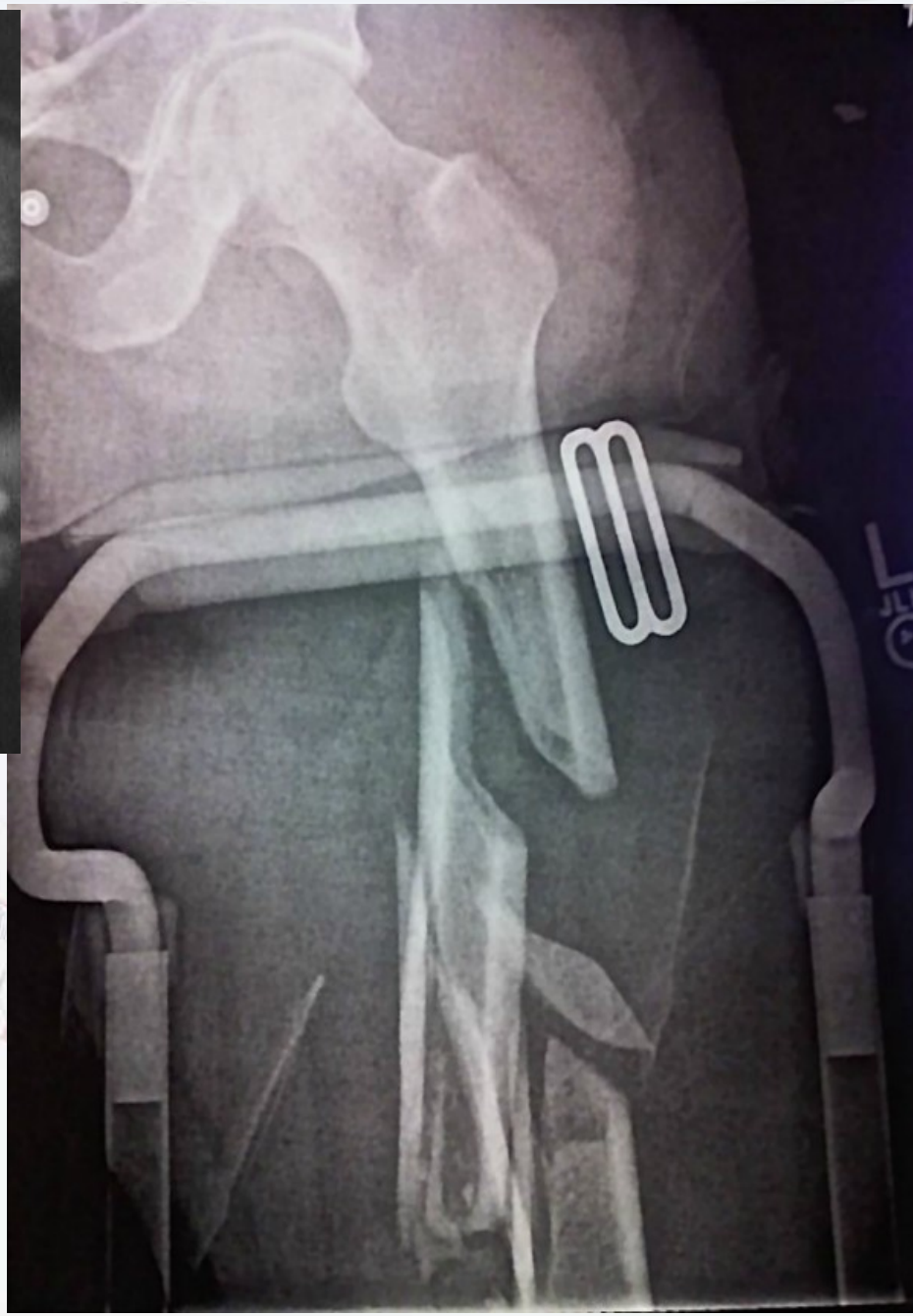
Difficult Extrication

Induction Agent for RSI

1.5- 2.0 mg/kg

Post Intubation Sedation & Analgesia





From the standpoint of analgesia :

You should be treating your intubated patient the same as the trauma with a shattered femur

Ketamine–PISA

- IVP 1mg/kg q 15 mins or
- Infusion – 1-3mg/kg/hr

Ketamine – Low Dose for analgesia

- Poorly defined: 0.1 to 0.5 mg/kg
- Consider for opioid tolerant
- Again – synergy with narcotics
- Decrease in side effects, better analgesia with IV infusion over 30 mins compared to IVP
- Typical dosing 0.2-0.4mg/kg
- Psych/ antidepressent effects

Summary –Ketamine Dosing

- Analgesia – 0.2-0.4 mg/kg IV
- Procedural sedation 1.0 mg/kg IV
- RSI Induction 1.5-2.0 mg/kg IV
- Behavioral Emergency 4-6mg/kg IM
- Post Intubation 1-2 mg/kg/hr


KETAMINE
MACGYVER

Questions