

Chemical Restraint

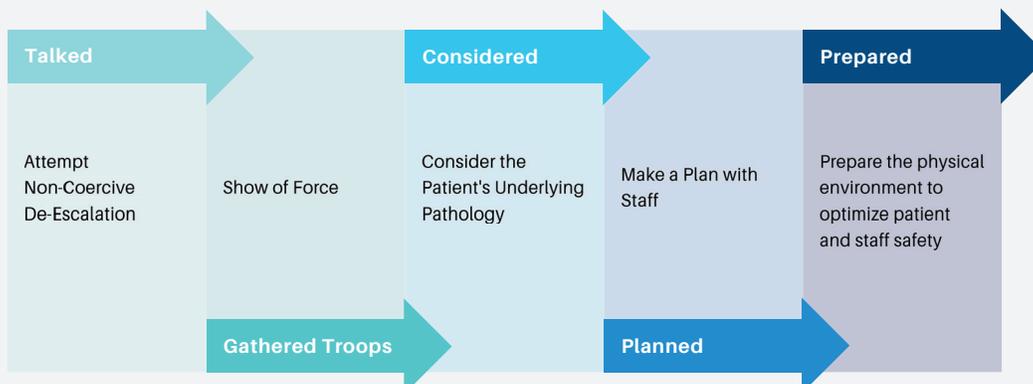
Nicole McCoin, MD
Chair, Department of Emergency Medicine
Ochsner Medical Center
New Orleans, LA

Carmen Wolfe, MD
Program Director, TriStar Emergency Medicine
TriStar Skyline Medical Center
Nashville, TN

Lecture Objectives

| | | |
|---|-----------------------|--|
| 1 | PREPARATION | Describe the basic elements of non-coercive de-escalation |
| 2 | PHARMACOLOGIC OPTIONS | List IM medications commonly used in chemical restraint |
| 3 | LITERATURE | Synthesize the available literature on chemical restraint agents |
| 4 | SPECIAL POPULATIONS | Describe special considerations in special populations |
| 5 | OTHER CONSIDERATIONS | Discuss the legal, ethical, and psychological effects of restraint |

BEFORE YOU GET TO CHEMICAL RESTRAINT, WE ASSUME YOU HAVE.....



Pharmacologic Options

IM Route

| TYPICAL ANTIPSYCHOTICS | ATYPICAL ANTIPSYCHOTICS | BENZODIAZEPINES | NEW AGENTS | ADJUNCTS |
|------------------------|-------------------------|-----------------|-------------------------------|-----------------|
| Haloperidol | Ziprasidone | Lorazepam | Ketamine | Diphenhydramine |
| Droperidol | Olanzapine | Midazolam | <i>Dexmetomidine*</i> (SL) | |

Typical Antipsychotics

Dopamine D2 Receptor Antagonist

Haloperidol

Droperidol

PO, IM, IV

Routes of Admin

IM, IV

2.5 - 10 mg

Typical Doses

1.25 - 5 mg

5-10 minutes

Onset

3-5 minutes

QT Prolongations, EPS

Special Considerations

QT Prolongations, EPS

Typical Antipsychotics

Dopamine D2 Receptor Antagonist

Haloperidol

Droperidol

PO, IM, IV

Routes of Admin

IM, IV

2.5 - 10 mg

Typical Doses

1.25 - 5 mg

5-10 minutes

Onset

3-5 minutes

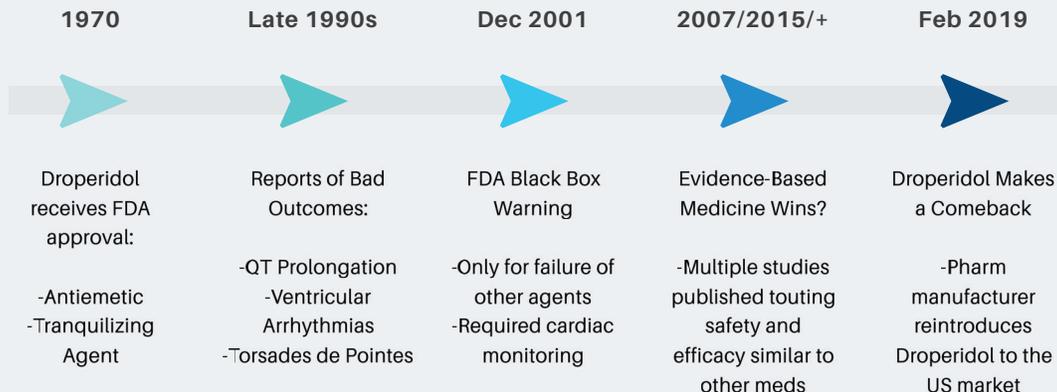
QT Prolongations, EPS

Special Considerations

Black Box Warning

WHAT WAS THE DEAL WITH DROPERIDOL?

An Approximate Timeline



Typical Antipsychotics

Dopamine D2 Receptor Antagonist

| Haloperidol | | Droperidol |
|-----------------------|------------------------|-------------------|
| PO, IM, IV | Routes of Admin | IM, IV |
| 2.5 - 10 mg | Typical Doses | 1.25 - 5 mg |
| 5-10 minutes | Onset | 3-5 minutes |
| QT Prolongations, EPS | Special Considerations | Black Box Warning |

Atypical Antipsychotics

Antagonizes Dopamine + [Norepinephrine, Histamine, Serotonin]

| Olanzapine | | Ziprasidone |
|---|------------------------|----------------------|
| PO, IM, IV | Routes of Admin | PO, IM, IV |
| 5 - 10 mg | Typical Doses | 10 - 20 mg |
| 10 - 30 minutes | Onset | 15 - 30 minutes |
| Fewer cardiac/EPS concerns Black Box: dementia; Antimuscarinic | Special Considerations | Reconstitution, Cost |

Benzodiazepines

Gamma-amino butyric acid (GABA) receptor agonist

Lorazepam

Midazolam

PO, IM, IV

Routes of Admin

PO, IM, IV

2 - 10 mg

Typical Doses

2.5 - 5 mg

15 minutes

Onset

2 - 5 minutes

Shortages, Caution in Elderly

Special Considerations

Shortages, Caution in Elderly

New Agents

All The Rage

Ketamine

NMDA receptor antagonist

Dexmedetomidine

α_2 -adrenergic receptor agonist

IM, IV

Routes of Admin

SL (IV)

4-5 mg/kg IM; 1 mg/kg IV

Typical Doses

120-180 ug

5-10 minutes

Onset

20 minutes

Procedural Sedation?

Special Considerations

Hypotension, dizziness, dry mouth



Dexmedetomidine?

CASE REPORT

Dexmedetomidine to Control Agitation and Delirium from Toxic Ingestions in Adolescents

Joseph D. Tobias, MD

Departments of Anesthesiology and Pediatrics, University of Missouri, Columbia, Missouri

JAMA | Original Investigation

**Effect of Sublingual Dexmedetomidine vs Placebo on Acute Agitation Associated With Bipolar Disorder
A Randomized Clinical Trial**

Sheldon H. Preskorn, MD; Scott Zeller, MD; Leslie Citrome, MD, MPH; Jeffrey Finman, PhD; Joseph F. Go
Rishi Kakar, MD; Michael De Vivo, PhD; Frank D. Yocca, PhD; Robert Risinger, MD

Clinical Trial > J Clin Psychiatry. 2022 Oct 3;83(6):22m14447. doi: 10.4088/JCP.22m14447.

Sublingual Dexmedetomidine for the Treatment of Acute Agitation in Adults With Schizophrenia or Schizoaffective Disorder: A Randomized Placebo-Controlled Trial

Leslie Citrome ^{1, 2}, Sheldon H Preskorn ³, John Lauriello ⁴, John H Krystal ⁵, Rishi Kakar ⁶,
Jeffrey Finman ⁷, Michael De Vivo ⁸, Frank D Yocca ⁸, Robert Risinger ⁸, Lavanya Rajachandran ⁸

Dexmedetomidine?

**So, All We Need is a Study
To See Which One is Best**

Easy.....Right?

Variable Populations

Variable Routes

Variable Drugs

Variable Outcomes

Olanzapine vs haloperidol: treating delirium in a critical care setting
 Yoanna K Skrobik¹, Nicolas Bergeron, Marc Dumont, Stewart B Gottfried
 Clinical Trial > Intensive Care Med. 2004 Mar;30(3):444-9. doi: 10.1007/s00134-003-2117-0
 Epub 2003 Dec 19.

Rapid Agitation Control With Ketamine in the Emergency Department: A Blinded, Randomized Controlled Trial
 David Barbic¹, Gary Andolfatto², Brian Grunau³, Frank X Scheuermeyer³, Bill Macewan⁴, Hong Qian⁵, Hubert Wong⁵, Skye P Barbic⁶, William G Honer⁴
 Randomized Controlled Trial > Ann Emerg Med. 2021 Dec;78(6):788-795.
 doi: 10.1016/j.annemergmed.2021.05.023. Epub 2021 Aug 2.

Midazolam-Droperidol, Droperidol, or Olanzapine for Acute Agitation: A Randomized Clinical Trial
 David McD Taylor MD MPH¹, A, B, C, Catene Y L Yap MSc¹, Jonathan C Knott MBBS PhD¹, George F Taylor BSc PhD², Georgia A Billings MBBS¹, Jonathan Karis MBBS¹, S, David J Castle MD¹
 Annals of Emergency Medicine
 Volume 69, Issue 3, March 2017, Pages 318-326.e1
 Pain management and sedation/original research
 Presented at the International Conference for Emergency Medicine, April 2016, Cape Town, South Africa.

Prospective study of haloperidol plus lorazepam versus droperidol plus midazolam for the treatment of acute agitation in the emergency department
 Pauline Thiermann PharmD¹, A, B, David Roy PharmD¹, Martin Hwecker MD¹, Joshua Senn PharmD¹, Jessica Javed MD², Alyssa Thomas², Jacob Shoreffer PhD², Isaac Shaw MD²
 The American Journal of Emergency Medicine
 Volume 35, May 2022, Pages 76-81

Rescue Sedation When Treating Acute Agitation in the Emergency Department With Intramuscular Antipsychotics
 Lauren R Klein MD MS¹, A, Brian E Driver MD, Gabriella Horten, Sarah Scharber BS, Marc L Martel MD, Jon B Cole MD
 The Journal of Emergency Medicine
 Volume 56, Issue 5, May 2019, Pages 484-490
 Original Contributions

Severely agitated emergency
 Khokhar NA, Rathbone J



The Bottom Line

Comparisons of Single Agents: Antipsychotics

The Best of the Best for IM Administration in the ED

Annals of Emergency Medicine
 Volume 21, Issue 4, April 1992, Pages 407-413

Droperidol versus haloperidol for chemical restraint of agitated and combative patients
 MD, FACEP Harold Thomas Jr, MD, FACEP Earl Schwartz, MD, FACEP Robert Petrilli

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|--------------------|------------------------|---|------------------------------------|---|
| Thomas et al. 1992 | Prospective Randomized | Droperidol 5mg IM/IV Haloperidol 5mg IM/IV | IM Droperidol : more rapid control | Small; N = 68 No Difference with IV Comparison |

Comparisons of Single Agents: Antipsychotics

The Best of the Best for IM Administration in the ED

Annals of Emergency Medicine
Clinical Trial > Intensive Care Med. 2004 Mar;30(3):444-9. doi: 10.1007/s00134-003-2117-0. Epub 2003 Dec 19.

Am J Psychiatry. 2001
Olanzapine v. haloperidol: treating delirium in a critical care setting
Yoanna K Skrobik ¹, Nicolas Bergeron, Marc Dumont, Stewart B Gottfried

Double-blind, placebo-controlled, randomized trial of intramuscular olanzapine and haloperidol in the treatment of acute agitation in schizophrenia
P Wright ¹, M Birkett, S R David, K Meehan, I Ferchland, K J Alaka, J C Saunders, J Krueger, P Bradley, L San, M Bernardo, M Reinstein, A Breier

Randomized Haloperidol 5mg IM/IV Rapid control

THE FINE PRINT
Small; N = 68
No Difference with IV Comparison

Comparisons of Single Agents: Antipsychotics

The Best of the Best for IM Administration in the ED

BJPsych
Droperidol v. haloperidol for sedation of aggressive behaviour in acute mental health: Randomised controlled trial
Published online by Cambridge University Press: 02 January 2018
Leonie Calver, Vincent Drinkwater, Rahul Gupta, Colin B. Page and Geoffrey K. Isbister

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|--------------------|------------|---|---|----------------------------------|
| Calver et al. 2015 | RCT | Droperidol 10mg IM Haloperidol 10mg IM | Droperidol: Less need for additional sedation | Droperidol: more adverse effects |

Comparisons of Single Agents: Antipsychotics

The Best of the Best for IM Administration in the ED

The Journal of Emergency Medicine
Volume 56, Issue 5, May 2019, Pages 484-490

Original Contributions
Rescue Sedation When Treating Acute Agitation in the Emergency Department With Intramuscular Antipsychotics
Lauren R. Klein MD, MS ¹, Brian E. Driver MD, Gabriella Horton, Sarah Scharber BS, Marc L. Martel MD, Jon B. Cole MD

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|-------------------|---------------|--|--|----------------------------|
| Klein et al. 2019 | Retrospective | Droperidol 5-10mg IM Haloperidol 5-10mg IM Olanzapine 10 mg IM | Droperidol and Olanzapine: Less Need for Rescue Meds | Retrospective N = > 15K |

Comparisons of Single Agents: Antipsychotics

The Best of the Best for IM Administration in the ED

PAIN MANAGEMENT AND SEDATION/ORIGINAL RESEARCH

A Prospective Study of Intramuscular Droperidol or Olanzapine for Acute Agitation in the Emergency Department: A Natural Experiment Owing to Drug Shortages



Jon B. Cole, MD¹; Jamie L. Stang, BS; Paige A. DeVries, BS; Marc L. Martel, MD; James R. Miner, MD; Brian E. Driver, MD
*Corresponding Author. E-mail: jon.cole@hcmid.org; Twitter: @jonbcole2

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|------------------|---------------------------|---|---|---|
| Cole et al. 2021 | Prospective Observational | Droperidol 5 mg IM Olanzapine 10 mg IM | Time to Sedation: It's a Tie | Olanzapine: add'l meds Droperidol: EPS |

Comparisons of Single Agents: Antipsychotics

The Best of the Best for IM Administration in the ED



Comparisons of Single Agents: Benzos and Antipsychotics

The Best of the Best for IM Administration in the ED

Clinical Trial > Acad Emerg Med. 2004 Jul;11(7):744-9. doi: 10.1197/j.aem.2003.06.015.

A prospective, double-blind, randomized trial of midazolam versus haloperidol versus lorazepam in the chemical restraint of violent and severely agitated patients

Flavia Nobay¹, Barry C Simon, M Andrew Levitt, Graham M Dresden

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|-------------------|-------------------------------------|---|--|---------------------------|
| Nobay et al. 2004 | Randomized Prospective Double-Blind | Haloperidol 5 mg IM vs Lorazepam 2 mg IM vs Midazolam 5 mg IM | Midazolam Fastest on / Fastest off | No Diff in Adverse Events |

Comparisons of Single Agents: Benzos and Antipsychotics

The Best of the Best for IM Administration in the ED

Randomized Controlled Trial > Acad Emerg Med. 2005 Dec;12(12):1167-72.
doi: 10.1197/j.aem.2005.07.017. Epub 2005 Nov 10.

Management of acute undifferentiated agitation in the emergency department: a randomized double-blind trial of droperidol, ziprasidone, and midazolam

Marc Martel ¹, Ann Sterzinger, James Miner, Joseph Clinton, Michelle Biros

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|--------------------|-------------------------------------|---|--|---------------------------|
| Martel et al. 2005 | Randomized Prospective Double-Blind | Droperidol 5 mg IM vs Ziprasidone 20 mg IM vs Midazolam 5 mg IM | Droperidol = Goldilocks Ziprasidone too slow on Midazolam too fast off | No Diff in Adverse Events |

Comparisons of Single Agents: Benzos and Antipsychotics

The Best of the Best for IM Administration in the ED

Intramuscular Midazolam, Olanzapine, Ziprasidone, or Haloperidol for Treating Acute Agitation in the Emergency Department

Lauren R. Klein, MD, MS^{*}; Brian E. Driver, MD; James R. Miner, MD; Marc L. Martel, MD; Michelle Hessel, PharmD; Jacob D. Collins, BS; Gabriella B. Horton; Erik Fagerstrom, BS; Rajesh Satpathy, BA; Jon B. Cole, MD

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|-------------------|---------------------------|---|--|---------------------------|
| Klein et al. 2018 | Prospective Observational | Haloperidol 5 mg IM Haloperidol 10 mg IM Ziprasidone 20 mg IM Olanzapine 10 mg IM Midazolam 5 mg IM | Midazolam: Fastest Antipsychotic Race: Olanzapine wins | No Diff in Adverse Events |

Comparisons of Single Agents: Benzos and Antipsychotics

The Best of the Best for IM Administration in the ED

Randomized Controlled Trial > Acad Emerg Med. 2021 Apr;28(4):421-434.
doi: 10.1111/acem.14124. Epub 2020 Oct 5.

Randomized Double-blind Trial of Intramuscular Droperidol, Ziprasidone, and Lorazepam for Acute Undifferentiated Agitation in the Emergency Department

Marc L Martel ¹, Brian E Driver ¹, James R Miner ^{1 2}, Michelle H Biros ², Jon B Cole ¹

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|--------------------|-------------------------------------|---|--|---------------------------|
| Martel et al. 2021 | Randomized Prospective Double-Blind | Droperidol 5 mg IM vs Ziprasidone 10 mg IM vs Lorazepam 2 mg IM | Droperidol: more effective at 15 minutes | No Diff in Adverse Events |

Comparisons of Single Agents: Benzos and Antipsychotics

The Best of the Best for IM Administration in the ED

Droperidol (goldilocks)
Midazolam (speed)

Olanzapine



Comparisons of Combinations: Benzos + Antipsychotics

Is a Combination Optimal?

The American Journal of Emergency Medicine
Volume 15, Issue 4, July 1997, Pages 335-340

PHARMACOTHERAPY accp

Original contribution
Haloperidol, lorazepam, and midazolam for acute agitation? A multicenter, double-blind, emergency department study
John Battaglia MD, Sue Moss MD, John B. Battaglia MD, Ricardo Mendoza MD, Liane Leedom MD

Annals of Emergency Medicine
Volume 61, Issue 1, January 2013, Pages 72-81
Pain management/original research
Intravenous Droperidol or Olanzapine as a First-Line Agent for Acute Agitation
David L. Ownby M.D., Ph.D., Alberto Penalver M.D.

JAMA | Preliminary Communication
Effect of Lorazepam With Haloperidol vs Haloperidol Alone on Agitated Dementia Patients with Advanced Cancer Receiving Palliative Care: A Randomized Clinical Trial
David Hui, MD, MSc; Susan Frisbee-Hume, MS; Annie Wilson, MSN; Seyedeih S. Dibaj, PhD; Thuc Nguyen, RN; Maxine De La Cruz, MD; Paul Walker, MD; Donna S. Zhukovskiy, MD; Marvin Delgado-Guay, MD; Marielena Vidal, MD; Daniel Epner, MD; Ashila Reddy, MD; Kamerson Tanco, MD; Janet Williams, MPH; Stacy Hall, MSN; Diane Liu, MSc; Kenneth Hess, PhD; Sapna Amin, PharmD; William Breitbart, MD; Eduardo Bruera, MD

Annals of Emergency Medicine
Volume 69, Issue 3, March 2017, Pages 318-326.e1
Pain management
Midazolam-Droperidol, Droperidol, or Olanzapine for Acute Agitation: A Randomized Clinical Trial
Presented at the International Conference for Emergency Medicine, April 2016, Cape Town, South Africa.
David McD Taylor MD, MPH, Celene Y.L. Yap MSc, Jonathan C. Knott MBBS, PhD, Simone E. Taylor PharmD, Georgina A. Phillips MBBS, Jonathan Karro MBBS, Esther W. Chan BPharm, PhD, David C.M. Kong BPharm, PhD, David J. Castle MD

Comparisons of Combinations: Benzos + Antipsychotics

Combinations Are Optimal

The American Journal of Emergency Medicine
Volume 15, Issue 4, July 1997, Pages 335-340

PHARMACOTHERAPY accp

Original contribution
Haloperidol, lorazepam, and midazolam for acute agitation? A multicenter, double-blind, emergency department study
John Battaglia MD, Sue Moss MD, John B. Battaglia MD, Ricardo Mendoza MD, Liane Leedom MD

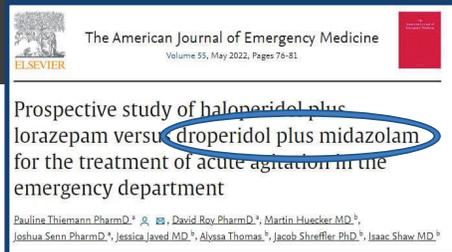
The American Journal of Emergency Medicine
Volume 55, May 2022, Pages 76-81
Prospective study of haloperidol plus lorazepam versus droperidol plus midazolam for the treatment of acute agitation in the emergency department
Pauline Thiemann PharmD, David Roy PharmD, Martin Huecker MD, Joshua Senni PharmD, Jessica Javed MD, Alyssa Thomas, Jacob Shreffler PhD, Isaac Shaw MD

JAMA | Preliminary Communication
Effect of Lorazepam With Haloperidol vs Haloperidol Alone on Agitated Dementia Patients with Advanced Cancer Receiving Palliative Care: A Randomized Clinical Trial
David Hui, MD, MSc; Susan Frisbee-Hume, MS; Annie Wilson, MSN; Seyedeih S. Dibaj, PhD; Thuc Nguyen, RN; Maxine De La Cruz, MD; Paul Walker, MD; Donna S. Zhukovskiy, MD; Marvin Delgado-Guay, MD; Marielena Vidal, MD; Daniel Epner, MD; Ashila Reddy, MD; Kamerson Tanco, MD; Janet Williams, MPH; Stacy Hall, MSN; Diane Liu, MSc; Kenneth Hess, PhD; Sapna Amin, PharmD; William Breitbart, MD; Eduardo Bruera, MD

Annals of Emergency Medicine
Volume 69, Issue 3, March 2017, Pages 318-326.e1
Pain management
Midazolam-Droperidol, Droperidol, or Olanzapine for Acute Agitation: A Randomized Clinical Trial
Presented at the International Conference for Emergency Medicine, April 2016, Cape Town, South Africa.
David McD Taylor MD, MPH, Celene Y.L. Yap MSc, Jonathan C. Knott MBBS, PhD, Simone E. Taylor PharmD, Georgina A. Phillips MBBS, Jonathan Karro MBBS, Esther W. Chan BPharm, PhD, David C.M. Kong BPharm, PhD, David J. Castle MD

Comparisons of Combinations: Benzos + Antipsychotics

The Best of the Best for IM Administration in the ED



| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|----------------------|--|---|---|--|
| Thiemann et al. 2022 | Prospective Unblinded Observational Single Site | Haloperidol 5 mg IM + Lorazepam 2 mg IM vs Droperidol 5 mg IM + Midazolam 5 mg IM | Droperidol/Midazolam Better at 10 min mark | Droperidol/Midazolam needed more supp oxygen |

Comparisons of Combinations: Benzos + Antipsychotics

The Best of the Best for IM Administration in the ED



The World of Ketamine



The World of Ketamine

The Best of the Best for IM Administration in the ED

Randomized Controlled Trial > Ann Emerg Med. 2021 Dec;78(6):788-795.
doi: 10.1016/j.annemergmed.2021.05.023. Epub 2021 Aug 2.

Rapid Agitation Control With Ketamine in the Emergency Department: A Blinded, Randomized Controlled Trial

David Barbic¹, Gary Andolfatto², Brian Grunau³, Frank X Scheuermeyer³, Bill Macewan⁴, Hong Qian⁵, Hubert Wong⁵, Skye P Barbic⁶, William G Honer⁴

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|--------------------|------------|---|--|-------------------------------|
| Barbic et al. 2021 | RCT | Ketamine 5 mg/kg IM vs Midazolam 5 mg IM +Haloperidol 5 mg IM | Ketamine: Shorter Median Time to Sedation | Ketamine: More adverse events |

The World of Ketamine

The Best of the Best for IM Administration in the ED

The American Journal of Emergency Medicine
Volume 44, June 2021, Pages 306-311

Efficacy of ketamine for initial control of acute agitation in the emergency department: A randomized study

Justin Lin Pharm.D.,¹ Yelena Figuerado Pharm.D.,¹ Adrienne Montgomery Pharm.D.,¹ Jonathan Lee M.D.,² Mark Cannis M.D.,³ Valerie C. Norton M.D.,³ Richard Calvo Ph.D.,⁴ Harinder Sikand Pharm.D.,⁴

| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|-----------------|------------|--|--|---------------------------|
| Lin et al. 2021 | RCT | Ketamine 4 mg/kg IM or 1 mg/kg IV vs Lorazepam 1-2 mg IM/IV +Haloperidol 5-10 mg IM/IV | Ketamine: Shorter Median Time to Sedation | No Diff in Adverse Events |

Comparisons with Ketamine

A Wonder Drug?



So... What Do You Want Doc?

An Summary of Imperfect Data

Typical Antipsychotic?

Droperidol: more rapid

Atypical Antipsychotic?

Olanzapine: front runner

Benzodiazepine?

Midazolam: faster on, faster off

Should I Do A Combo?

Yes: decreases time to sedation

Ketamine?

Go For It: monitoring needed



What About the B in B52?

Study of the Classic "B52" vs "52"

Efficacy of Combination Haloperidol, Lorazepam, and Diphenhydramine vs. Combination Haloperidol and Lorazepam in the Treatment of Acute Agitation: A Multicenter Retrospective Cohort Study

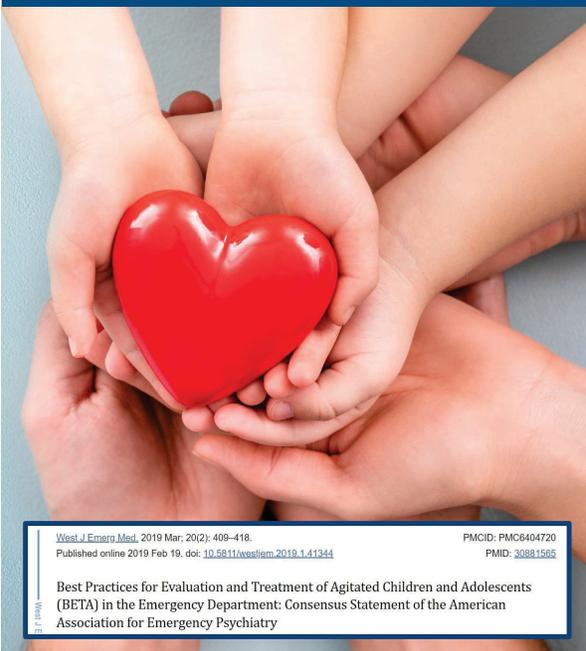
Trevor Jeffers • Brenna Darling • Christopher Edwards • Nina Vadiei

With Diphenhydramine:

- More oxygen desaturation
- More hypotension
- More physical restraint use
- Longer length of stay

Special Populations

Unique Considerations



West J Emerg Med. 2019 Mar; 20(2): 409-418.
Published online 2019 Feb 19. doi: [10.5811/westjem.2019.1.41344](https://doi.org/10.5811/westjem.2019.1.41344)

PMCID: PMC6404720
PMID: 30881565

Best Practices for Evaluation and Treatment of Agitated Children and Adolescents (BETA) in the Emergency Department: Consensus Statement of the American Association for Emergency Psychiatry

Pediatrics

- Avoid combinations
- Based on etiology, select:
 - Olanzapine (less cardiac/EPS risk)
 - Benzos (but not w/i 1 hr Olanzapine)
- Beware Paradoxical Disinhibition
 - Delirium – Diphenhydramine/Benzos
- No good data for ketamine

Pregnancy

- Avoid physical restraints
- Benefit > Risk
- There is no antipsychotic or benzodiazepine that is absolutely contraindicated
- Haloperidol + Benzo
- Atypical Antipsychotics also okay





Geriatrics

- American Geriatrics Society Beers Criteria
 - Benzodiazepines
 - Antipsychotics
- FDA Black Box
 - Dementia + Atypical Antipsychotics
- Start with a lower dose
- Benzos: paradoxical reaction
- Avoid diphenhydramine: anticholinergic

Additional considerations

Convey a great number of information in an effective manner



DOCUMENTATION

Use of these medications
= Restraint

Face to Face < 1 hr
Renewal q4 hr



LEGAL

Justify reasoning



ETHICAL

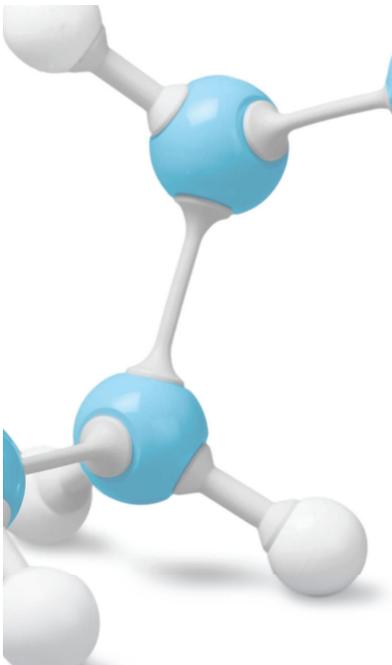
Never punitive

Always respecting
patient autonomy
when possible



PSYCHOLOGICAL

High rates of long term
psychological distress
after utilization of
common interventions



Chemical Restraint

Nicole McCain, MD
Chair, Department of Emergency Medicine
Ochsner Medical Center

Carmen Wolfe, MD
Program Director, TriStar Emergency Medicine
TriStar Skyline Medical Center

Rapid Agitation Control With Ketamine in the Emergency Department: A Blinded, Randomized Controlled Trial

David Barbic¹, Gary Andolfatto², Brian Grunau³, Frank X. Scheuermeyer³, Bill Macewan⁴, Hong Qian⁵, Hubert Wong⁶, Siye P. Barbic⁶, William G. Homer⁶

Comparisons with Ketamine

A Wonder Drug?

Efficacy of ketamine for initial control of acute agitation in the emergency department: A randomized study

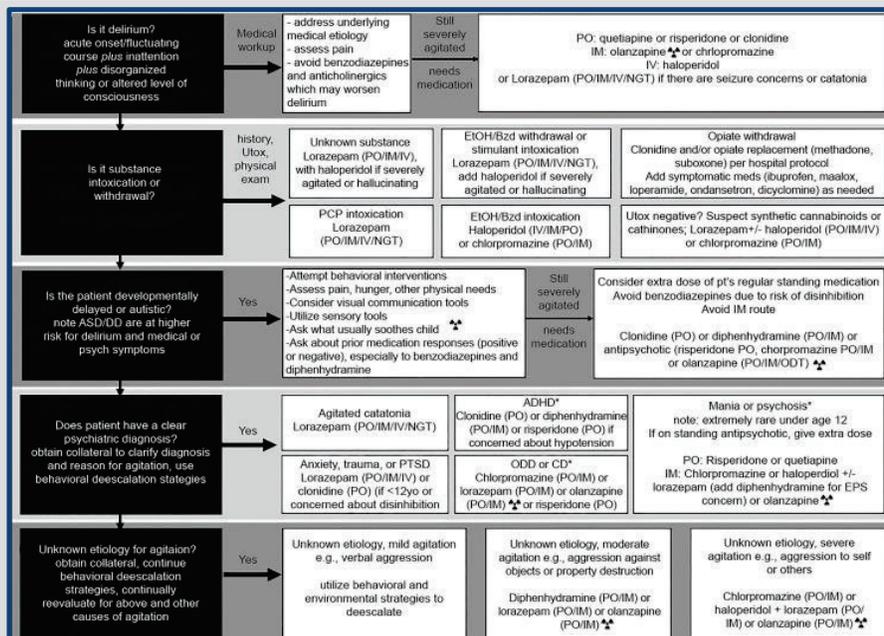
Justin Lin Pharm.D.,¹ A. S. Yelena Figueroa Pharm.D.,² Adrienne Montgomery Pharm.D.,³ Jonathan Lee M.D.,⁴ Mark Kenna M.D.,⁵ Valerie C. Norton M.D.,⁶ Richard Galus Ph.D.,⁷ Harinder Sidani Pharm.D.,⁸

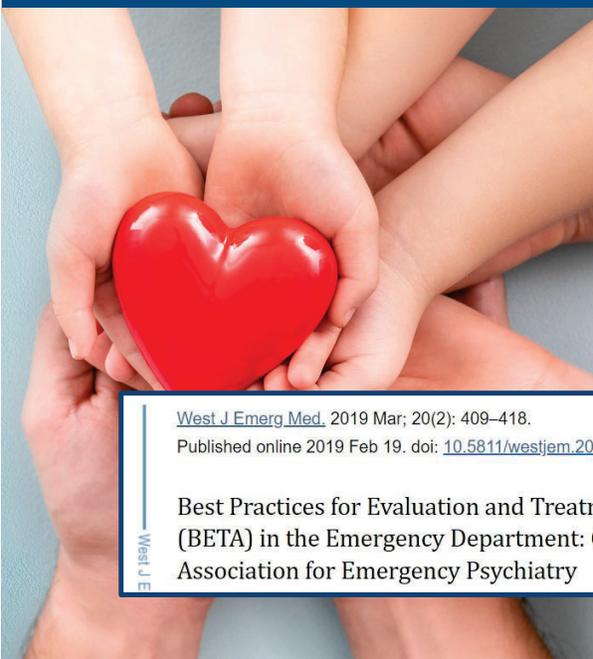
| STUDY | STUDY TYPE | COMPARISON | WINNER? | THE FINE PRINT |
|--------------------|------------|---|---|-------------------------------|
| Barbic et al. 2021 | RCT | Ketamine 5 mg/kg IM vs Midazolam 5 mg IM + Haloperidol 5 mg IM | Ketamine: Shorter Median Time to Sedation | Ketamine: More adverse events |
| Lin et al. 2021 | RCT | Ketamine 4 mg/kg IM or 1 mg/kg IV vs Lorazepam 1-2 mg IM/IV + Haloperidol 5-10 mg IM/IV | Ketamine: Shorter Median Time to Sedation | No Diff in Adverse Events |

Non-Coercive De-Escalation

| Step 1: Verbally Engage the Patient | Step 2: Establish a Collaborative Relationship | Step 3: Verbally De-Escalate the Patient |
|-------------------------------------|--|--|
| Respect Personal Space | Be Concise | Set Clear Limits |
| Do Not Be Provocative | Establish Wants and Feelings | Offer Choices and Optimism |
| Establish Verbal Contact | Listen Closely | Debrief the Patient |
| | Agree or Agree to Disagree | |

American Association for Emergency Psychiatry: Project BETA (Best Practices in the Evaluation and Treatment of Agitation)





Pediatrics

[West J Emerg Med](#), 2019 Mar; 20(2): 409–418.

Published online 2019 Feb 19. doi: [10.5811/westjem.2019.1.41344](https://doi.org/10.5811/westjem.2019.1.41344)

PMCID: PMC6404720

PMID: [30881565](https://pubmed.ncbi.nlm.nih.gov/30881565/)

Best Practices for Evaluation and Treatment of Agitated Children and Adolescents (BETA) in the Emergency Department: Consensus Statement of the American Association for Emergency Psychiatry

West J E