Medetomidine Withdrawal

Medetomidine Objective Withdrawal Scale (MOWS)

This pilot withdrawal management protocol has not been evaluated yet through clinical trials and will need validation to assess safety and efficacy.

Summary

We are seeing cases of medetomidine withdrawal in hospitalized patients; medetomidine is an alpha-2 adrenergic agonist[1] used as an adulterant in illicit fentanyl.

This syndrome is driven by autonomic hyperactivity that persists despite treatment of opioid and/or benzodiazepine withdrawal.

Patients have been known to decompensate quickly, prompt intervention is imperative to prevent escalation of care to higher acuity areas.

A medetomidine withdrawal protocol has been developed to support recognition, scoring, and management using clonidine.

Background

Over the past two years, medetomidine has emerged as a novel adulterant in the illicit fentanyl supply across multiple regions of North America.

As of December 2025, medetomidine has been detected on over 30% of unregulated opioid samples in the province of British Columbia. In Philadelphia approximately 25% of ICU beds are occupied by patients with complications from medetomidine withdrawal.

Contents

Key Clinical Features

Symptoms may begin within 4-6 hours of last use and can fluctuate over several days.

Common findings

- Tachycardia
- Hypertension
- Whole-body shivers (distinct from benzo/EtOH tremor)
- Diaphoresis
- Agitation or delirium (including hallucinations)
- Nausea or vomiting[2]

When to initiate MOWS

Patients may be started on this protocol if all the following are met:

- Toxicology evidence with a urine drug screen or point-of-care test strip confirmation

OR

- History of known or suspected medetomidine exposure in acute withdrawal.

OR

- Unregulated fentanyl exposure.
- Presence of autonomic instability (e.g., hypertension, tachycardia, tremor/shivers) with alternative causes ruled out.

Causes may include but are not limited to stimulant intoxication, alcohol withdrawal, neuroleptic malignant syndrome, sepsis, acute coronary syndrome, pulmonary embolism.

Management approach

Assess for opioid withdrawal

Follow institutional OW protocols utilizing full agonist opioids:

- Consider initiation and titration of Opioid Agonist Therapy if clinically indicated

Assess for Benzo/Alcohol withdrawal

If patient meets any of the following criteria, initiate CIWA monitoring with PRN Lorazepam PO/SL/IV for scoring:

- Reported intentional benzodiazepine use separate from benzo-contaminated fentanyl (“benzo down”)
- History of benzodiazepine or alcohol withdrawal seizures
- Active alcohol use disorder

If none of the above, but there is a suspicion for potential benzodiazepine withdrawal, use a scheduled benzodiazepine taper.

Benzodiazepine taper

Day 1: 1 mg Lorazepam PO/SL/IV QID

Day 2: 1 mg Lorazepam PO/SL/IV TID

Day 3: 1 mg Lorazepam PO/SL/IV BID

Day 4: 1 mg Lorazepam PO/SL/IV once daily

Day 5: Discontinue Lorazepam

Initiate Medetomidine withdrawal monitoring

Score the Medetomidine Withdrawal Severity Scale (MWSS) as per protocol.

Assign 1 point for each of the following observations:

- Heart rate > 110 bpm
- Systolic blood pressure > 160 mmHg
- Whole-body shiver
- Delirium/agitation
- Nausea or vomiting

At least one point from first two criteria met **and** total score ≥ 3 = clinically significant withdrawal

Medetomidine withdrawal treatment

First-line therapy: Clonidine

- Clonidine 0.2 mg PO/SL/IV q1h PRN, based on MWSS ≥ 3
- Maximum cumulative dose in 6 hours: 0.8 mg
- Assess MWSS Q1H until MWSS < 3 for three consecutive readings, reduce scoring frequency to Q3H
- If MWSS remains < 3 for three consecutive Q3H scores, assess Q8H for 72 hours then discontinue protocol
- For any score greater than 3, restart protocol at Q1H
- Holding parameters: RR below 8, SpO2 less than 92%, HR below 60, BP below 95/65

Criteria for Escalation of Care and Consideration for Dexmedetomidine

- Cumulative dose per 6 hours ≥0.8 mg
- Persistent delirium / severe agitation
- Severe autonomic instability (HR > 150 or BP > 200)
- Severe vomiting, with risk of compromised airway