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St. Rose Dominican

Effects of a Pharmacy Driven Continuous Sedation Stop Procedure on Mechanical Ventilation Days

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Study Objectives

- To evaluate the efficacy of pharmacy driven efforts to reduce continuous IV sedation and assess its appropriateness
- Collect and compare the number of days spent on mechanical ventilation before and after procedure initiation
- Compare and evaluate the average number of days a patient spends in the intensive care unit (ICU)

Background

- Sedation is standard treatment for patients undergoing mechanical ventilation
- Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption (PADIS) guidelines recommend managing pain prior to initiation of sedation
- Light sedation and spontaneous awakening trials (SATs) are also recommended
- Shorter durations of sedation and SATs have been shown to reduce ICU stays and mechanical ventilation days

Richmond Agitation & Sedation Scale (RASS)

Score	Description	
+ 4	Combative: Overtly combative, violent, immediate danger to staff	
+ 3	Very agitated: Pulls or removes tube(s) or catheter(s); aggressive	
+ 2	Agitated: Frequent non-purposeful movement, fights ventilator	
+ 1	Restless: Anxious but movements not aggressive vigorous	
0	Alert and calm	
- 1	Drowsy: Not fully alert, but has sustained awakening (eye-opening/eye contact) to voice (>10 seconds)	Verbal Stimulation
- 2	Light sedation: Briefly awakens with eye contact to voice (<10 seconds)	
- 3	Moderate sedation: Movement or eye opening to voice (but no eye contact)	
- 4	Deep sedation: No response to voice, but movement or eye opening to physical stimulation	Physical Stimulation
- 5	Unarousable: No response to voice or physical stimulation	

Intervention

- Pharmacist performs daily review of patients on continuous sedation
- Patients not meeting exclusion criteria are discussed with licensed independent practitioner for continuous sedation stop

Background Characteristics

Characteristic	Pre-Procedure (n=85)	Post-Procedure (n=114)
Age – yrs, mean (SD)	71 (6.36)	70 (5.7)
Male, n (%)	45 (53)	55 (48)
BMI, mean (SD)	28.5 (4.56)	28.6 (12)
APACHE II score, mean (SD)	22 (0.7)	24 (0.7)
COVID +, n (%)	0 (0)	26 (23)
Primary Outcomes		
Vent days, mean (hrs)	3.1 (74.4)	3.88 (93.2)
Secondary Outcomes		
All-cause mortality, n (%)	6 (7)	13 (12)
CAM positive days, mean	4	5
ICU days, mean	5.6	6.1
RASS achieved off of continuous sedation, n (%)	8 (9)	42 (37)
Continuous sedation days, mean (hrs)	3.1 (74.4)	2.95 (70.8)
Continuous sedation restarted, n (%)	–	7 (6)

Preliminary Results

Characteristic	Pre-Procedure (n=85)	Post-Procedure (n=114)
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References

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Methodology

- Retrospective chart review
  - Sample size: 456
  - Records from January 2019 to November 2022
  - Data collected from Dignity Health St. Rose Dominican – Siena campus
  - Medical ICU and Surgical ICU

Inclusion

MV/ICU patients on continuous sedation for ≥ 48 hours

- Dexmedetomidine
- Fentanyl
- Hydromorphone
- Ketamine
- Midazolam
- Propofol

Exclusion

- Comfort care
- Chronic MV/Tracheostomy
- Death prior to day 3
- High ventilator settings (FiO_2 ≥80%, PEEP ≥10) prior to day 3
- Induced hypothermia
- Neuromuscular blocker infusion
- Proning
- Seizures/Status Epilepticus
- Substance withdrawal

Outcomes

- **Primary**
  - Number of ventilation days
- **Secondary**
  - All-cause mortality
  - Confusion Assessment Method (CAM-ICU) positive days
  - Continuous sedation days
  - ICU days
  - Number of patients who have achieved RASS goal of -1 to +1 off of continuous sedation
  - Number of patients restarted on continuous sedation

Conclusion

- Pending final outcome of results