Rancho Los Amigos National Rehabilitation Center

ADMINISTRATIVE POLICY AND PROCEDURE

SUBJECT: PROPOFOL CONTINUOUS INFUSION

Policy No.: B859
Supersedes: October 2017
Revision Date: September 2021

PURPOSE:

To outline the management and establish guidelines for the safe use of propofol continuous intravenous infusion

POLICY:

Assign responsibilities to each department that uses propofol continuous intravenous infusion for sedation.

INTRODUCTION:

Propofol is a central nervous system depressant thus the continuous infusion must be used only for intubated patients on mechanical ventilatory support. It is commonly used to produce sedation for intubation, management of elevated intracranial pressure, status epilepticus, and some diagnostic procedures. The desired effect is achieved in 1 – 3 minutes and the duration of action is 2 – 3 minutes. Most patients are alert in less than 15 minutes when the continuous infusion is discontinued.
Bolus doses are not recommended due to the profound effect on hemodynamics. Propofol has no analgesic effect and little amnesic effect.

Richmond Agitation Sedation Scale (RASS) is used to titrate Propofol infusions.
Propofol is contraindicated in patients who are allergic to eggs or soy products.
Propofol is a lipid base solution, preservative-free, which may increase the risk of systemic infections.
Hypotension and bradycardia are common adverse effects. Severe adverse effects described as propofol infusion syndrome have been reported with prolonged continuous infusion (greater than 48 hours) and continuous high doses (greater than 80 micrograms/Kg/min). Propofol infusion syndrome is characterized by: cardiac arrest, rhabdomyolysis, bradycardia, hyperkalemia, renal failure, and metabolic acidosis.

REQUIREMENTS:

1. Propofol continuous infusion can ONLY be prescribed by anesthesiologists and critical care physicians, or other physicians who are credentialed and privileged to administer moderate to deep sedation according to Policy B815. It is recommended that physicians maintain a current ACLS certification.
2. Propofol continuous infusion is restricted to the operating room, radiology, and ICU.
3. Administration of propofol by nursing staff is restricted to RNs working in the ICU or radiology who have demonstrated competency in moderate sedation and have current ACLS certification.

ASSESSMENT:

1. Assess and record the following before initiating the continuous infusion, and at a minimum of every two hours thereafter.
   - Vital signs and oxygen saturation by pulse oximetry
   - Level of consciousness
   - Pain level
2. Level of sedation using the Richmond agitation sedation scale (RASS). Assess RASS score before each titration
3. Asses for burning sensation at the peripheral IV site immediately after starting the infusion and at least every two hours.
4. Asses the urine for changes in color and clarity every 4 hours.
5. It is recommended to obtain the following laboratory test for baseline and monitor periodically as needed.
   - Arterial blood gases
   - Triglycerides
   - Basic metabolic panel (BMP)
   - Urinalysis baseline

ADMINISTRATION AND TITRATION:

Note: Propofol is compatible with:
- Lactated Ringers
- Lactated Ringers and 5% Dextrose
- 5% Dextrose
- 5% Dextrose and 0.45% Sodium Chloride 5% Dextrose and 0.2% Sodium Chloride

1. Administer propofol infusion as ordered in the ICU Pain and Sedation Management Subphase
2. Propofol order must include the following:
   - Desired RASS score
   - Starting dose (Recommended: 5 mcg/Kg/min)
     - Titration order to the desired RASS
     - Recommended increase by 5mcg/Kg/min every 5-10 minutes
3. Titrate to ordered parameters while monitoring vital signs
   - Maximum rate of infusion recommended: 50 mcg/Kg/min. Contact Provider if the patient requires a higher dose.
   - Recommended maximum duration of administration is 48 hours
   - Check propofol concentration. **Must be 10 milligrams/mL.**
4. Daily interruption is recommended to minimize prolonged sedative effects.

DISCONTINUATION:

1. Decrease infusion by 5 mcg/Kg/min every 10 minutes
2. Discontinue propofol infusion 10 – 15 minutes before extubation.

NUTRITION:

Propofol being a lipid-based solution provides 1.1 kcal per ml. Therefore, when calculating total caloric intake, add the corresponding calories from propofol.

SAFETY:

1. Maintain strict sterile technique during administration and tubing changes.
2. IV tubing must be changed every 12 hours and unused portions discarded.
3. Administer using an IV infusion pump
4. Do not administer other medications with Propofol.
5. Physicians must renew the order every 24 hours.

REPORTABLE CONDITIONS:

1. Discontinue propofol infusion and notify the physician immediately if:
   - Significant changes in vital signs occur (fever, hypotension, arrhythmias, etc...)
   - Oxygen saturation (SpO2) is below 92%
2. Notify physician if:
   - Unable to maintain/achieve desired effect within ordered parameters.
   - Significant changes in lab values
   - There is burning at the peripheral IV site.
   - Change in urine color to dark brown or red is noted.
   - Patient develops increase agitation on the maximal dose of Propofol.

PATIENT – FAMILY TEACHING:

Instruct the patient or surrogate regarding the purpose of the drug and possible side effects.

Attachment: Richmond Agitation-Sedation Scale

References:

Devlin, J. W., Skrobik, Y., Gelinas, C., Needham, D. M., Slooter, A. J., Pandharipande, P. P., Watson, P. L., Weinhouse, G. L., Nunnally, M.E., Rochwerg, B., Balas, M. C., Boogaard, M., Bosma, K. J., Brummel, N. E., Chanques, G., Denehy, L., Drouot, X., Fraser, G. L., Harris J. E.,...Joffe, A. M. (2018). Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. *Critical Care Medicine, 46*(9), e825-e873

Diprivan ® (Propofol) Injectable Emulsion, USP (2014). AstraZeneca Pharmaceuticals LP. https://www.accessdata.fda.gov/drugsatfda_docs/label/2014/019627s062lbl.pdf

Sahinovic, M. M., Struys, M. M., & Absalom, A. R. (2018). Clinical pharmacokinetics and pharmacodynamics of propofol. *Clinical Pharmacokinetics, 57*(12), 1539-1558.

Approved by MEC in December 2009
APPROVED by EC on July 12, 2010
Updated by Critical Care Committee June 2014, September 2017, October 2021
Authors: Richard Wong, MD, Angelica Lopez, DNP, RN, AGCNS-BC

Richmond Agitation-Sedation Scale

Score	Term	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)**	Verbal Stimulation
-3	Moderate sedation	Movement or eye opening to *voice* **(but no eye contact)**	Verbal Stimulation
-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	Physical Stimulation

Procedure for RASS Assessment

1. Observe patient
   a. Patient is alert, restless, or agitated. **(score 0 to +4)**
2. If not alert, state patient's name and *say* to open eyes and look at speaker.
   b. Patient awakens with sustained eye opening and eye contact. **(score –1)**
   c. Patient awakens with eye opening and eye contact, but not sustained. **(score –2)**
   d. Patient has any movement in response to voice but no eye contact. **(score –3)**
3. When no response to verbal stimulation, physically stimulate patient by shaking shoulder and/or rubbing sternum.
   e. Patient has any movement to physical stimulation. **(score –4)**
   f. Patient has no response to any stimulation. **(score –5)**

* Sessler CN, Gosnell M, Grap MJ, Brophy GT, O'Neal PV, Keane KA et al. The Richmond Agitation-Sedation Scale: validity and reliability in adult intensive care patients. Am J Respir Crit Care Med 2002; 166:1338-1344.

* Ely EW, Truman B, Shintani A, Thomason JWW, Wheeler AP, Gordon S et al. Monitoring sedation status over time in ICU patients: the reliability and validity of the Richmond Agitation Sedation Scale (RASS). JAMA 2003; 289:2983-2991.