Revised Propofol (Diprivan®) Continuous Infusion Protocol

Prescriber In-service
December 2013
Introduction

• The Propofol Continuous Infusion Protocol was recently revised, and approved by P&T and MEC (January 2014)
• Draft of the new order form to guide appropriate prescribing is being finalized
• This program is to help you become familiar with the changes and appropriate ordering of propofol for sedation of the mechanically ventilated critically ill patient
Introduction

• **Propofol (Diprivan®) CI**
  - A general anesthetic, hypnotic/sedative agent

• **Absolute Contraindications**
  - Know allergy to propofol emulsion or any of its components
  - Patients whose airway are not protected by trach/ETT connected to mechanical ventilator except as noted in protocol for emergency airway management.

• **Relative Contraindication**
  - Hyperlipidemia [baseline triglyceride (TG) > 500 mg/dL],
  - Acute pancreatitis.
Introduction

• Precautions
  • In patients with status epilepticus or history of epilepsy, convulsive seizure-like activities may occur during withdrawal of propofol.
  • Patients with head injuries on long-term sedation with propofol at doses higher than 5 mg/kg/hr. (approximately 80 mcg/kg/min) may be at increased risk for propofol infusion syndrome {unexplained metabolic acidosis, increased lactate, creatinine kinase (CK) or vasopressor need, renal dysfunction, and cardiovascular collapse}
Standards

1. Based on the ASA and CT State Board, the Hartford Hospital position is that nurses can administer propofol in the following situations:
   • Administered to patients with an advanced airway (intubated or trached) on mechanical ventilation
   • Only as a continuous infusion to maintain sedation while on a mechanical ventilator
   • And within a clearly defined protocol with prescribed titration and bolus dosing parameters
   • By RNs who are specially educated about the drug and its use (ICU & ED nurses)
   • This DOES NOT include patients who require sedation for a procedure (whether or not they mechanically ventilated).

2. Verbal orders are not acceptable for propofol continuous infusion
Propofol Protocol

• **Scope:** Prescribers, Nurses and Pharmacists

• **Population:** Intubated/trached and mechanically ventilated patients

• **Outcome:** Safe administration, monitoring and documentation of therapy

• **Criteria for use/indication**
  
  • Sedation in INTUBATED patients who ARE candidates for daily sedation interruption or frequent awakening for neurological assessment
  
  • Short term sedation in any other INTUBATED patients who demonstrate agitation or continued bronchospasm
Prescriber Responsibilities

• Determine the depth/level of sedation that is required based on the patient’s clinical condition using Richmond Agitation-Sedation Scale (RASS).

• Order baseline triglyceride level within 24 hours of initiation of propofol infusion, followed by levels once weekly for TG level < 265 mg/dL and twice weekly for TG level 265 – 500 mg/dL.
Prescriber Responsibilities

• Order propofol protocol:
  • Enter a starting dose between 2.5 and 20 mcg/kg/min based on total body weight or continue current dose on admission or transfer from another ICU, OR, etc.
  • Choose a reason for use (Sedation)
  • Choose the titration parameter (RASS)
  • Choose the goal RASS range for titration (provider selects this based on patient condition)
  • Choose a maximum dose for titration (maximum dose is 75 mcg/kg/min except for neurotrauma patients who may require up to 100 mcg/kg/min)
# New Propofol Order Form

**Patient Information**
- **Name:** Balazs, Denes
- **Age:** 56y
- **Sex:** Female
- **Birth Date:** 07/07/1957
- **Drug Allergies:** Tylenol Caplet
- **PCP:** BALAZS, DENES
- **Warning:** Similar Name
- **Height:** 65 in (165.1 cm)
- **Weight:** 1 lb (kg)
- **BMI:**

**Order Details**
- **Requested By:** [Dropdown]
- **Source:** [Dropdown]
- **Date:** [Dropdown]
- **Time:** [Dropdown]
- **Session:**
  - **Type:** Standard
  - **Reason:** Standard order session

**Order Entry**
- **Order:**
  - **Propofol IV (H) 10 mg/ml**
  - **Propofol bolus (H)**

**Protocol Information**
- **Standard order session**

**Options**
- **Add...**
- **View...**
- **Item Info**
- **Add to Favorites**
- **Message**
- **Drug Info**
- **Edit...**
- **Delete**
- **Copy...**
- **Add Specimen...**
- **Indication...**

**Submit Order(s) for ORDERSREC, BNINES**
New Propofol Order Form

Double click to open new order grid
New Propofol Order Form

Verify height & weight

Select a starting dose or enter current rate

Choose max rate

Display RASS reference if needed

Chose goal RASS score/range
New Order Set Form

- Latest BP and RASS score from flow sheet will be available to prescriber when placing order
- Initial dose (mcg/kg/min) required (prescriber will enter dose - 2.5, 5, 7.5, 10, 15, or 20 mcg/kg/min or current dose on admission)
- Desired/goal RASS range required (prescriber to select from drop down)
  - Most current RASS scale available to prescriber when ordering
- Administration by protocol/ do not titration - administration by protocol is pre-checked
- Maximum rate - select using drop down (75 mcg/kg/min for other ICUs except neuro ICU with 100 mcg/kg/min)
Prescriber Responsibilities

• Assess patients for Sedation Hold/Interruption and Weaning Protocol (“Wake-up and Breathe”) at least once daily.
  • Patient requiring frequent neurological assessment should be awakened and assessed per the specific ICU order.
• Order additional medications as needed to treat physiologic cause of agitation.
  • Opioids and analgesics for pain/discomfort.
  • Low dose midazolam or lorazepam for anxiety
  • Neuroleptics for delirium.
Miscellaneous Information

• Indication for termination of propofol
  • Triglyceride > 500 mg/dL
  • New onset pancreatitis with hyperlipidemia
  • Propofol infusion syndrome

• Nutritional Consideration
  • Calorie load is 1.1 kcal/mL of propofol
  • Account for lipid load in patients receiving TPN or enteral feeding
# Richmond Agitation-Sedation Scale (RASS)

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+4</td>
<td>Combative</td>
<td>Overly combative, violent, immediate danger to staff</td>
</tr>
<tr>
<td>+3</td>
<td>Very agitated</td>
<td>Pulls or removes tube(s), or catheter(s); aggressive</td>
</tr>
<tr>
<td>+2</td>
<td>Agitated</td>
<td>Frequent nonpurposeful movement, fights ventilator</td>
</tr>
<tr>
<td>+1</td>
<td>Restless</td>
<td>Anxious but movements not aggressive or vigorous</td>
</tr>
<tr>
<td>0</td>
<td>Alert and Calm</td>
<td>Calm, awakens easily, follows command</td>
</tr>
<tr>
<td>-1</td>
<td>Drowsy</td>
<td>Not fully alert, but has sustained awakening</td>
</tr>
<tr>
<td>-2</td>
<td>Light sedation</td>
<td>Briefly awakens with eye contact to voice (&lt;10 sec)</td>
</tr>
<tr>
<td>-3</td>
<td>Moderate sedation</td>
<td>Movement or eye opening to voice (but no eye contact)</td>
</tr>
<tr>
<td>-4</td>
<td>Deep sedation</td>
<td>No response to voice but movement or eye opening to physical stimulation</td>
</tr>
<tr>
<td>-5</td>
<td>Unarousable</td>
<td>No response to voice or physical stimulation</td>
</tr>
</tbody>
</table>

Sessler CN et al. AJRCCM 2002
Richmond Agitation-Sedation Scale (RASS)

- RASS is a 10 point scale, with positive & negative numbers denoting various severity of agitation to oversedation / unarousable.
  - Takes less than 1 minute to evaluate depth of sedation
  - It provides clear instruction on how to assess patient
  - Uses duration of eye contact to verbal instruction as criteria for titration of sedative
  - Has been reliably applied to a wide range of adult ICU patients
  - Evaluates level of alertness which doves into Modified CAM-ICU assessment (#3)
Sedation Assessment with RASS
“3 steps, 30-60 seconds”

1. Observe patient
   - Is patient calm and alert? (Score 0)
   - Is patient restless or agitated (Score +1 to +4)
     - Overtly combative, violent, immediate danger to self & staff (+4)
     - Pulls or removes tubes/catheters, or aggressive behavior towards staff (+3)
     - Frequently non-purposeful movement, or fights ventilator (+2)
     - Anxious, apprehensive but movements not aggressive or vigorous (+1)

Sedation Assessment with RASS
“3 steps, 30-60 seconds”

2. If patient is not alert, in a loud voice state patients name and direct patient to open eyes and look at speaker. Repeat once if necessary and prompt patient to continue looking at the speaker (Score -1 to -5)
   • Eye opening + eye contact for > 10 sec (Score -1)
   • Eye opening + eye contact for < 10 sec (Score -2)
   • Any movement but no eye contact (Score -3)

Sedation Assessment with RASS
“3 steps, 30-60 seconds”

3. If no response to voice, physically stimulate patient by shaking shoulder, then rub sternum if no response to shaking of shoulder
   - Any movement to physical stimulation (Score -4)
   - No response to voice or physical stimulation (Score -5)

Sessler et al. *Am J Respir Crit Care Med* 2002;166: 1338-1344