NURSING DEPARTMENT
CRITICAL CARE POLICY MANUAL
CRITICAL CARE PROTOCOL
USE OF PROPOFOL (DIPRIVAN) FOR VENTILATOR MANAGEMENT

I. PURPOSE:
To provide guidelines for the administration of Propofol, which is an anesthetic agent, indicated for the continuous intravenous sedation of the mechanically ventilated, intubated patient.

II. POINTS OF EMPHASIS:
A. Propofol is formulated in an oil-in-water emulsion that contains no preservatives and can support rapid growth of micro-organisms.
B. Infusion must be initiated immediately after opening.
C. Visually inspect Propofol for particulate matter and discoloration prior to beginning the administration.
D. Shake before use; if the emulsion separated, do not use. Remove covering from the vial and wipe the stopper with an alcohol solution.
E. Utilize a Smart Pump and infuse through a central line if one is in place; otherwise, administer through a peripheral infusion line.
F. Do not mix Propofol with other agents or co-administer with blood or plasma in the same I.V. catheter.
G. Discard any unused Propofol and I.V. tubing from the Y-connector to the vial after 12 hours.
H. Filtering is NOT necessary if the single dose vial is used. Filter IF prepared from glass ampules.
I. Propofol does not have any documented analgesic effects; narcotics may be administered as indicated by the patient’s condition.
J. Propofol only to be administered in the Critical Care areas with Ventilator Management.
III. CONTRAINDICATIONS:

A. Patients with known hypersensitivity to Propofol or its components. (soybean oil, egg lecithin, glycerol).

B. Pregnant or nursing females.

C. Hemodynamically unstable patients for whom general anesthesia or sedation is contraindicated.

IV. ADVERSE REACTIONS:

A. Hypotension, myoclonus, injection site stinging, burning or pain, apnea lasting 30-60 seconds, arrhythmias, bradycardia, cardiac output decrease (1% - 3%), tachycardia, puritis, pancreatitis, respiratory acidosis, agitation, anaphylaxis, anaphylactoid reaction, anticholinergic syndrome, asystole, atrial arrhythmia, bigeminy, chills, cardiac arrest, delirium, discoloration (green urine, hair or nail beds, fever, leukocytosis, lactic acidosis.

B. Propofol – related infusion syndrome (PRIS) is a serious side effect with a high mortality rate characterized by dysrhythmia, heart failure, hyperkalemia, lipemia, metabolic acidosis, and/or rhabdomyolysis or hyoglobinuria and subsequent renal failure.

V. WARNINGS AND PRECAUTIONS:

A. Anaphylaxis/hypersensitivity reactions: May rarely cause hypersensitivity, anaphylaxis, anaphylactoid reactions, angioedema, bronchospasm, and erythema; medications for the treatment of hypersensitivity reactions should be available for immediate use, use with caution in patients with history of peanut allergy.

B. Hypertriglycerideremia: Because Propofol is formulated with a 10% fat emulsion, this condition is an expected side effect. Patients who develop hypertriglyceridermia (>500 mg/dL) are at risk for pancreatitis.

C. Hypotension: The major cardiovascular effect of Propofol is hypotension, especially if the patient is hypovolemic. Use with caution in patients who are hemodynamically unstable, hypovolemic, or have abnormally low vascular tone (sepsis).

D. Propofol-related infusion syndrome (PRIS): PRIS is a serious side effect with a high rate of mortality characterized by bradycardia or tachycardia, heart failure, hyperkalemia, lipemia, metabolic acidosis, and/or rhabdomyolysis or myoglobinuria with subsequent renal failure.
E. Concurrent Drug Therapy Issues: Concomitant use of Opioids may lead to increased sedative or anesthetic effects of Propofol, more pronounced decrease in systolic, diastolic, and mean arterial pressures and cardiac output. Lower doses of Propofol may be needed.

Fentanyl may cause serious bradycardia when used with Propofol in pediatric Patients.

Alfentanil use with Propofol has precipitated seizure activity in patients with a history of epilepsy.

VI. NUTRITIONAL DATA:

   Each 1 ml of Propofol = 0.1 g fat (1.1 kcal)

VII. DOSAGE AND ADMINISTRATION:

   A. Propofol premixed bottles are available in the Pharmacy.

   B. Initiate I.V. per physician order and use this solution and tubing for Propofol infusion only.

   C. Administer a bolus of 40 mg of Propofol I.V. Repeat the dose x 1 if required to achieve a Richmond Agitation/Sedation Score of (0) to (-1) “drowsy.” (Bolus can result in hypotension).

   D. Increase the drip by 5 mcg/kg/min. every 5-10 minutes as needed until patient reaches the desired level of sedation.

VIII. RICHMOND AGITATION/SEDATION SCALE (RASS) FOR PATIENTS RECEIVING MECHANICAL VENTILATION:

<table>
<thead>
<tr>
<th>POINTS</th>
<th>ITEM</th>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>+4</td>
<td>COMBATIVE</td>
<td>Overly combative or violent, immediate danger to staff.</td>
</tr>
<tr>
<td>+3</td>
<td>VERY AGITATED</td>
<td>Pulls on or removes tubes or catheters, aggressive behavior toward staff.</td>
</tr>
<tr>
<td>+2</td>
<td>AGITATED</td>
<td>Frequent non-purposeful movement or patient’s ventilator dyssynchrony.</td>
</tr>
<tr>
<td>+1</td>
<td>RESTLESS</td>
<td>Anxious or apprehensive but movements not aggressive or vigorous.</td>
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## CRITICAL CARE PROTOCOL
### USE OF PROPOFOL (DIPRIVAN)
#### FOR VENTILATOR MANAGEMENT

<table>
<thead>
<tr>
<th></th>
<th>ALERT AND CALM</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>ALERT AND CALM</td>
<td>Not fully alert, sustained (&gt; 10 seconds) awakening, eye contact to voice.</td>
</tr>
<tr>
<td>-1</td>
<td>DROWSY</td>
<td>Briefly (&lt;10 seconds) awakens with eye contact to voice.</td>
</tr>
<tr>
<td>-2</td>
<td>LIGHT SEDATION</td>
<td>Any movement (but no eye contact) to voice.</td>
</tr>
<tr>
<td>-3</td>
<td>MODERATE SEDATION</td>
<td>No response to voice, any movement to physical stimulation.</td>
</tr>
<tr>
<td>-4</td>
<td>DEEP SEDATION</td>
<td>No response to voice or physical stimulation.</td>
</tr>
<tr>
<td>-5</td>
<td>UNAROUSABLE</td>
<td></td>
</tr>
</tbody>
</table>

### IX. MONITORING:

A. Monitoring patients while on the ventilator includes BP and HR every hour to an acceptable RASS score of (0) to (-1).

B. Notify the physician immediately if there is hypotension or cardiovascular depression.

C. These medication effects may be managed by discontinuing the infusion and/or administering vasopressor therapy.

D. Assess sedation level every hour and document the level in the patient’s EMR per policy.

E. Conduct daily neurologic (wake-up) assessments by discontinuing the I.V. Propofol infusion and assess respiratory function to assure the minimal dose of Propofol required to achieve sedation. This should be done when the physician managing the ventilator care is rounding in the unit.

F. Discontinue any paralytic agents prior to bringing the patient to a higher level of consciousness.

G. Conduct a complete neurologic assessment.

H. Titrate infusion back to the desired level of sedation, increasing the infusion by 5-10 mcg/kg/min every 5-10 minutes as ordered by the physician.

I. The recommended range infusion drip is 5-50 mcg/kg/min but the physician managing the ventilator support for the patient may decide to increase the amount of Propofol. In certain instances, doses up to 100 mcg/kg/min have been used.
J. Adjust dosage of concomitant narcotics or cardiac medications as ordered by the physicians.

K. NOTE: Patients at risk for hyperlipidemia are monitored for increases in triglycerides or serum turbidity at the discretion of the physicians.

X. HYPOTENSION:

Contact the physician if the systolic blood pressure is < 100 or the mean arterial blood pressure is <70 mm/hg.

XI. VENTILATOR PATIENTS > 3 DAYS:

When patients require mechanical ventilation longer than 3 days, the physician managing the ventilator care of the patient will consider another medication due to the possible side effects of Propofol.

XII. WEANING FROM THE VENTILATOR:

Discontinue I.V. Propofol before initiating the weaning process. Taper dose of propofol, avoid abrupt discontinuation.