

NURSING CLINICAL STANDARD

BARBITURATE COMA - ICU

PURPOSE: To outline the management of the patient requiring barbiturate coma.

SUPPORTIVE DATA: High-dose barbiturates are used for managing uncontrolled intracranial hypertension (HTN). Uncontrolled intracranial HTN is defined as an intracranial pressure (ICP) greater than 20 mmHg for longer than 5 minutes and is refractory to other types of ICP control. Chronic Uncontrolled intracranial HTN is defined as an Intracranial pressure (ICP) greater than 25 for longer than 20-30 minutes and is refractory to other types of ICP control.

Barbiturates reduce ICP by decreasing cerebral metabolism and thus cerebral blood flow. Common adverse effects of barbiturate coma include: hypotension, myocardial depression, hypothermia, pneumonia, and ileus. Ventilatory support and ICP monitoring must be established prior to initiating barbiturate coma.

The most common barbiturate used at LAC+USC Medical Center for ICP control is pentobarbital (Nembutal).

Dosage is adjusted to attain desired clinical outcome (e.g. burst suppression on ECG) but the following are typical barbiturate levels:

Sedation: 1-5 µg/mL

Intracranial Pressure (ICP) Therapy: 25-35 µg/mL

Coma: 10-50 µg/mL

Barbiturates are usually discontinued gradually to prevent rebound increased ICP.

ASSESSMENT:

1. Assess the following every 1 hour:
 - Vital signs (VS) including oxygen saturation
 - Level of consciousness
 - ICP
 - Cerebral perfusion pressure (CPP)
 - Equality of pupillary size, shape, and reactivity
 - Motor function (will be lost once barbiturate coma state is achieved)
 - Gag and cough, corneal reflex (will be lost once barbiturate coma state is achieved)
2. Assess the following a minimum of every 4 hours:
 - Breath sounds, secretions
 - Bowel sounds, nasal gastric aspirate, for abdominal distension
 - Skin integrity
3. Assess laboratory values as drawn (including barbiturate levels)

- ADMINISTRATION:
4. Administer barbiturate as ordered. Order must include:
 - Type of barbiturate
 - Route: usually slow IV push, may be given as continuous IV infusion
 - Dosage:
 - Usual loading dose of pentobarbital
 - « Adult: 5-10 mg/kg, administered IVPB over 1 hour
 - « Pediatric: 5-15 mg/kg, IVPB administered over 2 hours. An additional 5-10 mg/kg may be ordered
 - Usual maintenance dose of pentobarbital
 - « Adult: 1 mg/kg/hr as continuous IV infusion
 - « Pediatric: 0.5-5 mg/kg/hour as a continuous IV infusion
- If patient experiences breakthrough status epilepticus, an additional 5 mg/kg bolus may be ordered and infusion rate increased by 0.5-1 mg/kg/hr every 12 hours
- NOTE: not to exceed 5 mg/kg/hour to minimize propylene glycol toxicity.

- SAFETY:
5. Administer ocular lubricant as ordered.

- DISCONTINUATION:
6. Taper dose as ordered once ICP stabilizes.

- REPORTABLE CONDITIONS:
7. Notify the physician for:
 - Change in neurologic status
 - Acute change in ICP
 - Hypotension
 - Hypothermia
 - Signs/symptoms of pneumonia
 - Signs/symptoms of ileus
 - Abnormal lab values

- PATIENT/FAMILY TEACHING:
8. Instruct on the following:
 - Purpose of barbiturate coma
 - Patient inability to respond
 9. Encourage family to talk to patient.

- ADDITIONAL STANDARDS:
10. Refer to the following as indicated:
 - Arterial Line – ICU
 - Artificial Airway
 - Fall/Injury Prevention
 - Hypothermia – ICU
 - Immobility
 - Indwelling Bladder Catheter
 - Intracranial Pressure (ICP/EVD) Monitoring – ICU
 - Intravenous Therapy
 - Mechanical Ventilation
 - Pain Management
 - Pressure Ulcer Prevention and Management
 - Pulmonary Artery Catheter – ICU

- DOCUMENTATION:
11. Document in accordance with “documentation standards”.

Initial date approved: 11/94	Reviewed and approved by: Critical Care Committee Professional Practice Committee Pharmacy & Therapeutics Committee Nurse Executive Council Attending Staff Association Executive Committee	Revision Date: 10/00, 02/02, 03/05, 03/15, 11/18
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