in patients who show tendency for hypotension.

- Provide a diet that is low in tyramine-containing foods.

**Teaching points**

- Take drug exactly as prescribed. Do not stop taking this drug abruptly or without consulting your health care provider.
- Avoid ingestion of tyramine-containing foods while you are taking this drug and for 2 weeks afterward (patient and significant other should receive a list of such foods).
- Avoid alcohol; other sleep-inducing drugs; all over-the-counter drugs, including nose drops, cold and hay fever remedies, and appetite suppressants. Many of these contain substances that could cause serious or even life-threatening problems. Avoid ginseng while taking this drug.
- You may experience these side effects: Dizziness, weakness, or fainting when arising from a horizontal or sitting position (transient; change position slowly); drowsiness, blurred vision (reversible; if severe, avoid driving or performing tasks that require alertness); nausea, vomiting, loss of appetite (frequent small meals, frequent mouth care may help); memory changes, irritability, emotional changes, nervousness (reversible).
- Report headache, rash, darkening of the urine, pale stools, yellowing of the eyes or skin, fever, chills, sore throat, thoughts of suicide, and any other unusual symptoms.

**Phenobarbital**

*(fee noe bar’ bi tal)*

**Oral preparations:** Bellatal, Solfoton

**Phenobarbital sodium**

**Parenteral:** Luminal Sodium, PMS-Phenobarbital (CAN)

**Pregnancy Category D**

**Controlled Substance C-IV**

**Drug classes**

Antiepileptic
Barbiturate (long-acting)

**Hypnotic**

**Sedative**

**Therapeutic actions**

General CNS depressant; barbiturates inhibit impulse conduction in the ascending RAS, depress the cerebral cortex, alter cerebellar function, depress motor output, and can produce excitation, sedation, hypnosis, anesthesia, and deep coma; at subhypnotic doses, has antisiezure activity, making it suitable for long-term use as an antiepileptic.

**Indications**

- Oral or parenteral: Sedative
- Oral or parenteral: Hypnotic, treatment of insomnia for up to 2 wk
- Oral: Long-term treatment of generalized tonic-clonic and cortical focal seizures
- Oral: Emergency control of certain acute seizures (eg, those associated with status epilepticus, eclampsia, meningitis, tetanus, and toxic reactions to strychnine or local anesthetics)
- Parenteral: Preanesthetic
- Parenteral: Treatment of generalized tonic-clonic and cortical focal seizures
- Parenteral: Emergency control of acute seizures (tetanus, eclampsia, epilepticus)

**Contraindications and cautions**

- Contraindicated with hypersensitivity to barbiturates or carbamazepine, manifest or latent porphyria, marked liver impairment, nephritis, severe respiratory distress, previous addiction to sedative-hypnotic drugs (may be ineffective and may contribute to further addiction), pregnancy (fetal damage, neonatal withdrawal syndrome).
- Use cautiously with acute or chronic pain (drug may cause paradoxic excitement or mask important symptoms); seizure disorders (abrupt discontinuation of daily doses can result in status epilepticus); lactation (secreted in breast milk; drowsiness in breast-feeding infants); fever, hyperthyroidism, diabetes mellitus, severe anemia, pulmonary or cardiac disease, status asthmaticus, shock, uremia, impaired liver or renal function, debilitation.
Available forms
Tablets—15, 16, 30, 32.4, 60, 64.8, 90, 97.2, 100 mg; capsules—16 mg; elixir—20 mg/5 mL; injection—65, 130 mg/mL.

Dosages

Adults

Oral
● Sedation: 30–120 mg/day PO in two to three divided doses. No more than 400 mg per 24 hr.
● Hypnotic: 100–320 mg PO at bedtime.
● Antiepileptic: 60–300 mg/day PO.

IM or IV
● Sedation: 30–120 mg/day IM or IV in two to three divided doses.
● Preoperative sedation: 100–200 mg IM, 60–90 min before surgery.
● Hypnotic: 100–320 mg IM or IV.
● Acute seizures: 200–320 mg IM or IV repeated in 6 hr if needed.

Pediatric patients

Oral
● Sedation: 6 mg/kg/day PO in divided doses.
● Hypnotic: Determine dosage using age and weight charts.
● Antiepileptic: 3–6 mg/kg/day PO.

IM or IV
● Preoperative sedation: 1–3 mg/kg IM or IV 60–90 min before surgery.
● Antiepileptic: 4–6 mg/kg/day IM or IV for 7–10 days to a blood level of 10–15 mcg/mL or 10–15 mg/kg/day IV or IM.
● Status epilepticus: 15–20 mg/kg IV over 10–15 min.

Geriatric patients or patients with debilitating disease or renal or hepatic impairment
Reduce dosage and monitor closely—may produce excitement, depression, or confusion.

Pharmacokinetics

<table>
<thead>
<tr>
<th>Route</th>
<th>Onset</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>30–60 min</td>
<td>6–10 hr</td>
</tr>
<tr>
<td>IM, Subcut.</td>
<td>10–30 min</td>
<td>4–6 hr</td>
</tr>
<tr>
<td>IV</td>
<td>5 min</td>
<td>4–6 hr</td>
</tr>
</tbody>
</table>

Metabolism: Hepatic; T1/2: 79 hr; 110 hr (children)
Distribution: Crosses placenta; enters breast milk
Excretion: Urine

Adverse effects
● CNS: Somnolence, agitation, confusion, hyperkinesia, ataxia, vertigo, CNS depression, nightmares, lethargy, residual sedation (hangover), paradoxical excitement, nervousness, psychiatric disturbance, hallucinations, insomnia, anxiety, dizziness, thinking abnormality
● CV: Bradycardia, hypotension, syncope
● GI: Nausea, vomiting, constipation, diarrhea, epigastric pain
● Hypersensitivity: Rashes, angioneurotic edema, serum sickness, morbilliform rash, urticaria, rarely, exfoliative dermatitis, Stevens-Johnson syndrome
● Local: Pain, tissue necrosis at injection site, gangrene, arterial spasm with inadvertent intra-arterial injection, thrombophlebitis, permanent neurologic deficit if injected near a nerve
● Respiratory: Hypoventilation, apnea, respiratory depression, laryngospasm, bronchospasm, circulatory collapse
● Other: Tolerance, psychological and physical dependence, withdrawal syndrome

Interactions
● Drug-drug: Increased serum levels and therapeutic and toxic effects with valproic acid
   ● Increased CNS depression with alcohol
   ● Increased risk of neuromuscular excitation and hypotension with barbiturate anesthetic
   ● Decreased effects of the following drugs:
theophyllines, oral anticoagulants, beta blockers, doxycycline, corticosteroids, hormonal contraceptives and estrogens, metronidazole, phenylbutazones, quinidine, felodipine, fenoprofen

**Drug-alternative therapy** Changes in therapeutic effects and adverse effects with evening primrose, valerian, St. John’s wort, kava kava, gotu kola; avoid these combinations

**Nursing considerations**

**Assessment**
- **History:** Hypersensitivity to barbiturates, manifest or latent porphyria, marked liver impairment, nephritis, severe respiratory distress, previous addiction to sedative-hypnotic drugs, pregnancy, acute or chronic pain, seizure disorders, lactation, fever, hyperthyroidism, diabetes mellitus, severe anemia, cardiac disease, shock, uremia, impaired liver or renal function, debilitation
- **Physical:** Weight; T; skin color, lesions; orientation, affect, reflexes; P, BP, orthostatic BP; R, adventitious sounds; bowel sounds, normal output, liver evaluation; LFTs, renal function tests, blood and urine glucose, BUN

**Interventions**

- **Black box warning** Risk of suicidal ideation is increased; monitor patient accordingly.
- **Warning** Do not give intra-arterially; may produce arteriospasm, thrombosis, or gangrene.
- **Warning** Monitor injection sites carefully for irritation, extravasation (IV use). Solutions are alkaline and very irritating to the tissues. Inject 0.5% procaine at affected site if extravasation occurs; apply heat to area
- **Warning** Taper dosage gradually after repeated use, especially in patients with epilepsy. When changing from one antiepileptic to another, taper dosage of the drug being discontinued while increasing the dosage of the replacement drug.
- **Monitor patient responses, blood levels (as appropriate) if any interacting drugs listed above are given with phenobarbital;** suggest alternative means of contraception to women using hormonal contraceptives.
- **Administer IV doses slowly at no more than 60 mg/min.**
- **Administer IM doses deep in a large muscle mass (gluteus maximus, vastus lateralis) or other areas where there is little risk of encountering a nerve trunk or major artery.**
- **Monitor P, BP, and respiration carefully during IV administration.**
- **Arrange for periodic lab tests of hematopoietic, renal, and hepatic systems during long-term therapy.**

**Teaching points**
- This drug will make you drowsy and less anxious; do not try to get up after you have received this drug (request assistance to sit up or move around).
- Take this drug exactly as prescribed; this drug is habit forming; its effectiveness in facilitating sleep disappears after a short time.
- Do not take this drug longer than 2 weeks (for insomnia), and do not increase the dosage without consulting your health care provider.
- Do not reduce the dosage or discontinue this drug (when used for epilepsy); abrupt discontinuation could result in a serious increase in seizures.
- Wear a medical alert tag so that emergency medical personnel will know you have epilepsy and are taking this medication.
- Avoid pregnancy while taking this drug; use a means of contraception other than hormonal contraceptives.
- You may experience these side effects: Drowsiness, dizziness, hangover, impaired thinking (may lessen after a few days; avoid driving or engaging in dangerous activities); GI upset (take drug with food); dreams, nightmares, difficulty concentrating, fatigue, nervousness (reversible).
- Report severe dizziness, weakness, drowsiness that persists, rash or skin lesions, fever, sore throat, mouth sores, easy bruising or bleeding, nosebleed, petechiae, pregnancy, thoughts of suicide.