DISCLAIMER

All labeling reflected on this website is for informational and promotional purposes only. It is not intended to be used by healthcare professionals or patients for the purpose of prescribing or administering these products. Questions regarding the current content of product labeling should be directed to Akorn's Customer Service department at 800.932.5676.
Symptoms of barbiturate dependence are similar to those of chronic alcoholism. If a patient appears to be intoxicated with alcohol to a degree that is radically disproportionate to the amount of alcohol in his or her blood the use of barbiturates should be suspected. The lethal dose of a barbiturate is far less if alcohol is also ingested.

The symptoms of barbiturate withdrawal can be severe and may cause death. Minor withdrawal symptoms may appear 8 to 12 hours after the last dose of a barbiturate. These symptoms usually appear in the following order: 1. Nervousness, irritability, tremulousness, and anxiety; 2. drowsiness and dizziness; 3. disturbances in vision, hearing, and speech; 4. autonomic nervous system symptoms (e.g., changes in blood pressure, heart rate, and respiration); 5. increased body temperature; 6. seizures; and 7. delirium. Major withdrawal symptoms occur within 16 hours and last up to 5 days after abrupt cessation of these drugs. Intensity of withdrawal symptoms gradually declines over a period of approximately 15 days. Individuals susceptible to barbiturate abuse and dependence include alcoholics and opiate abusers as well as other sedative-hypnotic and amphetamine abusers.

Drug dependence to barbiturates arises from repeated administration of a barbiturate or agent with similar properties, especially in amounts exceeding therapeutic dose levels. The characteristics of drug dependence to barbiturates include: (a) a strong desire or need to continue taking the drug; (b) a tendency to increase the dose; (c) a psychic dependence on the effects of the drug related to subjective and individual appreciation of those effects; and (d) a physical dependence on the effect of the drug requiring its presence for maintenance of homeostasis and resulting in a definite, characteristic, and self-limiting abstinence syndrome.

Treatment of barbiturate dependence consists of caustic and gradual withdrawal of the drug. Barbiturate-dependent patients can be withdrawn by using a number of different withdrawal regimens. In all cases withdrawal takes an extended period of time. One method involves substituting a 30 mg dose of phenobarbital for each 100 to 200 mg dose of barbiturate that the patient has been taking. The total daily amount of phenobarbital is then administered in 3 to 4 divided doses, not to exceed 600 mg daily. Should signs of withdrawal occur on the first day of treatment, a loading dose of 100 to 200 mg of phenobarbital may be administered. After stabilization on phenobarbital, the total daily dose is decreased by 30 mg a day as long as withdrawal is proceeding smoothly. A modification of this regimen involves initiating treatment at the patient’s regular dosage level and decreasing the daily dosage by 10 percent tolerated by the patient.

Infants physically dependent on barbiturates may be given phenobarbital 3 to 10 mg/kg/day. With withdrawal symptoms (hyperactivity, disturbed sleep, tremors, hyperreflexia) are relieved, the dosage of phenobarbital can be gradually increased and completed over a 2-week period.

OVERDOSE

The toxic dose of barbiturates varies considerably. In general, an oral dose of 1 gram of most barbiturates produces serious poisoning in an adult. Death commonly occurs after 2 to 10 grams of ingested barbiturate. Ingestion of doses exceeding 25 grams may be fatal. Barbiturates are capable of producing a variety of CNS depression, professional diagnosis or if the patient is anuric or in shock.

Anticonvulsant use: In convulsive states, dosage of NEMBUTAL Sodium Solution should be kept to a minimum to avoid compounding the depression which may follow convulsions. The injection must be given slowly with due regard to the time required for the drug to penetrate the blood-brain barrier. Special patient population: Dosage should be reduced in the elderly or debilitated because these patients may be more sensitive to barbiturates. Dosage should be reduced for patients with impaired renal function or hepatic disease.

Precautions—NEMBUTAL Sodium Solution is not for injection into the eyes or for intramuscular injection. Each mL contains pentobarbital sodium 50 mg, in a vehicle of propylene glycol, water for injection, and hydrochloric acid and/or sodium hydroxide. NEMBUTAL Sodium Solution is a sterile solution for intravenous or intramuscular injection. Each mL of NEMBUTAL Sodium Solution contains 50 mg pentobarbital sodium, and is equivalent to 15 mg of barbiturates.

The dosage of NEMBUTAL Sodium Solution in the patient group should be as close as possible to the lethal dose in the animal (in that species, therefore it is recommended that the dosage of NEMBUTAL Sodium Solution be increased slowly and followed by a maintenance dose in order to prevent the patient from in the event of overdose, all electrical activity in the brain may cease, in which case a "flat" EEG normally occurs. Consideration should be given to the possibility of barbiturate intoxication even in situations that appear to involve no apparent ingestion.

Barbiturates are classified as cerebral agents, pulmonary edema, cardiac arrhythmia, congestive heart failure, and renal failure may occur. Uremia may increase CNS sensitivity to barbiturates. Diagnostic differential diagnosis is usually made on the basis of history and examination. The physical examination may show paralytic dilatation, tremor, hyperactivity, disturbed sleep, tremors, hyperreflexia. Patients in states of CNS depression, especially chronic alcoholics with a history of barbiturate intoxication, are more likely to become dependent upon barbiturates, even when the dependency is not therapeutically produced. Barbiturate poisoning should be suspected. The presence of barbiturates in the blood, with assisted respiration and oxygen administration as necessary.

Treatment of overdosage is mainly supportive and consists of the following: 1. Maintenance of an adequate airway, with assisted respiration and oxygen administration as necessary. 2. Fluid therapy and other standard treatment for shock, if needed. 3. If renal function is normal, forced diuresis may aid in the elimination of the barbiturate. Alkalization of the urine may increase renal excretion of barbiturates, but may cause complications with alkalinization, and mefarbital (which is metabolized to phenobarbital).

Although not recommended as a routine procedure, hemodialysis may be used in severe barbiturate intoxications or if the patient is anuric or in shock.

A patient should be rested from side to side every 30 minutes.

Antibiotics should be used only if pneumonia is suspected.

Appropriate nursing care to prevent hypostatic pneumonia, decubitus, aspiration, and other complications of patients with altered states of consciousness.

Dosages of barbiturates must be individualized with full knowledge of their particular characteristics and recommended dosage regimens for various ages and weights of persons are consideration is the patient’s age, weight, and condition. Parenteral routes should be used only when oral administration is impossible or impractical.

Intramuscular Administration: IM injection of the sodium salts of barbiturates should be made deeply into a large muscle, and a volume of 5 mL should not be exceeded at any site because of possible tissue irritation. After IM injection of a hypnotic dose, the patient’s vital signs should be monitored. The usual adult dosage of NEMBUTAL Sodium Solution is 150 to 200 mg as a single IM injection; the recommended pediatric dosage ranges from 2 to 6 mg/kg as a single IM injection not to exceed 100 mg.

Intravenous Administration: NEMBUTAL Sodium Solution should not be given with any other medication or solution. IV injection is restricted to conditions in which other routes are not feasible, either because the patient is unconscious (as in cerebral hemorrhage, eclampsia, or status epilepticus), or because the patient resists (as in delirium), or because prompt action is imperative. Slow IV injection is essential, and patients should be carefully observed during administration. This requires that blood pressure, respiration, and cardiac function be maintained, vital signs be recorded, and equipment for resuscitation and artificial ventilation be available. The rate of IV injection should not exceed 50 mg/min for pentobarbital sodium.

There is no appreciable intravenous dose of NEMBUTAL Sodium Solution (pentobarbital sodium injection) that can be relied on to produce similar effects in different patients. The possibility of overdose and respiratory depression is remote when the drug is injected slowly in fractional doses. A commonly used initial dose for the 70 kg adult is 100 mg. Proportional reduction in dosage should be made for the patient’s age, weight, and condition. One method is necessary to determine the full effect of an intravenous barbiturate. If necessary, additional small increments of the drug may be given up to a total of 150 mg/kg in a 24 hour period for not more than 4 doses.

Anticonvulsant use: In convulsive states, dosage of NEMBUTAL Sodium Solution should be kept to a minimum to avoid compounding the depression which may follow convulsions. The injection must be given slowly with due regard to the time required for the drug to penetrate the blood-brain barrier. Special patient population: Dosage should be reduced in the elderly or debilitated because these patients may be more sensitive to barbiturates. Dosage should be reduced for patients with impaired renal function or hepatic disease.

Inspection: Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration. The solution contains potassium hydroxide. Solutions for injection showing evidence of precipitation should not be used.

HOW SUPPLIED—NEMBUTAL Sodium Solution (pentobarbital sodium injection, USP) is available in the following sizes: 20 mL; 50 mL; 100 mL; 200 mL; and 500 mL multiple-dose vial. 2.5 g per vial (NDC 7647-501-500).

Each mL contains: Pentobarbital Sodium, derivative of barbituric acid ............................................................................50 mg

Propylene glycol ............................................................................................................................ 40% v/v

Water for injection (pH adjusted approximately to 5.5 with hydrochloric acid and/or sodium hydroxide.)

Vial stoppers are lacquer free.

Exposure of pharmaceutical products to heat should be minimized. Avoid excessive heat. Protect from freezing. This medicinal product may be stored at room temperature.

The sodium salt occurs as a white, slightly bitter powder which is freely soluble in water and alcohol but practically insoluble in benzene and ether.

Barbiturates are capable of producing all levels of CNS mood alteration from excitement to mild sedation, to hypnosis and deep coma. Overdosage can produce death. In high enough therapeutic doses, barbiturates induce anesthesia. Barbiturates depress the sensory cortex, decrease motor activity, after cerebral function, and produce depressant effects on the CNS. Barbiturate-induced sleep differs from physiologic sleep. Sleep laboratory studies have demonstrated that barbiturates induce sleep. Hypnotics and also anticonvulsants in subhypnotic doses.

Barbiturates are respiratory depressants. The degree of respiratory depression is dependent upon dose. With hypnotic doses, respiratory depression produced by barbiturates is similar to that which occurs during physiologic sleep with slight decrease in blood pressure and heart rate. Studies in sedative doses, that have shown that barbiturates have been shown to induce liver microsomal enzymes, thus increasing and/or altering the metabolism of barbiturates and other drugs. (See "Precautions—Drug Interactions" section).
Barbiturates may be habit forming. Tolerance and psychological and physical dependence may occur with continuing administration and all barbiturates should be prescribed only by physicians who are familiar with their use and are able to follow the patient during therapy. Barbiturates addicts should be prescribed only in the smallest amount needed and not for longer periods than 2 weeks. Abrupt cessation after prolonged use in the dependent patient may cause severe cardiovascular collapse, convulsions, and death.

Barbiturates may be habit forming. Tolerance and psychological and physical dependence may occur with continuing administration and all barbiturates should be prescribed only by physicians who are familiar with their use and are able to follow the patient during therapy. Barbiturates addicts should be prescribed only in the smallest amount needed and not for longer periods than 2 weeks. Abrupt cessation after prolonged use in the dependent patient may cause severe cardiovascular collapse, convulsions, and death.

3. c. Preanesthetics.

b. Hypnotics, for the short-term treatment of insomnia, since they appear to lose their effectiveness for prolonged exposure in ultraviolet included the acute withdrawal syndrome of sedatives and hypnotics from birth to a delayed onset of up to 14 days. (See “Drug Abuse and Dependence” section.)

Labor and delivery:

Hypnotic doses of these barbiturates do not appear to significantly impair uterine activity during labor. Full uterine activity is maintained, and the incidence of dystocia is not increased. Neonatal depression is not significantly different from the placebo group. In many cases, barbiturates are used during labor and delivery, muscle relaxation may be required. Available data are not current to evaluate the effect of these barbiturates when forces delay or other interventions are required. Also, data are not available to determine the effect of these barbiturates on fetal growth, development, and functional maturation of the child.

Nursing mothers:

Caution should be exercised when a barbiturate is administered to a nursing woman since small amounts of barbiturates are excreted in the milk.

2. Acute or chronic pain:

Caution should be exercised when barbiturates are administered to patients with acute or chronic pain. It is because the patient may be more susceptible to the depressant effects of barbiturates. The concomitant use of other central nervous system depressants, (e.g., alcohol, narcotics, tranquilizers, and antihistamines) may produce additive depressant effects.

ADVERSE REACTIONS

The following adverse reactions and their incidence were compiled from surveillance of thousands of hospitalized patients. Because such patients may be less aware of the milder adverse effects of barbiturates, the incidence of these reactions may be somewhat higher in fully ambulatory patients. More than 1 in 100 patients. The most common adverse reaction estimated to occur at a rate of 1 to 3 patients per 100 in is: Anemia: Blood and some other conditions, that may not have been associated with the exposure in utero. Some of these patients were treated with thorotran, a drug that is known to produce thrombosis. The study did not provide sufficient evidence that phenobarbital is carcinogenic in humans. Data from one retrospective study of 235 children in which the types of barbiturates are not identified suggests that the incidence of hepatic tumors is increased in patients treated with phenobarbital. A protective factor is the concurrent administration of phenobarbital may decrease the effect of estradiol by increasing its metabolism.

Phenobarbital is subject to control by the Federal Controlled Substances Act under DEA schedule II.

Barbiturates may be habit forming. Tolerance and psychological and physical dependence may occur with continuing administration and all barbiturates should be prescribed only by physicians who are familiar with their use and are able to follow the patient during therapy. Barbiturates addicts should be prescribed only in the smallest amount needed and not for longer periods than 2 weeks. Abrupt cessation after prolonged use in the dependent patient may cause severe cardiovascular collapse, convulsions, and death. Should be used in the elderly because these patients may be more sensitive to barbiturates.

ADVERSE REACTIONS

The following adverse reactions and their incidence were compiled from surveillance of thousands of hospitalized patients. Because such patients may be less aware of the milder adverse effects of barbiturates, the incidence of these reactions may be somewhat higher in fully ambulatory patients. More than 1 in 100 patients. The most common adverse reaction estimated to occur at a rate of 1 to 3 patients per 100 in is: Anemia: Blood and some other conditions, that may not have been associated with the exposure in utero. Some of these patients were treated with thorotran, a drug that is known to produce thrombosis. The study did not provide sufficient evidence that phenobarbital is carcinogenic in humans. Data from one retrospective study of 235 children in which the types of barbiturates are not identified suggests that the incidence of hepatic tumors is increased in patients treated with phenobarbital. A protective factor is the concurrent administration of phenobarbital may decrease the effect of estradiol by increasing its metabolism.