

Pentobarbital

Pentobarbital is a short-acting **barbiturate** drug that belongs to the class of central nervous system (CNS) depressants. It has a variety of medical uses, but its primary indications are as a sedative, hypnotic, and anticonvulsant medication. Here are some key points about pentobarbital:

Sedative and Hypnotic: Pentobarbital is used as a sedative and hypnotic to induce sleep or sedation in patients. It is sometimes prescribed for individuals with sleep disorders.

Anticonvulsant: Pentobarbital is also employed as an anticonvulsant to control and prevent seizures, particularly in cases of epilepsy.

Anesthesia: In the past, pentobarbital was used for anesthesia, but its use in this regard has decreased significantly due to the availability of safer and more modern anesthetic agents.

Barbiturate Class: Pentobarbital is a member of the barbiturate class of drugs, which are known for their depressant effects on the CNS. These drugs can slow down brain activity and induce relaxation.

Short Duration of Action: Pentobarbital has a relatively short duration of action, which means its effects do not last as long as some other barbiturates. This can be advantageous when precise control over sedation or anesthesia depth is required.

Controlled Substance: Pentobarbital is classified as a controlled substance in many countries due to its potential for misuse and dependence. It can be habit-forming if used inappropriately.

Side Effects: Common side effects of pentobarbital may include dizziness, drowsiness, and impaired coordination. More serious side effects can occur, especially if the drug is misused or taken in excessive doses.

Overdose Risk: Overdosing on pentobarbital can be life-threatening, as it can lead to respiratory depression, coma, and death. Therefore, it is essential to use this medication strictly as prescribed by a healthcare provider.

Withdrawal: If someone has been using pentobarbital regularly and decides to stop, they may experience withdrawal symptoms, including anxiety, tremors, and seizures. Tapering off the medication under medical supervision is often necessary in such cases.

Availability: Pentobarbital is available in various formulations, including oral tablets and injectable solutions.

Regulated Use: The use of pentobarbital is highly regulated and typically reserved for specific medical conditions under the guidance of a healthcare professional.

Euthanasia: In some places, pentobarbital has been used for euthanasia or assisted suicide, where it is administered in a lethal dose to bring about a painless and peaceful death. Its use for this purpose is a subject of ethical and legal debate in many regions.

It's important to emphasize that pentobarbital should only be used under the supervision and prescription of a qualified healthcare provider. Misuse of this medication can lead to serious health risks and addiction.

Pentobarbital in neurosurgery

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- [Usefulness of neurological assessment scales in prognosis of meningoencephalitis of unknown origin in Yorkshire Terriers](#)
- [Provider Experience With the Use of Ketamine for Refractory Status Epilepticus](#)
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- [A Comparison of Epileptogenic Effect of Status Epilepticus Treated With Diazepam, Midazolam, and Pentobarbital in the Mouse Pilocarpine Model of Epilepsy](#)
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- [Pentobarbital Coma Use in a Pregnant Patient With Refractory Intracranial Hypertension: A Case Report](#)
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Pentobarbital has a fast onset (full effects within \approx 15 minutes), short duration of action (3–4 hrs), and a half-life of 15–48 hrs.

The neuro exam cannot be assessed on pentobarbital. It is a myocardial suppressant, therefore watch for hypotension. GI motility is reduced or absent, some use trickle tube feeds during pentobarbital therapy.

Protocols for pentobarbital therapy in adults

There are many protocols. A simple one from a randomized clinical trial

1. loading dose:

a) pentobarbital 10 mg/kg IV over 30 minutes

b) then 5mg/kg q 1 hr \times 3 doses

2. maintenance: 1 mg/kg/hr

A more elaborate protocol:

1. loading dose: pentobarbital 10 mg/kg/hr IV over 4 hrs as follows:

a) FIRST HOUR: 2.5 mg/kg slow IVP q 15 min \times 4 doses (total: 10 mg/kg in the first hr), follow BP closely

b) next 3 hours: 10mg/kg/hr continuous infusion (put 2500mg in 250ml of appropriate IVF, run at K ml/hr \times 3 hrs (K = patient's weight in kg))

2. maintenance: 1.5 mg/kg/hr infusion (put 250 mg in 250 ml IVF and run at 1.5 \times K ml/hr)

3. check serum pentobarbital level 1 hr after loading dose completed; usually 3.5–5.0 mg%

4. check serum pentobarbital level q day thereafter

5. if level ever > 5 mg% and ICP acceptable, reduce dose
6. baseline brainstem auditory evoked response (BAER) early in treatment. May be omitted on clinical grounds. Repeat BAER if pentobarbital level ever > 6 mg%. Reduce dose if BAER deteriorates (NB: hemotympanum may interfere with BAER)
7. goal: ICP < 24 mm Hg and pentobarbital level 3-5 mg%. Consider discontinuing pentobarbital due to ineffectiveness if ICP still > 24 with adequate drug levels × 24 hrs
8. if ICP < 20 mm Hg, continue treatment × 48 hrs, then taper dose. Backtrack if ICP rises

Sample orders if continuous EEG monitoring is available:

1. pentobarb concentration: 3000/mg/600 ml NS
2. loading dose: 5-15 mg/kg over 1 hour
3. maintenance dose:
 - a) 0.4-4 mg/kg/hour
 - b) titrate up or down by 0.5-1mg/kg/hour steps to maintain 2-5bursts/minute(some use 4-12 bursts/minute)
 - c) absolute maximum dose: 10 mg/kg/hr

Neuro function takes ≈ 2 days off pentobarbital to return.

If it is desired to perform a brain death exam, the pentobarbital level needs to be ≈ ≤ 10 mcg/ml before the exam is valid.

Test and Answers

What is the primary use of Pentobarbital in medical practice? a) Treatment of hypertension b) Induction of euphoria c) Sedative, hypnotic, and anticonvulsant medication d) Treatment of diabetes

Pentobarbital is often prescribed to individuals with which condition? a) Hypertension b) Epilepsy c) Diabetes d) Allergies

In the past, Pentobarbital was used for what medical purpose, but its use has declined over time? a) Treatment of pain b) Treatment of bacterial infections c) Anesthesia d) Treatment of cancer

Which drug class does Pentobarbital belong to? a) Antibiotics b) Antidepressants c) Barbiturates d) Analgesics

What advantage does Pentobarbital have due to its short duration of action? a) Prolonged anesthesia b) Rapid onset of action c) Prolonged sleep d) Precise control over sedation or anesthesia depth

Why is Pentobarbital classified as a controlled substance in many countries? a) It is only available by prescription. b) It has no potential for misuse. c) It has a pleasant taste. d) It can be habit-forming if misused.

What are some common side effects of Pentobarbital? a) Increased heart rate and hypertension b) Increased coordination and alertness c) Dizziness, drowsiness, and impaired coordination d) Increased energy and euphoria

What life-threatening condition can occur with an overdose of Pentobarbital? a) Hypertension b) Hypoglycemia c) Respiratory depression, coma, and death d) Hyperactivity and seizures

When someone who has been regularly using Pentobarbital decides to stop, what symptoms might they experience? a) Improved sleep b) Enhanced coordination c) Withdrawal symptoms like anxiety, tremors, and seizures d) Increased energy levels

In what forms is Pentobarbital available? a) Injectable solutions only b) Oral tablets only c) Both oral tablets and injectable solutions d) Intramuscular injections only

How is the use of Pentobarbital typically regulated in medical practice? a) It is available over the counter. b) It can be prescribed for any medical condition. c) Its use is highly regulated and reserved for specific medical conditions. d) It can be used without any medical supervision.

In some places, Pentobarbital has been used for what controversial purpose? a) Treatment of sleep disorders b) Pain management c) Euthanasia or assisted suicide d) Treatment of depression

Answers:

c) Sedative, hypnotic, and anticonvulsant medication b) Epilepsy c) Anesthesia c) Barbiturates d) Precise control over sedation or anesthesia depth d) It can be habit-forming if misused. c) Dizziness, drowsiness, and impaired coordination c) Respiratory depression, coma, and death c) Withdrawal symptoms like anxiety, tremors, and seizures c) Both oral tablets and injectable solutions c) Its use is highly regulated and reserved for specific medical conditions. c) Euthanasia or assisted suicide

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Last update: **2024/06/07 02:49**

