methohexital (meth-o-hex-i-tal)
Brevital, Brietal
Classification
Therapeutic: general anesthetics
Pharmacologic: barbiturates
Schedule IV
Pregnancy Category C

Indications
Induction of general anesthesia. Sole anesthesia in short (1-15 min), minimal painful procedures. Supplement to other anesthetic agents. To produce unconsciousness during balanced anesthesia.

Action
Produces anesthesia by depressing the CNS, probably by potentiating GABA, an inhibitory neurotransmitter.

Therapeutic Effects:
Unconsciousness and general anesthesia.

Pharmacokinetics
Absorption: IV administration results in complete bioavailability.
Distribution: Accumulates and may be slowly re-released from lipoid tissues; rapidly crosses the blood-brain barrier. Crosses the placenta.
Metabolism and Excretion: Mostly metabolized by the liver; some metabolism in kidneys and brain.
Half-life: 1.5–5 hr (increased in geriatric patients).

TIME/ACTION PROFILE (anesthesia)
ROUTE ONSET PEAK DURATION
IV within 60 sec unknown 5–7 min
IM† 2–10 min unknown unknown
†In pediatric patients

Contraindications/Precautions
Contraindicated in: Hypersensitivity; Intra-arterial injection; Porphyria; Lactation.
Use Cautiously in: Addison's disease; Severe anemia; Severe CV or hepatic disease; Pregnancy. Seizures. Patient appears on Beers list. Geriatric patients are at increased risk for side effects (dose reduction recommended). Discontinue

Adverse Reactions/Side Effects
CNS: anxiety, agitation, amnesia, delirium, headache, restlessness, EENT: rhinitis.
Resp: apnea, laryngospasm, bronchospasm, coughing, dyspnea, respiratory depression.
CV: cardiac arrest, tachycardia, hypotension, 6th, abdominal pain, nausea, vomiting, pain at IV site, phlebitis at IV site.
Misc: allergic reactions.

Interactions
Drug-Drug: Additive CNS depression with alcohol, antihistamines, opioid analgesics, and sedative/hypnotics.
Drug-Natural Products: See sedative interactions. St. John's wort may affect methohexital levels and effectiveness; avoid use. Concurrent use of kava, valerian, skullcap, chamomile, or hops can increase CNS depression.

Route/Dosage
All doses must be individualized.

IV (Adults): Induction—1–1.5 mg/kg. Maintenance—20–40 mg q 4–7 min as intermittent doses or 3 mL of a 0.2% solution/min.
IM (Children <1 mo): Induction—0.4–0.8 mg/kg.
Rect (Children ≥1 mo): Induction—25 mg/kg using a 1% solution.

NURSING IMPLICATIONS
Assessment
___ Assess BP, ECG, heart rate, and respiratory status continuously throughout methohexital therapy. Methohexital should be used only by individuals qualified to administer anesthesia and experienced in endotracheal intubation. Equipment for this procedure should be immediately available. Apnea may occur immediately after IV injection, especially in the presence of opioid premedication.
___ Monitor IV site carefully. Extravasation may cause pain, swelling, ulceration, and necrosis. Intratumoral injection may cause arterioles, cutaneous, edema, hemorrhage, and gangrene of the extremity.

Use Cautiously in: Addison's disease; Severe anemia; Severe CV or hepatic disease; Pregnancy. Patient appears on Beers list. Geriatric patients are at increased risk for side effects (dose reduction recommended). Discontinue.

Indicated
Toxicity and Overdose: Overdose may occur from rapid injection (drop in BP, possibly to shock levels) or excessive or repeated injections (respiratory distress, laryngospasm, apnea).

Potential Nursing Diagnoses
- Ineffective breathing pattern (Side Effects)
- Risk for injury (Side Effects)

Implementation
- Do not confuse Brevital (methohexital) with Brevibloc (esmolol).
- Dose is individualized according to depth of anesthesia desired; concurrent use of other medications and/or nitrous oxide; patient’s condition, age, weight, and sex.
- Geri: Geriatric patients may require smaller doses than young patients. Tolerance may develop with repeated use, such as for burns. Individuals tolerant to alcohol or barbiturates may require higher doses.

IV Administration
- IV: Repeated doses or continuous infusions of methohexital may cause prolonged somnolence and respiratory and circulatory depression. If the patient requires a second anesthetic in the same day, reduction in the dose of methohexital may be required.
- Methohexital may be given in doses sufficient to produce deep surgical anesthesia, but such doses may cause dangerous respiratory and circulatory depression.
- Premedication with anticholinergics (atropine, glycopyrrolate) may be used to decrease mucous secretions. Opioid analgesics may be administered preoperatively to enhance the poor analgesic effects of methohexital. Preoperative medications should be given so that peak effect is attained shortly before induction of anesthesia. Muscle relaxants, if required, should be administered separately.

Diluent:
- Do not use diluents containing bacteriostats. Dilute 500 mg vial with 50 mL of sterile water for injection (preferred), D5W, or 0.9% NaCl. Initial solution will be yellow. Further dilute the 2.5-g vial in 250 mL or the 5-g vial in 500 mL. Concentration: 10 mg/mL (1% solution). Solution should be used only if clear and colorless.
- Dilute: To prepare a 0.2% solution, dilute 400 mg in 250 mL of D5W or 0.9% NaCl. To avoid hypotension, do not dilute with sterile water. Concentration: 0.2% solution. Solution is stable for 24 hr. Note: Torsane is maintained by intermittent injections every 6–7 min or by continuous infusion.

Rate:
- Induction dose is administered at a rate not to exceed 1 mL (10 mg) over 5 sec.
- Anesthesia is maintained by intermittent injections every 4–7 min or by continuous infusion.

Syringe Compatibility:
- propofol.

Syringe Incompatibility:
- glycopyrrolate.

Y-Site Compatibility:
- acyclovir, amphotericin B, aminosalicylate, amiodarone, amphotericin, bleomycin, boc- moxim, carboplatin, cephalosporin, cyclophosphamide, dacarbazine, dacarbazine, des-methxanomine, doxorubicin, etoposide, fludarabine, fluorescein, furosemide, furosamide, fumarylacetoacetate, indomethacin, isoniazid, irinotecan, carboplatin, cisplatin, cyclophosphamide, doxorubicin, bleomycin, bocmoxim, carboplatin, cephalosporin, cyclophosphamide, dacarbazine, dacarbazine, desmethxanomine, doxorubicin, etoposide, fludarabine, fluorescein, furosemide, furosamide, fumarylacetoacetate, indomethacin, isoniazid, irinotecan, mitomycin, mitozantrone, vincristine, voriconazole.

Y-Site Incompatibility:
- doxorubicin, epirubicin, etoposide phosphate, fenoldopam, gemtuzumab, mitozantrone, vinorelbine.

Patient/Family Teaching
- Methohexital may cause psychomotor impairment for 24 hr after administration. Caution patient to avoid driving or other activities requiring alertness for 24 hr.
- Advise patient to avoid use of alcohol or other CNS depressants for 24 hr after anesthesia, unless directed by health care professional.

Evaluation/Desired Outcomes
- Loss of consciousness.
- Maintenance of desired level of anesthesia without complications.

Why was this drug prescribed for your patient?