Amantadine hydrochloride
(ah-MAN-tah-deen)

**Classification:**
Antiviral; antiparkinson drug

**Pregnancy Category:** C

**Symmetryl** (Rx)

**(Rx) Endantadine, Gen-Amantadine**

See also Antiviral Drugs.

**Action/Kinetics:** Inhibits replication of influenza A virus isolates from each of the subtypes (e.g., H1N1, H2N2, H3N2). May prevent the release of infectious viral nucleic acid into the host cell. Does not appear to interfere with the immunogenicity of inactivated influenza A virus vaccine. The reaction appears to be virus specific for influenza A but not host specific. The drug reduces symptoms (70-90% effective) of viral infections if given within 24–48 hr after onset of illness. For the treatment of parkinsonism, amantadine may increase the release of dopamine from dopaminergic nerve terminals in the substantia nigra of parkinson clients, resulting in an increase in dopamine levels in dopaminergic synapses. The drug decreases extrapyramidal symptoms, including akinesia, rigidity, tremors, excessive salivation, gait disturbances, and total functional disability. Well absorbed from GI tract. **Peak blood levels:** 4 hr. **Onset:** 48 hr. **Peak serum concentration:** 0.2 mcg/mL after 1–4 hr. **t½:** Approximately 15 hr; elimination half-life increases two- to threefold when 

**Uses:**
(1) Prophylaxis of influenza A viral infections when early vaccination is not feasible or if vaccine is contraindicated or not available. (2) Treatment of uncomplicated respiratory tract infection caused by influenza A virus strains, especially if given early in the illness. (3) Symptomatic treatment of idiopathic parkinsonism and parkinsonism syndrome resulting from encephalitis, carbon monoxide intoxication, drugs, or cerebral arteriosclerosis. For parkinsonism, is usually used concomitantly with other agents, such as levodopa and anticholinergic agents. Amantadine is recommended for prophylaxis in the following situations:

- High risk clients vaccinated after flu outbreak has begun; may take up to 2 weeks for immunity.
- Unvaccinated caretakers of high-risk clients during peak flu activity.
- High-risk clients who are expected to have inadequate antibody response to flu vaccine (e.g., HIV).
- High-risk clients who should not be vaccinated or those who wish to avoid the flu.

**Contraindications:** Hypersensitivity to drug. Use in those with untreated angle closure glaucoma. Lactation.

**Special Concerns:** Use with caution in clients with liver and renal disease, history of epilepsy, CHF, peripheral edema, orthostatic hypotension, recurrent eczematoid dermatitis, psychosis or severe psychoneurosis, in clients taking CNS stimulant drugs, and in those exposed to rubella. Safe use in children less than 1 year has not been established. Abrupt withdrawal in Parkinson’s clients may cause a parkinsonian crisis.

**Side Effects:**

**GI:** N&V, constipation, anorexia, xerostomia, diarrhea.

**CNS:** Dizziness, lightheadedness, insomnia, depression, anxiety, irritability, hallucinations, confusion, ataxia, headache, somnolence, nervousness, dream abnormality, agitation, fatigue, psychosis, slurred speech, euphoria, abnormal thinking, amnesia, hyperkinesia, decreased libido, seizures, suicide attempt, suicide, suicidal ideation.

**CV:** CHF, orthostatic hypotension, hypertension, peripheral edema.

**Ophthalmic:** Punctate subepithelial or other corneal opacity, corneal edema, decreased visual acuity, photosensitivity, optic nerve palsy, oculogyric episodes.

**Dermatologic:** Livedo reticularis, skin rash, eczematoid dermatitis.

**Miscellaneous:** Urinary retention, leukopenia, neutropenia, slurred speech, dyspnea, weakness, dry nose.

**Laboratory Test Considerations:**

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CPK, BUN, serum creatinine, alkaline phosphatase, LDH, bilirubin, GGT, AST, ALT.

**Overdose Management:** Symptoms: Anorexia, N&V, CNS effects. Treatment: Gastric lavage or induction of emesis followed by supportive measures. Ensure that client is well hydrated; give IV fluids if necessary. To treat CNS toxicity: IV physostigmine, 1–2 mg given q 1–2 hr in adults or 0.5 mg at 5–10-min intervals (maximum of 2 mg/hr) in children. Sedatives and anticonvulsants may be given if needed; antiarrhythmics and vasopressors may also be required.

**Drug Interactions:**
- Anticholinergics / Additive anticholinergic effects (including hallucinations, confusion), especially with trihexyphenidyl and benztropine
  - Belladonna leaf/root / ↑ Anticholinergic effect
- CNS stimulants / May ↑ CNS and psychic effects of amantadine; use cautiously together
  - Henbane leaf / ↑ Anticholinergic effects
- Hydrochlorothiazide/triamterene combination / ↓ Urinary excretion of amantadine → ↑ amantadine plasma levels
- Levodopa / Effects potentiated by amantadine
  - Pheasant’s eye herb / ↑ Amantadine effect
- Quinidine/Quinine / ↓ Renal amantadine clearance
  - Scopolia root / ↑ Amantadine effect
- Trimethoprim/Sulfamethoxazole / ↓ Amantadine renal clearance → ↑ plasma levels

**How Supplied:** Capsule: 100 mg; Syrup: 50 mg/5 mL; Tablet: 100 mg

**Dosage**
- Capsules, Syrup, Tablets
- Antiviral.

**Adults, 13–64 years:** 200 mg/day as a single or divided doses twice daily. **Adults, over 65 years:** 100 mg once daily. **Children, 1–9 years:** 4.4–8.8 mg/kg/day up to a maximum of 150 mg/day in one or two divided doses (use syrup); **9–12 years:** 100 mg twice daily. Decrease dose in renal impairment as follows: **C_{CR} 30–50 mL/min:** 200 mg the first day and 100 mg/day thereafter; **C_{CR} 15–29 mL/min:** 200 mg the first day and 100 mg on alternate days thereafter; **C_{CR} less than 15 mL/min or in hemodialysis clients:** 200 mg q 7 days.
- Parkinsonism.

**Use as sole agent, usual:** 100 mg twice a day, up to 400 mg/day in divided doses, if necessary.
**Use with other antiparkinson drugs:** 100 mg 1–2 times per day.
- Drug-induced extrapyramidal symptoms.
100 mg twice daily. (up to 300 mg/day may be required in some). Reduce dose in impaired renal function.

**Nursing Considerations**

**Administration/Storage:**
1. Protect capsules from moisture.
2. For influenza A prophylaxis, institute before or immediately after exposure and continue for 10 or more days following exposure. If used concurrently with vaccine, give for 2–4 weeks after vaccine has been given.
3. When treating viral illness initiate therapy as soon as possible after symptoms begin and for 24–48 hr after symptoms disappear.
4. Reduce dose to 100 mg/day for persons with active seizure disorders due to the increased risk of seizure frequency using daily doses of 200 mg.
5. Reduce the dose in clients 65 years of age and older.

Assessment:
1. Obtain history and note any evidence of seizures, CHF, and renal insufficiency.
2. With active seizure disorder reduce drug dosage to prevent breakthrough seizures. With an increase in seizure activity, take appropriate precautions and ensure that dosage is reduced to 100 mg/day to prevent loss of seizure control.
3. Monitor I&O; observe clients with renal impairment for crystalluria, oliguria, and increased BUN or creatinine levels; ensure adequate hydration.
4. With Parkinson's disease, following loss of drug effectiveness, benefits may be regained by increasing the dosage or discontinuing the drug for several weeks and then reinstituting it.

Client/Family Teaching:
1. Administer last dose several hours before bedtime to prevent insomnia.
2. Do not drive or work in a situation where alertness is important until drug effects realized; can affect vision, concentration, and coordination. Rise slowly from a prone position because low BP may occur. Lie down if dizzy/weak to relieve symptoms.
3. Report diffuse patchy discoloration or skin mottling. Discoloration lessens when legs are elevated; usually fades completely within weeks after stopping drug.
4. With flu protection report if S&S do not improve or worsen. Report any exposure to rubella; drug may increase disease susceptibility.
5. Susceptible individuals (elderly, immunocompromised) should avoid crowds during flu season, receive annual flu shot and the pneumonia vaccine.
6. Report any psychologic changes such as confusion, mental status changes, nervousness, or depression as well as any persistent, or new symptoms.
7. Avoid alcohol or any other unprescribed OTC products.
8. Clients with parkinsonism should not stop drug abruptly. May take up to two weeks to notice any improvement.
9. With seizure disorders, report any early S&S of seizure activity; dosage may require adjustment.

Outcomes/Evaluate:
* Drug-induced extrapyramidal S&S
* Improved motor control; tremor
* Influenza A prophylaxis; spread of infection to high-risk individuals during outbreaks