

Atropine is an anticholinergic medication used to treat bradycardia (slow heart rate), reduce secretions during surgery, and counteract certain types of poisoning. It works by blocking acetylcholine, a neurotransmitter involved in involuntary body functions.

🔎 Chemical Composition

- **Active Ingredient:** Atropine sulfate*
- **Molecular Formula:** $C_{17}H_{23}NO_3$
- **Drug Class:** Anticholinergic (antimuscarinic) agent
- **Formulations:**
 - Injection: 0.1 mg/mL, 0.6 mg/mL, 1 mg/mL
 - Eye drops: 1% solution
 - Oral tablets (less common)

🌐 Dosage & Administration

- **Route:** Intravenous (IV), intramuscular (IM), subcutaneous (SC), ophthalmic (eye drops)
- **Typical Dosage:**
 - *Bradycardia:* 0.5-1 mg IV every 3-5 minutes (max 3 mg)
 - *Organophosphate poisoning:* 2-4 mg IV initially, repeated every 5-10 minutes as needed
 - *Pre-anesthetic use:* 0.4-0.6 mg IM 30-60 minutes before surgery
 - *Ophthalmic use:* 1-2 drops in the eye 2-3 times daily
- **Pediatric Dosing:** Weight-based and condition-specific

💊 Medical Uses

- **Primary Indications:**
 - *Bradycardia* (slow heart rate)
 - *Organophosphate or mushroom poisoning*
 - *Pre-anesthetic medication* to reduce salivation and secretions
 - *Ophthalmic use* for pupil dilation and treatment of uveitis
 - *Radiographic procedures* to reduce GI motility
- **Mechanism of Action:**
 - Blocks muscarinic receptors, inhibiting parasympathetic nerve impulses
 - Leads to increased heart rate, reduced secretions, and pupil dilation

⚠️ Side Effects

Common:

- Dry mouth
- Blurred vision
- Increased heart rate (tachycardia)
- Constipation

- Urinary retention

****Serious:****

- Difficulty breathing
- Hallucinations or confusion
- Hot, dry skin
- Seizures (rare)
- Allergic reactions (rash, swelling)

☰ Risks & Precautions

- **Contraindications:**
 - Glaucoma (especially angle-closure type)
 - Enlarged prostate (risk of urinary retention)
 - Myasthenia gravis
- **Pregnancy & Breastfeeding:**
 - Use with caution; consult a physician
- **Drug Interactions:**
 - May interact with antihistamines, antipsychotics, tricyclic antidepressants
- **Overdose Risk:**
 - Symptoms include flushed skin, delirium, fever, and rapid heartbeat
 - Requires immediate medical attention

☺ Patient Feedback & Complaints

Positive Feedback:

- Effective in emergency settings (e.g., cardiac arrest, poisoning)
- Rapid onset of action
- Useful in surgical preparation

Common Complaints:

- Dry mouth and blurred vision
- Drowsiness or restlessness
- Discomfort with eye drops
- Confusion or hallucinations in elderly patients

📊 Summary Table

Category	Details
Drug Name	Atropine
Active Ingredient	Atropine sulfate

Use	Bradycardia, poisoning, pre-surgery, ophthalmic dilation
Dosage	0.5-1 mg IV for bradycardia; 2-4 mg IV for poisoning
Common Side Effects	Dry mouth, blurred vision, tachycardia
Serious Risks	Hallucinations, seizures, allergic reactions
Patient Feedback with eye drops	Fast-acting, effective; dry mouth, confusion, discomfort
Contraindications	Glaucoma, prostate enlargement, myasthenia gravis

Sources: [Practo](<https://www.practo.com/medicine-info/atropine-343-api>),
[RxList](<https://www.rxlist.com/atropine-drug.htm>), [CARE Hospitals](<https://www.carehospitals.com/medicine-detail/atropine>)
