cisatracurium *(sis-a-tra-koor-ee-um)*

Nimbe

**Classification**
Neuromuscular blocking agents-nondepolarizing

**Pregnancy Category** B

**Indications**

**Action**
Prevents neuromuscular transmission by blocking the effect of acetylcholine at the myoneural junction. Has no analgesic or anxiolytic properties.

**Therapeutic Effects:**
Skeletal muscle paralysis.

**Pharmacokinetics**

**Absorption:** Following IV administration, absorption is essentially complete.

**Distribution:** Rapidly distributes into extracellular fluid.

**Metabolism and Excretion:** Undergoes pH-dependent breakdown, which is responsible for 80% of metabolism; remainder eliminated by liver and kidneys.

**Half-life:** 22–31 min.

**TIME/ACTION PROFILE**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>2–5min</td>
<td>3–5min</td>
<td>28–50min</td>
</tr>
</tbody>
</table>

**Contraindications/Precautions**

**Contraindicated in:** Hypersensitivity; Products containing benzyl alcohol should be avoided in neonates.

**Use Cautiously in:** Dehydration or electrolyte abnormalities (should be corrected); Fractures or muscle spasm; Hyperthermia (duration/intensity of paralysis); Shock; Obese patients; OB, Lactation: Safety not established; Use only if benefit outweighs potential risk to fetus; Pedi: Children 1 mo (safety and effectiveness not established).

**Exercise Extreme Caution in:** Neuromuscular diseases such as myasthenia gravis.

**Adverse Reactions/Side Effects**

**Resp:** Bronchospasm.

**Derm:** Rash.

**Misc:** Allergic reactions including ANAPHYLAXIS.

**Interactions**

**Drug-Drug:** Intensity and duration of paralysis may be prolonged by pretreatment with succinylcholine, general anesthesia (inhalation), aminoglycosides, vancomycin, tetracyclines, polymyxin B, colistin, clindamycin, lidocaine, and other local anesthetics, lithium, quinidine, procainamide, beta-adrenergic blocking agents, potassium-losing diuretics, or magnesium. Higher infusion rates may be required and duration of action may be shortened in patients receiving long-term carbamazepine or phenytoin.

**Route/Dosage**

**IV (Adults and Children ≥12 yr):** Initial intubating dose—0.15–0.2 mg/kg; additional maintenance doses of 0.03 mg/kg may be used 40–65 min later. Continuous infusion—1–3 mcg/kg/min.

**IV (Children 2–12 yr):** Initial intubating dose—0.1–0.15 mg/kg; Continuous infusion—1–3 mcg/kg/min.

**IV (Infants 1–23 mo):** Initial intubating dose—0.15 mg/kg.

**NURSING IMPLICATIONS**

**Assessment**

- Assess respiratory status continuously throughout therapy with cisatracurium. Use only if intubation is required or intubated patients already intubated.
- Monitor neuromuscular response with a peripheral nerve stimulator intraoperatively. Paralysis is initially selective and usually occurs sequentially in the following muscles: levator muscles of eyelids, muscles of mastication, limb muscles, abdominal muscles, muscles of the glottis, intercostal muscles, and the diaphragm. Recovery of muscle function usually occurs in reverse order.
- Monitor ECG, heart rate, and BP throughout administration.

**Nursing Considerations**

- Contraindicated in: Hypersensitivity; Products containing benzyl alcohol should be avoided in neonates.

**Genetic Implications:**
H11005

**Pharmacokinetics:**

**Absorption:** Following IV administration, absorption is essentially complete.

**Distribution:** Rapidly distributes into extracellular fluid.

**Metabolism and Excretion:** Undergoes pH-dependent breakdown, which is responsible for 80% of metabolism; remainder eliminated by liver and kidneys.

**Half-life:** 22–31 min.

**TIME/ACTION PROFILE**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>2–5min</td>
<td>3–5min</td>
<td>28–50min</td>
</tr>
</tbody>
</table>

**Contraindications/Precautions**

**Contraindicated in:** Hypersensitivity; Products containing benzyl alcohol should be avoided in neonates.

**Use Cautiously in:** Dehydration or electrolyte abnormalities (should be corrected); Fractures or muscle spasm; Hyperthermia (duration/intensity of paralysis); Shock; Obese patients; OB, Lactation: Safety not established; Use only if benefit outweighs potential risk to fetus; Pedi: Children 1 mo (safety and effectiveness not established).

**Exercise Extreme Caution in:** Neuromuscular diseases such as myasthenia gravis.

**Adverse Reactions/Side Effects**

**Resp:** Bronchospasm.

**Derm:** Rash.

**Misc:** Allergic reactions including ANAPHYLAXIS.

**Interactions**

**Drug-Drug:** Intensity and duration of paralysis may be prolonged by pretreatment with succinylcholine, general anesthesia (inhalation), aminoglycosides, vancomycin, tetracyclines, polymyxin B, colistin, clindamycin, lidocaine, and other local anesthetics, lithium, quinidine, procainamide, beta-adrenergic blocking agents, potassium-losing diuretics, or magnesium. Higher infusion rates may be required and duration of action may be shortened in patients receiving long-term carbamazepine or phenytoin.

**Route/Dosage**

**IV (Adults and Children ≥12 yr):** Initial intubating dose—0.15–0.2 mg/kg; additional maintenance doses of 0.03 mg/kg may be used 40–65 min later. Continuous infusion—1–3 mcg/kg/min.

**IV (Children 2–12 yr):** Initial intubating dose—0.1–0.15 mg/kg; Continuous infusion—1–3 mcg/kg/min.

**IV (Infants 1–23 mo):** Initial intubating dose—0.15 mg/kg.

**NURSING IMPLICATIONS**

**Assessment**

- Assess respiratory status continuously throughout therapy with cisatracurium. Use only if intubation is required or intubated patients already intubated.
- Monitor neuromuscular response with a peripheral nerve stimulator intraoperatively. Paralysis is initially selective and usually occurs sequentially in the following muscles: levator muscles of eyelids, muscles of mastication, limb muscles, abdominal muscles, muscles of the glottis, intercostal muscles, and the diaphragm. Recovery of muscle function usually occurs in reverse order.
- Monitor ECG, heart rate, and BP throughout administration.

**Nursing Considerations**

- Contraindicated in: Hypersensitivity; Products containing benzyl alcohol should be avoided in neonates.
Observe the patient for residual muscle weakness and respiratory distress during the recovery period.

Monitor infusion site frequently. If signs of tissue irritation or extravasation occur, discontinue and restart in another vein.

Toxicity and Overdose: If overdose occurs, use peripheral nerve stimulator to determine the degree of neuromuscular blockade. Maintain airway patency and ventilation until recovery of normal respirations occurs.

Administration of anticholinesterase agents (neostigmine, pyridostigmine) may be used to antagonize the action of cisatracurium once the patient has demonstrated some spontaneous recovery from neuromuscular block. Atropine is usually administered prior to or concurrently with anticholinesterase agents to counteract the muscarinic effects.

Administration of fluids and vasopressors may be necessary to treat severe hypotension or shock.

Potential Nursing Diagnoses

Ineffective breathing pattern (Indications)

Impaired verbal communication (Side Effects)

Fear (Side Effects)

Implementation

High Alert: Unplanned administration of a neuromuscular blocking agent instead of the intended medication or administration of a neuromuscular blocking agent in the absence of ventilatory support has resulted in serious harm and death. Confusing similarities in packaging and insufficiently controlled access to these medications are often implicated in these medication errors.

Dose is titrated to patient response.

Cisatracurium has no effect on consciousness or pain threshold. Adequate anesthesia should always be used when neuromuscular blocking agents are used as an adjuvant to surgical procedures or when painful procedures are performed.

Benzodiazepines and/or analgesics should be administered concurrently when prolonged neuromuscular blockade therapy is used for ventilator patients, because patients are awake and able to feel all sensations.

Not recommended for rapid sequence endotracheal intubation due to intermediate onset of action.
cisatracurium

Y-Site Incompatibility: amphotericin B cholesteryl, cefoperazone, micafungin, pantoprazole.

Patient/Family Teaching

- Explain all procedures to patient receiving cisatracurium therapy without general anesthesia, because consciousness is not affected by cisatracurium alone.
- Reassure patient that communication abilities will return as the medication wears off.

Evaluation/Desired Outcomes

- Adequate suppression of the twitch response when tested with peripheral nerve stimulation and subsequent muscle paralysis.
- Improved compliance during mechanical ventilation.

Why was this drug prescribed for your patient?