pancuronium (pan-cure-oh-nee-yum)

**Indications**

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

**Pharmacokinetics**
Absorption: Following IV administration, absorption is essentially complete.
Distribution: Rapidly distributes into extracellular fluid; small amounts cross the placenta.
Metabolism and Excretion: Excreted mostly unchanged by the kidneys; small amounts are eliminated in bile.
Half-life: 2 hr.

**TIME/ACTION PROFILE (neuromuscular blockade)**
- **ROUTE**
  - **Onset**
    - IV: 30–45 sec
  - **Peak**
    - IV: 3–4.5 min
  - **Duration**
    - IV: 40–60 min

**Contraindications/Precautions**
Contraindicated in:
- Hypersensitivity; Hypersensitivity to bromides; Pedi: Products containing benzyl alcohol should be avoided in neonates.
Use Cautiously in:
- Underlying cardiovascular disease (risk of arrhythmias);
- Dehydration or electrolyte abnormalities (should be corrected);
- Situations in which histamine release would be problematic; Fractures or muscle spasm;
- Renal impairment (altered response);
- Hyperthermia (duration/intensity of paralysis);
- Hepatic impairment (altered response);
- Shock; Extensive burns (may be more resistant to effects);
- Low plasma pseudocholinesterase levels (may be seen in association with anemia, diabetics, cholinesterase inhibitors/mercurials, severe liver disease, pregnancy, or hereditary pseudocholinesterase deficiency); (Obese patients; GI: Familial); Tablets not established; may be used during caesarian section; Pedi: Contains benzyl alcohol which can cause potentially fatal gasping syndrome in neonates; Geri: Age-related, in renal function may result in prolonged effects.

**Exercise Extreme Caution in:**
- Patients with neuromuscular diseases such as myasthenia gravis (small test dose may be used to assess response).

**Adverse Reactions/Side Effects**
Resp: Bronchospasm.
CV: Hypertension, tachycardia.
GI: Excessive salivation.
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, inhaled anesthetics, phenytoin, colistin, cycledipine, calcium channel blockers, clindamycin, lidocaine, and other local anesthetics; Lithium, quinolones, piperacillin/tazobactam, potassium-sparing diuretics, or magnesium. Intake anesthetics including enflurane, isoflurane, halothane, desflurane, sevoflurane may enhance effects. Higher infusion rates may be required and duration of action may be shortened in patients receiving long-term barbiturate, steroids (chronic), phenytoin, or phenobarbital.

**Route/Dosage**
- **IV (Adults and Children ≥1 mo):**
  - Initial intubating dose—0.06–0.1 mg/kg initially; additional doses of 0.01 mg/kg may be given q 25–60 min to maintain paralysis.

**NURSING IMPLICATIONS**
- Assess respiratory status continuously throughout therapy with neuromuscular blocking agents. These medications should be used only to facilitate intubation or ventilation in patients deemed intubated.
- Neuromuscular response should be monitored 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.
- 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, a peripheral nerve stimulator may be used to antagonize the action of neuromuscular blocking agents. If signs of tissue irritation or extravasation occur, discontinue and restart in another vein.

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3 ✎ CONTINUED ✎

**pancuronium**

morphine, moxifloxacin, mycophenolate, nafcillin, nalbuphine, naloxone, nesiritide, nitroglycerin, nitroprusside, norepinephrine, octreotide, ondansetron, oxaliplatin, paclitaxel, palonosetron, pamidronate, pemetrexed, pentamidine, pentazocine, pentobarbital, phenobarbital, phenylephrine, piperacillin/tazobactam, potassium acetate, potassium chloride, potassium phosphates, procainamide, procainamide, promethazine, propofol, quinupristin/dalfopristin, ranbi-dar, ranitidine, sodium acetate, sodium bicarbonate, sodium phosphate, stepprocyan, valium, tacrolimus, teriparatide, theophylline, thiopental, ticarcillin/ clavulanate, tippecanone, trilobum, verapamil, vinorelbine, vincristine, vincristine, verapamil, zolendronic acid.

Y-Site Incompatibility: allopurinol, amphotericin B colloidal, amphotericin B lipid complexes, caspofungin, dantrolene, diazepam, furosemide, pantoprazole, phenytoin, thiopental.

**Patient/Family Teaching**

- Explain all procedures to patient receiving neuromuscular blocker therapy without general anesthesia, because consciousness is not affected by neuromuscular blocking agents 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?**

- ✎ General drug name
- ✎ Genetic Implication
- OPTIKS indicate life-threatening, underline indicate most frequent
- Discontinued