Vecuronium
Newborn use only

2019

Alert	High-alert medication: High risk of causing significant patient harm when used in error. This drug should be administered in the presence of personnel trained in advanced airway management. Suggest regular cessation of infusion for a few to several hours, possibly every 24 hours (commonly referred to as 'drug holiday'[17]) to assess the need for continued paralysis and adequacy of sedation or analgesia. Line should be adequately flushed to avoid unintended paralysis during later use of the line.
Indication	1. Skeletal muscle relaxation or paralysis in mechanically ventilated infants. 2. For elective endotracheal intubation.
Action	Non-depolarising muscle relaxant that competitively antagonises acetylcholine antagonist at nicotinic acetylcholine receptors at neuromuscular junction. Onset of action is 1 to 2 minutes; duration of action is 30–40 minutes.
Drug Type	Non-depolarising neuromuscular blocking agent.
Trade Name	Vecuronium Bromide
Presentation	10 mg vial (powder for reconstitution)
Dosage/Interval	**Intubation** IV bolus – 0.1 mg/kg **Muscle relaxation** **Intermittent IV bolus** 0.1 mg/kg (0.03–0.15 mg/kg) IV push every 1 to 2 hours as needed.[3] **Continuous IV infusion (with or without loading dose)** 60-200 microg/kg/hour.[1,2] Titrate in 10% dose increments until desired neuromuscular blockade is achieved.
Route	IV
Maximum Dose	IV bolus: 0.2 mg/kg; IV infusion: 0.2 mg/kg/hour.[1,2,20,21]
Preparation/Dilution	**IV bolus:** Add 5 mL water for injection to 10 mg of vecuronium powder for reconstitution (2 mg/mL). Draw up 2 mL (4 mg of vecuronium) and add 2 mL of sodium chloride 0.9% to make a final volume of 4 mL with a concentration of 1 mg/mL. **IV infusion:** Infusion rate: 1 mL/hour = 100 microgram/kg/hour; Prescribed amount: 5 mg/kg vecuronium and make up to 50 mL Add 5 mL water for injection to 10 mg vecuronium powder for reconstitution (2 mg/mL). Draw up 2.5 mL/kg of solution (5 mg/kg of vecuronium) and add sodium chloride 0.9% or glucose 5% to make a final volume of 50 mL with a concentration of 100 microgram/kg/mL. Infusing at a rate of 1 mL/hour = 100 microgram/kg/hour.
Administration	IV bolus: Administer over several seconds.[19] IV infusion via syringe pump. Line should be adequately flushed to avoid unintended paralysis during later use of the line.
Monitoring	Continuous cardio-respiratory and pulse oximetry monitoring. Close monitoring of neuromuscular function, sedation and blood pressure (invasive or non-invasive) is essential. Monitor electrolytes and renal function.
Contraindications	Hypersensitivity to vecuronium or any component of the formulation. Cross-sensitivity with other neuromuscular-blocking agents may occur; use with extreme caution in patients with previous anaphylactic reactions.
Precautions	Avoid prolonged usage. **Factors which can increase duration of neuromuscular blockade:** Acidosis, hypothermia, neuromuscular disease, hepatic disease, hypokalaemia, hypermagnesaemia, renal failure and younger age.

	Factors which can decrease duration of neuromuscular blockade: Alkalosis and hyperkalaemia. Use cautiously in neonates with hepatic or renal impairment and in neonates with fluid and electrolyte imbalance. Suggest regular cessation of infusion, possibly every 24 hours (commonly referred to as 'drug holiday') to assess the need for continued paralysis and adequacy of sedation or analgesia. Monitoring of fluid balance is essential due to of risk of fluid retention.[15,17]
Drug Interactions	Aminoglycosides & general anaesthetics can increase (potentiate) duration of neuromuscular blockade. Corticosteroids: In addition to prolonging recovery from neuromuscular blockade, concomitant use with corticosteroids has been associated with development of acute quadriplegic myopathy syndrome (AQMS). Current adult guidelines recommend neuromuscular blockers be discontinued as soon as possible in patients receiving corticosteroids or interrupted daily until necessary to restart them based on clinical condition.[4] Adrenaline (epinephrine) can reduce (antagonise) duration of neuromuscular blockade.
Adverse Reactions	Hypoxaemia may occur because of inadequate ventilation and deterioration in pulmonary mechanics. Hypotension and bradycardia, particularly when used in combination with opioids. Prolonged paralysis after long-term use. Rare: Anaphylactic reaction.
Compatibility	Fluids: Glucose 5%, sodium chloride 0.9%. Compatible via Y-site: Glucose/amino acid solutions, alprostadil, aminophylline, amiodarone, cefazolin, cimetidine, dobutamine, dopamine, adrenaline (epinephrine), esmolol, fentanyl, fluconazole, gentamicin, heparin, hydrocortisone, isoprenaline, linezolid, lorazepam, midazolam, milrinone, morphine, nicardipine, nitroglycerin, nitroprusside, propofol, ranitidine, trimethoprim-suxamethonium and vancomycin.
Incompatibility	Fluids: No information. No information on lipid emulsions. Incompatible via Y site: Diazepam, furosemide, ibuprofen, lysine and micafungin, pantoprazole.
Stability	Diluted solution stable for up to 24 hours.
Storage	$\leq$ 25°C.
Special Comments	Muscle relaxation is reversed by neostigmine (50 microgram/kg) and atropine (20 microgram/kg). Sensation remains intact; sedation & analgesia should be used for painful procedures. Provide eye protection and instil lubricating eye drops every 2 hours. Vecuronium produces less tachycardia and hypotension when compared with pancuronium.[5,6] The neuromuscular blockade of vecuronium is of shorter duration than that of pancuronium.[6,7]
Evidence summary	Refer to full version.
References	Refer to full version.

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