SUXAMETHONIUM CHLORIDE
NEWBORN USE ONLY

2016

Alert	Intubation, suction and ventilation equipment MUST be ready prior to administration of suxamethonium. A medical officer/nurse practitioner (preferably two personnel) experienced in advanced neonatal airway management techniques should be present when the medication is being administered. Risk of cardiac arrest from hyperkalemic rhabdomyolysis
Indication	Elective endotracheal intubation.
Action	Short-acting, depolarising neuromuscular blocker. It acts as an acetylcholine antagonist at nicotinic acetylcholine receptors at neuromuscular junctions, resulting in persistent depolarisation of the motor end plate.
Drug Type	Neuromuscular blocking agent (depolarising)
Trade Name	Suxamethonium Chloride Injection BP
Presentation	100 mg/2 ml ampoule.
Dosage/Interval	IV (preferred): 2 mg/kg (up to 3 mg/kg) IM (only if IV is not accessible): 3–4 mg/kg[9] (onset of action can be delayed up to 3 minutes and duration of action is up to 15 minutes)
Route	IV, IM
Maximum Dose	IV: 3 mg/kg/dose; IM: 4 mg/kg/dose
Preparation/Dilution	IV: Draw up 1 mL (50 mg of suxamethonium) and add 9 mL sodium chloride 0.9% to make final volume 10 mL with a concentration of 5 mg/mL. IM: Administer undiluted.
Administration	IV: Rapid injection at proximal cannula site. IM: Administer in anterior thigh muscle.
Monitoring	Continuous cardiorespiratory monitoring. Monitor temperature, blood pressure, oxygenation and assisted ventilator status.
Contraindications	Hyperkalaemia Family history of malignant hyperthermia Skeletal muscle myopathy Hypersensitivity to suxamethonium
Precautions	Anaphylaxis: Severe anaphylactic reactions (some life-threatening and fatal) have been reported. Cross-sensitivity with other neuromuscular-blocking agents may occur; use extreme caution in patients with previous anaphylactic reactions. Bradycardia: Risk of bradycardia may be increased with second dose and may occur more often in children. Occurrence may be reduced by pre-treating with anticholinergic agents (e.g. atropine). May Increase intraocular pressure (IOP). May cause a transient increase in intracranial pressure. May increase intragastric pressure, which could result in regurgitation and possible aspiration of stomach contents. Malignant hyperthermia: Use may be associated with acute onset of malignant hyperthermia; risk may be increased with concomitant administration of volatile anaesthetics. May increase vagal tone.
Drug Interactions	May enhance the effect of other agents with neuromuscular-blocking properties: acetylcholinesterase inhibitors; magnesium, quinidine, quinine, vancomycin, cyclophosphamide monohydrate, ciclosporin, esmolol, lincosamide, loop diuretics. Aminoglycosides: May enhance the respiratory depressant effect of aminoglycosides. Opioid analgesics: Suxamethonium may enhance the bradycardic effect of opioid analgesics. Cardiac glycosides: May enhance the arrhythmogenic effect of cardiac glycosides

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Adverse Reactions	Bradycardia is common in neonates and children, especially after a second dose of suxamethonium. May be prevented by administration of atropine prior to administration of suxamethonium. Hyperkalaemia Prolonged paralysis in infants with deficiency of pseudocholinesterase. Hypersensitivity reactions Malignant hyperthermia Management of suxamethonium overdose and/or toxicity is supportive.
Compatibility	Dextrose 5%, dextrose 10%, sodium chloride 0.9%, dextrose 5% in sodium chloride 0.9%, dextrose 5% in sodium chloride 0.45%, sodium chloride 0.45%. Y-site administration: Potassium chloride, propofol, Vitamin B complex with C.
Incompatibility	Y site administration: Aminoacid solution, lipid emulsion, heparin, alkaline solutions with pH > 8.5.
Stability	
Storage	Refrigeration at 2°C to 8°C. DO NOT FREEZE.
Special Comments	Poorly absorbed from gastrointestinal tract – must be given IM or IV. Rapidly and completely hydrolysed by hepatic and plasma pseudocholinesterase. Very rapid onset (30–60 seconds) and short duration of action (3–5 minutes) with IV administration. Continuous administration over a prolonged period of time may result in irreversible blockade (phase II block). Should not be used without additional sedation.
Evidence summary	**Efficacy** Suxamethonium in combination with other drugs (analgesics and vagolytic agents) resulted in superior intubation conditions and a shorter procedure duration[1-6]. (Level II, Grade A) For laparoscopic pyloromyotomy in term infants using propofol, sevoflurane and no intraoperative opioid, succinylcholine may be the neuromuscular blocking drug of choice, provided no contraindication is present[4]. (Level II, Grade B) **Safety** Suxamethonium has been very widely used, but has several rare side effects and causes an increase in blood pressure, simultaneously with depolarisation.[1,2] (Level II Grade B) Hyperkalaemia may occur, but major elevations are uncommon. It may trigger malignant hyperkalaemia, a rare autosomal dominant disorder of skeletal muscles that remain asymptomatic unless triggering substances are given. It should not be used in infants with hyperkalaemia or family history of malignant hyperthermia.[1] (Level IV Grade D) It can cause prolonged neuromuscular blockade requiring ventilation until spontaneous resolution occurs in infants with pseudocholinesterase deficiency.[7] (Level IV Grade D) **Pharmacokinetics** Suxamethonium has a rapid onset of action (30 seconds) and a short duration of action (3 to 6 minutes) with IV administration. The increased dose (2–3 mg/kg vs. 1 mg/kg in adults) requirement of succinylcholine in younger patients is thought to be due to its rapid distribution into an enlarged volume of extracellular fluid rather than an altered response to the action of the drug at neuromuscular junction nicotinic acetylcholine receptors.[8] (Level III Grade C)
References	1. Barrington K. Premedication for endotracheal intubation in the newborn infant. Paediatrics & child health 2011;16(3):159-171. 2. Barrington KJ, Finer NN, Etches PC. Succinylcholine and atropine for premedication of the newborn infant before nasotracheal intubation: a randomized, controlled trial. Critical care medicine 1989;17(12):1293-1296. 3. Ghanta S, Abdel-Latif ME, Lui K, Ravindranathan H, Awad J, Oei J. Propofol compared

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