

Alternatives to Rocuronium

Table 30-9 Non-depolarizing Neuromuscular Paralytic Agents

Agent	Adult Intubating IV Dose	Onset	Duration	Comments
Rocuronium (intermediate/long)	1 milligram/kg	1–3 min	30–45 min	Tachycardia. Longer duration of action makes it a second choice to succinylcholine . Use if succinylcholine contraindicated. ¹⁵
Vecuronium (intermediate/long)	0.08–0.15 milligram/kg	2–4 min	25–40 min	Prolonged recovery time in obese or elderly, or if there is hepatorenal dysfunction.
	0.15–0.28 milligram/kg (high-dose protocol)		60–120 min	
Atracurium (intermediate)	0.4–0.5 milligram/kg	2–3 min	25–45 min	Hypotension. Histamine release. Bronchospasm.

Vissers RJ, Danzl DF. Chapter 30. Tracheal Intubation and Mechanical Ventilation. In: Tintinalli JE, Kelen GD, Stapczynski JS, eds. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide*. 7th ed. New York: McGraw-Hill; 2011. <http://www.accessemergencymedicine.com/content.aspx?alD=6369632>. Accessed March 25, 2012.

Table 4-4. Selected Pharmacologic Properties of the Neuromuscular Relaxants

Agent	Intubation dose (mg/kg)	Average intubating time (min)	Clinical duration (min)	Comments
Succinylcholine	0.6–1.5	1	4–6	Agent used for rapid sequence intubation. ^{1,2} Associated with side effects such as exaggerated hyperkalemia in susceptible patients (> 24 hours after major burns and trauma, crush injury, denervation, prolonged immobilization, paraplegia, hemiplegia, muscular dystrophy) and malignant hyperthermia. Elevates intraocular, intracranial, and intragastric pressures.
Rocuronium	0.6–1.2	0.7–1.1	31–67	An alternative to succinylcholine provided there is no anticipated difficulty in intubation. ⁴
Mivacurium	0.15–0.25	1.5–2.5	16–23	Degraded by plasma cholinesterase. Releases histamine.
Vecuronium	0.08–0.10	2.5–3.0	25–40	Cardiovascular effects unlikely. Alternative to succinylcholine .
Cisatracurium	0.15–0.20	1.5–2.0	55–65	Stereoisomer of atracurium . No cardiovascular effects. Organ-independent elimination.
Atracurium	0.4–0.5	2.0–2.5	35–45	Elimination independent of liver and kidney. Releases histamine.
Pancuronium	0.06–0.10	2.0–3.0	56–100	Tachycardia and sympathetic nervous system activation.

Induction. In: Reichman EF, Simon RR, eds. *Emergency Medicine Procedures*. New York: McGraw-Hill; 2004. <http://www.accessemergencymedicine.com/content.aspx?aID=50084>. Accessed March 25, 2012.

Table 5-2. Rapid Sequence Induction Medications for Specific Patient Profiles

Patient type	Premedication*	Induction and paralysis†
"Normal adult"	Vecuronium (0.01 mg/kg)	Etomidate (0.3 mg/kg) or propofol (1–2.5 mg/kg) or thiopental (3 mg/kg) and succinylcholine (2 mg/kg)
"Normal child"	Vecuronium (0.01 mg/kg) and atropine (0.02 mg/kg, min dose 0.1 mg)	Thiopental (5 mg/kg) and succinylcholine (2 mg/kg)
Asthma, adult	Lidocaine (1.5 mg/kg) and atropine (0.5 mg)	Ketamine (1–2 mg/kg) and succinylcholine (2 mg/kg)
Asthma, child	Lidocaine (1.5 mg/kg) and atropine (0.02 mg, min 0.1 mg)	Ketamine (1–2 mg/kg) and succinylcholine (2 mg/kg)
Head injury, adult	Vecuronium (0.01 mg/kg) and lidocaine (1.5 mg/kg) and fentanyl (3–5 µg/kg)	Etomidate (0.3 mg/kg) and succinylcholine (2 mg/kg)
Head injury, child	Vecuronium (0.01 mg/kg) and atropine (0.02 mg/kg, min 0.1 mg) and lidocaine (1.5 mg/kg) and fentanyl (3–5 µg/kg)	Thiopental (5 mg/kg) and succinylcholine (2 mg/kg)
Head injury, adult, hypotensive	Vecuronium (0.01 mg/kg) and fentanyl (3 µg/kg) and lidocaine (1.5 mg/kg)	Etomidate (0.2 mg/kg) and succinylcholine (1.5 mg/kg)
Head injury, child, hypotensive	Vecuronium (0.01 mg/kg) and atropine (0.02 mg/kg, min 0.1 mg) and lidocaine (1.5 mg/kg) and fentanyl (2–3 µg/kg)	Midazolam (0.15 mg/kg) or etomidate (0.3 mg/kg) and succinylcholine (2 mg/kg)
Hyperkalemia or renal failure, adult	None	Etomidate (0.3 mg/kg) or propofol (1.0–2.5 mg/kg) or thiopental (3 mg/kg) and rocuronium (0.6 mg/kg) or vecuronium (0.01 mg/kg)
Hyperkalemia or renal failure, child	None	Thiopental (5 mg/kg) and rocuronium (0.6 mg/kg) or vecuronium (0.01 mg/kg)

Table 5-2. Rapid Sequence Induction Medications for Specific Patient Profiles

Patient type	Premedication*	Induction and paralysis†
Status epilepticus, adult	None	Thiopental (3 mg/kg) and succinylcholine (2 mg/kg)
Status epilepticus, child	None	Thiopental (5 mg/kg) and succinylcholine (2 mg/kg)
Pregnancy	Atropine (0.5 mg)	Ketamine (1–2 mg/kg) and rocuronium (0.6 mg/kg) or vecuronium (0.01 mg/kg)

*Given 3 min before intubating (T–3) †Given simultaneously at the beginning of intubation (T=0) and wait for 45 to 60 seconds for onset of paralysis.

Morocco M, Reichman EF. Chapter 5. Orotracheal Intubation. In: Reichman EF, Simon RR, eds. *Emergency Medicine Procedures*. New York: McGraw-Hill; 2004.

<http://www.accessemergencymedicine.com/content.aspx?aID=50939>. Accessed March 25, 2012.

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