



## MONOGRAPH

### Rocuronium

Scope (Staff):	Medical, Pharmacy, Nursing
Scope (Area):	Critical care, Theatre

#### Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [DISCLAIMER](#)

## ! HIGH RISK MEDICINE !

#### QUICKLINKS

<a href="#">Dosage/Dosage Adjustments</a>	<a href="#">Administration</a>	<a href="#">Compatibility</a>	<a href="#">Monitoring</a>
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#### DRUG CLASS

Non-depolarising neuromuscular blocker.<sup>[1]</sup>

Rocuronium is a [High Risk Medicine](#).

#### INDICATIONS AND RESTRICTIONS

- Facilitates endotracheal intubation and rapid sequence intubation.<sup>[2, 3]</sup>
- Increases pulmonary compliance during assisted mechanical respiration.<sup>[2]</sup>
- Produces skeletal muscle relaxation during surgery after induction of general anaesthesia.<sup>[2, 3]</sup>

#### CONTRAINDICATIONS

- Hypersensitivity to rocuronium, the bromide ion or any component of the formulation.<sup>[2]</sup>

#### PRECAUTIONS

**Rocuronium should only be given under the strict supervision of an anaesthetist/doctor skilled in the management of artificial respiration, and only when facilities are instantly available for endotracheal intubation and providing adequate ventilation of the patient.**

- Myasthenia gravis and other neuromuscular diseases (e.g. dystrophia myotonica, history of polio) – Rocuronium effect may be potentiated.<sup>[1-3]</sup>
- Burns – Resistance to non-depolarising neuromuscular blockers may develop. Monitor response and titrate to effect.<sup>[1]</sup>
- Acidosis, dehydration, electrolyte imbalances (hypokalaemia, hypermagnesaemia, hypocalcaemia) – Can enhance the effects of neuromuscular blocking drugs.<sup>[1]</sup>
- Hypothermia – Increases the intensity and duration of neuromuscular blockers. Reduce dose and monitor response.<sup>[1]</sup>
- Previous anaphylactic reaction to neuromuscular blocking agents – Cross sensitivity with other neuromuscular agents may occur. Use with caution.<sup>[1]</sup>
- Conditions associated with prolonged circulation time (e.g. cardiovascular disease and oedematous states) – An increased volume of distribution may contribute to a slower onset of action and possibly a prolonged duration of action due to a reduced plasma clearance. Use with caution.<sup>[3]</sup>
- Obesity – Rocuronium may exhibit a prolonged duration of action and prolonged spontaneous recovery in obese patients.<sup>[2]</sup>
- Patients receiving rocuronium are at risk for developing dry eyes leading to keratitis, conjunctivitis, and corneal abrasion as muscle paralysis inhibits eyelid movement and complete closure.<sup>[3]</sup>
  - Prophylactic eye care with artificial tears or eye lubricants should be administered at regular intervals during neuromuscular blockade.<sup>[3]</sup>

## FORMULATIONS

Listed below are products available at PCH, other formulations may be available, check with pharmacy if required:

- 50 mg/5 mL vial

Imprest location: [Formulary One](#)

## DOSAGE & DOSAGE ADJUSTMENTS

**Neonates:** [Refer to Neonatal Medication Protocols](#)

**[Dosing in Overweight and Obese Children:](#)** Calculate dose using Adjusted Body Weight

**Child >1 month of age (Term):**

### Intubation:

IV Loading Dose: 0.6 mg/kg<sup>[3, 4]</sup>

IV Loading Dose for Rapid Sequence Intubation: 1 – 1.2 mg/kg<sup>[3]</sup>

### Maintenance:

Intermittent IV Injection: 0.15 mg/kg<sup>[3]</sup>

### **Renal impairment:**

- [eGFR calculator](#)

- Patients with renal impairment may have a more variable duration of effect.<sup>[3]</sup>
- Use with caution.<sup>[3]</sup>

**Hepatic impairment:**

- Patients with significant hepatic impairment may experience a prolonged recovery time.<sup>[3]</sup>
- Use with caution.<sup>[3]</sup>

**ADMINISTRATION****IV Injection:**

- Administer undiluted (10 mg/mL) by rapid IV injection.<sup>[3, 5]</sup>
- Flush IV cannula with sodium chloride 0.9% after each dose to avoid re-paralysis during recovery.<sup>[3, 5]</sup>

**COMPATIBILITY**

**Compatible fluids:** Sodium Chloride 0.9%, Glucose 5%, Glucose 5% in Sodium Chloride 0.9%, Hartmann's, Water for Injection. <sup>[3, 5]</sup>

**Compatible at Y-site:** Giving other drugs via Y-site with neuromuscular blockers is not recommended. <sup>[5]</sup>

*Only commonly used drugs are listed below. This is not a complete list of incompatible drugs. [Compatibilities of IV drugs](#) must be checked when two or more drugs are given concurrently.*

**INCOMPATIBLE drugs:** Amoxicillin, amphotericin B, cefazolin, dexamethasone, erythromycin, furosemide, hydrocortisone sodium succinate, insulin, methylprednisolone sodium succinate, micafungin, piperacillin-tazobactam, potassium phosphates, thiopental sodium, vancomycin. <sup>[3, 5]</sup>

**MONITORING**

- Heart rate<sup>[1]</sup>
- Blood pressure<sup>[3]</sup>
- Respiratory rate<sup>[3]</sup>
- Capnography (end tidal carbon dioxide)<sup>[3]</sup>
- Mechanical ventilator status<sup>[3]</sup>
- Neuromuscular function and degree of muscle paralysis (e.g. presence of spontaneous movement, ventilator asynchrony, shivering)<sup>[3]</sup>

**Treatment of Toxicity:**

In this situation the patient should continue to receive ventilatory support and sedation.

- Reversal of neuromuscular blockade<sup>[6]</sup>:
  - **Option 1:** [Sugammadex](#)<sup>[7]</sup>

- Used for the reversal of intense (profound) and deep block.<sup>[7]</sup>
- The dose administered will depend on the level of neuromuscular block.<sup>[7]</sup>
- **Option 2:**
  - An anticholinesterase inhibitor (e.g. neostigmine), with an appropriate vagolytic (e.g. atropine) can be used at reappearance of T<sub>2</sub> or at the first signs of clinical recovery. Adequate doses should be administered.<sup>[2]</sup>
  - If administration of an acetylcholinesterase inhibiting agent fails to reverse the effects of rocuronium, ventilation must be continued until spontaneous breathing is restored.<sup>[2]</sup>
  - Use of a reversal agent should not begin until definite signs of spontaneous recovery are present. Overdose of an acetylcholinesterase inhibitor can be dangerous.<sup>[2]</sup>

## ADVERSE EFFECTS

**Common:** Rash, pain on injection, muscle weakness, respiratory depression.<sup>[1]</sup>

**Infrequent:** Tachycardia, bronchospasm, urticaria.<sup>[1]</sup>

**Rare:** Hypersensitivity reactions.<sup>[1]</sup>

## STORAGE

### **Vial:**

- Store between 2 - 8°C.<sup>[2]</sup>
- Stable for 12 weeks once removed from the refrigerator and stored below 25°C. If not used within 12 weeks, the vial must be discarded.<sup>[2]</sup>

### **Infusion Solution:**

- Stable for up to 24 hours at 2-8°C.<sup>[5]</sup>

## INTERACTIONS

This medication may interact with other medications; consult PCH approved references (e.g. [Clinical Pharmacology](#)), a clinical pharmacist or PCH Medicines Information Service on extension 63546 for more information.

*\*\*Please note: The information contained in this guideline is to assist with the preparation and administration of **Rocuronium**. Any variations to the doses recommended should be clarified with the prescriber prior to administration\*\**



## Related CAHS internal policies, procedures and guidelines

[High Risk Medicines Policy](#) (CAHS Policy Manual)

## References

1. AMH Australian Medicines Handbook Pty Ltd. Rocuronium. Australian Medicines Handbook [Online]: Australian Medicines Handbook Pty Ltd. Accessed November 13, 2023. <https://amhonline-amh-net-au.pklibresources.health.wa.gov.au/chapters/anaesthetics/neuromuscular-blockers/non-depolarising-neuromuscular-blockers/rocuronium?menu=hints>
2. MIMS Online Australia. Rocuronium bromide (Esmeron). UBM Medica Australia Pty Ltd. Accessed November 13, 2023. [https://www-mimsonline-com-au.pklibresources.health.wa.gov.au/Search/FullPI.aspx?ModuleName=Product%20Info&searchKeyword=Rocuronium+bromide&PreviousPage=~/Search/QuickSearch.aspx&SearchType=&ID=33490001\\_2#DosageAdministration3059](https://www-mimsonline-com-au.pklibresources.health.wa.gov.au/Search/FullPI.aspx?ModuleName=Product%20Info&searchKeyword=Rocuronium+bromide&PreviousPage=~/Search/QuickSearch.aspx&SearchType=&ID=33490001_2#DosageAdministration3059)
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## Healthy kids, healthy communities

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