



“Roc’d” by Anaphylaxis, Saved by Sugammadex

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Introduction

Anaphylaxis is a severe multisystem allergic phenomenon. Nondepolarizing neuromuscular blocking drugs such as rocuronium is the culprit in 60 - 70% of anesthetic medication reactions. Sugammadex is a drug that reverses rocuronium by encapsulating the drug & preventing binding to acetylcholine receptors. This case tests the hypothesis that Sugammadex may aid in removing rocuronium antigens or lessening its Ach R interaction in the event of suspected rocuronium-induced anaphylaxis.

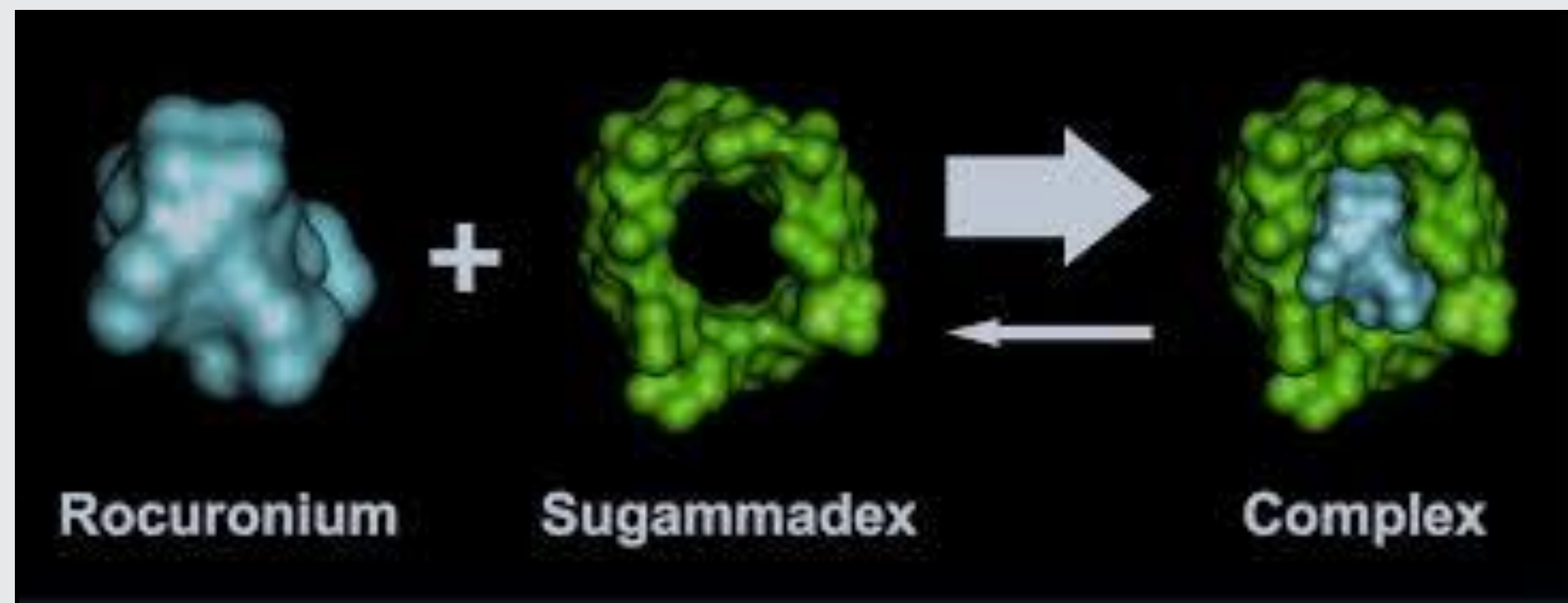


Figure 1. Mechanism of sugammadex reversing rocuronium

Treatment for Suspected Anaphylaxis

1. IV Epinephrine (FIRST AND FAST)
2. Albuterol
3. H1 agents (famotidine, diphenhydramine)
4. Steroids (hydrocortisone, dexamethasone)
5. Support for shock (IV fluids, vasopressors)

Figure 2. Steps to treat suspected anaphylaxis

Case Background

62-year-old male with history of squamous cell carcinoma and osteoradionecrosis presents for repeat mandibulectomy and tracheostomy. Awake fiberoptic intubation was performed, once airway secured, rocuronium was given but 1 minute after, patient had hypotension, increased PIPs, erythema, and hypoxia. Peak inspiratory pressure increased 22→37 cmH₂O and oxygen saturation dropped to 84%.

Intervention

Initial treatment IV boluses of epinephrine (160 mcg total) and albuterol, which yielded minimal effects until 200 mg sugammadex administered. This led to rapid improvement in hemodynamics, oxygenation, airway pressures, and erythema. Later labs confirmed anaphylaxis with elevated tryptase levels of 15.3 ng/mL. The procedure was aborted but patient remained stable and was discharged.

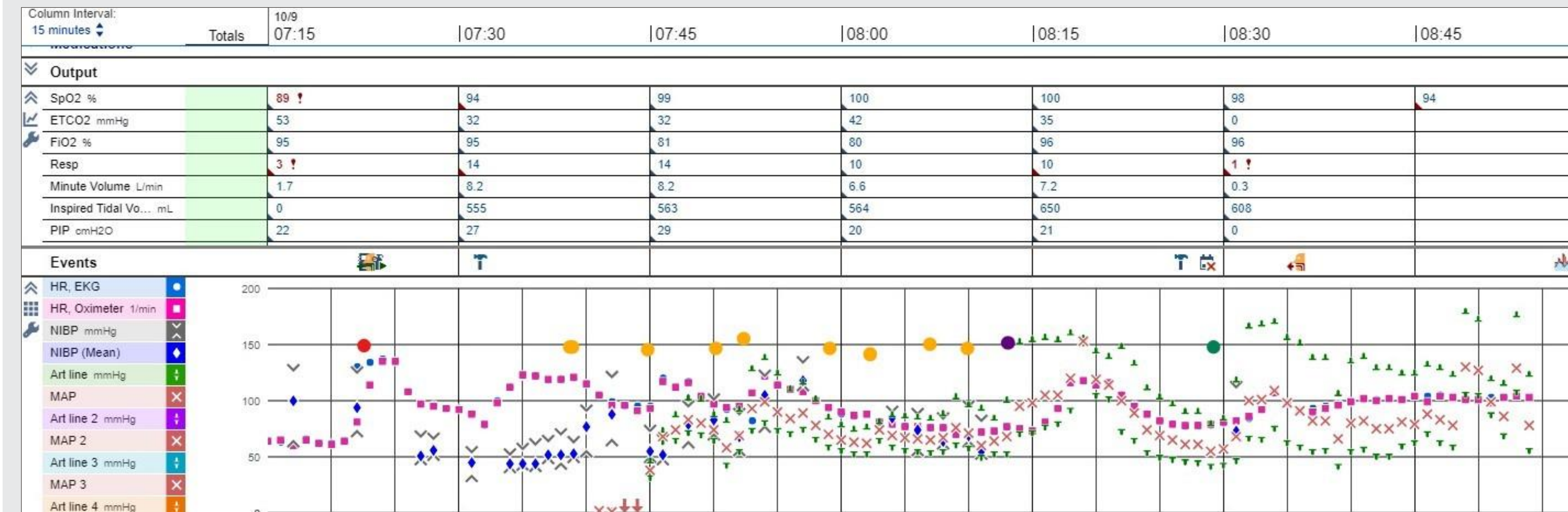


Figure 4. Patient's vitals from the start of anaphylaxis to its treatment along with when medications were given

Discussion

Rocuronium is the most frequent medication cause of perioperative anaphylaxis. Epinephrine is the definitive treatment, which addresses the systemic immune cascade and raising blood pressure. However, it does not neutralize the antigen, causing delayed or incomplete responses. Sugammadex has been proposed as an anaphylactic treatment adjunct due to its encapsulating mechanism. The current discourse has mixed opinions on whether sugammadex acts on the hypersensitivity cascade and aids in rocuronium-induced anaphylaxis. In our case, the patient experienced accelerated and sustained improvement only after receiving sugammadex, despite the initial boluses of epinephrine, which yielded limited effects. The sugammadex avoided the need for additional epinephrine, IV fluids, and intubation. Our findings add to the limited literature and suggest a novel consideration of including sugammadex as an adjuvant with epinephrine if suspected rocuronium-induced anaphylaxis.

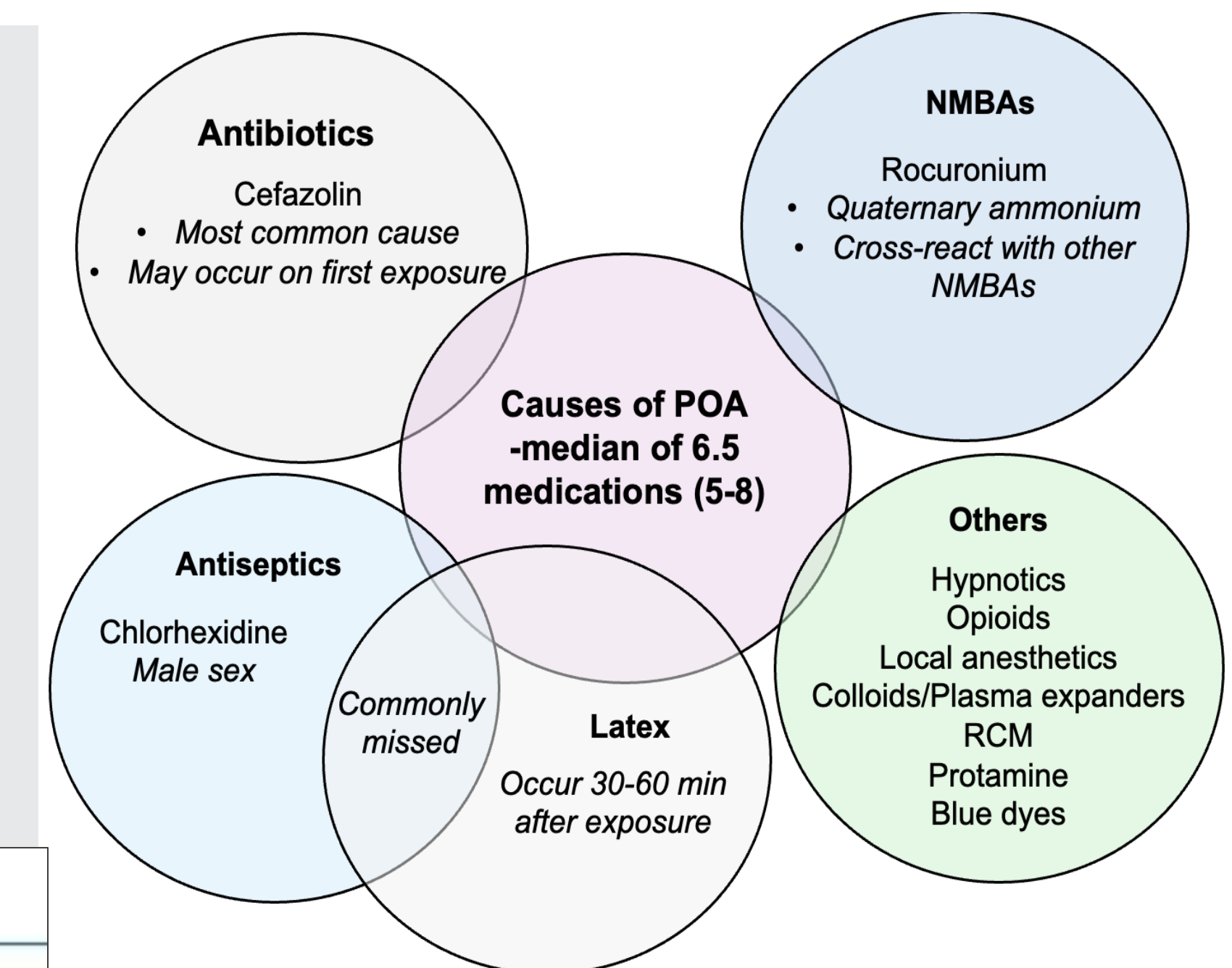


Figure 3. Most common causes of anesthesia-related anaphylaxis

Medication Key

	Rocuronium 50 mg
	IV Epinephrine 10 mcg bolus
	IV Epinephrine 100 mcg bolus
	Sugammadex 200 mg

