



UBC Department of Emergency Medicine

Grand Rounds Summary

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Paralytic Use in the Emergency Department

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I. History of Paralytics in the ED

- Airway management by ED providers is safe with **>99% success using RSI** for placement of endotracheal tubes, with paradigm shifting evidence in the early 2000s (especially the NEAR Airway Registry).
- Use of **paralytics + sedative vs. sedative only** has been shown repeatedly to be associated with both greater rates of first pass success, greater rates of overall success, and fewer complications and associated airway trauma with intubation. This issue cyclically returns to debate even now, and several ICUs across Canada continue sedative-only intubation despite the wealth of evidence that it does not “burn bridges” to use paralytics.
- Face mask ventilation (FMV) is significantly **easier** following paralytic administration with extensive evidence supporting this notion. When anesthesiologists encounter difficulty with FMV the first pharmacologic intervention is to paralyze the patient and this is supported by their guidelines. The patient that cannot be oxygenated with FMV needs paralysis.

II. Comparing Rocuronium and Succinylcholine: Points of Debate

- **Contraindications** – the risk of clinically hyperkalemia with succinylcholine administration is unknown, but several “intubation arrests” could very well be attributable to this. The risk is small, but the cognitive loading is unnecessary.
- **Time of onset** – succinylcholine works in 45 seconds, whereas rocuronium works in 55-60 seconds. If you allow the drugs the time to work, the risk of vomiting and aspiration is low – difficulty is encountered when providers stimulate the airway too early. This timeline slightly favours succinylcholine.
- **Intubation outcomes** – large Cochrane reviews and ED literature comparing succinylcholine 1.5 mg/kg vs. rocuronium 1.2mg/kg show **equivalence** in relevant ED clinical outcomes. Previously evidence favoured Succs because we were comparing it to Roc at 0.6mg/kg which is far too small of a dose for how early we enter the mouth.
- **Duration of action** – the argument for preserving the neuro exam for the surgeon is outdated and almost never relevant. If you encounter a patient you cannot intubate or oxygenate by mask, waiting 8 minutes for succs or 45 minutes for roc to wear off is the wrong answer, and you should perform a cricothyroidotomy – the patient will critically desaturate before succs wears off so this is NOT a fall-back option. If you cannot intubate but can oxygenate by facemask, a long duration of paralytic is favourable while you assemble help (anesthesia). “Waking the patient up” is almost never an option for our patient because their pathology typically worsens with time.

	Literature Supports
Contraindications	Strongly Rocuronium
Time of onset	Succinylcholine

	Literature Supports
Intubation outcomes	Equivalent
Duration of action	*Expert Opinion* Rocuronium

- **Overall** – when selecting a paralytic, comfort is the most important point. Use of them is far more important than which one you choose. This talk was developed alongside Dr. George Kovacs and the AIME airway team in Halifax – my selection will almost always be Rocuronium and **that is their recommendation as well.**