Reversing Back to Our Roots: Avoiding Sugammadex in the Pregnant Patient

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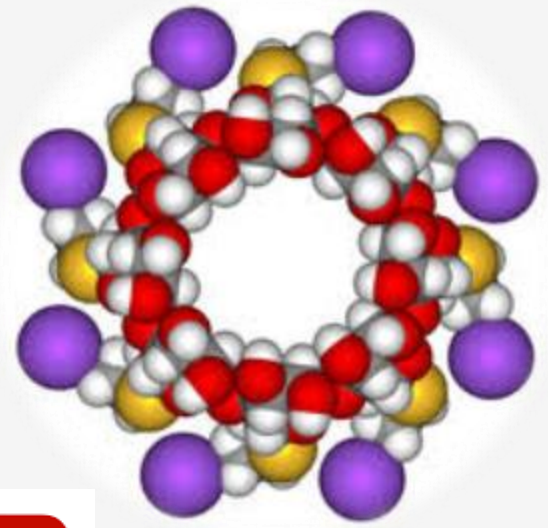
Introduction



- Sugammadex is used ubiquitously in general anesthesia. However, given the concern for its ability to bind progesterone, a 2019 SOAP guideline advises against its use in pregnancy
- While non-obstetric surgeries account for ≤ 2% of procedures in pregnant patients, most of those cases require neuromuscular paralysis
- Utilization of steroid-based paralytics like rocuronium complicate emergence from short procedures since sugammadex cannot be used
- The following case is representative of these challenges, in which a parturient received a rapid sequence induction (RSI) with rocuronium during induction of anesthesia

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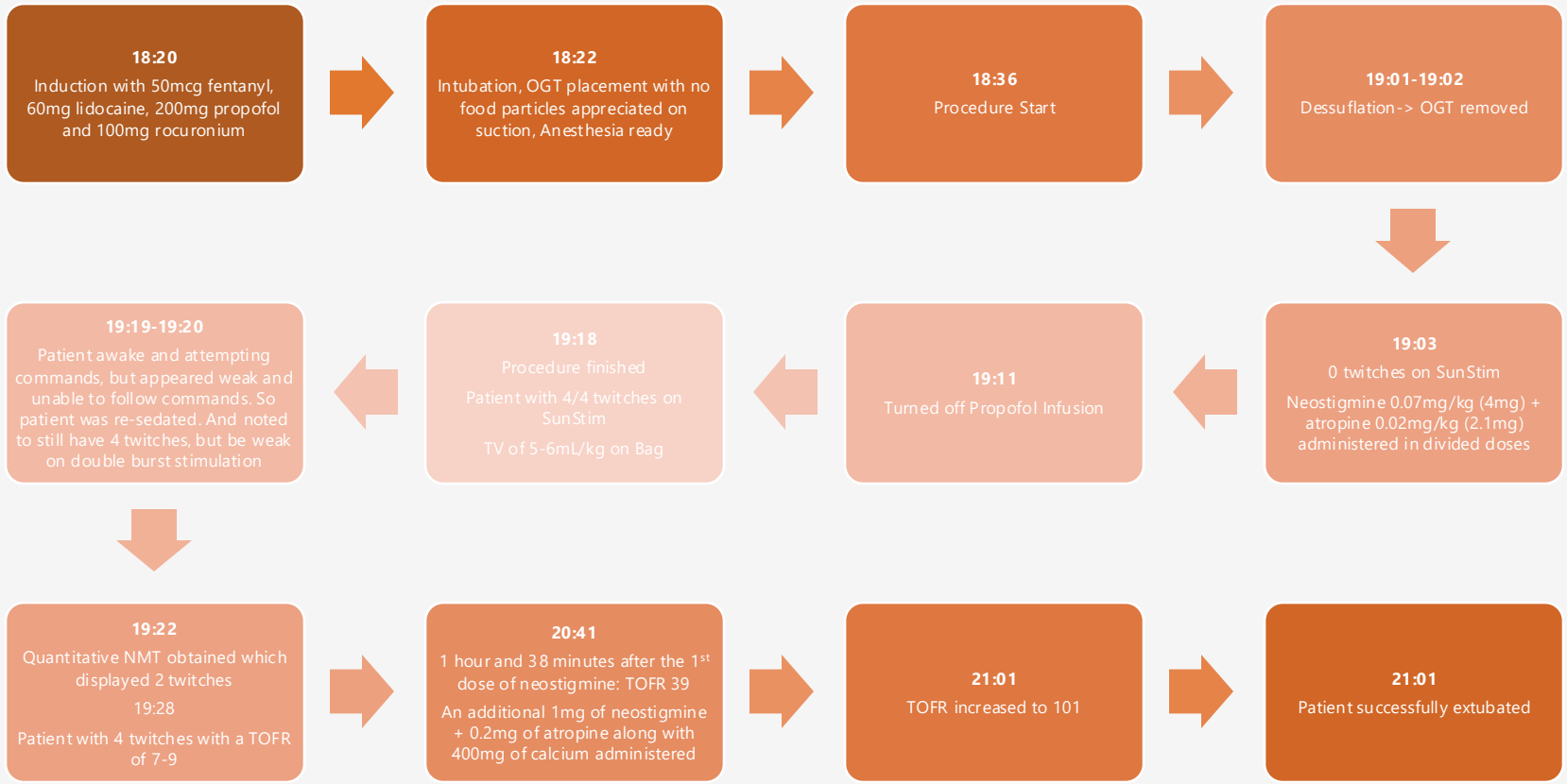
Case

A 25-year-old G1P0 at 16w4d presented to the ED with RLQ pain, nausea, and emesis concerning for acute appendicitis; RSI was planned for induction due to the patient's acute abdomen and gravid status.



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Discussion

- Neostigmine dosing 0.03-0.07mg/kg depending on paralytic agents used, number of twitches and strength of twitches
- The use of sugammadex for reversal has largely supplanted traditional reversal agents such as neostigmine and atropine/glycopyrrolate
- Given the current recommendation against its use in obstetric cases, it is imperative for anesthesia providers to remain familiar with the dosing and timing of early generation reversal agents to ensure safe and timely reversal of neuromuscular paralysis

NEOSTIGMINE REVERSAL GUIDE

Type of Monitoring		Neostigmine Dose (administer with anticholinergic)	
Qualitative	Quantitative	Ideal Body Weight (5 mg maximum)	70 kg patient
No twitch	No twitch	WAIT	WAIT
1 twitch	1 twitch	WAIT	WAIT
2-3 twitches	2-3 twitches	~50 mcg/kg	3 to 4 mg
4 twitches with fade	TOF ratio (<0.4)	~40 mcg/kg	2 to 3 mg
4 twitches without fade	TOF ratio (<0.4–0.9)	15 to 25 mcg/kg	1 to 2 mg
	TOF ratio (>0.9)	NONE	NONE
Risk Factors for Residual Postoperative Paralysis			
High total dose of neuromuscular blockade (>1.5 mg/kg rocuronium; >0.4 mg/kg cisatracurium)			
High dose neostigmine reversal (>60 mcg/kg)			
Always dose neuromuscular blockers and reversal/anticholinergic according to monitoring and clinical condition.			

Design by MJ Meyers 2015 *Kopman AF et al, Anesthesia 2009, 51:22-30.*

References
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3) Mirakhur, et al. Anesthesia & Analgesia. Reversal of Neuromuscular Blockade. (1981).
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