

A Retrospective Cohort Study of Patients with Increased Sugammadex Requirements

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INTRODUCTION

- Underdosing sugammadex may lead to residual neuromuscular blockade defined as train-of-four ratio (TOFR) < 0.9 → increased adverse respiratory events and prolonged recovery times^{1,2}
- Overdosing sugammadex may increase hospital costs

The manufacturer recommends dosing based on the depth of neuromuscular blockade and patient's weight.

This study evaluated the incidence of patients requiring more sugammadex than the manufacturer's recommendations

METHODS

- Single institution retrospective cohort. Patients > 18yo under general anesthesia who received rocuronium, sugammadex and neuromuscular block monitoring (EMG) included
- **Determine recommended dose:** matched time of first sugammadex dose to the nearest twitch value up to 5 minutes before → categorize as recommended 2 or 4 mg/kg
- Considered an **"increased requirement"** if patient administered greater than the recommended dose rounded to nearest 200mg (vial size of sugammadex)

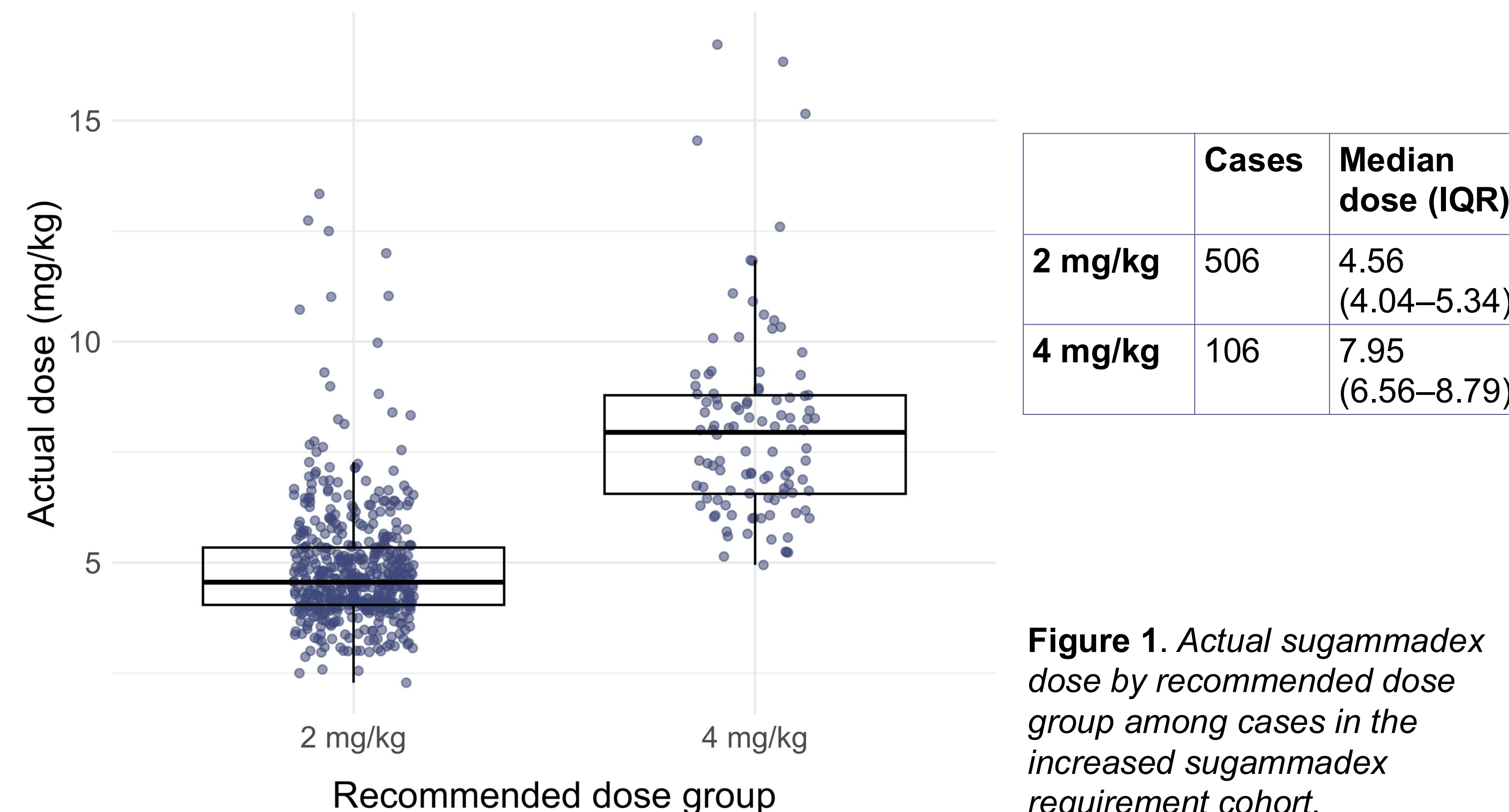
Aims

- **Primary:** Define incidence of cases requiring more sugammadex than recommended dose
- **Secondary:**
 - Report patients with increased requirement in subsequent procedure
 - Report cases requiring > 600mg for reversal

RESULTS & DISCUSSION

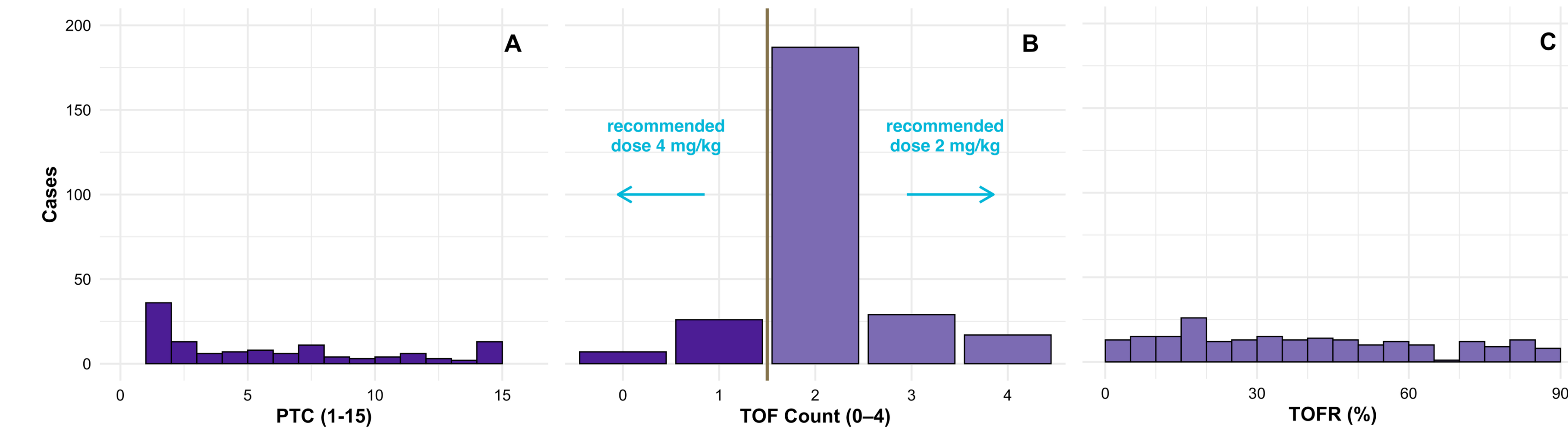
1.4% of cases (612/44,187) had an increased sugammadex requirement

Patients in increased requirement cohort had median dose of approximately double the recommended dose



- There were no differences in age, weight, sex, duration of procedure, preoperative eGFR (lowest over last 60 days), airway type, and ASA status between patients requiring recommended and increased sugammadex dose
- 214 of 612 patients in increased sugammadex cohort underwent a subsequent procedure and 5 (2%) required increased sugammadex again
- 24 of 612 cases (4%) in the increased sugammadex cohort required > 600 mg

Cases at all depths of neuromuscular block required increased doses



CONCLUSIONS

Clinical takeaway: Some patients may need more sugammadex than recommended. Quantitative neuromuscular blockade monitoring is essential to identify patients who require more than the recommended sugammadex dose.

- **Limitations:** Retrospective design; no standardized anesthetic or reversal protocol
- **Next steps:** Further characterize patients reversed at PTC = 0, investigate outliers (> 600 mg subset), and evaluate possible predictors of reduced response

REFERENCES

1. Thilen SR et al. 2023 American Society of Anesthesiologists Practice Guidelines for Monitoring and Antagonism of Neuromuscular Blockade: a report by the American Society of Anesthesiologists Task Force on Neuromuscular Blockade. *Anesthesiology*. 2023;138(1):13-41.
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