

# Evaluation of Rocuronium Dosing in Rapid Sequence Intubation Based on Ideal Body Weight vs. Non-Ideal Body Weight in Obese Patients: A Prospective, Observational Study

## Background

- During rapid sequence intubation (RSI) providing adequate paralysis while reducing potential undersedation can be difficult in an obese patient population.
- There are no guideline recommended dosing strategies for the use of rocuronium for rapid sequence intubation in the emergency department (ED) in the obese patient population.
- Currently, dosing remains dependent on practitioner preference. Dosing can be based on total body weight (TBW), ideal body weight (IBW), lean body weight (LBW), or adjusted body weight (aBW).
- A paucity of data have compared the use of rocuronium in obese patients based on different body weights.<sup>1,3</sup>
- It was concluded that the use of ideal or lean body weight provided sufficient intubation conditions without prolonging duration of action<sup>1,3</sup>. However, these studies took place in a surgical setting and not in the ED, therefore, demonstrating the need for more data in an emergency department setting.<sup>1,3</sup>

## Methods

### Intervention:



Rocuronium is dosed according to physician / pharmacist preference.



IBW is calculated / TBW is obtained using either standard ED process or review of prior documentation in patients' charts.



After intubation, the physician is asked to complete a 9-point survey to assess intubation conditions.



### Inclusion criteria:

- Intubated in the ED at ACMC
- Use of rocuronium
- Obese: TBW > 30% of IBW or BMI >30



### Exclusion criteria:

- Age <18 years
- Known neuromuscular disease
- Allergy or sensitivity to study drug
- Concomitant use of medications known to interfere with neuromuscular transmission

### Primary Endpoint:

Optimal intubation conditions

### Secondary Endpoints:

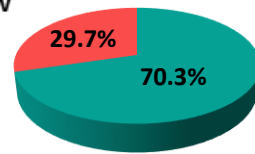
- Efficacy:
  - Duration of paralysis
- Safety:
  - Incidence of hypertension
  - Incidence of tachycardia

## Results

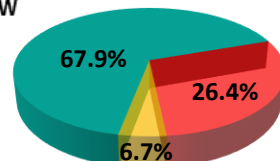
### Optimal intubation conditions (%)

Population: IBW 37 patients, TBW 53 patients

IBW



TBW



### Scoring

- Excellent (3's)
- Good (2 or 3's)
- Poor (any 1's)

### Non-Inferiority Analysis

Relative Risk	P-Value	Limit (90% CI)
1.05	0.19	0.88 (0.75 - 1.40)

### First pass success n (%)

Ideal Body Weight: 31 (83.8%)



Total Body Weight: 49 (92.5%)



### Time to muscle recovery (min), median [IQR]

TBW	IBW	P-Value
71 [57 - 96]	43 [40 - 60]	<0.01

## Conclusion

- Ideal body weight dosing of rocuronium is suggested to be non-inferior to total body weight dosing in obese patients that require rapid sequence intubation in the emergency department.
- This study demonstrates similar efficacy of intubation conditions with shorter duration of paralysis between the two dosing weight strategies.
- Follow-up superiority studies are suggested with a larger patient population to determine if there is a difference in optimal intubation conditions between IBW and TBW dosing.

## Study Objective

To evaluate the use of IBW versus TBW rocuronium dosing in obese patients for rapid sequence intubation in the emergency department.

## Design

Single-center, prospective, observational study

This study was deemed exempt by the local IRB.

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### References:

- Meyhoff SC, Lund J, Jenstrup TM, et al. Should dosing of rocuronium in obese patients be based on ideal or corrected body weight? *Anesth Analg* 2009;109:787-92.
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