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

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**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.1,3
- It was concluded that the use of ideal or lean body weight provided sufficient intubation conditions without prolonging duration of action1,3.
- 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.1,3

**Objective**

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

**Study Design**

- Single-center, prospective, observational study
- This study was deemed exempt by the local IRB

**Methods**

Rocuronium is dosed according to provider discretion.

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 emergency department at ACMC
- EXCLUSION CRITERIA
  - Age less than 18 years old
  - Known neuromuscular disease
  - Allergy or sensitivity to study drug

**Results**

- **Duration of paralysis: Time to muscle recovery (min) [IQR]**
  - TBW [N = 49] 71 [57-96]
  - IBW [N = 33] 43 [40-60] < 0.01

- **Incidence of Post-Intubation Hypertension**
  - TBW 43.4% 27.0% 0.11

- **Incidence of Post-Intubation Tachycardia**
  - TBW 35.9% 37.8% 0.85

**Limitations**

- Observational, single-centered study
- Intubating physicians’ level of experience
- Total body weight may have been based on estimated weight
- Dosing classification interpreted
- Duration of paralysis based on subjective nature of observation

**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 sample size 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.

References:


**Outcome**

- **Primary Outcome:** Optimal intubation conditions
  - Efficacy: Duration of paralysis

- **Secondary Outcomes:** Safety: Incidence of post-intubation hypertension
  - Incidence of post-intubation tachycardia

**Non-Inferiority Analysis**

- **First Pass Success**

<table>
<thead>
<tr>
<th>TBW N [%]</th>
<th>IBW N [%]</th>
<th>p-value</th>
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<td>49 [92.5%]</td>
<td>31 [83.8%]</td>
<td>0.2</td>
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