other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). The authors have stated that no such relationships exist.


In reply:

We greatly appreciate Drs. Shiber and Dr. Wessman’s perspective in providing further nuance to the discussion of critical care pathways and board certification that we were unable to discuss in detail in our article. Thank you for bringing further clarity to the complicated critical care pathways that exist for emergency physicians.

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Can Successful Intubation Be Attributed to the Specific Use of Neuromuscular Agent?

To the Editor:

I read with great interest the article by April et al. The authors performed a retrospective multicenter study on 2,275 rapid sequence intubations facilitated by succinylcholine and 1,800 by rocuronium and concluded that there was no association between paralytic choice and first-pass rapid sequence intubation success or peri-intubation adverse events. I congratulate the authors for performing a well-designed study in an important topic of emergency airway management. The current emphasis to minimize adverse events after emergency airway management makes the topic relevant in emergency medicine.

Although the study by April et al was well conducted, there are some points in regard to it that need to be clarified to further support the authors’ findings. First, they did not present the dose of rocuronium used in the study, which makes it harder for readers to incorporate or replicate the study results into daily clinical practice. Second, they did not adjust for the provider expertise (eg, number of previous intubation attempts) in performing airway management. This is a major confounding factor that can significantly affect the study results. Third, the authors created their own difficult airway model but did not provide evidence that this model was valid. For example, the differentiation of Mallampati classification I and II is not recognized as a valid predictor of difficult airway.

I welcome comments to address the aforementioned issues because this would further validate the findings of this important clinical study.

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In reply:

We thank Dr. Kendall for his letter related to our study comparing first-pass intubation success with rocuronium versus succinylcholine, using data from the National Emergency Airway Registry. The issue of rocuronium dosing is important. A commonly cited Cochrane review of randomized controlled trials from the anesthesia literature comparing succinylcholine with rocuronium concluded that succinylcholine resulted in superior intubating conditions. However, this superiority disappeared at rocuronium doses exceeding 1.2 mg/kg, suggesting that higher doses of this medication may optimize outcomes. In our study, the mean dose of rocuronium administered was 1.2 mg/kg (median 1.1 mg/kg). These relatively high doses might have contributed to our finding of no significant difference in first-attempt intubation success between succinylcholine and rocuronium. However, we also found no difference in first-attempt intubation success when comparing intubations using greater than or equal to 1.2 mg/kg versus less than 1.2 mg/kg of rocuronium in subgroup analyses included as a supplementary appendix to our main article. One exception was our finding of higher odds of first-attempt intubation success with greater than or equal to 1.2 mg/kg versus less than 1.2 mg/kg doses of rocuronium among patients without any difficult airway characteristics (odds ratio 2.2; 95% confidence interval 1.2 to 3.4). Future prospective emergency department (ED)–based studies will be necessary to further clarify the role and importance of rocuronium dose for optimizing emergency airway management outcomes.

In regard to the role of intubator experience, it is undeniable that this plays a critical role in intubation success. We did not specifically solicit each intubator’s number of previous intubations because we believed these self-reported numbers would be unreliable for a registry study. Nevertheless, the National Emergency Airway Registry does capture intubator experience as an ordinal variable related to operator level of training: emergency physician postgraduate year 1, 2, and 3/4; fellow; attending physician; or other (nonemergency physician). We believe this variable provides a reasonable depiction of each intubator’s level of airway management experience and we did control for this variable in our study’s regression and subgroup analyses.

Finally, in regard to the issue of predictors of difficult airway characteristics, we based the National Emergency Airway Registry variables and definitions on those characteristics widely discussed in the emergency medicine literature as associated with challenging airways. We agree that not all of these variables have undergone rigorous validation studies in the literature. We further concede that the prognostic value of these variables may well differ in the ED compared with the operating room setting. Nevertheless, we believe they are important considerations in the research and clinical practice of ED airway management, given their widespread use in the emergency medicine literature and difficult airway curricula. Although acknowledging these limitations, we did incorporate the difficult airway characteristic variables into our regression and subgroup analyses in an effort to control for potential confounding. Further refinement and validation of the myriad difficult airway characteristics reported in the emergency medicine literature represents another important area for future investigations.

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https://doi.org/10.1016/j.annemergmed.2018.06.043

Funding and support: By Annals policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). The authors have stated that no such relationships exist.

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