

# Letters to the Editor

## Residual Neuromuscular Block and Adverse Respiratory Events

### To the Editor:

Murphy et al.<sup>1</sup> recently presented convincing data that postoperative residual neuromuscular block (PONB) may have undesirable short-term clinical consequences. However, the authors' observations may also explain why so many clinicians seem to view the risk of PONB as minimal (failure to use even conventional peripheral nerve stimulators and/or failure to administer reversal agents at the end of anesthesia).

There is ample evidence that PONB on arrival in the postanesthesia care unit is not a rare occurrence.<sup>2,3</sup> If we define PONB as a train-of-four ratio less than an acceleromyographic value of 0.90 (an electromyographic or mechanomyographic value of 0.80) then the actual incidence of PONB on arrival to today's recovery rooms is probably not <20%.<sup>4</sup> Thus, in Murphy's study at least 1431 subjects probably had some degree of PONB but did not suffer a noticeable adverse respiratory event. Put differently, Murphy's data suggest that PONB is associated with a frequency of short-term critical respiratory events of perhaps only 4% or 5%, and the incidence of actual long-term morbidity is likely to be much less than that. Hence, most patients seem to tolerate residual block of modest extent without untoward results.

This is not to diminish the importance of Murphy's work. There is no reason to accept even infrequent adverse events if they can be prevented. However, when warning clinicians about the possible side effects of residual block it would seem prudent to maintain a sense of perspective and balance if one is to remain credible.

Aaron F. Kopman, MD  
 Department of Anesthesiology  
 St. Vincent's Hospital Manhattan  
 New York Medical College  
 New York city, New York  
 akopman@nyc.rr.com

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### In Response:

Dr. Kopman's response to our investigation highlights several important issues related to residual neuromuscular blockade.<sup>1</sup> First, we agree that many clinicians do not perceive postoperative residual paresis as a clinical problem. Recent surveys have demonstrated that many anesthesiologists do not routinely use techniques that have been proven to reduce the incidence of postoperative residual neuromuscular blockade.<sup>2,3</sup> Second, we also agree that residual neuromuscular blockade (a train-of-four (TOF) ratio <0.9) was likely present in a number of patients without obvious respiratory symptoms. If we assume that our control group represented the study population as a whole (9.5% with TOF ratios between 0.7 and 0.9), then 708 patients would have had evidence of incomplete neuromuscular recovery in the postanesthesia care unit. Since only 61 patients had critical respiratory events, this estimation suggests that the majority (91%) of patients with residual neuromuscular blockade did not develop severe respiratory symptoms in the postanesthesia care unit. However, it is possible that more subtle respiratory events that were not measured in the study occurred in these patients with lesser degrees

of muscle weakness. Furthermore, nearly three-quarters of the critical respiratory events were observed in patients with severe residual blockade (TOF ratios <0.7). Our findings suggest that the risk of critical respiratory events is more likely when more severe residual paresis is present. However, these events may still be observed in patients with less significant degrees of residual block (16.7% of the respiratory events were observed in patients with TOF ratios between 0.7 and 0.9). Finally, we agree that clinicians should not accept even infrequent adverse events if they can be prevented. We hope that our findings will make clinicians more aware of the hazards of incomplete neuromuscular recovery in the immediate postoperative period.

Glenn S. Murphy, MD

Joseph W. Szokol, MD

Jesse H. Marymont, MD

Steven B. Greenberg, MD

Michael J. Avram, PhD

Jeffery S. Vender, MD

Department of Anesthesiology  
 Evanston Northwestern Healthcare

Evanston, Illinois

dgmurphy2@yahoo.com

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## Neck Circumference and Difficult Intubation

### To the Editor:

Regarding the observation by Gonzalez et al.<sup>1</sup> emphasizing the importance of increased neck circumference as a cause of difficult intubation in obese patients, the authors note that their findings are