apoptotic pathway. Use of immunoprecipitation experiments at different developmental time points after receptor agonism may explain whether this is an alteration in receptor signaling or changes in receptor expression with age. What does appear to be known is that p75<sup>NTR</sup> expression and signaling is not only temporally but also spatially dependent on some unknown intracellular mechanism. Studies to characterize p75<sup>NTR</sup> expression and its coupling with known partners (e.g., Trk) at varying ages are currently underway in our laboratory. The expectation is that these studies will provide more detail about the mechanisms by which isoflurane injures developing neurons.

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References


7. In Reply:—We thank Drs. Myatt and Patel for their interest in our article by Kheterpal et al. regarding impossible mask ventilation. This is a very important but rare event, and this large study gives us a clear idea about its incidence and, for the first time, what the associated risk factors are.

We note that in all but 4 of the 77 cases of impossible mask ventilation, the patients had received neuromuscular blockade in the process of induction or management of the airway, with succinylcholine being used in 65 patients and a nondepolarizing agent in the remaining patients. However, it is not clear at what stage of airway management that the neuromuscular blocker was administered in these cases—was it before difficulty with mask ventilation being encountered or given after problems occurred to improve the situation, and did ventilation indeed improve? Furthermore, only 19 patients (25%) proved difficult to intubate, which suggests that there was opportunity for improving the conditions for mask ventilation.

In our experience, optimum depth of anesthesia and neuromuscular blockade provide the best conditions for both mask ventilation and tracheal intubation (in patients in whom an awake technique, transtracheal catheter, or awake tracheostomy are not indicated). Neuromuscular blockade given at induction and before attempts at mask ventilation is the most common practice in our institution for patients requiring tracheal intubation. In addition, we have found that using intermittent positive pressure ventilation by means of a Penlon Nuffield 200 ventilator (Penlon Ltd., Abingdon, United Kingdom) while holding a mask is beneficial for assessment of adequacy of mask ventilation and also useful for training. This approach has the advantage of allowing a two-handed mask technique for more challenging airways and continual monitoring of airway pressure from the pressure gauge on the ventilator. Monitoring airway pressure in this way provides an objective measure of the seal that is required to maintain this art and limit airway disasters.

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Reference


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of different clinical management strategies, they are suboptimal for evaluating the optimal efficacy of a specific strategy under ideal circumstances.

It is not feasible to use a large observational dataset to define the impact of neuromuscular blockade on mask ventilation because of several issues: First, asking providers to document additional elements and attempt mask ventilation before neuromuscular blockade solely for research purposes may require institutional review board evaluation and patient consent. Second, the acuity of the induction period demands a parsimonious approach to documentation in general. Third, it would be difficult to control confounding clinical factors such as depth of anesthesia, dosage of neuromuscular blockade, experience of providers, mask ventilation technique, and timing of mask ventilation attempts.

Goodwin performed a prospective, controlled trial evaluating the impact of neuromuscular blockade in 30 patients with normal airways. Contrary to our clinical experience and that espoused by Dr. Myatt, they found that neuromuscular blockade did not alter the efficacy of mask ventilation, measured by tidal volume. Because the studied population was limited to patients with normal airways, everyday clinicians are left to make decisions without data. Patients exhibiting risk factors for difficult mask ventilation such as obesity, limited jaw protrusion, bearded facial hair, advanced age, oropharyngeal dis-

References


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