

Neuromuscular Blockade in the Critically Ill

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Re: "Airway management in the critically ill: the same, but different" Higgs, et al., 117 (suppl 1): i5-i9
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Thank you for your excellent and timely article highlighting the potential pitfalls of airway management in the critically ill patient.

One key, and often underestimated, difference when comparing airway management in the critically ill with that of surgical patients, is the markedly distinct and unpredictable pharmacokinetics and pharmacodynamics of neuromuscular blocking drugs (NMBDs).

The critically ill seem to display a resistance to NMBDs which has been the subject of multiple case reports and review articles [2, 8, 6]. While the definitive aetiology of this resistance is uncertain, it is thought that changes in receptor affinity [3] and in volume of distribution both play an important role. Analogously, recent publications have clearly demonstrated that there is significant under-dosing of certain water soluble, concentration dependent antibiotics in the critically ill. This has been attributed to the fact that the dosages employed were based on studies in relatively healthy patients where the pharmacokinetics especially the volume of distribution - is very different to the severely ill.[7, 5, 4].

Dieye et al [1] highlighted that both the dose and the time required for complete neuromuscular blockade are extremely variable and unpredictably increased in the critically ill patient. What was particularly concerning was the wide range reported for both these key measures, with a time to full paralysis in ITU patients of 34 +/- 21 minutes versus 4 +/- 2 minutes in theatre patients. A similarly wide range of dosages was reported (38 +/- 14 mg and 11 +/- 2 mg respectively).

Knowing this, is it not now time to consider the use of a nerve stimulator as mandatory when managing the airway of a critically ill patient?

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Conflict of Interest:

None declared