CORRESPONDENCE

Sugammadex as rescue therapy for residual neuromuscular blockade in the intensive care unit

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To the Editor,

We read with interest the paper by Roy *et al.* about a case of awake paralysis in the intensive care unit (ICU) due to residual neuromuscular blockade (NMB) in a patient who had undergone fast-track cardiac surgery.¹ Complete recovery from NMB before tracheal extubation may avoid complications related to postoperative residual NMB, including the patient's awareness of this unpleasant condition.¹ The authors pointed out that the risk of postoperative residual NMB could be minimized by routinely assessing neuromuscular function before cessation of sedation.¹ However, quantitative neuromuscular function monitoring does not entirely abolish the risk of postoperative residual NMB.² In some situations (e.g., malfunction, absence of calibration and normalization, peripheral neuropathy, hypothermia), monitoring may be not able to predict accurately an adequate recovery from NMB.² Furthermore, it is not always used in clinical practice.^{1,2} Rujirojindakul *et al.* found that, despite the use of traditional NMB-reversal agents and meeting the standard criteria for extubation, administration of either benzyloquinolines (odds

ratio [OR], 3.9; 95% confidence interval [CI] 1.46 to 10.3) or aminosteroid derivatives (OR, 7.6; 95% CI, 2.7 to 19.8) as an intraoperative neuromuscular blocking agent is an independent risk factor for reintubation in the post-anesthetic care unit.³

Symptomatic postoperative residual NMB, particularly if associated with critical respiratory events (CREs), needs prompt treatment.² If available, sugammadex should be carefully considered after aminosteroid-induced NMB. Compared to neostigmine, sugammadex can reverse NMB more rapidly and allows prompt treatment of CRE associated with postoperative residual NMB, avoiding the need for prolonged sedation or reintubation.^{2,4} Furthermore, sugammadex reverses NMB with a lower likelihood of postoperative weakness (OR, 0.45; 95% CI, 0.21 to 0.97) or adverse respiratory (OR, 0.36; 95% CI, 0.14 to 0.95) and cardiovascular (OR, 0.23; 95% CI, 0.08 to 0.61) events.⁴ On the contrary, reversal of NMB with neostigmine, particularly if administered in an inadequate dose or without appropriate guidance from neuromuscular function monitoring, has been associated with an increased risk of postoperative desaturation < 90% (OR, 1.32, 95% CI, 1.20 to 1.46) and reintubation (OR, 1.76; 95% CI, 1.38 to 2.3).⁵ Neostigmine and qualitative monitoring of neuromuscular function, often used in the ICU to assess recovery from NMB, seem not to mitigate the increased risk of postoperative CREs linked to the use of non-depolarizing neuromuscular blocking agents.⁵

In their conclusions, Roy *et al.* rightly underlined the importance of new solutions, in addition to those readily available, to minimize the consequences of postoperative residual NMB in the ICU.¹ We believe that sugammadex, which has been proven an effective rescue therapy to reverse NMB, should be included in strategies used to prevent postoperative residual NMB and associated CREs in the ICU whenever possible.

Editor's Note The authors of the article: Can J Anesth 2016; 63: 725–30, respectfully declined an invitation to submit a reply to the above letter.

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