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Quick response code

Reversal of neuromuscular block

Sir,

I read with interest the recent publication by Goyal *et al*.[1] on the need to administer reversal agents with neuromuscular (NM) monitoring. Two groups of patients were studied – those who received objective NM monitoring and achieved a train-of-four ratio (TOFR) of ≥0.9 at recovery – and the control group, who received neostigmine and were extubated after achieving clinical signs of adequate reversal without NM monitoring. Mean recovery times were similar in the two groups ($P = 0.139$).[1]

There were some shortcomings in the study design. It is not clear whether the two groups were comparable with regard to the duration of surgery and the total dose of rocuronium used. For monitoring of TOFR, a current intensity between 30 and 50 mA was selected and supramaximal stimulation was not ensured. The primary outcome variable has not been clearly defined in either group and seems to have no clear start and end points. In the first group, the recovery time was taken as the time to achieve TOFR ≥0.9 from the end of surgery. There is no mention of the level of NM blockade (NMB) at the end of surgery, so the start point of recovery time in this group was not constant. Furthermore, during this time, patients received sevoflurane which may potentiate NMB. It is likely that the NMB in this group was allowed to spontaneously wear off towards the end of surgery in order to achieve a TOFR ≥0.9 without neostigmine for extubation. This may not be possible in all types of surgical procedures. It also seems likely that the dose of rocuronium used in this group may have been significantly lower in order to allow a spontaneous recovery of NM function. In the second group, there is no definite point at which neostigmine was given with regard to the last dose of relaxant and no mention of when sevoflurane was discontinued and the time to clinical recovery seems ill defined. The end point of the time to recovery in the control group is very subjective and based on multiple clinical criteria, such as sustained head lift for 5 s, the ability to hold a tongue depressor between the teeth, which are crude assessments of recovery of NM function and may be affected by residual sedation, hypothermia, residual effects of inhalation agents and the inability to follow instructions, and it does not necessarily indicate a TOFR >0.9.[2] It is likely that many patients in this group may have had a residual NMB, so this does not qualify as a control group.

A recent editorial by Murphy *et al*. has emphasised that appropriate doses of reversal agents should always be administered when NM blockers are given, unless full NM recovery has been documented with quantitative monitoring.[3] It is already known that NM monitoring should be done using objective, accurate and appropriate quantitative rather than qualitative techniques to assess safe recovery of NM function[4] and only if recovery from muscle relaxant has been documented using quantitative NMB monitoring can the use of anticholinesterases be avoided. Apart from the many lacunae in the methodology of the present study which suggest due caution in the interpretation of the results, it is not clear as to what additional information this study offers.

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Conflicts of interest

There are no conflicts of interest.

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