Sugammadex in morbidly obese patients: Lean Body Weight or Total Body Weight?

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Goal
To evaluate reversal times of continuous deep neuromuscular blockade when sugammadex dose was calculated using Lean Body Weight (LBW) compared to using Total Body Weight (TBW).

Background
In the morbidly obese patient dosing sugammadex on Ideal Body Weight (IBW) can be insufficient and unsafe after deep and moderate block. Dosage based on LBW might be more logical since LBW changes with TBW, gender and height. It correlates with cardiac output, metabolic activity and drug clearance.

Materials & Methods
- Thirty-nine patients undergoing laparoscopic bariatric surgery were randomly assigned to receive 2 or 4 mg/kg sugammadex according to either LBW or TBW.
- Neuromuscular blockade was achieved with rocuronium 1 mg/kg LBW bolus at induction and titrated to achieve a post-tetanic count (PTC) of 1 - 2 using continuous infusion of rocuronium.
- Primary endpoint was the time of reversal (TOF > 0.9). If reversal was inadequate, a rescue dose of 2 mg/kg LBW was administered.

Results
- In the group receiving 2 mg/kg LBW of sugammadex, time to reversal was 318 ± 156 sec, which was significantly higher compared to 2 mg/kg TBW (187 ± 87 sec; p < 0.05). Two patients in the 2 mg/kg LBW group necessitated a rescue dose of sugammadex.
- In the group receiving 4 mg/kg no difference was observed in reversal time between LBW and TBW group (177 ± 68 vs 111 ± 50 sec; p = ns) and was comparable to the reversal times with 2 mg/kg TBW.

Conclusion
- Sugammadex 2 mg/kg TBW yielded similar reversal times as 4 mg/kg LBW or TBW.
- Sugammadex 2 mg/kg LBW significantly increased reversal times compared to the other dosage schemes and proved to be unsafe in the reversal of prolonged deep neuromuscular block.