Succinylcholine: Dose by Total Body Weight for Obese Patients

Dosing by ideal weight yields inferior intubating conditions.

The correct dosing regimen for succinylcholine in obese patients remains controversial, and clinicians have been reluctant to administer the large doses that would be indicated by an obese patient’s total body weight. In a randomized, double-blind study, investigators compared dosing by ideal, lean, and total body weight in 45 morbidly obese patients (body-mass index >40) who did not have attributes that predict difficult intubation.

After induction of general anesthesia with fentanyl (3µg/kg of lean body weight) and propofol (2.5 mg/kg), patients were randomized to receive one of three dosing regimens of succinylcholine: 1 mg/kg of ideal body weight, 1 mg/kg of lean body weight, or 1 mg/kg of total body weight. Intubating conditions during laryngoscopy were rated as excellent (jaw relaxed, no resistance to blade, vocal cords abducted, no patient response to laryngoscopy), good (jaw not fully relaxed, slight resistance to the blade, cords not fully abducted or moving, moderate patient response), or poor (jaw not relaxed, active resistance to the blade, vocal cords closed, persistent or vigorous patient response).

Time to maximal neuromuscular blockade did not differ among the three groups, but the magnitude of the maximum block was lower in the ideal-body-weight group than in the total-body-weight group (93.3% vs. 100%). Intubating conditions were poor in 33% of patients dosed by ideal body weight, 27% of those dosed by lean body weight, and none of those dosed by total body weight. Intubating conditions were excellent in 27%, 47%, and 87% of the groups, respectively.

Comment: Although this study was small, the differences between groups were significant, and the findings were consistent with those from a prior study of obese adolescents. The level of plasma pseudocholinesterase activity correlates well with total body weight, suggesting that drug metabolism by pseudocholinesterase might be one explanation for these results. For emergency department rapid sequence intubation, the best dose of succinylcholine is 1.5 mg/kg of total body weight, regardless of whether the patient is obese.

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