Bag-Mask Ventilation: One or Two Hands?

The two-handed mask technique outperformed the one-handed "EC-clamp" method.

Bag-mask ventilation can be performed with the one-handed "EC-clamp" technique (small finger at the angle of the mandible, ring and long fingers on the ramus, index finger and thumb forming a "C" shape over the mask) or with a two-handed jaw-thrust technique (fingers along the angle and ramus of the mandible, thumbs pressing on the mask). The two techniques have not been systematically compared. In a randomized crossover trial, researchers compared three measures of effectiveness of mask ventilation with the two techniques in 42 elective surgery patients (mean age, 56) at an academic hospital in Wisconsin.

After induction of anesthesia with propofol and insertion of an oropharyngeal airway, each patient was mechanically ventilated with both mask techniques by 1 of 27 anesthesiologists. Minute ventilation was significantly greater with the two-handed technique than with the one-handed EC-clamp technique (7.95 vs. 6.32 L/min) and tidal volumes were significantly larger (8.6 vs. 6.8 mL/kg). Inadequate mask ventilation, defined as lack of chest rise and flat carbon dioxide tracings on the monitor, was significantly more common with the one-handed technique than with the two-handed technique (14% vs. 0%).

Comment: This study affirms that a two-handed mask technique is superior to the standard one-handed technique. For bag mask ventilation, the two-handed technique requires a second operator to squeeze the bag. The two handed, two-person technique should be used whenever possible and particularly when bag mask ventilation is difficult or inadequate with the one-handed method.

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Joffe AM et al. A two-handed jaw-thrust technique is superior to the one-handed "EC-clamp" technique for mask ventilation in the apneic unconscious person. Anesthesiology 2010 Oct; 113:873.

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