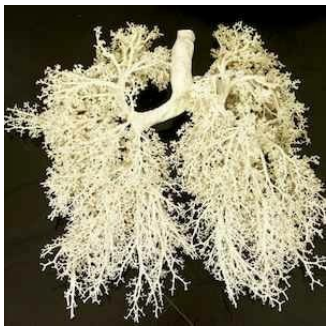
ICU
MANAGEMENT & PRACTICE

## Cochrane: Low Tidal Volumes Recommended During Surgery



The current trend is to decrease tidal volumes for positive ventilation during surgery. But is this harmful or beneficial to patients? A recently published Cochrane Review that evaluated the benefit of intraoperative use of low tidal volume ventilation (< 10 mL/kg of predicted body weight) to decrease postoperative complications concludes by recommending that low tidal volumes are used preferentially during surgery. This will decrease the need for postoperative invasive and non-invasive ventilatory support.

The review was conducted by Joanne Guay, University of Sherbrooke, Department of Anesthesiology, Canada and Edward A Ochroch, University of Pennsylvania, Department of Anesthesiology for the Cochrane Anaesthesia, Critical and Emergency Care Group. The review included 12 studies with a total of 1012 participants (499 participants in the low tidal volume group and 513 in the high volume group)

- 9 studies (899 participants) - no difference in 0- to 30-day mortality between low and high tidal volume groups (risk ratio (RR) 0.79, 95% confidence interval (CI) 0.40 to 1.54; I2 statistic 0%; low quality evidence).
- 4 studies (601 participants) of abdominal or spinal surgery - lower incidence of postoperative pneumonia in the lower tidal volume group (RR 0.44, 95% CI 0.20 to 0.99; I2 statistic 19%; moderate quality evidence; NNTB 19, 95% CI 14 to 169).
- 2 studies (428 participants) - low tidal volumes decreased the need for non-invasive postoperative ventilatory support (RR 0.31, 95% CI 0.15 to 0.64; moderate quality evidence; NNTB 11, 95% CI 9 to 19).
- 8 studies (814 participants) - low tidal volumes during surgery decreased the need for postoperative invasive ventilatory support (RR 0.33, 95% CI 0.14 to 0.80; I2 statistic 0%; NNTB 36, 95% CI 27 to 202; moderate quality evidence).
- 3 studies (650 participants) - no difference in ICU length of stay (standardized mean difference (SMD) -0.01, 95% CI -0.22 to 0.20; I2 statistic = 42%; moderate quality evidence).
- 8 studies (846 participants) - no difference in hospital length of stay (SMD -0.16, 95% CI -0.40 to 0.07; I2 statistic 52%; moderate quality evidence).

*See Also*: ESA Prize 2015 for Professor Marcus Schultz

A meta-regression showed that the effect size increased proportionally to the peak pressure measured at the end of surgery in the high volume group. No difference was found in the risk of pneumothorax (RR 2.01, 95% CI 0.51 to 7.95; I2 statistic 0%; low quality evidence)

The authors recommend further research to determine the maximum peak pressure of ventilation that should be allowed during surgery.

Image credit: freeimages.com

Published on : Tue, 22 Dec 2015