Lubrication of Endotracheal Tubes Reduces Aspiration Risk

Endotracheal intubation with a cuffed tube is thought to prevent pulmonary aspiration, but studies have shown that small amounts of liquids can bypass the cuff by following the longitudinal folds in the cuff wall. These investigators in the U.K. compared cuffs lubricated with water-soluble gel and nonlubricated cuffs in a laboratory model and in a randomized, double-blind, clinical trial.

The laboratory model used a rigid cylinder and a pig trachea. All of the nonlubricated cuffs leaked, but none of the lubricated cuffs did. In the clinical trial, 36 surgical patients were anesthetized using the standard technique and were intubated with an unlubricated tube or a tube lubricated with 5 of water-soluble gel. During anesthesia, 3.5 mL of diluted blue food dye was instilled in the subglottic space. After surgery but before extubation, the tracheal tube was suctioned and examined for presence of the dye. Constant cuff inflation pressure was maintained throughout. Eleven percent of the lubricated cuffs and 83 percent of the nonlubricated cuffs leaked. In a supplemental open study, 9 critically ill patients requiring tracheostomy were given lubricated cuffed tracheostomy tubes; a similar dye preparation was instilled daily, and routine tracheal suctioning was performed. The tubes began to leak a median of 48 hours after insertion.

Comment: These results support other data demonstrating that the cuffed endotracheal tube does not prevent aspiration. The findings represent a strong argument for routine application of water-soluble gel even when it is not required for lubrication alone.

— RM Walls

Published in Journal Watch Emergency Medicine October 4, 2001

CITATION(S):