TRUST: A Useful Tool for Assuring Correct Pediatric Endotracheal Tube Depth

Katherine Bakes, MD

*Ultrasound visualization of a saline-filled cuff at the level of the suprasternal notch was accurate for confirming correct tube depth.*

Investigators evaluated the accuracy of the tracheal rapid ultrasound saline test (TRUST) to confirm proper endotracheal tube (ETT) depth in children ages 3 months to 18 years undergoing intubation at an ambulatory surgery center. The TRUST technique identifies correct ETT depth by the visualization of a saline-filled cuff at the level of the suprasternal notch.

For each of 42 children (mean age, 6 years), an ETT was placed in the incorrect endobronchial position as well as at the correct tracheal depth (approximately 3 cm above the carina); placement was confirmed by fiberoptic bronchoscopy. With a 5- to 10-Hz linear transducer placed in a transverse orientation at the level of the suprasternal notch, ultrasound video recordings were taken at the time of intubation. These recordings were independently assessed by two ultrasound-trained emergency physicians.

Agreement on the presence or absence of a saline-inflated cuff was 97%. Visualizing the saline-inflated cuff at the level of the suprasternal notch to rule-in correct endotracheal position and rule-out endobronchial position yielded a sensitivity of 99%, specificity of 96%, positive predictive value of 97%, negative predictive value of 99%, positive likelihood ratio of 32, and negative likelihood ratio of 0.015. Time to visualization of the cuff ranged from 1 to 15 seconds (mean, 4 seconds).

**Comment:** The TRUST technique is an easy and accurate method for confirming proper positioning of ETTs in children. Providers who are required to intubate children should be familiar with this text and utilize it to prevent unnecessary hypoventilation, hypoxia, and barotrauma associated with bronchial intubation.

**Citation(s):**


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