End-Tidal CO₂ Superior for Confirmation of Tracheal Tube Placement

Unrecognized esophageal intubation is a catastrophe. End-tidal CO₂ determination (ET₇₀₂) and esophageal detection devices (EDD) have been shown to be effective, but these two methods have not been directly compared. This study from Austria compared ET₇₀₂ determination, EDD, auscultation, and transillumination using the Trachlight™ lighted stylet (TL). Investigators placed a second endotracheal tube in the esophagus of each of 38 consecutive tracheally intubated patients and then asked inexperienced senior medical students and experienced critical care physicians to assess tube placement. The tube and the method to be tested were selected in random order and the clinicians were unaware of which tube they were testing. Patients with severe respiratory insufficiency or shock were excluded.

Of the tubes tested, 74 were in the trachea and 78 were in the esophagus. The accuracy of the four methods as used by the inexperienced and experienced clinicians, respectively, was 100% and 100% for ET₇₀₂, 98% and 97% for EDD, 66% and 100% for auscultation, and 87% and 84% for TL. All cases of esophageal intubation were detected by both ET₇₀₂ and EDD and by both experienced and inexperienced clinicians.

Comment: Chest auscultation is operator-dependent and fallible. Failure to detect a single esophageal intubation is unacceptable. This study reinforces the importance of using ET₇₀₂ to confirm correct tube placement and supports other studies that suggest this method is superior to all others.

— RM Walls

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