SCOTI Device Fails a Crucial Test

The sonomatic confirmation of tracheal intubation (SCOTI) is a new device that uses an audible sound wave to determine whether an endotracheal tube is in the esophagus or trachea. The device is attached to the proximal end of the tube and an audible-frequency sound impulse is emitted. The sound waves return differently depending on whether the tube is in the trachea (open) or the esophagus (collapsed).

Investigators in India nasally intubated 120 ASA class I or II elective dental patients with one of three different types of endotracheal tubes. Tube placement was then evaluated with the SCOTI device, auscultation, and capnography (considered the gold standard). In a second phase, 12 patients with temporomandibular joint ankylosis were intubated nasally with a red rubber tracheal tube, and placement was verified the same way.

The SCOTI correctly identified only 86 of 120 placements (72%) in phase one and 9 of 12 (75%) in phase two. False negatives (tube in trachea, SCOTI indicates esophagus) and false positives (tube in esophagus, SCOTI indicates trachea) occurred in 32 (27%) and 2 (2%) patients, respectively, in phase one and in 3 (25%) and 0 (0%) patients, respectively, in phase two.

Comment: In two previous studies the device did better but not well, with an accuracy of 85% to 95%. Although false negatives are troublesome, false positive readings can be catastrophic if not verified with capnography. End-tidal CO₂ detection is widely available and highly reliable. At present there is no reason to use the SCOTI device.

— RM Walls, MD

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