

The utility of the pretracheal stethoscope in detecting ventilatory abnormalities during propofol sedation of children.

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Introduction: The pre-tracheal stethoscope (PTS) provides real time information about upper airway airflow and caliber. Consequently, PTS auscultatory findings may precede the changes seen with pulse-oximetry and capnography and may allow earlier recognition of respiratory compromise and timelier performance of an intervention. The objective of this study was to evaluate the diagnostic performance of the PTS in detecting sedation-related adverse respiratory events during propofol sedation of nonintubated children.

Methods: Prospective study in a pediatric sedation clinic of patients receiving propofol sedation. All children received supplemental oxygen and standard monitoring with pulse-oximetry, continuous capnography and PTS. A sedation-related adverse respiratory event was defined as stridor score ≥ 2 reported by the sedation provider (SP) or any change in pulse-oximetry and/or capnography accompanied by an appropriate intervention. SP and study investigator (SI) continuously listened to airway sounds using a dual head PTS. The SI was blinded to monitors and the PTS auscultation by the SP and recorded the time of occurrence of stridor score ≥ 2 . Patients and cardiorespiratory monitor were video recorded to correlate auscultation with changes in pulse oximetry, capnography and interventions. Two study investigators independently reviewed each video recording.

Results: One hundred children receiving propofol sedation from February, 2015 to February, 2016 were studied. 34 Sedation-related adverse respiratory events requiring an intervention occurred in 100 patients. The PTS detected 24 (70.5%) adverse respiratory events undetected by capnography or pulse-oximetry and 4 (11.7%) events before changes in capnography and/or pulse-oximetry were seen. Pulse-oximetry detected 3 (8.8%) adverse respiratory events before the PTS and 1 (2.9%) event missed by the PTS. Capnography detected 2 (5.8%) adverse respiratory events missed by the PTS.

Conclusions: The PTS is superior to pulse-oximetry and capnography in detecting most adverse respiratory events leading to an intervention during propofol sedation of nonintubated children.