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Novel use of a portable, non-powered, suction-generating device for management of life-threatening aerodigestive tract foreign bodies

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Abstract

Objective:

Foreign body aspiration causes thousands of deaths every year, particularly in children, the elderly, and adults with dysphagia. While operative techniques have been described for patients stable enough for transport to a medical facility, opportunity exists for improvement in pre-hospital management. Here we summarize data assessing a portable, non-powered, high suction-generating device which can be applied in the emergent resuscitation of patients suffering acute respiratory distress from foreign body aspiration.

Methods:

The PubMed and MEDLINE databases were comprehensively screened using broad search terms. All identified citations were reviewed systematically. Further product testing materials, published abstracts, and anecdotal case reports related to the device were reviewed. A summary is herein presented.

Results:

Laboratory testing demonstrated that this device generates peak airway pressures 8 to 10 times that of standard chest compressions and abdominal thrusts. A simulation study showed 94% reliability in retrieving upper aerodigestive tract foreign body. In a similar cadaveric study, there was 98% reliability in retrieving foreign bodies of varying sizes from the upper airway. The rate of success in both studies approached 100% with multiple attempts. Several case reports have also shown successful application in the emergent management of airway foreign body in elderly and dysphagia patients.

Conclusion:

Portable suction-generating devices may play an important role in the emergent, non-operative, pre-hospital management of upper aerodigestive tract foreign body aspiration, particularly in settings and populations with high choking risk. Further characterization of effectiveness and safety in larger cadaveric or simulation studies mimicking physiologic conditions is indicated. Poster #13001 - Page 106- Thursday April 19th, 2018