



First Aid Sub-Council (continued)

- Lih-Brody (2017), LifeVac: A Novel Apparatus for the Resuscitation of the Pediatric Choking Victim
 - Single center manikin trial to test the number of attempts for the LifeVac® to successfully dislodge an object from an airway of a Laerdal Choking Adolescent Simulator manikin.
 - LifeVac® had a 94.2% dislodgement success rate during the first attempt, 99.4% for the second attempt, and 100% for the third attempt.
- Juliano and Trupiano (2016): Assessment of the LifeVac, an anti-choking device, on a human cadaver with complete airway obstruction
 - Single center cadaver trial to test the number of attempts for the LifeVac® to successfully dislodge an object from an airway (Female, 71 y/o, BMI 25).
 - LifeVac® had a 98% dislodgement success rate during the first attempt and 100% for the second attempt.
- Saperstein (2018), Successful Use of a Novel Device Called the LifeVac to Resuscitate Choking Victims – Worldwide Results
 - Case Study (n = 10), 2 cases with 1 attempt, 1 Case with 2 attempts, 2 Cases with 3 attempts, 1 Case with 4 attempts, 4 Cases with unknown attempts.

The reviewers noted significant bias in all these studies:

- Lack of In Vivo Models: Training and simulation used a manikin or cadaver.
- Training Bias: Juliano (2016) used a trained paramedic and the Lih-Brody studies used manufacturer-trained responders.
- Industry Bias and Conflict of Interest: The inventor of LifeVac® (Arthur Lih) was the co-author of articles included in the Systematic Review.
- Confounding of Effect: Lack of comparator or case control for outcome assessment.

- Single Device Assessment: LifeVac®. There are other negative pressure anti-choking devices on the market but to date studies have only been conducted on LifeVac®.

Recommendations Guideline

Back blows and abdominal thrusts should be used as standard treatment for airway obstruction in the conscious person. (Weak recommendation, expert opinion)

Option

If standard treatment is not working or not feasible, anti-choking devices may be used for attempted removal of airway obstruction.

Discussion

A request to the Council to approve the recommendations came from the First Aid Sub-Council as a seconded motion and the SAC Co-Chair opened the floor to discussion. Extensive discussion followed, including a question about the possible risk of use of these devices in children. **There have been studies of the use of negative pressure anti-choking devices in multiple age groups, including children, with no documented harm.** However, these devices are new, there is considerable bias in the research, experts performed the foreign body removal in multiple cited studies, and only one anti-choking device has been studied thus far.

It was noted that the Red Cross has issued prior recommendations for foreign body removal. The First Aid Sub-Council will continue to follow the literature as evidence evolves but the preponderance of history and expert opinion is with traditional anti-choking treatments, as reflected in these recommendations.

Council Action

The Council voted unanimously to approve the recommendations.