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Editorial

A 'foreign body' in the 'foreign body airway obstruction' algorithm

Foreign body airway obstruction [FBAO] causes thousands of deaths yearly, particularly in vulnerable populations who have difficulty protecting their airway, such as the elderly or children.[1–3] Rapid bystander interventions can significantly improve survival. Specific manoeuvres, tailored to the age of the victim, have been part of consecutive resuscitation guidelines for more than 25 years.[4,5] However, despite FBAO being an important health problem, and many anecdotal reports of successful airway clearance, the evidence supporting these guidelines is of very low certainty and sometimes conflicting.[6–10] Recently, two devices[11,12] have become extensively commercialized as anti-choking devices. Both are non-powered portable suction devices, described by their manufacturers as easy to use, and safe and effective for all ages above 1 year of age. A mask is used to create a seal and then a strong negative pressure is generated by a plunger-type system to dislodge the foreign body and thus reopen the obstructed airway. One of them also has an oropharyngeal component similar to an oropharyngeal airway that needs to be positioned above the tongue and it is marketed as a clear replacement of the existing international guidelines. Both devices are Class 1 FDA registered as 'suction apparatus'. Such a simple registration is possible for low-risk devices. They are exempt from further FDA clearance (510 (k)) or formal approval and have not gone through a submission and evaluation process.

The rigorous systematic review of Dunne et al. on the scientific evidence of those devices only found papers about one of both devices (that without oropharyngeal component).[13] They included five studies, four of which were not included in the very recent COSTR review by the ILCOR BLS taskforce.[14] The authors recognized that as these devices are still novel, comparison data may be limited, and with the aim of capturing as much information as possible and providing context for any support of these devices in humans, they also included studies without comparison, abstracts and mannequin and cadaver studies. As such, the current review should be considered an extension of the evidence presented in the ILCOR CoSTR.

The literature found about these devices is extremely limited and prone to serious bias (selection and reporting bias, outcome measurement issues, important industry involvement . . .). Data reporting is at best fragmentary and most often did not include potential adverse events. Such devices can create peak airway pressures 8–10 times those of standard chest compressions and abdominal thrusts.[15–18] They could also interfere with the ability to cough, especially in more vulnerable patients and might cause damage to upper airway structures or encourage aspiration of gastric contents. In particular, there is concern that the oropharyngeal component of one of the devices might push a foreign body deeper into the airway or in itself generate airway obstruction as is well described when people have used blind finger sweeps.[12] The immediate use of such a device might distract bystanders from performing the recommended steps of the current algorithm in a timely way.

Dunne et al. in their review, as well as the BLS ILCOR Taskforce both acknowledge the lack of evidence supporting these devices but do not make further recommendations to practitioners.[13,14] The ILCOR BLS taskforce also stated that the data were "insufficient to support the implementation of a new technology with an associated financial cost".

We would go further and advise against their current use outside of research. This is not different from many other new potentially promising emergency interventions, where true benefit has to be balanced with appreciable harms and costs. If history has thought us one thing, it is to be wary of advertising slogans and implementation 'shortcuts'. We are very much aware that a lot of our actions and procedures are not informed by high-certainty evidence.[19] However, the minimal should be to have 'independent' 'scientific' data on use and outcomes in different patient groups and by different users, on risks and observed adverse events, on costs, and this both in experimental and subsequently 'real-life' settings. In doing so, researchers, clinicians and industry have a common interest, giving these devices their proper place (if any) in the FBAO algorithm and eventually improve the outcome for patients.

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