



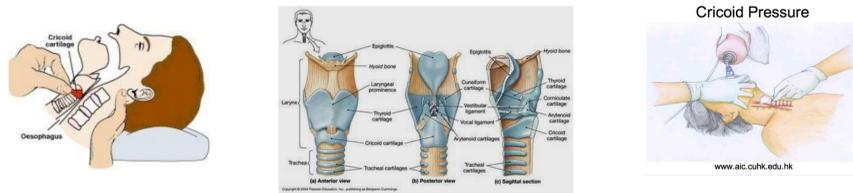
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Purpose

The purpose of this study was to assess the knowledge of certified registered nurse anesthetists (CRNAs) and student registered nurse anesthetists (SRNAs) at Wake Forest Medical Center regarding the effectiveness, value, and alternatives to the cricoid pressure technique, and possible alternatives that would safely achieve the same goal as this technique.

Literature Review

In 1961, British Anesthesiologist Brian Sellick published a description of a technique to occlude the esophagus of patients undergoing anesthesia as a means to prevent regurgitation and pulmonary aspiration of gastric contents. Although Sellick's publication referred only to a small case series, and not a controlled scientific investigation, his technique of applying pressure to the cricoid cartilage has become a widespread standard of care among anesthesia providers. Sellick described the correct way to perform this maneuver is to apply backward pressure of the cricoid cartilage against the bodies of the vertebrae without occluding the trachea (Sellick, 1961). However, more recent evidence calls the effectiveness of Sellick's maneuver into question. Studies show controversies on the amount of pressure that should be applied (Vanner & Pryle, 1997), uncertainties by personnel performing it (namely ICU and ED nurses) about the correct anatomical landmark the pressure should be applied to (Black, Carson, & Doughty, 2012), and that Sellick's maneuver may increase the risk of aspiration rather than decrease it (Garrard et.al, 2004) because the esophagus might not truly be completely occluded (Smith et. al, 2003).



Methods

An informal, anonymous survey was created on SurveyMonkey and sent out to a total of 100 CRNAs who worked at Wake Forest Baptist University Medical Center and 46 SRNAs who attended the Nurse Anesthesia Program at the Wake Forest School of Medicine in the Spring of 2016 which resulted in a response rate of 47.9%

Results

The results demonstrated that only 4.29% of respondents agreed that applying cricoid pressure occluded the esophagus greater than 75% of the time, 53.6% thought that it further diminished the view of the airway during laryngoscopy, and 98% of respondents knew at least one way in which it increased the risk for regurgitation. Furthermore, 76.2% answered that the main reason they performed Sellick's maneuver was because it is legally expected of them and not because of its medical benefits to patients.

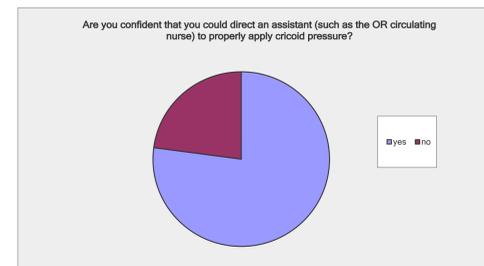


Figure 1.1

Answer Options	Response Percent	Response Count
less than 25%	35.7%	25
50%	45.7%	32
75%	14.3%	10
greater than 75%	4.3%	3

Answer Options	Response Percent	Response Count
It is legally expected of me	76.2%	48
It is the best way of preventing regurgitation	23.8%	15
Other (please specify)		7

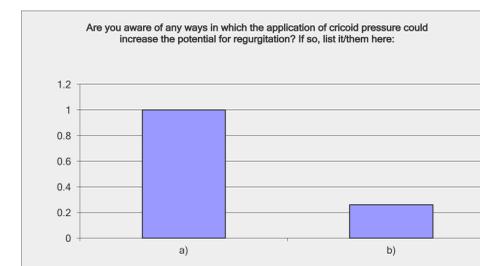


Figure 1.2

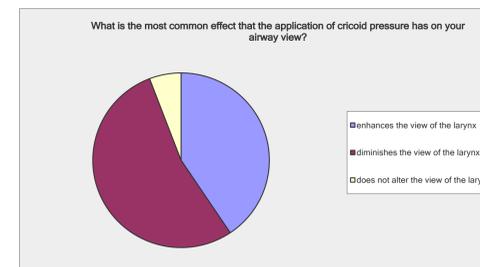


Figure 1.3

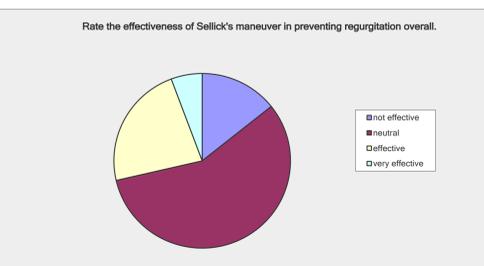


Figure 1.4

Participants provided a wide variety of substitutes to reduce the risk for regurgitation which could potentially be even more effective than Sellick's maneuver. Interestingly, 25.8% of respondents stated that reverse trendelenberg (or elevating the head of the bed) could be a suitable alternative, and another 25.8% suggested the use of nasogastric or orogastric tubes to suction stomach contents as an appropriate option. These were followed by the proposition to use proton pump inhibitors/bicitra/other medications to increase the stomach pH (19.35%), maintaining appropriate fasting guidelines for procedures (16.1%), the use of a different technique called backward, upward, right pressure, or BURP (12.9%), and refraining from mask ventilating the patient prior to intubation (6.45%).

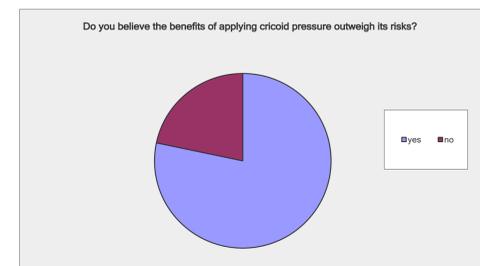


Figure 1.5

Over half of the respondents knew that this technique decreased lower esophageal tone (59.2%). They also agreed that if cricoid pressure could stimulate gag reflex/coughing/vomiting in awake patients (22.2%), and that, if the airway view was diminished, it could increase the time for intubation, or attempts of intubation which would then increase the risk for aspiration (14.8%). Some participants also stated that, "the esophagus is moved laterally most of the time, and not actually occluded by the maneuver" and that cricoid pressure gives a "false sense of security that regurgitation will not occur."

Evaluation

This unsafe technique is not only performed by CRNAs or SRNAs, but by OR, ICU, and ED nurses as well, and could potentially be putting patient's lives at risk each time it is performed. In a day where evidence-based practice is rife in the medical field, it is crucial for health care providers to re-evaluate this technique and implement more effective methods to prevent pulmonary aspiration.

Implications for Nursing Practice

What Does This Mean for Evidence Based Practice?

Cricoid pressure is not the only practice that is scientifically not beneficial to patients. There are many other practices in nursing that are lagging behind the science.

We must continue to push for our interventions to be backed by science and nurses must continue to accept and encourage change.

Nurses should continue to educate themselves and work together so we can best take care of our patients and keep them safe



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