Title: Cricoid Pressure During Intubation: Review of Research and Survey of Nurse Anesthetists

Tania A. Lalli, BSN
School of Nursing, University of North Carolina at Greensboro, Greensboro, NC, USA
Michael Rieker, DNP
School of Medicine, Nurse Anesthesia Program - Wake Forest School of Medicine, Winston Salem, NC, USA
Donald D. Kautz, PhD
Adult Health, School of Nursing, University of North Carolina Greensboro, Greensboro, NC, USA

Session Title: Scientific Posters Session 2

Keywords: Aspiration, Cricoid pressure and Effectiveness

References:


Abstract Summary:
This project assessed the knowledge of certified registered nurse anesthetists and student registered nurse anesthetists at a Premier Clinical Research University Medical Center regarding the effectiveness, value, and alternatives to the cricoid pressure technique during intubation, and possible alternatives that would safely achieve the same goal as this technique.

Learning Activity:

<table>
<thead>
<tr>
<th>LEARNING OBJECTIVES</th>
<th>EXPANDED CONTENT OUTLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>By the end of the presentation the audience will identify two ways in which applying cricoid pressure increases the risk for aspiration in patients</td>
<td>The cricoid pressure technique is believed to not completely occlude the esophagus when applied, and it also decreases the lower esophageal sphincter pressure when applied, increasing the risk for aspiration.</td>
</tr>
<tr>
<td>By the end of the presentation the audience will state two controversies which call into question the effectiveness of the maneuver</td>
<td>There are multiple controversies including if it increases the risk for aspiration, where the pressure should be applied, and how to correctly perform the technique with the precise amount of pressure needed to achieve the complete occlusion of the esophagus.</td>
</tr>
<tr>
<td>Participants will be able to verbalize two safer alternatives to cricoid pressure</td>
<td>Administration of proton-pump inhibitors, decompression of stomach contents through NG/OG tubes, reverse trendelenberg position during intubation.</td>
</tr>
</tbody>
</table>

Abstract Text:
Purpose: The purpose of this project was to assess the knowledge of certified registered nurse anesthetists (CRNAs) and student registered nurse anesthetists (SRNAs) at a Premier Clinical Research
University Medical Center regarding the effectiveness, value, and alternatives to the cricoid pressure technique during intubation, 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 research 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 Premier Clinical Research University Medical Center and 46 SRNAs who attended the Nurse Anesthesia Program in the School of Medicine in the same university 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 larygoscopy, 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.

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 the expected norm, it is crucial for health care providers to re-evaluate this technique and further study and then implement more effective methods to prevent pulmonary aspiration, including: administering proton-pump inhibitors, decompression of stomach contents with nasogastric tubes, and placing patients in the reverse trendelenburg position during intubation.

References


