

The Use of a Novel Visual Kinetic Demonstration Technique in Student Skill Acquisition of the Sellick Cricoid Force Manoeuvre

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Abstract : The Sellick manoeuvre a.k.a the application of cricoid force (CF), was first described by Brian Sellick in 1961. CF is the application of digital pressure against the cricoid cartilage with the intention of posterior force causing oesophageal compression against the vertebrae. This is designed to prevent passive regurgitation of gastric contents, which is a major cause of morbidity and mortality during emergency airway management inside and outside of the hospital. To the authors knowledge, there is no universally standardised training modality and, therefore, no reliable way to examine if there are appropriate outcomes. If force is not measured during training, how can one surmise that appropriate, accurate, or precise amounts of force are being used routinely. Poor homogeneity in teaching and untested outcomes will correlate with reduced efficacy and increased adverse effects. For this study, the accuracy of force delivery in trained professionals was tested, and outcomes contrasted against a novice control and a novice study group. In this study, 20 operating department practitioners were tested (with a mean experience of 5.3years of performing CF). Subsequent contrast with 40 novice students who were randomised into one of two arms. 'Arm A' were explained the procedure, then shown the procedure then asked to perform CF with the corresponding force measurement being taken three times. Arm B had the same process as arm A then before being tested, they had 10, and 30 Newtons applied to their hands to increase intuitive understanding of what the required force equated to, then were asked to apply the equivalent amount of force against a visible force metre and asked to hold that force for 20 seconds which allowed direct visualisation and correction of any over or under estimation. Following this, Arm B were then asked to perform the manoeuvre, and the force generated measured three times. This study shows that there is a wide distribution of force produced by trained professionals and novices performing the procedure for the first time. Our methodology for teaching the manoeuvre shows an improved accuracy, precision, and homogeneity within the group when compared to novices and even outperforms trained practitioners. In conclusion, if this methodology is adopted, it may correlate with higher clinical outcomes, less adverse events, and more successful airway management in critical medical scenarios.

Keywords : airway, cricoid, medical education, sellick

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