50 Years Landmark of Cricoid Pressure: Are We Achieving Adequate Force of Application?

Abstract Type: Original Research
Manish Bhardwaj, M.D., FRCA; Paul Greig, FRCA; Mansukh T. Popat, FRCA
Oxford Radcliffe Hospitals NHS Trust

Background: 2011 marks the 50th anniversary of the description of CP by Sellick. Application of an appropriate force at correct site and direction for appropriate duration are crucial factors during rapid sequence induction. Difficult Airway Society UK recommends a force of 30N, but the magnitude of the applied force is one of the most difficult factors to judge. Excessive force may obscure the view at laryngoscopy while suboptimal force may be insufficient to protect from regurgitation and aspiration1. Various commercial bench training tools are available2. We describe a novel modified 50-ml syringe to train anaesthetic nurses (ANs) to apply optimum CP.

Material and Methods: A graduated 60 ml syringe was modified by mounting 'Plaster of Paris' cast on the plunger to mimic thyroid and cricoid cartilages. Colored strips were placed along the barrel to indicate appropriate, excessive (>35N) or inadequate (<28N) force. The change in volume with application of CP to the plunger was converted to a force using a neonatal weighing machine. A target of 28-35N force was used in this study. 20 ANs were randomly recruited to participate in the study. Recruits completed a questionnaire assessing their theoretical knowledge of CP, and were placed into two groups based on practical exposure of application of CP. Group A (<5 CP/month) were compared with group B (>10 CP/month) to assess the amount of force applied and sustained over 1 minute using the modified syringe. All were reassessed after a practice session on the modified syringe.

Results: All ANs were aware of correct anatomical site and timing of application and release of CP. 7 ANs from group A correctly reported the force required compared to 9 in group B. 4 in group A and 2 in group B were unaware of the direction of force. Following results (table) were obtained before and after practice on modified syringe. Statistical analysis was performed using 2x2 tables to derive Yates corrected ‘p’ values as follows: (table)

Conclusion: Above model could be a cost effective, robust & reproducible training tool to learn the amount of force applied in CP for both experienced and less experienced anaesthetic nurses.

References: