Novel Approach to Teaching Maneuvers for Relieving Sedation-Related Laryngospasm

Author: T Riech, M Bramlet

Affiliation: Children's Hospital of Illinois and University of Illinois College of Medicine, Peoria, IL

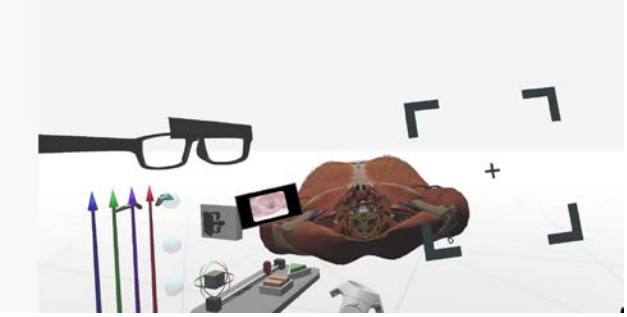
Introduction: Laryngospasm is an infrequent but dreaded complication of sedation in the pediatric population. Relief of complete and partial laryngospasm requires prompt recognition and rapid intervention using a systematic approach. We sought to build a virtual reality (VR), competency-based training module for portable and efficient training of a systematic method for relief of laryngospasm.

Methods:

Utilizing internally developed VR education software, (Enduvo, Inc. Peoria, IL), we built a training module in VR. The educational objectives were a) Discuss incidence, outcomes, and recognition of laryngospasm, b) describe maneuvers to correct laryngospasm, and c) perform a systematic and algorithmic approach to correct laryngospasm. The VR module employs a combination of 2D video, 3D models and adjuncts to achieve these objectives. The expert interacted within the virtual environment, imported diagrams and images as well as the 2D filmed footage to create a customized VR learning experience.

Results:

We successfully built a VR experience targeting the stated objectives. The VR experiences consists of 3 modules focused on the learning objectives with competency measures.



Discussion:

VR holds the promise of creating more effective and efficient training in an asynchronous digital media format. This format allows for scalable distribution of training complete with competency training metrics to better meet the challenge of distributing specific sedation expertise. This emerging training modality shows promise for training sedation principles for a wide range of applications, which are difficult to simulate with conventional training modalities.

Refs:

1. Olsson GL, Hallen B. Laryngospasm during anaesthesia. A computer-aided

incidence study in 136,929 patients. Acta Anaesthesiol Scand 1984; 28:567–75
2. Green, SM, Roback, MG, Krauss, B. Laryngospasm During Emergency Department Ketamine Sedation: A Case-Control Study. Pediatric Emergency Care: Nov 2010 - Volume 26 - Issue 11 - p 798-802. doi: 10.1097/PEC.0b013e3181fa8737
3. Visvanathan T, Kluger MT, Webb RK, Westhorpe RN. Crisis management during anaesthesia: laryngospasm. Qual Saf Health Care 2005; 14: e3
4. Gavel, G, WalkerR, Laryngospasm in Anesthesia. *Continuing Education in Anaesthesia, Critical Care & Pain,*vol 14, no 2, 2014