

7th European Pediatrics and Pediatric Surgery

September 14-16, 2016 Amsterdam, Netherlands

Variability in quality of chest compressions provided during simulated cardiac arrest across 9 pediatric institutions

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The variability in quality of CPR provided during cardiac arrest across pediatric institutions is unknown. We aimed to describe the degree of variability in the quality of CPR across 9 pediatric institutions and determine if variability across sites would be affected by just-in-time CPR training and/or visual feedback during simulated cardiac arrest. We conducted secondary analyses of data collected from a prospective, multi-center trial. Participants were equally randomized to either: (1) No intervention; (2) real-time CPR visual feedback during cardiac arrest or (3) just-in-time CPR training. We reported the variability in median chest compression depth and rate across institutions, and the variability in the proportion of 30-s epochs of CPR meeting 2010 American Heart Association guidelines for depth and rate. We analyzed data from 528 epochs in the no intervention group, 552 epochs in the visual feedback group, and 525 epochs in the JIT training group. In the no intervention group, compression depth (median range 22.2-39.2 mm) and rate (median range 116.0-147.6 min⁻¹) demonstrated significant variability between study sites ($p<0.001$). The proportion of compressions with adequate depth (0-11.5%) and rate (0-60.5%) also varied significantly across sites ($p<0.001$). The variability in compression depth and rate persisted despite use of real-time visual feedback or JIT training ($p<0.001$). The quality of CPR across multiple pediatric institutions is variable. Variability in CPR quality across institutions persists even with the implementation of a just-in-time training session and visual feedback for CPR quality during simulated cardiac arrest.

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Traumatic chest injury in children: A single thoracic surgeon's experience in two Nigerian tertiary hospitals

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Background: This study was to determine the extent and outcome of childhood chest injury in Nigeria, and to compare results with that of other literatures.

Patients & Methods: A Prospective study of all children under 18 years of age with chest trauma in two tertiary hospitals in Southern Nigeria from January 2012 to December 2014 was reviewed. The aetiology, type, associated injury, mechanism, treatment and outcome were evaluated. The patients were followed up in the clinic. The data were analyzed using SPSS version 20.0 with a significant $P<0.05$.

Results: Thirty-one patients (12.1%) under 18 years of age of 256 chest trauma patients were managed in the thoracic units. The mean age was 9.78 ± 6.77 years and 27 (87.1%) were male. The aetiology in 13 was from falls, 10 from automobile crashes, 3 from gunshots, 4 from stabbing and 1 from abuse. The highest peak of chest injury was on Saturday of the week and April of the year. The pleural collections are as follows: 15 (71.4%) was haemothorax, 4 (19.1%) pneumothorax, 2 (9.5%) hemothorax and 18 patients had lung contusion in combination or alone with the pleural collections. Seven patients who presented >12-h versus 2 who presented <12-h and 6 of children between 0 and 9 years versus 3 at 10-18 years of age had empyema thoracis (P value not significant). One death was recorded.

Conclusion: Chest trauma in children is still not common, and blunt chest injury from falls and automobile accidents are more common than penetrating chest injury. Treatment with tube thoracotomy is the major management modality with empyema thoracis as the most common complication.

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