Abstracts from international Emergency Medicine journals

Editor's note: EMJ has partnered with the journals of multiple international emergency medicine societies to share from each a highlighted research study, as selected by their editors. This edition will feature an abstract from each publication.

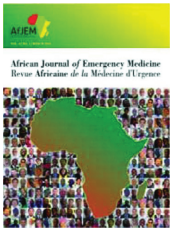
Ellen J Weber

African journal of Emergency Medicine

The official journal of the African Federation for Emergency Medicine, the Emergency Medicine Association of Tanzania, the Emergency Medicine Society of South Africa, the Egyptian Society of Emergency Medicine, the Libyan Emergency Medicine Association, the Ethiopian Society of Emergency Medicine Professionals, the Sudanese Emergency Medicine Society, the Society of Emergency Medicine Practitioners of Nigeria and the Rwanda Emergency Care Association

Development of a trauma and emergency database in Kigali, Rwanda

Kearney AS, Kabeja LM, George N, Karim N, Aluisio AR, Mutabazi Z, Uwitonze JE, Nyinawankusi JD, Byiringiro JC, Levine AC



Introduction Injuries account for 10% of the global burden of disease, resulting in approximately 5.8 million deaths annually. Trauma registries are an important tool in the development of a trauma system; however, limited resources in low- and middle-income countries (LMIC) make the development of high-quality trauma registries challenging. We describe the development of a LMIC trauma registry based on a robust retrospective chart review, which included data derived from prehospital, emergency centre and inpatient records.

Methods This paper outlines our methods for identifying and locating patients and their medical records using pragmatic and locally appropriate record linkage techniques. A prehospital database was queried to identify patients transported to University Teaching Hospital – Kigali, Rwanda from December 2012 through February 2015. Demographic information was recorded and used to create a five-factor identification index, which was then used to search OpenClinic GA, an online open source hospital information system. The medical record number and archive number obtained from OpenClinic GA were then used to locate the physical medical record for data extraction.

Results A total of 1668 trauma patients were transported during the study period. 66.7% were successfully linked to their medical record numbers and archive codes. 94% of these patients were successfully linked to their medical record numbers and archive codes were linked by four or five of the five pre-set identifiers. 945 charts were successfully located and extracted for inclusion in the trauma registry. Record linkage and chart extraction took approximately 1256 hours.

Conclusion The process of record linkage and chart extraction was a resource-intensive process; however, our unique methodology resulted in a high linkage rate. This study suggests that it is feasible to create a retrospective trauma registry in LMICs using pragmatic and locally appropriate record linkage techniques.

Annals of Emergency Medicine

Official Journal of the American College of Emergency Physicians

Interpretation of cerebrospinal fluid white blood cell counts in young infants with a traumatic lumbar puncture

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Study objective We determine the optimal correction factor for cerebrospinal fluid WBC counts in infants with traumatic lumbar punctures.

Methods We performed a secondary analysis of a retrospective cohort of infants aged 60 days or younger and with a traumatic lumbar puncture (cerebrospinal fluid RBC count ≥10 000 cells/mm^3) at 20 participating centres. Cerebrospinal fluid pleocytosis was defined as a cerebrospinal fluid WBC count greater than or equal to 20 cells/mm^3 for infants aged 28 days or younger and greater than or equal to 10 cells/mm^3 for infants aged 29 to 60 days; bacterial meningitis was defined as growth of pathogenic bacteria from cerebrospinal fluid culture. Using linear regression, we derived a cerebrospinal fluid WBC correction factor and compared the uncorrected with the corrected cerebrospinal fluid WBC count for the detection of bacterial meningitis.

Results Of the eligible 20 319 lumbar punctures, 2880 (14%) were traumatic, and 33 of these patients (1.1%) had bacterial meningitis. The derived cerebrospinal fluid RBCs:WBCs ratio was 877:1 (95% CI (CI) 805 to 961:1). Compared with the uncorrected cerebrospinal fluid WBC count, the corrected one had lower sensitivity for bacterial meningitis (88% uncorrected versus 67% corrected; difference 21%; 95% CI 10% to 37%) but resulted in fewer infants with cerebrospinal fluid pleocytosis (78% uncorrected versus 33% corrected; difference 45%; 95% CI 43% to 47%). Cerebrospinal fluid WBC count correction resulted in the misclassification of 7 additional infants with bacterial meningitis, who were misclassified as not having cerebrospinal fluid pleocytosis; only 1 of these infants was older than 28 days.

Conclusion Correction of the cerebrospinal fluid WBC count substantially reduced the number of infants with cerebrospinal fluid pleocytosis while misclassifying only 1 infant with bacterial meningitis of those aged 29 to 60 days.

Emergencias

Official Journal of the Spanish Society of Emergency Medicine (SEMES)

Efficacy and safety of endotracheal intubation performed in moving versus motionless environments

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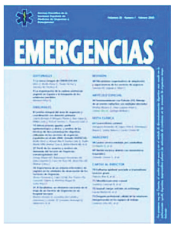

Objective To compare the efficacy and safety of endotracheal intubation (ETI) in a simulated clinical environment in motion versus a motionless one.

Method Clinical simulation trial of ETI with 3 endotracheal tubes (Airtraq, Fast-trach, Macintosh laryngoscope) in mannequins with realistic physiological responses (MetiMan) in 2 scenarios: an environment in motion versus a motionless one. Thirty- six physicians expert in prehospital ETI participated. Outcome variables were successful intubation, effective intubation, number of attempts, maximum apnea time, and total manoeuvre time. The safety variables were the presence of bradycardia, tachycardia, or high or low systolic blood pressures (ie, 20% variation from baseline); hypoxemia (decrease in oxygen saturation to <90% or 10% below baseline), tube placement in the oesophagus or main bronchus, and dental trauma.

Results No statistically significant differences between the 2 scenarios were found in the numbers of successful ETI (motionless, 71 (65.7%); in motion, 67 (62.0%); p=0.277) or effective ETI (motionless, 104 (96.3%); in motion, 105 (97.2%); p=0.108). Likewise, the number of attempts were similar (motionless, 91 (84.2%); in motion, 90 (83.3%); p=0.305). Nor did we see differences in the mean (SD) maximum apnea times (motionless, 14.0 (5.6) seconds; in motion, 14.9 (8.1) seconds; p=0.570) or mean total manoeuvre times (motionless, 236.7 (73.4) seconds; in motion, 210.3 (77.9) seconds; p=0.164). The prevalences of bradycardia, tachycardia, high or low systolic blood pressure, hypoxemia, placements in the oesophagus or bronchus, and dental trauma also did not differ significantly between the 2 scenarios.

Conclusion Neither efficacy nor safety variables differed significantly when ETI was performed in mannequins in a motionless environment versus one simulating ambulances in motion.