

3D.002 DELAYS AND DETERMINANTS OF TRAUMATIC BRAIN INJURY CARE OUTCOME IN LOW-INCOME UGANDA

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Background Increasing traumatic brain injury (TBI) has paralleled need for decompression surgery for acute subdural (ASDH) and acute extradural haematoma (AEDH). Knowledge of key determinants of clinical outcomes inclusive of delays is mandatory to guide treatment protocols.

Objective To determine the thirty-day clinical outcomes and predictor variables for patients with extra-axial haematoma at Mulago National Referral Hospital in Uganda.

Methods Prospective observational cohort study of 109 patients with Computed Tomography (CT) confirmed extra-axial haematoma. Ethical Clearance was obtained from School of Medicine Research and Ethics Committee of Makerere University (REC REF. 2018–185). Admitted patients were followed-up for Glasgow Outcome Scale (GOS) and final disposition. Multivariate regression analysis was performed using Stata 14.0 (StataCorp. 2015) at 95% confidence-interval, regarding $p < 0.05$ as statistically significant.

Results No participant received surgery within six hours of decision making. The overall proportion of favourable outcome was 71.7% ($n=71$), with 42.3% ($n=11$) and 81.7% ($n=58$) for ASDH and AEDH respectively ($p=0.111$). Factors associated with a favourable outcome were: Admission Systolic BP > 90 mmHg [IRR=0.88 (0.26–0.94) 95%CI, $p=0.032$], Oxygen saturation $> 90\%$ [IRR=0.5 (0.26–0.94) 95%CI, $p=0.030$] and Diagnosis AEDH [IRR=0.53 (0.30–0.92) 95%CI, $p=0.025$]. Moderate [IRR=4.57 (1.15–18.06) 95%CI, $P=0.03$] and severe TBI [IRR=6.79 (2.32–19.86) 95%CI, $p < 0.001$] were associated with unfavorable outcomes.

Conclusion The study revealed that amidst delays, post resuscitation GCS, Systolic BP, Oxygen circulation and diagnosis of AEDH at admission, are the most important determinants of outcome for patients with extra-axial intracranial haematoma. These findings are valuable for triaging teams in resource constrained settings.

3D.003 ASSESSMENT OF TRAUMA PATIENTS FOR THE DEVELOPMENT OF TRAUMA PROTOCOL IN NEPAL

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Background National Trauma Center is the only specialized trauma care hospital in Nepal in operation since 2012. In absence of a standard, trauma care protocol, the patients attending the hospital are separated by a team of medical officer and nurses at Emergency Department into four colour-coded triage categories of Red, Amber, Green and Black. This study contributes to the development of a standard trauma

protocol by assessing the injuries and outcomes of the patients.

Methods We included all patients presented Emergency Department with at least one trauma during Jan 2019 to Dec 2019. Patients Demographic details, vitals, laboratory tests, radio imaging records and clinical examination were entered in hospital software and stored in the hospital database. The data were extracted from the database with the permission of the hospital authority.

Results Total of 18,985 patients was presented in the emergency department with different types of injury. Among them, 2,663 (14.0%) were needed special care and treated in inpatient wards. Fall and road crash comprised almost 80% of admitted cases. Mortality was 2.1% of admitted patients, mostly with head injuries followed by multiple injuries.

Conclusion Disproportionately high cases of fall and road crash warrant a standard protocol for treating them. The proportion of death is also significant which indicates a need for ambulatory Emergency Medical Services in order to stabilise patients.

Learning Outcomes If there were a standard protocol for trauma management mortality could be minimised.

3D.004 PROCESS EVALUATION OF A CONCUSSION-RELATED POPULAR OPINION LEADER INTERVENTION

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Background A Popular Opinion Leader (POL) educational intervention was developed/implemented to improve concussion management in middle school (MS) sports. Parents/coaches/staff recruited as POLs received three online sessions including concussion education and concussion prevention/management conversation skills development. We assessed POLs' evaluations of the sessions and their resulting concussion-related conversations.

Methods The intervention occurred within seven MS in the Southeastern United States. MS parents/coaches/staff were recruited to participate in the training sessions (22 parents and 14 coaches/staff). One-month post-training, POLs completed an online questionnaire and/or in-person interview data evaluating their training and conversations. Quantitative data provided conversation frequencies and topic; qualitative data identified pertinent themes using template analysis.

Results Fifteen (41%; 7 parents, 8 coaches/staff) and six (17%; 1 parent, 5 coaches/staff) POLs completed questionnaires and interviews, respectively. Forty-one conversations were reported (average 2.6 per person). POLs commonly reported talking with their children (47%), spouse/partner (40%), and teachers/staff (33%); common discussion topics included concussion signs/symptoms (73%), responding to suspected concussion (67%), and playing safe to reduce concussion risk (60%). POL interviews identified trainings as concise, yet thorough. Conversations were initiated when potential concussions occurred during games. POLs felt knowledgeable and found people receptive to information. Talking to those with previous concussion experience was easier. POLs suggested additional trainings should provide easily shareable concussion recognition resources.

Conclusion POLs responded well to training session materials. Identified areas of improvement, such as providing shareable

concussion education materials, will further aid POLs with having conversations.

Learning Outcomes Describe how MS parents/coaches/staff evaluated concussion education training sessions.

3E – Road – Data, March 23, 2021

3E.001 ASSESSING THE REAR-END CRASHES CHARACTERISTICS ON A RURAL MULTILANE EXPRESSWAY IN INDIA

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Expressways are rural multilane intercity highways which are being built rapidly lately in India. As per Indian government data, the recorded deaths on intercity highways such as national highways (NHs) and expressways are 36% of the total fatalities on Indian roads in 2018. However, the contribution of NHs in total road network length is 1.94%, whereas the existing length of operational expressways in India so far is unknown. Hence safety of rural multilane intercity highways such as expressways is a significant concern in India and need to be investigated. In this study first objective was to assess the characteristics of the rear-end crashes of the 165 km long rural multilane intercity expressway using the crash data from August 2012 through October 2018. The second objective was to identify the factors affecting rear-end crashes using random parameter count model. The factors considered are geometric design elements, service lane status and access points density. Results show that rear-end crashes constitute 49% of the total fatal crashes and 34% of the total non-fatal crashes. Besides, it was also revealed that truck-involved and car-involved crashes are prominent rear-end crash types. Also, truck-strike-truck and car-strike-car crashes have the highest number of cases for both fatal and non-fatal rear end crashes. There exists variation in the safety of horizontal curve segments as compared to linear segments. However, linear sections were having more rear-end crashes comparatively. At the end, possible interventions were discussed according to the findings to reduce the rear-end crashes on the expressway.

3E.002 IDENTIFYING MODIFIABLE FACTORS RELATED TO NOVICE DRIVER FAULT IN MOTOR VEHICLE COLLISIONS

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Background Motor vehicle collision is a leading cause of injury and mortality in teens. Graduated drivers licensing (GDL) is a common practice to help mitigate risk associated with younger and inexperienced drivers. However, gaps and inconsistencies exist across regions in how restrictive GDL rules are.

Methods This study used police collision report data from Alberta, Canada for the years 2010–2016. An automated, previously validated, culpability analysis tool was applied to collisions involving drivers between 16 and 19 years of age to score fault. Factors that increase odds of fault in all-collisions were identified using logistic regression.

Results There were 45,938 motor vehicle collisions involving young drivers. of these, approximately 71% of young drivers were identified as at-fault. Crude analyses indicate that driving between 2300 hrs and 600 hrs increase odds of being at-fault (OR= 1.39; 95% CI: 1.27–1.51). Odds of being at-fault in collision were lower with the presence of an adult passenger over 20 years of age (OR= 0.62; 95% CI: 0.57–0.67) or a single peer of similar age (OR= 0.90; 95% CI: 0.83–0.97). Other passenger categories (younger passenger or multiple teens) were not significantly associated with young driver culpability.

Conclusion Passenger type and time of day may both be contributing to young driver fault in collisions. Future directions include multivariable analysis as well as analysis on teen driver fault in severe injury collisions.

Learning Outcomes There exists a potential opportunity for policy regulations that may modify or reduce exposure to factors contributing to teen driver culpability in motor vehicle collisions.

3F – WHS – Hazard and Risk, March 23, 2021

3F.001 ANALYSING SUBJECTIVE INCIDENT DATA TO GUIDE STRATEGY

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Context Incident-reporting systems enable organisations to capture and analyse large volumes of occupational safety incidents. By counting and categorising hazard and incident reports, these systems are crucial to understanding broad organisational risk. However, these systems often ask incident 'victims' to pick from set categorical fields restricting the identification of micro-trends, local hazards and those not anticipated by the system designers. Qualitative data analysis is not a standard function of most large scale reporting systems, identifying local or unique hazards often occurs outside the reporting system relying on free-text comments. Addressing hazards in this manner is labour intensive and not often integrated into risk management pathways.

Process Cluster analysis using the freely available NODEXL software program provides means to analyse subjective incident data in a semi-quantitative manner. The data can self-categorise to form a picture of local level hazards. This presentation includes examples of this method used to analyse Workforce MSI, challenging behaviour and Mental Stress incident reports in Healthcare.

Outcomes A visual representation of qualitative incident data to inform local strategy.

A repeatable and targeted method of hazard ID.

The identification of new or unanticipated hazards and their interactions.