

Pan-Asian Trauma Outcomes Study (PATOS)

Pan-Asian Trauma Outcomes Study (PATOS): Rationale and Methodology of a multicenter, international registry

BACKGROUND Trauma is a global health concern, and its morbidity and mortality vary greatly between countries and within Asia. A multicenter, international registry of trauma can serve as a platform to stimulate comparative research and inform effective trauma policies and practices.

OBJECTIVES This study aims to: *ž* build an international, retrospective registry of trauma in Asia; *ž* describe and compare current incidence and outcomes of trauma across Asian communities; *ž* understand variations in risk factors (individual-, EMS- and hospital-based) and epidemiology of trauma; *ž* evaluate systemic and structural indices of trauma care and their impact on outcomes; *ž* calculate risk-adjusted standardized mortality rates of trauma in Asia; and *ž* improve trauma outcomes through community and system level interventions. **METHODS** The Pan-Asian Trauma Outcomes Study (PATOS) network was established in 2013 by 11 Asia-Pacific countries to build a retrospective registry of trauma. The network's goal is to integrate separately kept trauma data in Asia into a single, international registry. Data are collected from ambulatory service providers, emergency departments, and hospitals using standard protocols. Over the next 3 years of data collection, the network expects to enroll over 60 institutions for data contribution. Eligible cases are patients with injury of any severity, transported by ambulance and admitted to these participating institutions.

EXPECTED RESULTS The registry will be used for international comparisons of trauma risk factors, practices, and outcomes. Statistical models will also be constructed to estimate risks of morbidity and mortality in the Asia-Pacific region.

SIGNIFICANCE This international, multicenter model of trauma registry will construct comprehensive profile of the disease and explain vast variations that exist across different settings. An Asia-Pacific collaborative research network will inform effective interventional policies and ultimately optimize trauma outcomes globally.

Rationale and Methodology of a multicenter, international registry.

Comparison of trauma care systems of pan-Asian countries

Study Proposals

Publication Committee I: Trauma Epidemiology and Prevention (Chair: Goh E Shaun)

Is women treated differently from men in trauma : Asian perspective from PATOS

Pediatric Head Injury Surveillance in Asia – No Child's Play (Shu-Ling Chong)

The effect of prehospital hypoxia on outcome of patients with traumatic brain injury (Juhyun Song)

Association of On Scene Time and Total Prehospital Time with Mortality of Patients with Hypotensive versus Normotensive Traumatic Injury (Ki Jeong Hong)

A review of the impact of pelvic binders on mortality and morbidity in trauma patients (Fergal H.

Cummins, Alan M. Batt)

A review of the impact of traction splints on mortality and morbidity in trauma patients (Fergal H. Cummins, Alan M. Batt)

Publication Committee II: EMS Trauma Care (Chair: Wen-Chu Chiang)

Prediction of major trauma patients by physiologic criteria of the field triage protocol among age groups across Asia countries

Association Between Blood Pressure and Outcome of Patients with Severe Traumatic Brain Injury (Jen-Tang Sun)

Association Between Fluid Transfusion (kinds and amount) and Outcome of Patients with Major Trauma and Traumatic Shock (Li Min Hsu)

Publication Committee III: ED Trauma Care (Chair: Kentaro Kajino)

Surveillance of FAST and WBCT of Trauma Care in Asian ED (Jen-Tang Sun)

Publication Committee IV: Hospital Trauma Care (Chair: Sabariah Faizah Jamaluddin)

Association Between Timeliness and Outcome of Patients with Major Trauma (Wen-Chu Chiang)

A cross-national comparison of trauma scoring systems in Asia (Sabariah Faizah Jamaluddin)

Publication Committee V: Trauma System Monitoring (Chair: Kyoung Jun Song)

The prognostic factors for mortality in severe traumatic patients to emergency department at tertiary teaching hospital in Vietnam

Distributions of Glasgow Coma Scale scores across PATOS regions

Comparison of Quality of Trauma Care in Asia Across Pan-Asian Countries (Takaaki Suzuki).

Chong et al. performed a retrospective review of medical records among emergency departments (EDs) of eight PATOS centres, from September 2014 - August 2015.

They included children <16 years old who presented within 24 hours of head injury and were admitted for observation or required a computed tomography (CT) of the brain from the ED. We excluded children with known coagulopathies, neurological co-morbidities or prior neurosurgery. We reviewed the mechanism, intent, location and object involved in each injury, and the patients' physical findings on presentation.

Primary outcomes were death, endotracheal intubation or neurosurgical intervention. Secondary outcomes included hospital and ED length of stay.

1438 children were analysed. 953 children (66.3%) were male and the median age was 5.0 years (IQR 1.0-10.0). Falls predominated especially among children younger than 2 years (82.9%), while road traffic injuries were more likely to occur among children 2 years and above compared with younger children (25.8% vs 11.1%). Centres from upper and lower middle-income countries were more likely to receive head injured children from road traffic collisions compared with those from high-income

countries (51.4% and 40.9%, vs 10.9%, $p < 0.0001$) and attended to a greater proportion of children with severe outcomes (58.2% and 28.4%, vs 3.6%, $p < 0.0001$). After adjusting for age, gender, intent of injury and gross national income, traffic injuries (adjusted OR 2.183, 95% CI 1.448 to 3.293) were associated with severe outcomes, as compared with falls.

Among children with head injuries, traffic injuries are independently associated with death, endotracheal intubation and neurosurgery. This collaboration among Asian centres holds potential for future prospective childhood injury surveillance ¹⁾.

¹⁾

Chong SL, Khan UR, Santhanam I, Seo JS, Wang Q, Jamaluddin SF, Hoang Trong QA, Chew SY, Ong MEH. A retrospective review of paediatric head injuries in Asia - a Pan Asian Trauma Outcomes Study (PATOS) collaboration. BMJ Open. 2017 Aug 18;7(8):e015759. doi: 10.1136/bmjopen-2016-015759. PubMed PMID: 28821516.

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