

1665

IN PAEDIATRIC TRAUMA PATIENTS IS PREHOSPITAL BYPASS COMPARED TO SECONDARY TRANSFER ASSOCIATED WITH REDUCED HOSPITAL AND INTENSIVE CARE UNIT LENGTH OF STAY? A RETROSPECTIVE OBSERVATIONAL STUDY

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Aims, Objectives and Background In the UK over half of severely injured children are conveyed to a trauma unit (TU). A proportion of these are subsequently transferred to a major trauma centre (MTC). Most regional networks permit TU bypass to an MTC. However, data on patient-centered outcomes between models are limited. The objective of this study was to compare hospital and intensive care unit (ICU) length of stay (LOS) between bypass and secondary transfer cohorts.

Method and Design All paediatric trauma patients (meeting Trauma Audit Research Network (TARN) inclusion criteria) admitted to the East of England MTC (2015–2020) were included. Bypass was defined as >45min transport time to MTC; secondary transfer was defined as transfer from a TU <24hr. TARN data were cross-referenced with electronic

patient records to link pre-hospital data, complications, and timings. Data are reported as number (percentage), and median [inter-quartile range]. Proportions were compared with a Fisher's exact test, and medians with a Mann-Whitney U test; reported a p-values. Data were analysed in Prism 9 for macOS.

Results & Conclusion A total of 232 patients (n=58 bypass, n=174 secondary transfer) were included. The median age was 9.8 [4.5–13.7] years, n=156 (67.2%) were male, and the median injury severity score was 17.0 [10.0–25.0]; not significantly different between groups, table 1. The median time to definitive care was five hours greater in the TU cohort, table 1.

There was a significantly longer hospital LOS and ICU LOS in the bypass group, both $p < 0.001$.

We observed no difference in mortality at time of discharge between groups, but the secondary transfer cohort were more likely to have a good neurological recovery, table 1.

In this regional study of paediatric trauma, we found no evidence that bypass to an MTC was associated with better patient outcomes compared to secondary transfer, despite significant time delays in reaching definitive care.

1739

IMPROVING THE MANAGEMENT OF PAEDIATRIC ANGULATED UPPER LIMB FRACTURES IN THE EMERGENCY DEPARTMENT

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Background Upper limb fractures are common to the Paediatric Emergency Department (PED). Most angulated and/or displaced fractures are traditionally referred to the orthopaedic team to admit for manipulation under anaesthesia (MUA). The Emergency Department (ED) believes that their manipulations and associated analgesia are sub-optimal to those performed/given in theatre. This means a higher number of avoidable overnight paediatric admissions, long waiting times while fasting, and the theoretical risks of general anaesthesia and surgery.

Aims Reduce the number of hospital admissions for MUA from the PED by managing suitable upper limb fractures safely and appropriately. Encourage long-term changes in clinician readiness to manipulate suitable paediatric injuries.

Objectives

- Increase number of patients identified with upper limb fractures suitable for manipulation in PED
- Reduce number of patients in this cohort requiring admission to hospital for MUA

Method and Design A Plan-Do-Study-Act methodology was implemented. Adherence to our local policy was measured, specifically: inclusion/exclusion criteria, modes of analgesia and presence of a senior Orthopaedic doctor.

From October 2020 -June 2021, interventions were undertaken: a teaching package for Emergency Nurse Practitioners and doctors, posters placed in the PED, meetings with key stakeholders including the orthopaedic team and the introduction of a new departmental guideline. Data was collected between June 2021–September 2021 to see if results were maintained.

Abstract 1665 Table 1 Comparison of Bypass and Secondary Transfer cohorts, n= 232

	Bypass	Secondary Transfer	
n	58	174	-
Age (years)/median [IQR]	9.4 [5.3–13.5]	10.0 [3.8–13.7]	$p=0.73$
Male sex/n (%)	37 (63.8%)	119 (68.4%)	$p=0.52$
ISS/median [IQR]	20.0 [10.8–29.0]	16.0 [10.0–25.0]	$p=0.067$
Pre-hospital			
MTTT +/n (%)	55 (94.8%)	28 (16.1%)	$p < 0.0001$
HEMS team/n (%)	54 (93.1%)	21 (12.1%)	$p < 0.0001$
Time to MTC (minutes)/median [IQR]	117.6 [100.8–136.8]	418.8 [315.6–529.8]	$p < 0.0001$
MTC			
Trauma team reception/n (%)	48 (82.8%)	60 (34.5%)	$p < 0.0001$
Outcomes			
GOS 1 (death)/n (%)	3 (5.2%)	7 (4.0%)	$p=0.71$
GOS 2/n (%)	0	0	-
GOS 3/n (%)	4 (6.9%)	1 (0.6%)	$p=0.02$
GOS 4/n (%)	21 (36.2%)	28 (16.1%)	$p=0.003$
GOS 5 (good)/n (%)	31 (53.4%)	137 (78.7%)	$p=0.0003$
LOS (days)/median [IQR]	8.5 [6.0–19.0]	5.0 [3.0–10.0]	$p < 0.0001$
ICU admit/n (%)	48 (82.8%)	126 (72.4%)	$p=0.16$
ICU LOS (for admits) (days)/median [IQR]	2.0 [1.0–6.0]	1.0 [1.0–3.0]	$p=0.0006$
*Major complication/n (%)	6 (10.3%)	19 (10.9%)	$p > 0.99$

Abbreviations GOS = Glasgow Outcome Score ICU = Intensive Care Unit ISS = Injury Severity Score IQR = Interquartile Range LOS = Length of stay MTTT = Major Trauma Triage Tool MTC = Major Trauma Centre TU = Trauma Unit
*Major Complication = Occurrence of any of the following during admission: pneumonia, PE, ARDS, sepsis, post-op complication, post-op haemorrhage, convulsion, CNS infection, wound dehiscence