



**ORIGINAL RESEARCH PAPER**

**Neurosurgery**

**LENGTH OF STAY IN PEDIATRIC PATIENTS WITH TRAUMATIC BRAIN INJURY**

**KEY WORDS:** Traumatic Brain Injury, Pediatric Head Injury, Length of Stay, Outcome

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<b>ABSTRACT</b>	<b>INTRODUCTION:</b> Traumatic brain injury (TBI) is one of the most devastating types of injury. It affects all ages; however majority of road traffic injuries (RTI) occurs in young adults of productive age group.
	<b>BACKGROUND:</b> The quality of pre-hospital and emergency room care is an extremely important determinant of outcome in trauma patients. Trauma presents with variety of injuries and problems that demand rapid evaluations, discussion, improvisation and interventions to save life and prevent permanent disabilities.
	<b>MATERIALS AND METHODS:</b> . 41 consecutive patients were included in the study irrespective of the mode of injury or admitting GCS. The length of stay was determined from the date of admission to the day of discharge/death.
	<b>RESULTS:</b> . The average age of the study group was 6.19. The age group ranged from 1 to 11 years of age. The average duration of stay was 9.5. It ranged from 1 day to 35 days. Of them 39 patients were discharged having made varying degrees of recovery.
	<b>CONCLUSION:</b> Prevention and care of injury is a multidisciplinary area and requires inter-sectoral coordination for planning.

**1. INTRODUCTION**

Traumatic brain injury (TBI) is one of the most devastating types of injury. It affects all ages; however majority of road traffic injuries (RTI) occurs in young adults of productive age group. As per report by the ministry of road transport, Government of India (2007) 1.4 lakhs road accident happened in 2007 with 40,612 people killed and 1.5 lakhs people injured.[1] Hence, India is leading the world in fatalities due to road accidents. TBI is also associated with significant socioeconomic losses in India as well as in other developing countries.[1,2]

Traumatic brain injury (TBI) in a child can have life-long consequences. The sequelae following a pediatric TBI may manifest as physical and cognitive conditions that reduce neurologic function and alter executive functioning (3). A TBI can also augment behavior by interfering with attentiveness, socialization, and adaptive post-injury function (4). Unfortunately, the impacts of a TBI are not limited to just the child. Families can be greatly affected by their child's TBI and the family environment post injury can play a role in a child's functional outcome (5)

There is increasing evidence that TBI can generate a large burden on caregivers. Research has described caregiver burden was associated with family stress, psychological and emotional sequelae in addition to unmet requests for follow-up health care and/or social service supports (6, 7, 8,9,10)

**2. BACKGROUND**

In children younger than 15 years, head injury is the leading cause of mortality[11,12] Worldwide it is a major public health problem and is predicted to surpass many diseases as a major cause of death and disability by the year 2020.[13] The majority (60%) cases are due to road traffic injuries (RTI), followed by falls (20-25%) and violence (10%).[14]The computed tomography (CT) classification for TBI yields important prognostic information. It provides an objective assessment of the structural damage to brain following TBI. Individual CT characteristics are important predictors of outcome in TBI. Despite various advances in radiology, CT remains the investigation of choice in case of suspected TBI. Treatment plan and prognostication can also be done easily. Cases of head injury with fracture tend to have more complication and are more often fatal than those without fracture.

The quality of pre-hospital and emergency room care is an extremely important determinant of outcome in trauma patients. Trauma presents with variety of injuries and problems that demand rapid evaluations, discussion, improvisation and interventions to save life and prevent permanent disabilities.

**3. MATERIALS AND METHODS**

Our retrospective study was carried out in the emergency department of government general hospital for a period of one year. 41 consecutive patients were included in the study irrespective of the mode of injury or admitting GCS. The length of stay was determined from the date of admission to the day of discharge/death. Outcomes were studied with respect to duration of stay and the age of the patient. All patients underwent CT scans upon admission and were treated on existing protocols. All consultations, medicines administered and surgeries performed were free of cost and the imaging facilities were offered at highly subsidized rates. Data was collected and analysed with MS excel and statistical studies done with SPSS software.

**4. RESULTS**

In our study, a total of 41 patients were included. The average age of the study group was 6.19. The age group ranged from 1 to 11 years of age. The average duration of stay was 9.5. It ranged from 1 day to 35 days. Of them 39 patients were discharged having made varying degrees of recovery. The average age of those that were discharged was 6 yrs. The age group ranged from 1 year to 11 years. The mean duration of stay was 13.5 days. It ranged from 1 day to 35 days. Two patients absconded from the ward during the course of study. Their average age was 5.5 and it ranged from 4 to 7 years. The average duration of stay was 3.5 days. It ranged from 1 day to 6 days. We were not able to establish a statistically significant association between the outcome and duration of stay.

**5. CONCLUSIONS**

Our study was able to assess the average LOS for patients with traumatic brain injury and was also able to correlate between outcome and the LOS. Also, it outlines the need to address the existing lacunae in the management of TBI and the need to implement known and proven control measures. In India injury patterns/modes are different from the developed nations. We are in a fast transient phase of development with a wide gap between large poor population and rich people. The present health infrastructure is not able to meet the demand of common people, further aggravated with the ever expanding slum population in urban areas. Prevention and care of injury is a multidisciplinary area and requires inter-sectoral coordination for planning.

Prompt treatment of head injuries involves immediate GCS, radiological evaluation, surgical intervention and intensive care in all appropriate cases, as the first few minutes are crucial for the final outcome. Surgeons should follow the general management plan — Resuscitation, Review and then Repair. The Advanced

Trauma Life Support (ATLS) guidelines should be adhered to, while treating all cases of suspected head injury.

By improving our system with better reporting and documentation of cases, we will be able to make a better plan to decrease the incidence of TBI and their timely appropriate multimodality approaches to achieve better outcome of these cases within our limited resources. Given the complexity of geopolitical structures and the intricate micro environments facilitated by the heterogeneity, the solutions to address the issues should be tailored to suit the local sociocultural milieu for better acceptability.

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