Research Article

Frequency and Etiology of Pediatric Trauma, Experience at Tertiary Care Hospital

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Abstract: Objective: To determine etiology and spectrum of trauma in children and to make recommendations for its prevention.

Materials and Methods: This Hospital based Retrospective observational study was conducted in department of pediatric surgery King Edward medical university / Mayo hospital Lahore from March 2021 to February 2022. All patients presented in Pediatric Surgical emergency King Edward Medical University/ Mayo Hospital Lahore were included in this study. Data regarding age, gender, mechanism and severity of trauma and its management was analyzed and recorded on a prescribed Performa.

Results: During the study period a total of 3850 patients having trauma were presented in pediatric surgical emergency. There were 2206(57.3%) male patients and 1644(42.7%) females with male to female ratio of 1.3:1. Majority of children affected were 8 to 10 years age. Burn trauma was noted in 2400(62.3%) while 1450(37.7%) patients have poly trauma due to different etiological factors. Regarding burn trauma, majority of patients 1620 (67.5%) were having scald burn injury.Pedestrians (260(17.9%) hitting with motor vehicle was noted to be major mechanism of trauma.

Conclusion: Motor vehicle collision is most common mechanism of pediatric trauma.There is a need for parental education and strict implementation of traffic laws to prevent trauma at pediatric age group.

Keywords: Pediatric, Trauma, Etiology, Outcome, Management, Mortality.

INTRODUCTION

Trauma is recognized as major the cause of morbidity and mortality in children [1-3]. Trauma can either be blunt or penetrating depending on its etiology [4]. Road traffic accidents and burn injuries are major cause of trauma in children [5]. There is a need for vigilant assessment and management. According to one survey conducted at tertiary care hospital showed that road traffic accident is a major cause of mortality and morbidity in children. In Pakistan trauma is one of the most common causes of death in pediatric population [6-8]. Mayo hospital Lahore is one of the major tertiary care hospitals in country receiving all kinds of pediatric trauma. There is a need to know etiology, mechanism of injury, management and outcome of trauma in children. Therefore this study was done to improve the care of such patients.

MATERIALS AND METHODS

This retrospective single centre study was done at department of pediatric surgical emergency King Edward Medical University/ Mayo hospital Lahore from March 2021 to February 2022. As it is a retrospective study so the hospital record admission files were the main source of information. Data was collected including age, gender, clinical presentation at time of admission, geographical area of patient, type and mechanism of trauma. Clinical findings written on admission files were reviewed retrospectively and noted on a prescribed Performa and data was analyzed.

RESULTS

A total of 3850 patients having trauma with different etiology presented in department of pediatric surgical emergency. Regarding gender distribution there were 2206(57.3%) male patients and 1644(42.7%) females with male to female ratio of 1.3:1. Regarding age at time of presentation, there were 280(7.3%) patientswith age from 2 to 4 years, 800(20.8%) patients with age of 5 to 7 years. 1850(48.0%) patients with age range of 8 to 10 years and 920(23.9%) patients were in age range of 11 to 12 years (Fig.**1**).

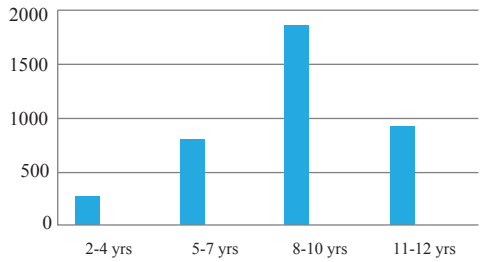

Fig.(1). Graph showing Age Range of Patients.

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Patients were divided into two groups. There were 2400(n=1)) patients with burn trauma and 1450(n=2) patients having poly trauma due to different etiology. Regarding burn injuries, 1620(67.5%) patients presented with scald burn injury, 265(11%) with electric current, 480(20%) with flame burn and 35(1.5%) with chemical burn injuries (Table **1**).

Table 1. Showing Pattern of Burn Trauma.

S.No	Pattern of burn trauma	No of patients (n=1)	Percentages
1	Scald burn	1620	67.5%
2	Flame burn	480	20%
3	Electric burn	265	11%
4	Chemical burn	35	1.5%
	Total	2400	100%

Regarding mechanism of injury in group 2 patients with poly trauma it was noted that majorityof trauma patients were pedestrians having trauma by hitting with motor vehicles 260(17.9%) followed by 665(45.9%) Pedestrian hit by motor bike, 22(2.8%) with history of fall. 150(10.3%) children got trauma with bicycle handle bar injury and in 200(13.8%) children due to sports trauma. trauma after gunshot injury was noted in 16(1.1%) cases and in 4(0.3) cases children got trauma after child abuse. 35(2.4%) patients got trauma after dog bite while 80 (5.5%) patients have trauma due to different etiological factors (Table **2**).

Table 1. Showing Pattern of Burn Trauma.

S. No	Mechanism of trauma	No of patients (n=2)	Percentages
1	Pedestrians hit by motor vehicle	260	17.9%
2	Pedestrians hit by motor bike	665	45.9%
3	Fire arm injury	16	1.1%
4	Bicycle handle bar injury	150	10.3%
5	Sports trauma	200	13.8%
6	History of fall	40	2.8%
7	Dog bite	35	2.4%
8	Child abuse	4	0.3%
9	Others	80	5.5%
	Total	1450	100%

DISCUSSION

In our study it is seen that male children are more suffered from trauma than females. This is consistent with findings from other national and international studies which also showed more involvement of male children [9-11]. We also came to know that more children presented in month of June to august. This can be because of schools summer vacations and children have higher activity levels, greater freedom to play outside. Same results are also observed in another study [12-13]. In current study most commonly involved age group is from 5 to 10 years age. This can be due the fact that at this age children have more chance to play outside their homes with their fellows where they can involved in more risky games. Similar findings also noted in another study [14]. Regarding mechanism of injury it is shown that more children were suffered from trauma after road traffic accident with motor vehicle or motor cycle followed by children injured by fall from roof or stairs. Toddlers and preschool children had also injury by having some heavy object fallen upon them. Similar results are also observed by other studies [15-17]. In our study it was shown that abdomen and chest aremost commonly involved areas in trauma. Same findings were noted in other studies [18- 20]. In abdominal trauma, we noted that liver and spleen were commonly injured organs. Same findings were also noted by other studies conducted at national and international level [21-22]. In current study it is also noted that mostly children had liver and spleen injury of grade 2 to 3 except in few cases of severe polytrauma, where children had liver and spleen injury of more than 3 grade. Liver and spleen injury of grade 1 to 3 were managed conservative in our intensive care unit. In children with advance grade liver and spleen trauma exploratory laprotomy was performed. It is evident in other studies also that mostly liver and spleen trauma in children can be managed conservatively [23]. Among children suffered from chest trauma, pneumothorax and haemothorax were most commonly findings for which chest intubation was done. Similar results were also shown in other studies which showed that most commonly intervention needed in blunt chest trauma in children is chest intubation [24,25].

CONCLUSION

Burn injuries and road traffic accidents are main cause of trauma in children leading to high mortality and morbidity. These injuries can be prevented by educating parents and children at electronic and social media. There should be teaching of traffic laws at school level. Strict implementation of traffic laws regarding safe speed and seat belt safety is recommended.

AUTHORS' CONTRIBUTION

Muhammad Kashif Bashir: Conception and design of the study, Data analysis, Manuscript writing.

Aisha Ishtiaq: Data Analysis, Critical review.

Shazia Bashir: Designing of the study, Data collection, Data entry and interpretation.

CONFLICT OF INTEREST

Declared none.

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