

Etiological And Demographic Profile Of Pediatric Abdominopelvic In Kashmir

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Citation

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Abstract

Background: Pediatric abdominopelvic trauma, both accidental and willful, has become common in this era of increasing violence, automobile and industrial accidents. As a result there has been an increase in the incidence of pediatric trauma in Kashmir, too, a fact which activated us to undertake this study. **Purpose:** To evaluate the etiological and demographic profile of pediatric abdominopelvic trauma in Kashmir valley. **Methods:** Every consecutive pediatric patient, 1-16 years of age with abdominopelvic trauma, blunt as well as penetrating (n=300), admitted in the Department of Surgery, SMHS Hospital Srinagar, over a period of three years from June 2006 to June 2009 was included in the study. Both sexes were included. A proper history of the accident from the patients, or attendants or police accompanying, regarding the mode of injury, duration of injury, site where hit, mode of transport and the nature of injury, was taken. **Results:** In our series of 300 pediatric abdominopelvic trauma, about one fourth (24.33%) were due to penetrating injuries and the rest (75.67%) were blunt trauma. Firearm injury was the most common mode (45.20%) for penetrating injuries and road-traffic accidents were most common mode (40.09%) for blunt trauma. Both injuries were more common in males than females. Blunt injury predominated over penetrating injury. Most patients (67%) were from central Kashmir. **Conclusion:** From our study we conclude that blunt pediatric abdominopelvic injuries predominate over penetrating trauma, firearm injury was the most common mode for penetrating injuries and road-traffic accidents were most common mode for blunt trauma. Both injuries were more common in males than females. Pediatric abdominopelvic trauma is prevalent in urban (central) Kashmir.

INTRODUCTION

Trauma has been defined as damage to the body caused by an exchange with environmental energy that is beyond the body's resilience.¹ Trauma has plagued mankind since the times man learnt to roam around, in the beginning for food and shelter and then as part of his activities. The nature of trauma, the mode and the outcome is largely dependent on the age group. Trauma is the third leading cause of death regardless of age. In the age group between 1 and 15 years, trauma is the single most common cause of death in children in the USA. There is a trimodal mortality trend with 50% of deaths occurring in seconds to minutes of injury due to injury to major vessels, CNS or acute respiratory failure; 30% of the deaths occur within hours, the reason being haemorrhage, and 10% of deaths occur late after 24 hours and the cause is usually infection. This toll of death has installed momentum on the efforts to prevent this mode of death and the resulting disability.¹⁻⁵ Penetrating injury occurs in only 20% of children who sustain pediatric trauma and are managed in a similar fashion as in adults.² Not only are there significant physiologic and psychological differences

between adults and children, there are also differences in the accident pattern. Most childhood injuries result from blunt trauma whereas in adults blunt trauma is not more common than penetrating injuries. More specifically, head trauma is far more common in children than in adults. After motor-vehicle accidents which are the major causes of trauma in both children and adults, the next most frequent causes of trauma in children are events that are less important causes in adults: falls, bicycle accidents, drowning, poisoning, playground injuries, stunt mimicking injuries, injuries due to toys and burns from fire. Child abuse is an important cause in children under 5 years of age. Birth trauma is a unique and important cause of trauma in neonates. Consideration of the cause of blunt pediatric trauma has been a major decision point for pediatric trauma system activation. Motor-vehicle accidents and falls are associated with the greatest risk of intra-abdominal injury. Firearm and violence injury are the causes of penetrating injuries as in adults but the frequency is much lower than in the adult population.

MATERIAL AND METHODS

The data of every consecutive pediatric patient, 1-16 years of age with abdominopelvic trauma, blunt as well as penetrating (n=300), admitted in the Department of Surgery SMHS Hospital Srinagar over a period of three years from June 2006 to June 2009 was collected and tabulated. Both sexes were included. A proper history of the accident from the patients, or attendants or police accompanying, regarding the mode of injury, duration of injury, site where hit, mode of transport and the nature of injury, was taken. This is important because it can influence the management and tell upon the mortality. Primary survey, resuscitation, secondary survey and appropriate investigations were done. After history, physical examination, resuscitation and investigations, the decision for the appropriate modality of treatment was taken.

RESULTS

In the study period, 21% out of 1429 trauma patients were up to 16 years of age (fig. 1). Out of total 300 pediatric abdominopelvic trauma patients, 65.33% (n=196) were from urban areas, while 34.67% (n=104) were from the rural part of Kashmir, the ratio of urban to rural being 1.88:1 (fig. 2). The majority of patients (201, 67%) were from the central part of Kashmir where road-traffic density is high, while the lowest number of patients was from North Kashmir, and Srinagar district contributed 48.33% (n=145) (fig. 3a,b). The maximum number of patients sustained trauma during summer (44%, n=132), followed by spring (27.33%, n=82). The maximum number of injuries occurred in the month of July (17%, n=51), followed by June (14.66%, n=44), while the least occurred in the month of December (2.66%, n=8) (fig. 4a,b). The maximum number of patients (51.33%, n=154) was of the age group of 11-16 years, with a mean age of 10.5 years (fig. 5). Males outnumbered females with a male-to-female ratio of 2.44:1 (fig. 5). Roads and streets were the major sites of trauma accounting for 59.33% (n=178), followed by home (20.66%, n=62) (fig. 6). Out of a total of 300 patients, about one fourth (24.33%) had penetrating and the rest (75.67%) suffered blunt trauma. Out of 73 cases of penetrating trauma, the maximum number (45.20%, n=33) suffered firearm injuries, 35.62% (n=26) suffered injuries from sharp objects and the rest from other causes of penetrating trauma. The overall male-to-female ratio was 2.32:1. Both injuries were more common in males than in females. The most common mode of injury was RTA (40.09%, n=91), followed by fall from height (34.36%, n=78). Male-to-female ratio was 2.49:1 in blunt trauma

cases.

Figure 1

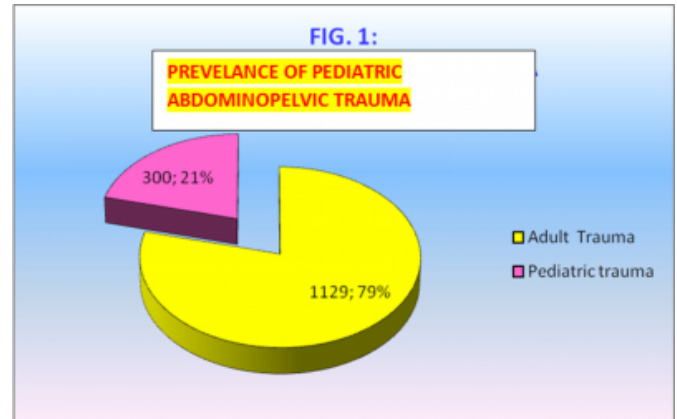


Figure 2

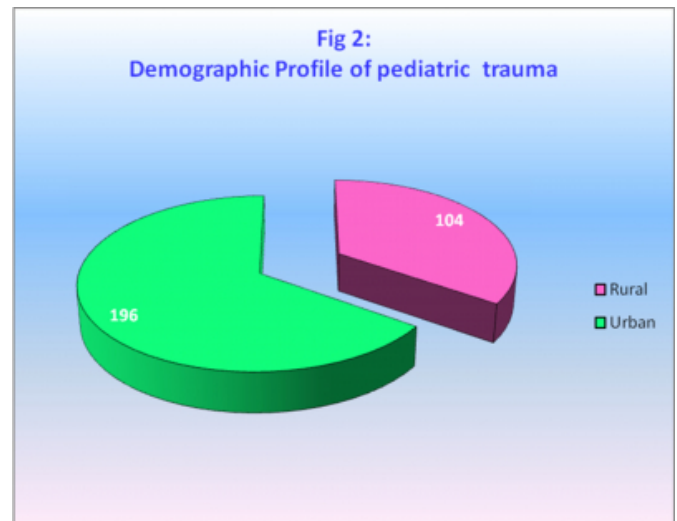


Figure 3

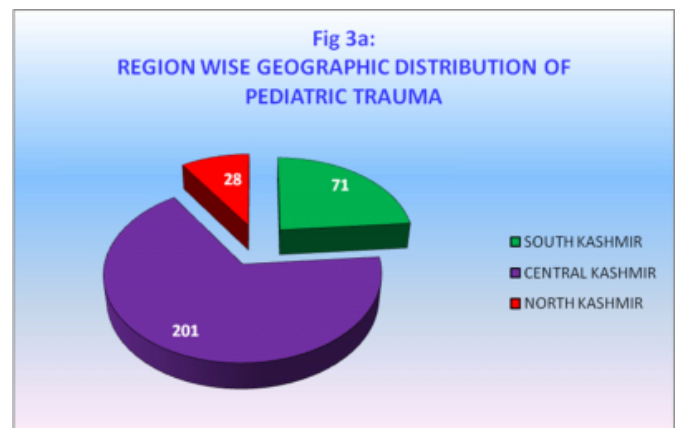


Figure 4

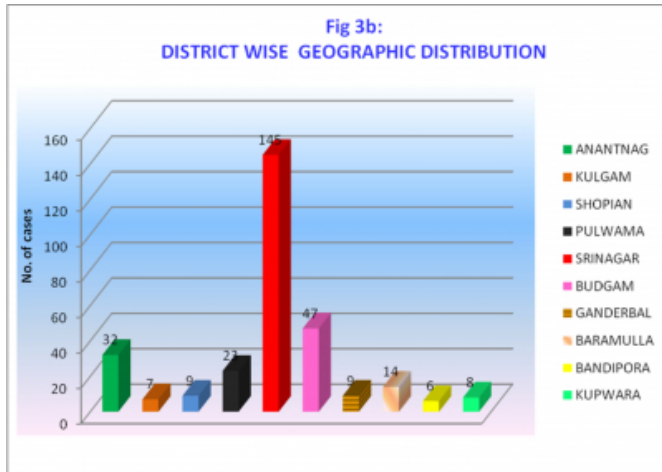


Figure 7

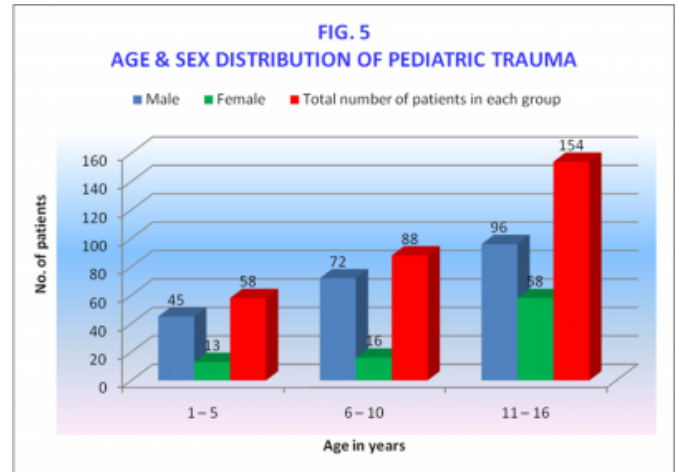
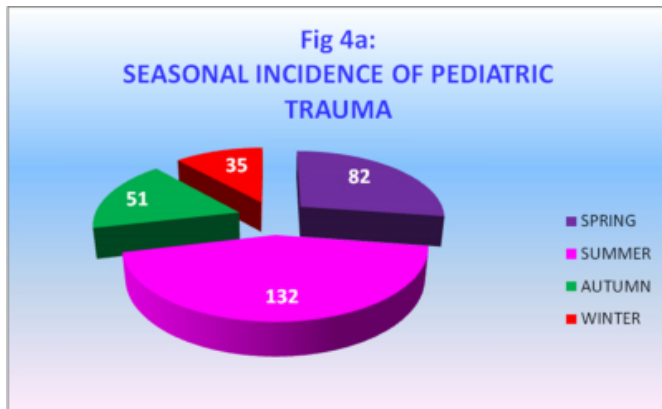


Figure 5



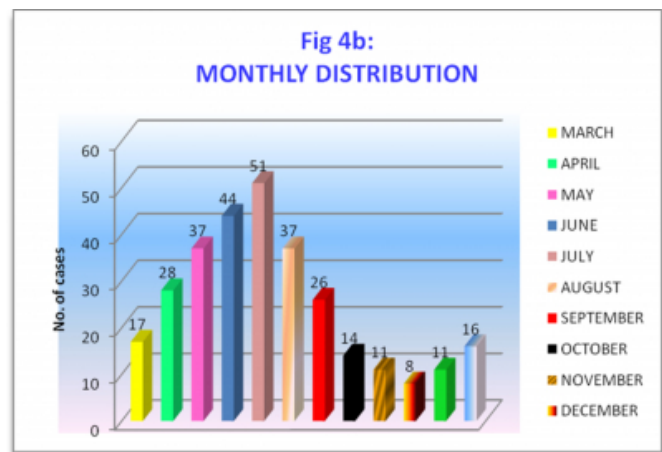
DISCUSSION

Trauma is the third leading cause of death regardless of age. In the age group between 1 and 15 years trauma is the single most common cause of death in children in the USA.

PREVALENCE

In our study period of 25 months from December 2006 to December 2008, 310 children of 1-16 years with abdominopelvic trauma were registered in the Emergency Department of Surgery, Government Medical College, Srinagar, out of overall 1476 abdominopelvic trauma patients irrespective of age. In our study, the prevalence of pediatric abdominopelvic trauma was 21%. However, 10 registered pediatric abdominopelvic trauma cases were referred to a higher centre for management of associated severe head injury, cardiothoracic and vascular injuries, hence excluded from the study. This rate observed in our study goes in agreement with international studies conducted by Ma et al.⁶ and Zwingmann et al.⁷ However, an earlier study conducted by Cooper et al.⁸ reported a slightly lower incidence. This recent increase in the prevalence may be attributed to increased automobile density on the roads, crowded streets, child labour, current terroristic activities and more mechanized life.

Figure 6



PATTERN AND MODE OF TRAUMA

In our series of 300 pediatric trauma, about one fourth (24.33%) were due to penetrating injuries and the rest (75.67%) suffered blunt trauma. Firearm injury was the most common mode (45.20%) for penetrating injuries and road-traffic accidents were the most common mode (40.09%) for blunt trauma. Both injuries were more common in males than females. In pattern of injury, blunt predominated over penetrating trauma. Ameh et al.⁹ and Cooper et al.⁸ observed

in their studies that blunt pattern of trauma (83%) predominates over penetrating trauma pattern (17%), both patterns were more common in males than females and RTA was the most common mode for blunt trauma while firearm injury was the most common mode for the penetrating pattern. There are many other studies which support the fact that road-traffic accident is the most common mode for blunt pattern in pediatric trauma, which were conducted by Jacombs et al.¹⁰, Duma¹¹, Falesi et al.¹², Richards et al.¹³, Powell et al.¹⁴ and Venkatesh and McQuay¹⁵.

SEASONAL VARIATION

Higher incidence of pediatric abdominopelvic trauma in our study was observed in the season of summer (44%), followed by spring (27.33%) while the lowest incidence was found in winter (11.66%) and autumn (17%). Duma OO¹¹, in his study of 538 injured children from Romania, observed a higher incidence in the summer. This was due to more road-traffic accidents, which is also true in our study.

GEOGRAPHIC DISTRIBUTION

In our study of 300 pediatric trauma patients, the incidence was found to be higher in the children of urban areas (65.33%, n=196) than in the children of rural areas of Kashmir (34.67%, n=104). The ratio of urban-to-rural pediatric trauma patients in our study was 1.88:1. The majority of our patients (67%) were belonging to central part of Kashmir valley, followed by South Kashmir (23.66%). The Srinagar district contributed about half (48.33%) of total cases. A lower incidence (9.33%) of pediatric trauma was found in the northern part of the Kashmir valley. The higher incidence in urban population may be due to dense population and more vehicle density on the roads. Duma OO¹¹ has also observed a higher incidence of pediatric trauma in urban areas of Romania with an urban-to-rural ratio of 1.5:1.

GENDER AND AGE DISTRIBUTION

In our series of 300 pediatric abdominopelvic trauma patients, males (213) were more frequently injured than females (n=87) with a ratio of 2.44:1, in each sub group of age as well as overall. However, a higher incidence (51.33%) was found in the age group of 11-16 years with a mean age of 10.5 years. Similar observations regarding age distribution of pediatric abdominopelvic trauma were made by Ameh et al.⁹ The gender distribution observed in our prospective study was consistent with studies conducted by Ameh et al.⁹, Jacombs et al.¹⁰, Duma OO¹¹, Ma WJ et al.⁶, and Venkatesh and McQuay¹⁵; from both developed and

developing parts of the world in the past as well as in recent years. The incidence is higher in males because of their outdoor life as compared to the female children who stay at homes. The higher incidence seen in the age sub-group of 11-16 years is due to their mercurial temperament and more exposure to day-to-day hazards of life.

CONCLUSION

In our series of 300 pediatric trauma, about one fourth (24.33%) were due to penetrating injuries and the rest (75.67%) suffered blunt trauma. Firearm injury was the most common mode (45.20%) for penetrating injuries and road-traffic accidents were the most common mode (40.09%) for blunt trauma. Both injuries were more common in males than females. In pattern of injury, blunt predominated over penetrating injury. Pediatric abdominopelvic trauma is prevalent in urban Kashmir and in the age group of 11-16 years with a mean age of 10.5 years.

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