Road Traffic Injuries among Children- A Tertiary Care Hospital Based Study

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ABSTRACT

Background: Pakistan is a developing country, its population comprises of more than 200 million people. Approximately more than 1/3rd of Pakistan's population is composed of children. Road traffic injuries (RTIs) among children are the leading causes of death and disability and the biggest threat to the health of Pakistani children. This study describes the risk factors involved in causation of RTIs.

Objective: To determine the various risk factors/ predisposing factors involved in causation of road traffic injuries among children.

Material and Methods: A cross sectional study of 06 months duration was carried out in a tertiary care hospital. Data was collected from all consecutive victims of RTIs presenting to casualty paediatric surgery unit Lady Reading Hospital Peshawar and recorded on proforma.

Results: Total 73 victims of RTIs are included in the study of whom 68.5% (n=50) were male. RTIs were common in the age group of 6-12 years and most of the RTIs, 42.5% (n=31) occurred between 8 AM to 2 PM. RTIs were common in pedestrians, unaccompanied children, families with many children, children from urban areas, and in the month of January. Children of illiterate, poor parents and those children whose parents were laborer were commonly found to be involved in RTIs.

Conclusions: This study has confirmed that the male children of increasing age with poor and illiterate background are the most vulnerable to road traffic injuries. Implementation of road safety measures, education campaigns, traffic rules and regulations, road engineering and safe pedestrian areas along side the roads will help to reduce road traffic injuries among children.

Key Words: road traffic injuries, children, risk factors

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INTRODUCTION

Road traffic Injuries have been taking human lives and property worldwide. Road traffic Injuries are the leading cause of death and emergency department visits among US children¹. Mortality rate due to road traffic injuries among children less than 15 years is five times higher in low and middle income countries as compared to the developed countries². Worldwide, approximately two-thirds of road traffic injury related deaths occur in developing countries. In most countries, road traffic injuries are the leading cause of disability and death among children aged more than 5 years³. Road traffic Injuries are the second leading cause of disability, the 11th leading cause of premature mortality, and the fifth leading cause of overall healthy years of life lost per 1000 people⁴. RTIs in developing countries contributed to 13% of total DALYs (disability-adjusted life years) lost among children in 1990 and the percentage was expected to increase to 22% by 2020. Currently RTIs contribute to 3% of all mortality globally among children aged less

than 5 years⁵. Children in pre-school age are among the most vulnerable to RTIs⁶

Pakistan is a developing country, its population comprises of more than 200 million people. Approximately more than 1/3rd of Pakistan's population is comprised of children⁷. With the increase in growth and age of children their world extends outside their home environment into streets, roads and playgrounds, hence becoming more exposed to the multiple risk factors of injuries. In 21st century injuries are becoming one of the most important public health challenges which are a constant threat to human life. According to research reports almost 1/5th of the total global burden of diseases is due to road traffic injuries. Road traffic injuries among children are the leading causes of death and disability and the biggest threat to the health of Pakistani children. Road traffic injuries (RTIs) were likely to be the third most common cause of disability-adjusted life years lost⁸.

Keeping in view the huge burden of road traffic injuries among children in Pakistan, the rationale of this study in hand is to help the researchers and health official to focus on this issue in order to prepare effective strategies and policies which could reduce the burden of RTIs among child community in Pakistan. The aim of the study is to determine the risk factors leading to RTIs and its prevention.

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MATERIAL AND METHODS

This is a cross-sectional study carried out in a tertiary care hospital from 1st december 2009 to 31st may 2010. Consecutive non probability sampling technique was used for collection of data. All the patients upto 12 years of age with road traffic injury were included in this study. Various risk factors such as age, gender, socioeconomic status, education status, residential area and transport of children were studied. Data was collected on prescribed questionnaire (preformed proforma) and analyzed by SPSS 16. Informed consent was obtained from parents/ accompanying person of the victims of RTIs for data collection.

RESULTS

Majority of the victims 52.1%(n=38) were in the age group of 6-12 years followed by 3-6 years(28.8% n=21). Table 1

Males were the most common victims of RTI. Pie chart 1. 28.8%(n=21) of RTIs occurred in the month of January followed by May and December. Graph 1. 42.5% (n=31) of accidents were found to occur between 8am to 8pm. Pie chart 2 Children of urban areas were the most affected n=52(71.2%). Majority of children were found unaccompanied when accident occurred. Most of the victims were Pedestrians n=24(57.5%) followed by cyclists =10(13.7). This study revealed that 67.1%(n=49) of the victims were belonging to poor families. The education level of parents was estimated on basis of graduation, Undergraduate/illiterate comprised 60.3%(n=44). This study also revealed that most of the parents of RTI victims were labourers 61.6%(n=45) followed by government servants 13.7%(n=10).

Pie Chart 1. Gender of Victim.

Bar graph 1

Table 1. Age of the Victim

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-1 Years	1	1.4	1.4	1.4
1-3 Years	13	17.8	17.8	19.2
3-6 Years	21	28.8	28.8	47.9
6-12 Years	38	52.1	52.1	100.0
Total	73	100.0	100.0	

Pie chart 2 **DISCUSSION**

This study has elaborated the different risk factors that were predisposing children to road traffic injuries, presenting to causality pediatric surgery unit Lady Reading Hospital Peshawar. The study included children of age ranging from 0 to 12 years. Findings of this study show that majority of the victims, (52.1%) were in the age group of 6-12 years. Increase in the age of children make them more vulnerable to RTIs. The main reason is that at the age of 6 to 12 years a child is able to walk, play, run and can cross the road with or without any accompanying person. The study showed that most of the RTIs occurred when the child was crossing the road or walking along side the road and mismanaged or misunderstood the speed of the vehicle. Increased activities, risk-taking behavior, lack of supervision and shared road spaces are the contributing factors to RTIs in children. Apart from it the driver was unable to manage or understand the movement of the child crossing the road. A study conducted in the city of Karachi by Razzak et al, found that transport injuries were the leading cause of injury among older children aged 5-14 years. Another study carried out in Sub Saharan Africa show that up to half of the total burden of RTIs is in children under 15 years of age, particularly the 5-14 years age group^{7,8}.

In this study, 68.5% were the male children, involved in RTIs. This higher incidence of RTIs is because of the male dominant society in which we are living. Boys are more active and can move, walk and go freely outside, while activities of female children are limited to the home environment. According to a study carried out by Krug in 2000, boys are more likely to be involved in RTIs than girls⁹ and the incidence of mortality due to RTIs is 2.5 times higher in males than in females¹⁰. Bhatti et al, reported most of the road traffic

injuries in male children¹¹. A study from Nigeria shows that most of the RTIs victims, 72% were males and the male to female ratio was 2.6:1. A study from South Africa also found the same results, 76% RTIs victim were male^{12,13}.

The current study found that highest number of RTIs, 28.8 % occurred in the month of January. The reason for this increase incidence is the extreme cold and fog in the month of January. 42.5% RTIs occurred between 8 AM to 2 PM. At this time most of the children go to school and the schools get off at 2PM or some where near to 2PM. And the other reason is that most of the activities of children occur at day time. Least of the RTIs occurred at night as at night the children are limited to home and their outside activities are reduced. The current study also found that 57.5% were the pedestrians being injured in road traffic accidents. Child riding on bicycle account for 13.7%, as a passenger in motor rickshaws accounts for 8.2%, motor car and minibus 4.1% in each, riding on motor bike accounts for 6.8% of RTIs. A study by Hyder AA, in 2006 found that Pedestrians correspond to an average of 68% of RTIs in children¹⁴. This high rate of pedestrian injury is also favored by a study carried out by Nantulya VM, in 2003 and according to his study RTIs in developing countries mostly involve pedestrians, cyclists, and passengers. 55-70% of deaths occurs in pedestrians of urban areas due to road traffic injuries^{15,16}. Globally most road traffic injuries occur in developing countries, where urban areas, pedestrians, passengers, and cyclists collectively account for mortality of about 90% due to road traffic injuries. Research work in Ghana, Kenya, Nigeria, South Africa, and Tanzania has shown that poor children as pedestrians, passengers in buses, and trucks, and cyclists are predominantly susceptible to road traffic injuries^{17,18}.

In this study, 69.9% children were unaccompanied by parents or their relatives during the event of road traffic injuries. This percentage of RTIs in unaccompanied children is favored by the Singer MS, in 2004¹⁹.

The study showed that 69.9% of the victim's family members were belonging to families having many children and 67.1 % children were belonging to poor families, 60.3% children parents were undergraduate or illiterate, and 61.6 % victims' parents were laborers. This is favored by a study

conducted in Pakistan and according to this study Road traffic injuries involve mostly pedestrians, unsupervised children, children from families with many children, children with uneducated mothers are at increased risk of road traffic injuries. Urbanization, increase in motorization rates and failure to institute preventive strategies leads to considerable increase in road traffic deaths in children. Poverty is one of the major risk factors that has an impact on choice of transport, childcare, and access to safety equipments. In most of the urban areas of developing countries, poor children engaging in street hawking or selling goods along the main roads are at increased risk of road traffic injuries.

The other reason which was observed was the implementation of road safety standards. It creates safer environment. Use of child passenger restraints, bicycle helmets and targeted education campaigns are effective preventive measures. Legislation and implementation of traffic rules and regulations, road engineering and Safe pedestrian areas would help reduce injuries as according to Jaung MS, et al (2009) such legislation and implementation of rules can reduce the risk of road traffic injuries up to a greater extent^{20,21}.

Pakistan is paying attention on injuries in adults. While children that comprise 43% of the total population²², research work about injuries in this group is still very limited. Lack of information of the basic epidemiology of injuries among children has rendered injury prevention ineffective. In the developing countries like Pakistan relatively little research is conducted on the Road traffic injuries among children as compared to their impact on health and population. There seems to be scarce awareness and this remains a neglected area in research and policies.

CONCLUSION

It is concluded from our study that children who were prone to road traffic injuries belong to poor, uneducated families and mostly were unattended living in the urban areas. In addition, our country lack proper legislation of transport, parking, footpath facilities and overall proper public transport system.

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