

One-Year Hospital Admission of Accidents among Children Under 15 Year Old in Rafsanjan, Iran (2014-2015)

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Abstract: Today, accidents are of the major causes of both death and disability in the world. Resulting injuries are of the most important challenges and problems in all communities. The importance of this issue, as an important public health problem, leads to the establishment of the committee for the prevention of damage caused by events in the world health organization. The aim of this study was to evaluate accidents in children under 15 year admitted to emergency department of Ali ibn Abi Talib hospital during 2014-2015. This survey was conducted in a period of one year and its population included all of the victims under 15 year admitted to emergency department of Ali ebne Abi-Talib during 2014-2015. This study's checklist consisted of two parts; the first part included demographic characteristics of victims and second part contained some main questions. Quantitative and qualitative data were expressed as "mean \pm SD" and "the number (%age)", respectively. Data analysis was performed using SPSS Version 18. In the period of 2014-2015, there were 1024 of victims referred to the emergency department of Ali Ebne Abi-taleb hospital in Rafsanjan city. Of the cases, 65.7% were male and the mean age of victims was 6.35 \pm 4.30 year (Min = 2 month, Max 15 year). High %age of the patients (46.2%) was in 1-5 year old age group and a minority was at the age under 1 year old. Motor Vehicle Accidents (MVAs) were the major cause of trauma (28.1%). Most and the lowest accidents occurred in the Summer and Winter 33.2 and 12.4%, respectively. Of these victims, 981 (95.8%) cases were as unintentional and 43 (4.2%) cases were as intentional. Five patients (0.5% of all cases) died. To reduce accidents and increase parental awareness, training programs, in order to secure home environment further and home equipped with basic equipment of relief is necessary. Train traffic laws and safety tips are on to keep in case of risk to children from an early age. In addition, improving the diagnostic and treatment facilities in health centers, improving transport systems and equipping of emergency department patients with more advanced features are the priorities.

Key words: Epidemiology, accidents, children, hospital admissions, Iran

INTRODUCTION

Today accidents are major causes of both death and disability through the world. Resulting injuries are of the most important challenges and problems in all communities. Approximately 5.1 million deaths from injuries were reported in 2010, giving about 14,000 deaths per day in the world. This figure means the total number of deaths due to injuries is more than the number of deaths from infection of Acquired Immune Deficiency Syndrome (AIDS), tuberculosis and malaria (3.8 million) (Hyder *et al.*, 2010; Lindqvist *et al.*, 1998; Reading *et al.*, 1999; Kendrick *et al.*, 2005; Ma *et al.*, 2008; Fraga *et al.*,

2010). According to the world health organization's (WHO) report in 2004, a large part of health care resources has been used to cover related losses. The importance of this issue, as an important public health problem, leads to establish the committee for the prevention of damage resulting accidents in the world health organization (Hyder *et al.*, 2010; Lindqvist *et al.*, 1998; Reading *et al.*, 1999; Kendrick *et al.*, 2005; Ma *et al.*, 2008; Fraga *et al.*, 2010). In 2004, over 950 thousands of children under 18 year old have died due to intentional and unintentional accidents (Peden *et al.*, 2009). In 2005, about 173 thousand deaths from accidents were reported in America in which many of their victims were children (Fraga *et al.*,

2010). According to the WHO in 2008, the most important cause of death in children older than one year old was the accidents in the world. Although, technology has made surprising developments in family welfare, but they are laying the groundwork for many of the accidents leading to death and disability in communities and thus resulting in increased costs of health care system (Peden *et al.*, 2009). The results of many studies suggest that the mortality caused by accidents in low and middle income countries was about 4.3 times higher than one in high income countries (Fraga *et al.*, 2010). According to the reports of united nation Children's Fund, the accident rate in high-income countries reduces as much as 50 %; while in poor countries is reversely increased (Hydar *et al.*, 2009). Investigation of the accident and identify factors associated with them is an undeniable role in the restriction of them; resulting in the reduced costs imposed on health care systems (Danseco *et al.*, 2000). Accidents among young people and children, have been always very important and in industrialized countries, special attention has been paid to the damage caused by events among these specific age groups (Spady *et al.*, 2007). A large part of this accidents including falls, burns, drowning, occurs at home and recreational environments, annual mortality caused by accidents is around 5 million and the WHO speculates that it rises to 8.4 million in 2020 (Adesunkanmi *et al.*, 1998). Disability caused by accidents is important not only in the terms of the health of children but also in many other aspects of their lives and their families costs imposed by the health care system (Sousa *et al.*, 2010). The aim of this study was to survey the accidents in children under 15 year admitted to emergency department of the main urban hospital of Rafsanjan in 2014-2015, IRAN.

MATERIALS AND METHODS

This is a community-based study including all victims under 15 year old, who have been admitted to emergency department of Ali ebne Abi-Talib hospital during the 2014-2015. In this study, at first, the checklist is designed to collect data (design of checklist is based on the studies that have been done in this area). Checklist consists of two parts, The first part included demographic characteristics of the victims aged 0-15 year, admitted to the emergency department of University Ali ebne Abi-Talib and Moradi hospitals; second part contains the main questions with multiple choice questions and an essay questions and the factors that could be associated with the accident. Checklist was completed by emergency personnel and collected at the end of each month; finally collected data entered into the master sheet. Data were

entered SPSS software (version 18). Results for quantitative data were shown as "mean \pm SD" and for data quality was reported as "the number (%)". In order to examine the relationship between the demographic variables and studied variables, chi-square test (chi-square test) was used.

RESULTS AND DISCUSSION

Over the 1 year period (2014-2015), there were 1024 of victim who are the children with the ages 0-15 year admitted to the emergency department of Ali-Ebne-Abitaleb University hospital of Rafsanjan city, for injury and poisoning. Of those cases, 65.7 and 34.3% were male and female, respectively and the sex ratio was 1.9:1. The mean age of victims was 6.35 \pm 4.30 year (the age range is from 2 month to 15 year). Most of the patients (46.2%) were within the age group of 1-5 year and least was under 1 year (4.2%). The highest and the lowest

Table 1: Some characteristics of injured children under 15 year

Specifications	No. of outcomes	
	N	Percentage
Gender		
Male	673	65.7
Female	351	34.3
Age at census		
0-1	43	4.2
1-5	473	46.3
5-10	295	28.8
10-15	212	20.7
Season		
Spring	319	31.1
Summer	340	33.2
Fall	238	23.3
Winter	127	12.4
Time of accident		
0-5:59	18	1.7
6-11:59	296	28.9
12-17:59	394	38.5
18-23:59	316	30.9
Location of accident		
Home	600	58.7
Street	339	33.1
Schools and kindergartens	41	4.0
Recreational and sporting places	29	2.8
Other places	14	1.4
Area of accident		
Urban	858	83.8
Rural	166	16.2
Accident type		
Unintentional	986	95.8
Intentional	43	4.2
Outcome of accident		
healthy	1015	99.5
Handicap	2	0.2
Die	5	0.5
Injured of body area		
Head, face and neck	364	35.6
Limbs	417	40.7
Trunk	80	7.8
More than one organ	45	4.4
Poisoning	114	11.1
Others	4	0.4

Table 2: Relationship between the age group and the cause of the accident

Cause of accident	Age groups (years, N %)				
	0-1	1-5	5-10	10-15	Total
Fall from height	11(25.6)	58(12.3)	23(7.8)	6(2.8)	98(9.6)
Traffic accident	9(20.9)	88(18.6)	79(26.8)	112(52.8)	288(28.1)
Back fall	5(11.6)	90(19.0)	69(23.4)	37(17.5)	201(19.6)
Collision with objects	5(11.6)	110(23.3)	89(30.2)	39(17.9)	243(23.7)
Poisoning	8(18.6)	83(17.5)	11(3.7)	12(5.7)	114(11.2)
Others	5(11.6)	44(9.3)	24(8.1)	7(3.3)	80(7.8)
Total (%)	43(4.2)	473(46.2)	295(28.8)	213(20.8)	1024(100.0)

Table 3: Relationship between gender and the cause of the accident

Cause of the accident	Gender (N %)		
	Boy	Girl	Total
Fall from height	51(7.6)	47(13.4)	98(9.6)
Traffic accident	220(32.7)	68(19.4)	288(28.1)
Back fall	136(20.2)	65(18.5)	201(19.6)
Collision with objects	152(22.6)	91(25.6)	243(23.7)
poisoning	67(10.0)	47(13.7)	114(11.2)
Others	47(7.0)	33(9.4)	80(7.8)
Total	673(100.0)	351(100.0)	1024(100.0)

accidents are occurred in Summer (33.2%) and Winter (12.4%), respectively. Most of accidents are occurred at 12:00-20:00 (38.5%). Major accidents occurred at home (58.8%), followed by on the road (33.2%) and at school and kindergarten (4.0%). Most affected children inhabited in urban (83.8%) and the remaining lived in the rural. Of these victims, 981(95.8%) were as unintentional and 43(4.2%) were as intentional. Five patients (0.5% of all cases) died. Some characteristics of victims are shown in Table 1.

Table 2 showed the relationship between the age and the cause of the accident. Our findings showed that 46.2% of injuries are in the age group of 1-5 year and 73 % of all poisoning are at this age group. The age group of 5-10 year has the second rank of accident (28.8%). In the age group of 10-15 year, >52% of injuries was related to traffic accidents. Motor Vehicle Accidents (MVA) were the major cause of injuries (28.1%), followed by collision with objects (23.7%), back falls (19.6%), poisoning (11.2%), fall from height (10.0%), burn (2.2%), body ingestion (2.1%) and other causes (3.1%). Statistical analysis shows that there were significant relationships between the causes of accident and the age group ($p < 0.001$). data in Table 3 shows the relationship between gender and the cause of the accident. As the table shows, the most frequent accidents were taken place for boys ($n = 673$, 65.7%). As the results show that the main cause of the accident in boys is crashes (32.7%). Also the results indicate that the collision with objects is the most cause of the accidents in girls (25.6%). Statistical analysis shows that there was a significant relationship between the causes of accident and the gender ($p < 0.001$).

Table 4: Relationship between the area of residence and the cause of the accident

Cause of the accident	Area of residence		
	Urban	Rural	Total
Fall from height	77(9.0)	21(12.7)	98(9.6)
Traffic accident	242(28.2)	46(27.7)	288(28.1)
Back fall	176(20.5)	25(15.1)	201(19.6)
Collision with objects	212(24.7)	31(18.1)	243(23.7)
poisoning	93(10.8)	21(13.3)	114(11.2)
Others	58(6.8)	22(13.3)	80(7.8)
Total	858(100.0)	166(100.0)	1024(100.0)

relationship between the areas of residence and the cause of the accident is shown in Table 4. As the results show, in urban and rural areas, traffic accident is the most of cause the accident among children (28.2 ver. 27.7%). Statistical analysis shows that there was a significant relationship between the causes of accident and the area of residence ($p < 0.001$).

Today, accidents are considered as one of the challenges of medical, social and economic fields of each society. So, identifying the nature of the accidents and high-risk groups more accurately is very important. Since identifying and then reducing the effects of accidents in children can contribute to healthy population, hence to survey and identify the causes of the accident in the age groups of children is the main goal of this research. In the study by Lyons *et al.* (1995), it was recommended that the prevention of injuries in children is a top priority in health care system. The results of this study and many of previous studies shown that the men suffer from accident more than women (Mefire and Fokou, 2013; Vazirinejad *et al.*, 2007). So, the men are one of the most vulnerable social groups against accidents. Therefore, preventive measures for these individuals are vital. In this respect, the boys need to train more about the mechanism of accident. About 60% of accidents occurred at home that the findings are consistent with many of the findings of other researchers (Carter and Jones, 1993; Rehmani, 2008). Thus, providing training for parents, especially for mothers about the dangers which are existing at home and also, the causes of accidents at home is necessary. Takeo Fujiwara *et al.* (2010), founded that parental involvement in the child care at 6 months of age can help prevent injuries in childhood at 18 month of age. Rehmani in his

study found that the average age of the injured children is 7.3 ± 3.2 year and the numbers of accidents in boys are significantly higher than girls. Most injuries occurred at home. Carter and Jones, in their study, found that the major accidents occurred at home (79%) and during 9:00 and 21:00 (88%) (Rehmani, 2008). The finding of this research are consistent with last finding. age is a major factor in injuries and age groups are of specific differences in the type and number of accidents. More accidents in the age group of 1-5 year, show that the vulnerability of individuals in this age range and 73 % of all poisoning are at this age group. So, to develop and implement a comprehensive program to minimize or reduce injuries, especially in the field of poisoning in this age group must be done. To reduce poisoning in children, accessing to drugs and other chemicals should be avoided and kept far from them and all chemicals must be labeled. In the age group of 5-10 year, almost all of causes of accident are the same as and there was no difference in them. Considering that traffic accidents at age group of 10-15 year are the most important factors of accidents, this indicates the more use of bicycles and motorcycles for recreation and going to school by this age group. Ciampo *et al.* (2001), founded thin the age group of 1-5 (41.1%) was mainly involved in accident occurred and the following age group was 5-10 (33.1%), these results are consistent with the results of this research. Gender is an important factor in children injuries. As Table 3 shows significantly more accident are involved boys than girls. This could be due to the mobility and exposure to risk. They are also more involved in sports and social activities and leisure time and going to school to take advantage of the motorcycles and bicycles. Therefore traffic accidents in boys were much more than girls, (sex ratio 3.3:1) as in boys are more than 3 times.

CONCLUSION

Our finding show with regard to the development of rural areas in recent year, traffic accidents are at the top of cause of accident in children and in this respect there is no difference between urban and rural areas. the effective action to prevent injuries and accidents among children is increasing the awareness and knowledge of the family, especially Parental. As well as training in traffic laws and regulations among children above 5 year and use of protective equipment in this age group during play and use of bicycles and motorcycles. A fundamental work to reduce accident in the age group 10 year and above is legislation to not to use motorcycles for leisure and going to school.

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