DOI: 10.21276/aimdr.2016.2.5.OR5

Original Article ISSN (O):2395-2822; ISSN (P):2395-2814

Study on Musculoskeletal Trauma in Al. Basrah General Hospital.

Thamer Ahmed Hamdan[1], Shukrya Kamil Al Maliki[2], Uranos Aziz[3]

[1]Professor, Dept. of Orthopedic, College of medicine Basrah University.
[2]Assistant Professor, Dept. of Community Medicine, College of medicine Basrah University.
[3]orthopedic surgeon last year specialty, Dept. of Orthopedic, College of medicine Basrah University.

Received: July 2016
Accepted: August 2016

ABSTRACT

Background: Trauma is considered as a major epidemic of non-communicable diseases in the current century. **Aims:** To assess the pattern and characteristics of the trauma in order to plan for injury reduction and control strategy for the future. **Methods:** A total of 1400 patients were enrolled during the period from 1st June to 30th of December 2015. Interview was done for all the patients who presented to the emergency department of the AL Basrah General Hospital with a history of trauma. **Results:** The mean age of the patients was 21.81±17.74 years. Nearly one third (33.0%) of the patients were at the age of 1-9 years. Males (68.8%) were more frequently seen than females. The people who finished primary school (33.8%) and those who worked as Laborers (31.5%) were more exposed to trauma. Blunt trauma constituted (74.6%) of the main types and fall from standing (36.9%) was the most common type of blunt trauma followed by RTA (15.5%). Soft tissue injuries presented in (61.8%) of trauma patients and mostly were minor trauma (89.6%). **Conclusion:** Trauma is a major health problem, especially in the young male with age less than 20 years. Blunt trauma is more frequent than penetrating trauma, fall from standing accounting for the majority. Laborers with low educational level were more commonly exposed to trauma. High population density areas were increasing the rate of accidents.

Keywords: Musculosketetal trauma, Non-communicable disease.

INTRODUCTION

Trauma is defined as any physical injury caused by violence or other forces, which is considered as a major epidemic of non-communicable diseases in the current century. It has its own natural history and follows the same epidemic pattern as any other diseases, which are the agent, host and the environment interacting together to produce injury or damage.[1]

Name & Address of Corresponding Author
Dr. Shukryakamil Al Maliki
Assistant Professor,
Dept of Community Medicine,
College of medicine Basrah University.
E mail: snasrah@hotmail.com

It is important worldwide source of morbidity and mortality among all age groups; hence, a serious trauma puts the patient at risk of death or deprivation of function. Globally, about (16 000) people die from an injury every day and about 5.8 million people die every year.[2]

In 1990, about 5 million people died globally as consequence of injury. Besides, it is estimated that by the year 2020, 8.4 million people will die every year from injury.[3]According to World Health Report in 2014, Injuries account for 9% of the world's deaths, nearly 1.7 times the number of fatalities that result from HIV/AIDS, tuberculosis and malaria combined. In addition tens of millions of people suffer non-fatal injuries, which require treatment.[4] In-developed countries; such information is available from vital statistics registries and health care records. However, such records are of little value in developing countries. The WHO–World Bank Report indicates that road traffic injuries (RTIs) will be the third influential cause of mortality by 2020, moving up from their present ninth position. Similarly, suicide and violence will move from the twelfth and sixteenth to tenth and fourteenth positions.[5]

Trauma is no longer considered accidental but it is part of the price we pay for the technological progress, occur more frequently in certain age groups, at certain times of day and the week and at certain localities.[1]

Trauma comes with a variety of injuries and problems that need rapid assessment, discussion and intervention to keep the life and prevent constant disability.[6] Population-based studies identifying high-risk populations and regions may facilitate primary prevention and the development of optimal trauma systems.[7]

It is acknowledged that data collection; characterization and documentation of trauma

injuries form a cornerstone in prevention and management of trauma. This would provide us with the clues, general overviews of types, grades, severity, prevalence and other characteristics of injuries. Such information helps expand initiative of trauma control and prevention in our area, build up new protocols of trauma management, facilitate functioning of any trauma centers and utilize the resources and materials more efficiently.[8]

Although the musculoskeletal trauma consider as important public health problem and of increased severity worldwide and many studies from different regions done to investigate the causes and to implement prevention programs, unfortunately in Iraq generally and in Basrah specifically, there is a paucity of published studies that describe the pattern of trauma and assess the severity of it apart from one study done in some of the governorates in Iraq that report the fatality of the road traffic accidents.[9]

Aims of study

1. To describe the pattern (types and severity) of trauma in Basrah.
2. To find the sex and age distribution of the trauma among the studied population.
3. To help the policy makers in planning for Injury reduction and, control strategy for the future to reduce the burden of the trauma on the community.

MATERIALS AND METHODS

Study design and setting

This study was observational, descriptive cross sectional that carried out during the period from June to December 2015 at the emergency department of Al-Basrah General Hospital, which is a multi specialty hospital and one of the five major hospitals in this city. The researcher attended four times a week to the emergency and at different times during the day.

Sampling and sample size

All consecutive patients with trauma who attended the emergency department of the aforementioned hospital during the period of the study were enrolled. The eligible sample size of the studied patients was 1400. The participants were patients of all ages and of both sexes who were presented alive and conscious with history of trauma at the time of presentation.

Ethical consideration

The Ethics and Research Committees of Basrah University and that of General Directorate of Health approved the study. Informed consent was obtained from each participant before enrollment in the study. The participants were assured that confidentiality and anonymity would be followed.

Data collection

The data were collected by interviewing the patient or one of his accompanies using a questionnaire consisted of two parts; the first part covers information related to socio demographics while the second part enquired about clinical information (type of trauma, site of trauma, comorbidity, associated injury).

Statistical analysis, Statistical software SPSS v. 20 was used for data input and analysis, continuous numerical data were summarized as means with SD. Data on qualitative characteristics are expressed as percent values or absolute numbers as indicated. These data were compared using Fisher's exact test or Chi-square test, when appropriate. A two-tailed P-value <0.05 was considered significant.

RESULTS

The different socio-demographic characteristics of the patients were summarized in [Table 1].

Table 1: Socio demographics characteristics of the studied population.

Socio- demographic features	NO (%)
Sex	
Male	963(68.8)
Female	437(31.2)
Age	
Mean ±SD/years	21.81±17.74
Range; 89 years	Minimum–maximum (1-90 years)
Infant	11(0.8)
1-9 years	462(33.0)
10-19 years	271(19.4)
20-29	249(17.8)
30-39	184(13.1)
40-49	97 (6.9)
50+	126(9.0)
Education	
Illiterates	156 (16.3)
Reading and writing	207 (21.7)
Primary	322 (33.8)
Secondary	199 (20.9)
University & above	68 (7.1)
Occupation	
Laborer	350(36.8)
Governmental employed	189(19.8)
Housewife	248(26.1)
Military	113(11.9)
Others	52(5.4)
Marital status	
Single	336(40.2)
Married	411(49.2)
Divorced	41(5)
Widowed	47(5.6)
Place of living	
City center	1238(88.4)
Countryside	162(11.6)

Table 2: Distributions of the types of trauma among the patients.

Type of trauma	No (%)
Blunt	1044(74.6)
Fall from standing	517(36.9)
Road traffic accident;	217(15.5)
Pedestrians	90/217(41.5%)
Passengers	43/217(19.8%)
Drivers	84/217(38.7%)
%Out of drivers	
Motorcycle drivers	56.4%
Bicycle drivers	19%
Car drivers	15.4%
Fall from height	102(7.3)
Assault	150 (10.7)
Others	58(4.1)
Penetration	356(25.4)
Missile injury	36(2.6)
Gunshot	159(11.4)
Stabbing wound	94(6.7)
Others	67(4.7)

The main type of the trauma in this study was; blunt, which is the most prevalent (74.6%) while the penetrating type composed (25.4%) of trauma cases. Among the sub-divisions of blunt trauma, the fall from standing was the most frequent one (36.9%) while the road traffic accident constituted 15.5% as shown in [Table 2].

Uneven carpet or floor and inappropriate shoes made the main predisposing factors for falls in this study, about 34.7% as evident in [Table 3].

Table 3: Frequencies of the predisposing factors to falls in this study.

Predisposing factors to fall	No (%) 569/1400(40.6%)
Uneven carpet or floor	122(21.4)
Inappropriate shoes	86(15.2)
Deformity	76(13.3)
Decrease light	57(10.0)
Vision problem	54(9.5)
Sliding on floor	40(7.0)
Muscle and joint disease	37(6.5)
Neurological problem	32(5.6)
Unsafe environment	26(4.6)
Combined	23(4.0)
Obesity	15(2.6)
Suicide	1(0.2)

The highest percent of drivers' injuries were those aged 10-29 years and the highest percent of RTA injured pedestrians were those aged 1-9 years as shown in the [Figure 1].

The peak time of arrival of the trauma patients was between 6 pm and 12 am, the soft tissue injured in 61.8% of the cases and 89.6% of these injuries were minor. Only 8.9% of the trauma patients had extra skeletal injuries and the head injury presents in 4.4% of them. The peak times of arrival of trauma patients to the emergency were between 6 pm and 12 am (39% of them). The upper and lower limb constitutes 90.2% of the parts of the body affected by the trauma in the studied population.

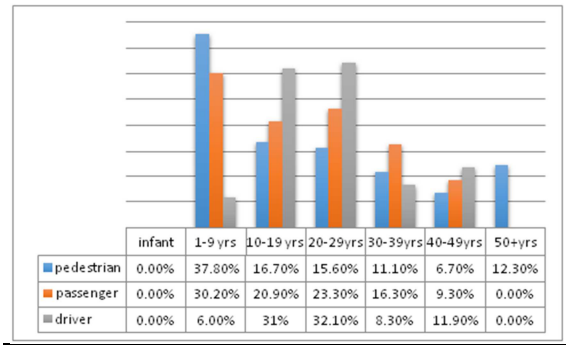

Figure 1: The distribution of types of persons affected by RTA according to their ages.

DISCUSSION

In the present study the highest proportion of trauma victims was males as compared to females, this result was in consistence with other studies that had been done previously in India (2009)[5], Saudi Arabia (2015)[10], Qatar (2012) [11] which found that males were dominant in all age groups of trauma patients. This sex difference in percentages of exposure to trauma can be attributed to the following causes; the routine activities of the earning members of the family (family heads), more exposure to the outside environment, and males are more engaged in hazardous work and activities than females. But this result was disagreeing with other study done in Uganda (2012)[12] which revealed that in elderly population the prevalence of trauma among females was more than that among males. Our results found that the trauma was mostly highest in the 1st and the second decade of the life of the studied population, while less people exposed to trauma above the age of 50 years and this result was in line with other studies.[5,10,13] That is because, at childhood the increase in activity and endeavor to discover everything around them, and at the same time children at this age try to act as the adult and their knowledge about hazard is little.

As to level of education, the most common persons involved in injuries, were those with low levels of education and the least exposed ones to trauma were people who finished university and above. This is because those people who had low levels of educations, most of them involved in heavy jobs without any safety. It is pretty known that an increase in the educational level could bolster the chances to get better employment of safe environments. Also, tribal and clan-based society makes it imperative for the girls to get married at an early age and forced her to leave school. The results of this study were in line with an Epidemiological Study of Road Traffic Accident Cases, a study from South India[13] where, among many victims who could be interviewed; high percent of them had education up to 5th class primary school, or illiterates. Victims with a higher education were

fewer in proportion. The partners also exposed the housewives to trauma because most of the time they do routine housekeeping alone at home or due to exposure to domestic violence.

Military people are also exposed to a lot of war injury, but the Basra General Hospital is not the first center of referral and also there is no specific military ward in the Basra General Hospital as other hospitals, or the presence of places nearby hospitals to receive the special war casualties so they are few in Al-Basra General Hospital, or some of them might travel outside the country for treatment. The least affected group was governmental employers who work under organized work environment of safety. This is in agreement with other studies conducted previously which found out that laborers were the commonest victims of trauma, followed by farmers.[5,13]

Our results revealed that the most common involved people in injuries were the married followed by single, this is because of the high percent of married people in our society. Other study found that the single people had double the risk of driver injury in RTA.[14]

As to the residence; people who live in the city were more exposed to trauma followed by countryside residents. It is worth mentioning here that crowded areas and popular community increase the proportion of accidents and fights, as well as most of the areas away from the city center containing hospitals and health institutions, which reduce the referral of patients where they could receive the full treatment there, except difficult cases are referred to the center hospitals. This result was in agreement with other study,[10] that reported more than half of the patients from urban area, but it disagreed with other study, which concluded that victims from rural population were affected more than the urban population.[5]

The main types of the trauma in this study were; blunt, which ranks first as prevalent type of trauma followed by penetrating type, a result which is in agreement with other studies.[15,10]

Among the subdivisions of blunt trauma, the fall from standing was the most frequent one and the most common predisposing factor in our locality was the floor which is usually uneven like in our houses, and in winter we use thick types of carpet and inappropriate shoes, this result agreed with another study done in Uganda[13] which revealed that fall in elderly were the most common type of injuries followed by RTA. Other studies found the fall from tree were the most common mode of injuries followed by the fall from the roof, which is common during summer, and fall into the wall. [5]

The road traffic injuries now are increasing due to several causes like using of motorcycles with uncontrolled speed for transport, and some people favored motorcycles because of traffic jam on the roads, which make moving faster than the cars. Beside, adolescents who drive car are under the legal age and without driving license. Other studies found that RTA is the most common type of injuries followed by fall that differs from our results.[2,5,8,12,16]

The roads in our locality were designed and built before long time ago, and now they cannot accommodate this large number of cars, which lead to increased accidents.

The assault was the third most common type of blunt trauma owing to the weak law, the deteriorating security situation and control of the tribal style led to a significant increase in the proportion of brawls. The same result was found in other developing countries, dramatic worsening of both injury incidence and outcome.[17]

This study found that the upper and lower limbs constituted the highest percent of the parts of the body affected by the trauma in the studied population. It was evident that males were more exposed to injury at the upper, lower limbs and multiple injuries with high variance in upper limb injuries that because most common type of trauma in this study was the fall.

Most of work put the upper limb at risk of injury due to the need of hand skills or need of muscular power or even when a person exposed to trauma to a lower limb, like fall or RTA, he would try to protect himself or hold the body by upper limb. Other studies done; in India (2011)[18] East Azerbaijan, (2013)[19] showed the same finding of predominated injuries of extremities and lower prevalent of pelvic injuries.

The results of this study showed that road traffic accident made up 15% from all types of trauma. It indicated that pedestrians were most common people who were injured which is in agreement with other study done by Lutge (2005),[16] followed by drivers and then passengers. More injuries with pedestrians are due to lack of bridges, crossing the streets as well as the absence of traffic awareness. In comparison to a previous study of injury pattern among road traffic accident cases in South India[13], which showed the victims of drivers more than pedestrians and the occupants of vehicles constituted the largest group of victims, because the bus was the most common mode of the transportation used by the people.

Soft tissue injuries were found in more than half percent of the cases, and the majority of these injuries were minor. The same result was found in Saudi Arabia (2015).[10]

The peak time of arrival of trauma patients to the emergency unit was between 6 pm and 12 am, because most of the injuries like traffic or work accidents occur at this time. Traffic injuries occur at this time with a high percentage due to stress and lack of focus among drivers as well as the poor lighting in the streets leading to that many accidents occur after sunset. As well as the children who were injured or fractured are awaiting the arrival of their parents from work for taking them to hospital. This

result was in line with a study carried out in India, where the majority of cases was admitted during the 4.00 p.m. to midnight.[5]

CONCLUSION

Trauma was more prevalent in males more than in females, children less than 10 years were the most age groups affected, Low educated people were the most commonly exposed to trauma, and laborers were highly affected by trauma compared by other jobs. Blunt trauma and fall from standing position constituted the majority of trauma types follow by RTA. Extremities (upper and lower) were the most common parts of the body affected by injuries .The peak time of arrival of trauma patients to the ED was from 6pm to 12 am.

Increase of parents' awareness about the hazardous work and children toys, avoidance of inappropriate accommodations that lead to injuries within the home, such as uneven surfaces inappropriate shoes and ceramic floor. Impose sanctions on repeated mistakes traffic up to stop the vehicle for long period. There is a need for evolving occupational therapists service in health academic education.

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How to cite this article: Hamdan TA, Al maliki SK, Aziz U. Study on Musculoskeletal Traumain Al. Basrah General Hospital. Ann. Int. Med. Den. Res. 2016; 2(5):OR13-OR17.

Source of Support: Nil, **Conflict of Interest:** None declared