

# Fractures due to Road Traffic Accidents Referred to Orthopedic Department – Al Hadra University Hospital: A Single-Center Observational Study

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## Abstract

**Background:** Road traffic accidents (RTA) make a significant portion of the worldwide burden of disease. About 1.2 million people are killed in road crashes every year, and 50 million are injured, occupying 30 percent to 70 percent of orthopedic beds in developing countries hospitals, and if present trends continue, road traffic injuries are predicted to be the third-leading cause to the global burden of disease, and injury in 2022. **Subjects & Methods:** One hundred and fifty (150) cases of both sexes and different age groups, with RTA fractures referred to the orthopedic Department at Al-Hadara University Hospital in Alexandria were included in a cross-sectional observational study in relation to demographic data and the results of relations between demographic data and type of fracture and its site. **Results:** most cases were males. Pedestrian were common cases in this study, the most common fractures in RTA in this study were femoral fractures followed by tibia. There is a relation between fractured tibia and site of case p value=>0,001, a relation between fractured pelvis, femur and age (p value =, 003 and 0,002) respectively, and a relation between sex and fractured femur p value=0,043. **Conclusion AND Recommendations:** It is concluded in this study that RTA is a big problem in Egypt especially fractures which managed commonly with operations with high cost on country. Further statistical studies in Egypt concerning road traffic accidents epidemiology causes, type of vehicles, toxicological screening .... Etc. are needed to cover the problem as much as possible to help concerned ministries & agencies to track the problem & thus find solutions to save lives & economy.

## Key words

RTA, Fractures and extremities

## Introduction

Globally, road traffic accidents (RTAs) are responsible for more than 1.2 million deaths yearly and are the leading cause of death among those aged 15-44years. Egypt is one of the countries that have the highest world RTAs rate (Hofman et al., 2005).

According to the Egyptian General Traffic Administration (2008), the number of injured and dead victims reached 13,374 and 3607, respectively, in the period from 2000 to 2007 due to RTAs in Great Cairo. Moreover, RTAs pose, not only a social problem that kills great numbers of people, but also an economic problem that costs society a lot of money and is an undesirable economic burden (Ismail and Abdelmageed, 2010).

The World Health Organization (WHO) has confirmed that financial losses due to RTAs worldwide are more than 500 billion dollars and financial losses in Egypt are around 6-8 billion Egyptian pounds (Abd El Moaty, 2008).

## Aim of the Study

The aim of the present study was to establish an objective medico-legal assessment and evaluation of road traffic accidents (RTAs) in Egypt, to identify common types of fractures caused by RTAs, and their

outcomes, to describe the most affected age group, gender, and time of occurrence.

## Setting:

Data were collected from patients admitted to Orthopedic Department of Al-Hadra University Hospital in Alexandria due to RTAs along the duration of six months from March to September 2020.

## Subjects and data collection tools

Number of fracture cases was 150 and were classified according to the following parameters:

- Demographic parameters: age, gender, occupation and Residence.
- Circumstantial parameters: Time of accident, Transportation method, Position of case during accident, Site of fracture, Type of fracture, complications of fracture, other injuries and treatment.

## Results

Demographic parameters:

Regarding age, 54 cases (36%) were from 30 to 39 years, 24 cases (16%) were from 20 to 29 years, 22 cases (14.7%) were from 40 to 49 years, 21 cases (14%) were from 50 to 59 years, 15 (10%) were above 60, and 14 (9.3%) were below 20 years of age. As regards to gender, 132 cases (88%) were males and 18

(12%) were females. As for residence, 84 cases (56%) were from Alexandria, 45 (30%) from Behira, 15(10%) from Kafr-el-Sheikh, 5 (3.3%) from Matrouh. As regards to occupation, 30 cases (20%) were drivers, 23 (15.3 %) were students and 97(64.7 %) were other occupations (table 1).

Circumstantial parameters:

Regarding the time of the accident, 68 accidents (45.3%) occurred in the morning, 52(34.7%) occurred at mid-day, and 30 (20.0 %) occurred at night. As regards the transportation method, 60 cases (40%) were pedestrians, 37(24.7%) were motorcyclists, 22(14.7%) were car occupants, 15 cases were in (10%) minibuses and 16 (10.7%) were vehicles other than the previously mentioned.

As for the position of the case during the accident: 60 cases (40%) were pedestrians, 37 (24.7%) were motorcyclists, 18 (12%) were driver seats, 13 (8.7%) were front seat cars, 8 (5.3%) were front seat microbus passengers, 6 (4%) were rear seat toctoc, 3 (2%) were rear seat microbus, 2 (1.3%) were in toctoc, 2 (1.3%) were in a tractor, and 1 (0.7%) were a truck driver (table 2).

Regarding upper limb fractures: 20 cases (13.3%) showed right radius fractures compared to 19 cases (12.7%) had left radius fracture, 18 cases (12.0%) had fracture in right ulna, 17 cases (11.3%) had the fracture in the left ulna, 12 cases (8.0 %) right wrist fracture observed, right humerus fracture observed in 10 cases(6.7%), 8 cases (5.3%) had fracture in the left humerus, 8 cases (5.3%) were in right clavicle, 4 cases (2.7%) in left clavicle, 1 case (0.7 %) was in right scapula, 1 case (0.7 %) was in left scapula, 1 case (0.7 %) was in left wrist (table 3 and figure 1).

While regarding lower limb fractures; 29 cases (19.3%) showed fractured right tibia, 28 cases (18.7%)

showed left tibia fracture, 27 cases (18.0%) had right femur fracture, 26 cases (17.3%) were left femur fracture, 24 cases (16.0%) were right knees, 22 cases (14.7%) were left knees, 15 cases (10.0%) were pelvis, 14 cases (9.3%) were right fibula, 14 cases (9.3%) were right ankle, 8 cases (5.3%) were left fibula, and 4 cases (2.7%) were left ankle (Table 3 and figure 2).

Table (4) showed that 13 cases (8.7%) showed nerve or vessel injury, 21 cases (14%) presented with general complications while other injuries or wounds occurred in 70 cases (70%).

Regarding the relation between gender and age, there was a statistically significant difference ( $p < 0.05$ ) between both males and females; a male dominance was observed. More specifically males were also significantly higher in the age group ranging 30 - < 40 years (table 5).

No significant association between gender and upper limb fractures as shown in table 6.

No significant association between gender and lower limb fractures in males and females was detected. Only left femur fractures showed a significant association with females (table 7).

There was a significant association between motorcyclists and pedestrians and the operative management. Moreover, toctoc rear seat occupants were significantly associated with conservative management. While tractor and truck seat occupants were significantly associated with amputation (table 8).

Age group (30-< 40) was significantly associated with operative management and amputation, whereas age group below 20 was significantly associated with conservative management. Males were significantly associated with conservative, operative and amputation management (table 9).

**Table (1): Distribution of demographic features among studied groups (n = 150)**

	Number (n.)	Percent (%)
<b>Age</b>		
Below 20	14	9.3
20 – < 30	24	16.0
30 – < 40	54	36.0
40 – < 50	22	14.7
50 – < 60	21	14.0
Above 60	15	10.0
Min. – Max.	5.0 – 73.0	
Mean ± SD.	37.17 ± 14.60	
Median (IQR)	31.50 (29.0 – 48.0)	
<b>Gender</b>		
Male	132	88.0
Female	18	12.0
<b>Residence</b>		
Alex	84	56.0
Behira	45	30.0
Kafr-el-Sheikh	15	10.0
Matrouh	5	3.3
Other	1	0.7
<b>Occupation</b>		
Driver	30	20.0
Student	23	15.3
Other	97	64.7

**Table (2): Distribution of circumstantial evidence of the accidents in the current study.**

	Number (n.)	Percent (%)
<b>Time of injury</b>		
Morning (8am-3pm)	68	45.3
Mid-day (3-10pm)	52	34.7
Night (10pm-8am)	30	20.0
<b>Transportation method</b>		
Pedestrian	60	40.0
Car	22	14.7
Microbus	15	10.0
TOCTOC	12	8.0
Motorcycle	37	24.7
Truck	1	0.7
Tractor	2	1.3
Other vehicle e.g Polleyclark	1	0.7
<b>Position of case during accident</b>		
Driver seat	18	12.0
Front seat car	13	8.7
Front seat microbus	8	5.3
Motorcyclists	37	24.7
Pedestrian	60	40.0
Rear seat microbus	3	2.0
Rear seat toctoc	6	4.0
Toctoc driver	2	1.3
Tractor	2	1.3
Truck seat	1	0.7

**Table (3): Percent of injury profile in the studied groups (n = 150):**

Site of fracture	Number (n.)	Percent (%)
<b>Upper limb fracture</b>		
Right Scapula	1	0.7
Lt Scapula	1	0.7
Right Clavicle	8	5.3
Lt Clavicle	4	2.7
Right Humerus	10	6.7
Lt Humerus	8	5.3
Right Ulna	18	12
Lt Ulna	17	11.3
Right Wrist	12	8
Lt Wrist	1	0.7
Right Radius	20	13.3
Lt Radius	19	12.7
<b>Lower limb fracture</b>		
Pelvis	15	10
Right Femur	27	18
Lt Femur	26	17.3
Right Tibia	29	19.3
Lt Tibia	28	18.7
Right Fibula	14	9.3
Lt Fibula	8	5.3
Right Knees	24	16
Lt Knees	22	14.7
Right Ankle	14	9.3
Lt Ankle	4	2.7

**Table (4): Features of fractures of the studied group (n = 150)**

	Number (n.)	Percent (%)
<b>Type of fracture</b>		
Open	22	14.7
Closed	128	85.3
<b>Complication of fracture as nerve or vessel injury</b>		
No	137	91.3
Yes	13	8.7
<b>General complication</b>		
No	129	86
Yes	21	14
<b>Other injuries or wounds</b>		
No	80	53.3
Yes	70	46.7
<b>Treatment/management</b>		
Operative	124	82.7
Conservative	21	14
Amputation	5	3.3

Table (5): Percent of age groups in comparison to gender in the studied patients

Sex/sig	< 20 (n = 14)		20 – < 30 (n = 24)		30 – < 40 (n = 54)		40 – < 50 (n = 22)		50 – < 60 (n = 21)		60 + (n = 15)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male (n = 132)	6	4.5	20	15.2	54	40.9	22	16.7	20	15.2	10	7.6
Female (n = 18)	8	44.4	4	22.2	0	0.0	0	0.0	1	5.6	5	27.8
$\chi^2$ ( <sup>MC</sup> p)	37.219 (<0.001 <sup>*</sup> )											

$\chi^2$ : Chi square test, MC: Monte Carlo, p: p value for association between different categories, \*: Statistically significant at  $p \leq 0.05$

Table (6): Relation between site of upper limb fractures and sex

		Sex				$\chi^2$	<sup>FE</sup> p
		Male		Female			
		No.	%	No.	%		
Scapula	Rt	1	0.8	0	0.0	0.137	1.000
	Lt	1	0.8	0	0.0	0.137	1.000
Clavicle	Rt	6	4.5	2	11.1	1.352	0.246
	Lt	2	1.5	2	11.1	5.620	0.071
Humerus	Rt	7	5.3	3	16.7	3.287	0.102
	Lt	6	4.5	2	11.1	1.352	0.246
Ulna	Rt	18	13.6	0	0.0	2.789	0.130
	Lt	17	12.9	0	0.0	2.614	0.225
Wrist	Rt	11	8.3	1	5.6	0.166	1.000
	Lt	1	0.8	0	0.0	0.137	1.000
Radius	Rt	20	15.2	0	0.0	3.147	0.132
	Lt	19	14.4	0	0.0	2.967	0.130

$\chi^2$ : Chi square test, FE: Fisher Exact, p: p value for association between different categories

Table (7): Relation between site of lower limb fractures and sex

		Sex				$\chi^2$	<sup>FE</sup> p
		Male		Female			
		No.	%	No.	%		
Pelvis		14	10.6	1	5.6	0.449	1.000
Femur	Rt	26	19.7	1	5.6	2.146	0.198
	Lt	26	19.7	0	0.0	4.289 <sup>*</sup>	0.043 <sup>*</sup>
Tibia	Rt	28	21.2	1	5.6	2.490	0.199
	Lt	27	20.5	1	5.6	2.316	0.198
Fibula	Rt	14	10.6	0	0.0	2.106	0.220
	Lt	7	5.3	1	5.6	0.002	1.000
Knees	Rt	24	18.2	0	0.0	3.896	0.079
	Lt	22	16.7	0	0.0	3.516	0.076
Ankle	Rt	14	10.6	0	0.0	2.106	0.220
	Lt	4	3.0	0	0.0	0.560	1.000

$\chi^2$ : Chi square test, FE: Fisher Exact, p: p value for association between different categories, \*: Statistically significant at  $p \leq 0.05$

**Table (8): Relation between position of case during accident and management**

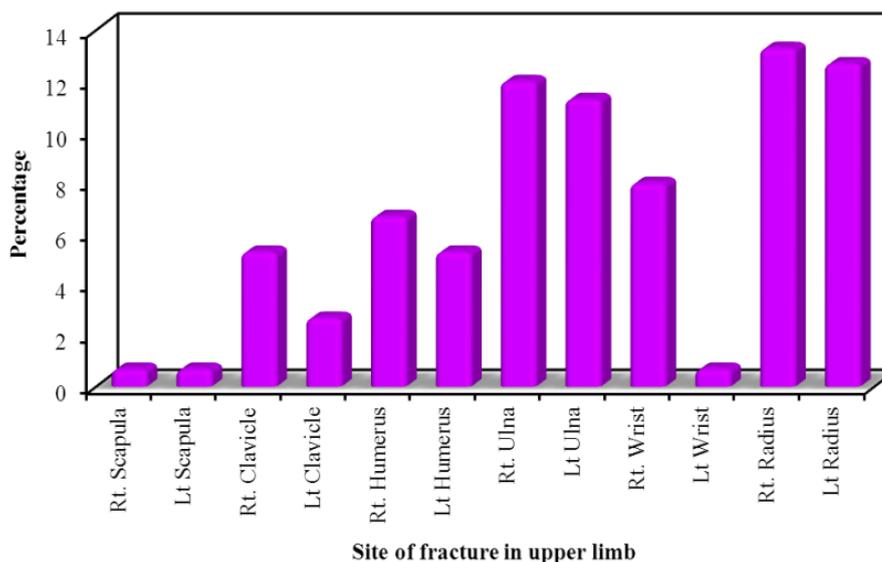
Position of case During accident	Management						$\chi^2$	MC p
	Operative		Conservative		Amputation			
	No.	%	No.	%	No.	%		
Driver seat	15	12.1	2	9.5	1	20.0	56.906*	<0.001*
Front seat car	12	9.7	1	4.8	0	0.0		
Front seat microbus	7	5.6	1	4.8	0	0.0		
Motorcyclists	32	25.8	4	19.0	1	20.0		
Pedestrian	56	45.2	3	14.3	1	20.0		
Rear seat microbus	2	1.6	1	4.8	0	0.0		
Rear seat toctoc	0	0.0	6	28.6	0	0.0		
Toctoc driver	0	0.0	2	9.5	0	0.0		
Tractor	0	0.0	1	4.8	1	20.0		
Truck seat	0	0.0	0	0.0	1	20.0		

$\chi^2$ : Chi square test, MC: Monte Carlo, p: p value for association between different categories, \*: Statistically significant at  $p \leq 0.05$

**Table (9): Relation between age, sex and management**

	Management						$\chi^2$	MC p
	Operative		Conservative		Amputation			
	No.	%	No.	%	No.	%		
<b>Age</b>								
Below 20	5	4.0	7	33.3	2	40.0	20.976*	0.003*
20 – < 30	20	16.1	4	19.0	0	0.0		
30 – < 40	46	37.1	5	23.8	3	60.0		
40 – < 50	20	16.1	2	9.5	0	0.0		
50 – < 60	20	16.1	1	4.8	0	0.0		
Above 60	13	10.5	2	9.5	0	0.0		
<b>Sex</b>								
Male	116	93.5	11	52.4	5	100.0	20.823*	<0.001*
Female	8	6.5	10	47.6	0	0.0		

$\chi^2$ : Chi square test, MC: Monte Carlo, p: p value for association between different categories, \*: Statistically significant at  $p \leq 0.05$

**Fig (1): Site of fracture in upper limb of studied group (n = 150)**

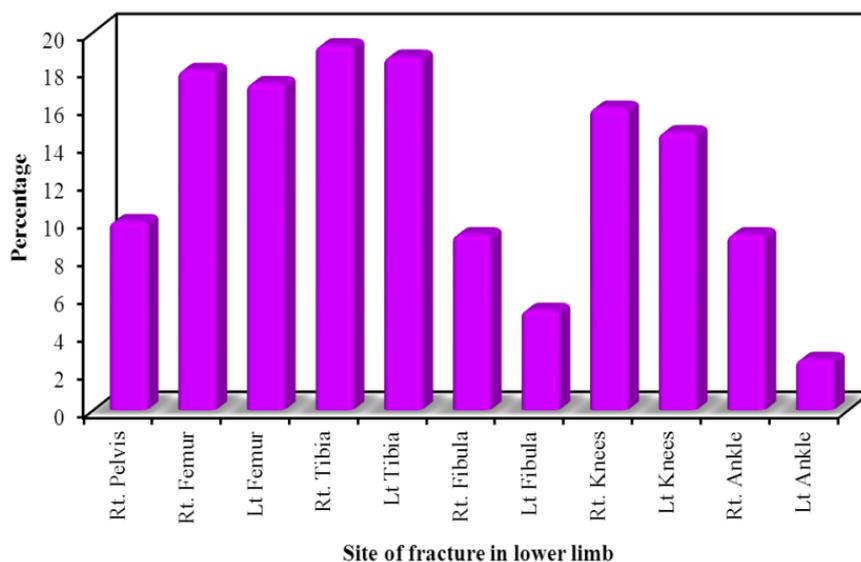


Fig (2): Site of fracture in lower limb of studied group (n = 150)

## Discussion

Road traffic accidents (RTAs) is an issue of national concern, considering its magnitude, gravity and the consequent negative impact on economy, public health and the general welfare. It represents a major but neglected public health problem in both developing and developed countries. (Krishna et al., 2019).

World Health Statistics 2008 cited in Global Status Report on Road Safety states that RTAs in 2004 were the 9th leading cause of death and at current rates by 2030 are expected to be the 5th leading cause of death, overtaking diabetes and Human immunodeficiency virus infection (HIV) /acquired immunodeficiency syndrome (AIDS). According to the Indian government's National Crime Record, number of vehicle accidents was 430,600 resulting in 133,938 deaths and 470,600 injuries, representing 37.2% of all deaths from unnatural causes (Burlew et al., 2018; Krishna et al., 2019).

A fracture is a medical condition where partial or complete bone breakage occurs. RTAs is one of the leading factors causing bone fractures, which is the first leading cause of death among people aged 15-29 years (Road traffic injuries; WHO, 2020).

The aim of the presented study was to establish an objective medico-legal assessment and evaluation of road traffic accidents in Egypt, to identify common types of fractures caused by road traffic accidents, and their outcomes, to describe the most affected age group, gender, type of people, and time of occurrence.

Regarding age and gender, the present study showed that most victims were young in their most reproductive and productive years (36.0% were 30-39 years of age) with a male preponderance (88%).

Trauma is primarily a disease of the young, active and productive subgroup of the population. In young men, traumatic injury has been described as "epidemic" and more than 50% of deaths due to trauma occurs under the age of 45 (WHO health report, 2003& Fildes, 2004).

The reason for high incidence of RTAs in males is due to greater male exposure on streets and this reflects their high activity levels and participation in high-risk activities such as reckless driving/riding, over-speeding, and driving without wearing any protective gears. (Ghosh, 1992 & Varghese, 1991). On the contrary, females are involved in various indoor activities mostly due to cultural background and extra precaution taken by family members to keep them safe. Other studies observed that the peak age of male victims was in the 4th decade, with the mean at 33 years (Akang, 2002).

Regarding timing of the accident, 45.3% were at morning, 34.7% were mid-day, and 20% were at night. This finding is consistent with an investigation done in India by (Singh .,2017) who reported that RTAs were most common between 9am-9pm and less common in the early morning and late at night (Zhang et al .,2017), while it was slightly contradicted by Nangana et al., (2016) in Lubumbashi, Democratic Republic of Congo who found that RTAs were high in the 5-8pm time range followed by 9am-12pm and low in the early morning (5-8am).

As for the injured site, the present study revealed that fractures of the lower limbs dominated with a percent of 68%.

This is inconsistent with (Singh et al., 2014) who stated that the most common site for fractures was the lower limb 38 cases (38.34%), followed by upper limb 34 cases (34.3%) and skull/maxillofacial 10 cases (10.1%). Fractures are mostly of the lower extremities due to interaction of gravitational force and velocity of the vehicle at time of accident. But in another study, it was reported that RTA fractures occurred mainly in upper limbs followed by lower limbs and facial bones. On the contrary, a third study showed that the commonest injury was fracture of bones of the head and face and closely followed by the lower extremity (Wong, 1989). And again, a fourth study indicated that injuries and fractures were more common on the right

side in both upper and lower extremities (Vijayamahantesh, 2012)

Regarding victim' status the present study showed that 40% were pedestrians, 14.7% were car occupants, and the rest used other vehicles. Most of the victims had no idea about the rules of crossing roads together with defective road networks e.g., absence of pavements, sidewalks... etc) and the defective behaviors of drivers towards road users, all previous factors explain the reason behind the high percent of pedestrian victims. This agrees with Anne and other colleagues (2006), in Sweden, who concluded that vehicles involved in road accidents differ in high income countries where the privately owned cars are predominantly involved in RTA. In developing countries, buses, minibuses and trucks are often involved where groups of passengers may be killed or injured in a single accident.

On the other hand, Mormor et al., (2005) concluded that, drivers sustained most RTA injuries, and they explained that most victims in their study usually drove their own vehicles.

Regarding position (site) of case during accident, 12% were drivers, 8.7% were front seats, 5.3% were front seat passengers in microbus, 24.7% were motorcyclists, 40% were pedestrians, 2% were microbus rear seat occupants, 4% were toctoc rear seat passengers, 1.3% were toctoc drivers, 1.3% were tractor passengers, and 0.7% was a truck driver. Front seat passengers in cars are markedly less injured than those in minibuses, and this may be explained by the fact of using seat belts by car passengers. Seat belt reduces injury severity by preventing them from hitting objects around them and being ejected through the windows (Bendett., 2018). Crash studies in various countries have shown that the rate of seat belt use in total collisions is significantly lower than the general average rate. For example, in Finland only around 55% of drivers were buckled up in total accidents, in Sweden around 35% (Parra-torres, 2013).

In the present study, as regards upper limb fractures, the following fractures were significantly higher in pedestrians (right radius in 30%, right ulna in 26.7%, left radius in (25%); as for lower limb fractures, the following fractures were significantly higher in pedestrians (right tibia in 36.7%, right femur in 33.3%, right knee in 31.7%, left tibia in 30%, left femur in 28.3%, left knee in (28.3%).

Presence of significant multiple injuries in pedestrians in the present study comes in agreement with Al Madani and Al Janahi., (2006) who found that lower extremity fractures were more frequent in pedestrians.

Our study coincided with Kumar and Toshniwal, (2016) who observed that 21.4% of victims had multiple fractures involving more than two sites. Another paper published in Saudi Arabia reported that lower and upper limbs were the most common fracture site in patients admitted to the orthopedic ward (Sadat., 2015). Meena et al., (2013) documented that fractures of upper limbs were recorded more frequently than those of the lower extremities, while (Pan et al., 2019)

showed that fractures of the upper, lower extremities as well as those of the spine and trunk were the most common sites, this contradiction could be attributed to the type of occupied vehicles.

In this study, femurs were the most frequently fractured among males which is opposed by results found by (Sonbol et al. 2018) who reported that tibial and patellar fractures were more commonly fractured among males. They further observed that fractures of neck of femur and tibia were more among age group 30-60 years which agrees with results of our study which reported that there was a significant association between left femur and left tibial fractures with the age group 30-39 years.

## Conclusion

Our study concluded that: in men, the maximum number of cases was found in the age group 30-39 years 54 (40.9%). The reason for the high incidence of RTAs in men is due to higher road exposure and high level of activity, as well as participation in high-risk activities such as driving / driving and over speeding and driving without protective equipment. The commonest site of fracture was the lower limb 102 cases (68.0%), followed by upper limb 55 cases (36.7%). Femur and Tibia fractures were the most known fractures among males. RTAs account for many orthopedic fractures that cause long hospitalization and increased mortality rates. In this regard, awareness is necessary for targeting the high-risk group, who are the adult males. Less than half of RTA victims were pedestrians. Pedestrians were the most common victims of RTAs 60 cases (40.0 %). lower extremities fractures were more frequent. Pedestrian don't know properly how and when they cross the roads together with defective road networks towards victims e.g. absence of pavements sidewalk). In this study, we observed that femur fractures were the most frequently found fractures among men. Most accidents occurred at morning and early afternoon (9am-3pm) (45.20%) followed by late afternoon and evening (3pm-9pm) (37.5%). As these hours of the day are the time of people activities (going to work or schools in morning and returning to home in afternoon or evening) and so the traffic is heavy. Permanent infirmity is considered a lifelong burden, as it deteriorates the quality of life, and destroys the fruitful work years of the victim. Egypt represents the highest country in the world of road traffic accidents rate, and that explained by bad conditions of the roads, over population, lack of experience of drivers.

## Recommendations

From the previous work we recommend the following:

- RTAs need effective rapid preventive measures to decrease its incidence.
- First aid measures and equipment must be available as early as possible at site of accidents or injuries to decrease the occurrence of infirmities.
- The medical staff in casualty department must do their efforts to treat the traumatized patient to avoid complication of simple injuries to change into dangerous injury with infirmity.

- Collective efforts within the government agencies to educate drivers on safe driving are vital for decreasing the high prevalence of RTAs in our region.
- Good maintenance of roads, as well as proper road signs, are also necessary to prevent the occurrence of RTAs.
- Improvement of the different roads and use of safety measures as seat belt and head helmet to avoid severe injuries especially in head which occur in road traffic accidents is recommended.
- License for driving should be given only to qualified persons after strict testing.
- Further research is recommended for exploring the risk factors either in road structure or personal factors that increase the frequency of RTAs

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## حالات كسور العظام الناتجة عن الحوادث المرورية والمحاولة إلى قسم جراحة العظام بمستشفى الحضرة الجامعي دراسة: رصدية من مركز علاجي واحد

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### الملخص العربي

المقدمة:

تشكل حوادث المرور على الطرق جزءًا كبيرًا من العبء المرضي في جميع أنحاء العالم ، حيث يلقي حوالي ١,٢ مليون شخص مصرعهم في حوادث الطرق كل عام ، كما يصاب حوالي ٥٠ مليون شخص في تلك الحوادث. ويشغل هؤلاء المصابون نسبة تتراوح بين ٣٠ % إلى ٧٠ % من المرضى بوحداث جراحات العظام في مستشفيات البلدان النامية. وفي حال استمرت المعدلات الحالية فمن المتوقع أن تحتل الإصابات الناجمة عن الحوادث المرورية على الطرق السبب الرئيسي الثالث للعبء العالمي للمرض والإصابة بحلول عام ٢٠٢٢ .

وقد اشتملت الدراسة الحالية على مائة وخمسين (١٥٠) حالة من كلا الجنسين ومن فئات عمرية مختلفة من حالات أصيبت بكسور نتيجة حوادث مرورية وتم تحويلها إلى قسم العظام بمستشفى الحضرة الجامعي بالإسكندرية في دراسة رصدية اهتمت بالبيانات الديموغرافية وبناتج العلاقات بين تلك البيانات الديموغرافية ونوع الكسر وموقعه. وأظهرت النتائج أن معظم حالات الإصابات كانت من الذكور ، وكانت إصابات المشاة هي الأكثر شيوعا في الدراسة وأن كسور عظمة الفخذ هي الأغلب تليها كسور عظام قصبه الساق .

وقد خلصت الدراسة إلى التأكيد على أن الإصابات الناتجة عن الحوادث المرورية تمثل مشكلة كبيرة في مصر ، خاصة تلك الكسور التي تحتاج إلى تدخلات جراحية ذات كلفة مادية عالية تمثل عبء على ميزانية الدولة. ويتطلب الأمر في مصر إجراء المزيد من الدراسات الاحصائية عن تداعيات حوادث الطرق وعلاقتها بنوع المركبات مع الإهتمام بإجراء فحوصات عن متعاطين المواد المخدرة من السائقين بصورة دورية وذلك لتتبع المشكلة وإيجاد حلول لها لإنقاذ الأرواح والاقتصاد.

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