

Study of Road Traffic Accidents Cases admitted to Ain Shams University Hospitals during Years 2017 and 2018

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Abstract

Background: Egypt loses about 12,000 persons every year because of road traffic accidents with mortality rate of 42 deaths per 100 000 populations. Little less than half (48%) of them are four-wheelers passengers and the fifth (20%) are pedestrians. The world health organization estimated that 50 million people are injured, and the worldwide annual road traffic deaths was 1.2 million and continues to rise steadily, reaching 1.35 million in 2016. **Aim:** This study aimed at determination of pattern and status of Road traffic accidents (RTA) injuries and deaths on an Egyptian sample. **Methods:** This is a retrospective study on cases of RTA admitted to the Emergency Department of Ain Shams University Hospitals during a two-year period starting from the first of January 2017 till the end of December 2018. **Results:** In the years 2017 and 2018, 1282 RTA patients were admitted to Ain Shams University Hospitals. The highest proportion of cases was from 20 - <30 years. Pedestrians were the most common victims. Almost all cases had the suitable radiological investigation according to the mode of injury, and 46.9% of the cases were presented with lower limb injuries. Most of the patients were treated surgically, and 42.1% of the cases stayed 6 days and more. Head injuries were the main cause of death. **Conclusion:** RTAs are a considerable problem threatening population safety. Most of Victims were males, in the productive age and pedestrians. Head injury is the most frequent cause of death. **Recommendation:** Nationally accepted, well-coordinated safety education programs are one of the fundamental steps leading to limiting the problem that costs huge mortalities, morbidities, and property damage.

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Key words

RTAs, Egyptian sample, Medicolegal assessment

Introduction

Forensic medicine professionals, during their work on legal cases requiring medical clarification, struggle to provide fair medical judgments that support individuals involved in traffic accidents and share in the establishment of more secure community (Kibayashi et al., 2014).

The World Health Organization (WHO) defines road traffic injury (RTI) as a fatal or nonfatal injury incurred as a result of a collision on a public road involving at least one moving vehicle and another vehicle or pedestrians (Abegaz and Gebremedhin, 2019). Road traffic accidents (RTA) represent a large global public health issue because of their increasing occurrence, related deaths, disabilities, social and financial consequences. The WHO estimated that 50 million people are injured and as many as 1.2 million are killed in a road accident every year, and the quantity of road traffic deaths continues to rise steadily, reaching 1.35 million in 2016 (WHO, 2018).

In Egypt, it was registered that about 12 000 persons are killed in RTA every year, with a death rate of 42 / 100 000 population. Egypt's State Statistics Agency (The Central Agency for Public Mobilization and Statistics (CAPMAS) has revealed that year 2018

saw 8,480 road accidents within the country down from 11,098 in 2017, a drop of 23.6 %. Road accidents deaths decreased to 3,087 in 2018, compared to 3,747 in 2017. The number of accidents on highways was recorded at 24.6 accidents per day in the first half of 2018 (CAPMAS, 2019).

Among the risk factors identified by WHO for road traffic accidents are human factors such as speeding, driving while intoxicated or under the influence of psychoactive substances, non-compliance, or absence of safety provisions (helmet, seat belt, car seat for children...), distracted driving due to the use of mobile phone. This is in addition to environmental and road factors such as dangerous road and infrastructure failure to comply with highway traffic act (Deme, 2019).

Searching about information regarding the system of investigation road traffic accident cases in Egypt revealed that according to the roles adopted by Ministry of Health, all cases of traffic accidents are referred to emergency department at the Ministry of Health. So, the majority of deceased are buried without a medicolegal investigation of the nature of the accident, the cause and the mechanisms of death.

In medicolegal practice, the court needs an answer to the mechanisms of injury, severity of injuries, direction of impact, and direct cause of death to determine whether the accident was accidental or criminal and to measure the degree of responsibility for the infliction of accidents. Documentation of this information in patient's sheets and increasing awareness of doctors about the importance of medicolegal information could be of value in answering court questions on scientific basis.

Aim of the Study

This study aimed to determine the pattern and status of RTA injuries and deaths on an Egyptian sample.

Patients and Methods

The study was done on Cases of RTA admitted to the Emergency Department of Ain Shams University Hospitals during a two-year period starting from the first of January 2017 till the end of December 2018 were the study population. During the period of the study, 1282 patients were admitted to the emergency department of Ain Shams University and were included in our study. Using PASS 11 program for sample size calculation and assuming that mortality rate of road traffic accidents = 50% ± 5%, the minimal sample size is 384 accidents detects this rate with 95 % confidence level.

Study tools: Data were collected from patients' medical records including socio-demographic data; age and gender, type of accidents; passengers or pedestrian, radiological investigations, different types of injuries encountered, type of surgical intervention, location of the accident, hospital stay length, outcome, and death rate. Data were recorded in a data collection form with a special code for each patient.

Ethical considerations: An official approval was taken from the general director of Ain Shams University Hospitals and the approval of the Research Ethics Committee (REC) of faculty of medicine Ain Shams University (FWA00017585).

Statistical analysis: All data were statistically analyzed using the Statistical Package for Social Sciences (SPSS for windows, version 23.0). The numerical results were expressed as mean ± standard deviation (SD) and the categorical results were expressed as percentage (%). Chi square test were performed to compare between groups in regard to the categorical data, then the p values were calculated, $p > 0.05$, < 0.05 and < 0.01 were considered as non-significant, significant and highly significant respectively.

Results

During the year 2017, 590 out of 12985 road traffic accident (RTA) patients were admitted to Ain Shams University Hospitals in comparison to 692 patients out of 13472 in 2018.

1) Socio-demographic data:

The cases age and gender distributions were illustrated in (table 1). The highest proportion of cases was from 20 - <30 years (24.6%), while the least were from 70 and above constituting (1.6%) of cases. The

majority of cases were male (81.1 %).

2) Location of accident:

Al Qalyubia governorate represented the site of highest number of cases (157; 12.25%), while Badr City and Hurghada - Safaga Rd showed the least number (6; 0.47%).

3) Type of accidents:

Pedestrians (hit by car) were the most common victims (41.3%) followed by falling of a motorcycle, passengers, pedestrian (hit by motorcycle) and lastly drivers (20.0%, 14.1%, 13.9% and 10.8% respectively). The relation between age distribution and the type of accident was analyzed and demonstrated in (table 3). Drivers commonly presented in 20 - < 40 yrs age group, passengers mostly presented in the age group of 20 - < 30 yrs, falling of a motorcycle and pedestrian (motorcycle) had a wide range of distribution (10 - < 40 yrs), finally, pedestrians presented more in the age group of 10 - < 30 .

4) Radiological investigations:

Distribution of RTA cases according to the radiological investigation performed is demonstrated in table 4. Almost all cases (99.7%) had the radiological investigation according to the mode of injury.

5) Different types of injuries in road traffic accidents:

Almost half of the cases were presented with lower limb injuries and 20% with head and neck injuries, followed by external wounds, chest, spine, upper limb and abdominal injuries with no significant difference between both years (table 5).

Assessment of the relation between types of injuries and the types of accidents was performed. There was no statistically significant difference regarding external wounds, upper limb and abdominal & pelvic injuries. A statistically significant difference was noticed regarding spinal injuries which were more common in pedestrian (hit by car) and drivers (p -value = 0.047). High statistically significant differences were noticed concerning head & neck, chest and lower limb injuries (p -value = 0.003, 0.002 and 0.000 respectively) (table 6).

6) Types of surgical intervention:

Most of the patients (73.9%) were treated surgically. Open reduction & internal fixation of the fracture was the most common procedure performed in 59.9% of patients (table 7).

7) Hospital stay length, outcome and death rate:

On assessment of the hospital stay length, more than third of the cases (468; 36.5%) stayed 6 days or more, 235 cases (18.35%) stayed less than 2 days, 327 cases (25.5%) stayed 2 - < 4 days, and 252 cases (19.7%) stayed 4 - < 6 days as shown in (table 8).

Concerning the patient's outcome, about half of the patients (644; 50.2%) were discharged with follow up, 459 patients (35.8%) were discharged with improvement, 122 patients (9.5%) were discharged against medical device, and 57 patients (4.4%) died in hospital as shown in (table 9).

The relation between the type of the accident and the hospital stay length was assessed to non-survivors and was found that most of cases were

pedestrian and died after staying 6 days and more in hospital (table 10).

Head injuries were the main cause of death in about 73.6% of non-survivor cases (42 patients out of 57 patients died).

The relation between the accident type and the patients' outcome was analyzed (table 12). No statistically significant difference was found regarding the outcome in all type of accident with p-value (0.241, 0.117, 0.891, 0.555) respectively

Table (1): Age and gender distribution of 1282 patients of RTA admitted to Ain Shams University hospitals during two years (2017 and 2018).

Age Group	Male		Female		Total	
	No	%	No	%	No	% group
0 - < 10	64	68%	30	32%	94	7.3%
10 - < 20	237	84%	45	16%	282	22.0%
20 - < 30	277	87.7%	39	12.3%	316	24.6%
30 - < 40	208	85.2%	36	14.8%	244	19.0%
40 - < 50	119	75.3%	39	24.7%	158	12.3%
50 - < 60	73	73%	27	27%	100	7.8%
60 - < 70	48	70.6%	20	29.4%	68	5.3%
≥ 70	14	70%	6	30%	20	1.6%
Total	1040	81.1%	242	18.9%	1282	100%

Table (2): Distribution of cases of RTA admitted to Ain Shams University Hospitals during two years (2017 and 2018) regarding to the location of the accident.

	N	%		N	%
Al Qalyubia Governorate	157	12.25%	Helwan	22	1.7%
Nasr City	133	10.4%	Ash Sharqia Governorate	16	1.2%
Masr Al Jadidah	127	9.9%	Alexandria Desert Road	14	1.1%
El Salam & Al Marj	109	8.5%	El Mohandessin & El Zamalek	12	0.9%
Ring Road	80	6.3%	Al-Mokattam	12	0.9%
El-Abaseya	74	5.8%	Bulaq	11	0.85%
Port Said st	62	4.8%	6th of October Bridge	11	0.85%
Ramsees & Shubra	53	4.3%	Imbabah	11	0.85%
new Cairo & 90th Street	52	4.1%	Menoufia Governorate	10	0.78%
Salah Salem Road	51	4%	Masr_al Eskanderiya Agricultural Rd	8	0.62%
Al Matariyyah	47	3.7%	El Shorouk City	8	0.62%
Giza Governorate	46	3.6%	El Wahat Rd (Marsa Matruh)	8	0.62%
Ain Shams	37	2.88%	Faiyum Governorate	7	0.5%
Masr - Al Ismailia Desert Rd	34	2.6%	Autostrad Road	7	0.5%
Suez Road	28	2.1%	Badr City	6	0.47%
Old Cairo	23	1.8%	Hurghada - Safaga Rd	6	0.47%
Total				1282	100%

Table (3): The Relationship between the type of accident and ages of 1282 patients of RTA admitted to Ain Shams University hospitals during two years (2017 and 2018).

Age range in years	Driver	Passenger	Falling of a motorcycle	Pedestrian (hit by car)	Pedestrian (hit by motorcycle)
	Number%	Number%	Number%	Number%	Number%
0 - < 10	0 (0.0%)	17 (9.4%)	14 (5.5%)	40 (7.6%)	23 (12.9%)
10 - < 20	20 (14.5%)	32 (17.7%)	58 (22.7%)	122 (23.1%)	50 (28.1%)
20 - < 30	41 (29.7%)	42 (23.2%)	82 (32.0%)	117 (22.1%)	34 (19.1%)
30 - < 40	39 (28.3%)	31 (17.1%)	59 (23.0%)	81 (15.3%)	34 (19.1%)
40 - < 50	17 (12.3%)	30 (16.6%)	18 (7.0%)	77 (14.6%)	16 (9.0%)
50 - < 60	15 (10.9%)	16 (8.8%)	18 (7.0%)	41 (7.8%)	10 (5.6%)
60 - < 70	5 (3.6%)	9 (5.0%)	7 (2.7%)	38 (7.2%)	9 (5.1%)
≥ 70	1 (0.7%)	4 (2.2%)	0 (0.0%)	13 (2.5%)	2 (1.1%)
Total	138(10.8%)	181(14.1%)	256(20%)	529(41.3%)	178(13.9%)

Table (4): Radiological investigations of 1282 patients admitted to Ain Shams University hospitals during two years (2017 and 2018).

Radiological investigation	Number	%
Limb X-ray	821	64%
Limb CT-scan	45	3.5%
Brain CT-scan	190	14.8%
Brain CT-scan & MRI	39	3%
Chest X-ray	81	6.3%
Chest CT-scan	11	0.85%
Pelvi abdominal ultrasound	42	3.3%
Pelvi abdominal CT- scan	51	4%
Face bone X-ray	48	3.7%
Face bone CT-scan	24	1.9%
Vertebral CT-scan	30	2.3%
No	4	0.3%

Table (5): Chi square analysis of type of injury encountered in 1282 patients admitted to Ain Shams University hospitals during two years (2017 and 2018).

Type of injury	2017	2018	Test value*	P-value	Sig.
	Number = 590	Number = 692			
External wound	40 (6.8%)	54 (7.8%)	0.491	0.483	NS
Head & neck	127 (21.5%)	135 (19.5%)	0.797	0.372	NS
Chest	29 (4.9%)	41 (5.9%)	0.629	0.428	NS
Spine	10 (1.7%)	14 (2.0%)	0.187	0.666	NS
Upper limb	100 (16.9%)	137 (19.8%)	1.715	0.190	NS
Lower limb	290 (49.2%)	312 (45.1%)	2.114	0.146	NS
Abdomen & pelvis	14 (2.4%)	30 (4.3%)	3.700	0.054	NS

> 0.05: Nonsignificant (NS); < 0.05: Significant (S); < 0.01: Highly significant (HS)

Table (6): Chi square analysis between type of patients and the type of injuries encountered in 1282 patients admitted to Ain Shams University hospitals during two years (2017 and 2018).

	Driver	Passenger	Falling of a motorcycle	Pedestrian (hit by car)	Pedestrian (hit by motorcycle)	X ²	P-value
	N (%)	N (%)	N (%)	N (%)	N (%)		
External wound	8 (5.8%)	21 (11.6%)	14 (5.5%)	41 (7.8%)	10 (5.6%)	7.55	0.110
Head & neck	41 (29.7%)	35 (19.3%)	63 (24.6%)	86 (16.3%)	37 (20.8%)	15.9	0.003
Chest	14 (10.1%)	17 (9.4%)	12 (4.7%)	17 (3.2%)	10 (5.6%)	16.8	0.002
Spine	7 (5.1%)	3 (1.7%)	4 (1.6%)	9 (1.7%)	1 (0.6%)	9.62	0.047
Upper limb	23 (16.7%)	43 (23.8%)	56 (21.9%)	90 (17.0%)	25 (14.0%)	8.68	0.070
Lower limb	49 (35.5%)	62 (34.3%)	108 (42.2%)	290 (54.8%)	93 (52.2%)	36.5	0.000
Abdomen& pelvis	5 (3.6%)	6 (3.3%)	7 (2.7%)	21 (4.0%)	5 (2.8%)	1.07	0.899

> 0.05: Nonsignificant (NS); < 0.05: Significant (S); < 0.01: Highly significant (HS)

Table (7): Type of surgical intervention of 1282 patients of RTA admitted to Ain Shams University hospitals during two years (2017 and 2018).

Type of intervention	N	%
Wound debridement	86	6.7%
Skin grafting	13	1%
Open reduction & internal fixation	769	59.9%
Closed reduction & external fixation	77	6%
Limb amputation	7	0.54%
Exploratory laparotomy	21	1.6%
Underwater seal drainage	14	1.1%
Burr holes/craniotomy	30	2.3%
No surgical intervention	334	26%

Table (8): Distribution of 1282 patients of RTA admitted to Ain Shams University hospitals during two years (2017 and 2018) regarding period of stay in hospital.

Days	2017 No. = 590	2018 No. = 692	Total No. =1282	
Period of stay in hospital	Less than 2	100 (16.9%)	135 (19.5%)	235(18.35%)
	2 - < 4	136 (23.1%)	191 (27.6%)	327(25.5%)
	4 - < 6	104 (17.6%)	148 (21.4%)	252(19.7%)
	6 and more	250 (42.4%)	218 (31.5%)	468(36.5%)

Table (9): Distribution of 1282 patients of RTA regarding the outcome.

Outcome	2017 No. = 590	2018 No. = 692	Total
Improvement	126 (21.4%)	333 (48.1%)	459 (35.8%)
Discharge with follow up	383 (64.9%)	261 (37.7%)	644 (50.2%)
Against medical advice	51 (8.6%)	71 (10.3%)	122 (9.5%)
Non-survivor	30 (5.1%)	27 (3.9%)	57 (4.4%)

Table (10): Relationship between type of accident and period of hospital stay of non survivors (n=57 of RTA).

Period of stay in hospital	Driver		Passenger		Falling of a motorcycle		Pedestrian (hit by car)		Pedestrian (hit by motorcycle)		total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 2	3	42.85%	0	0.0%	4	44.4%	8	27.5%	2	33.3%	17	29.9%
2 - < 4	0	0.0%	0	0.0%	3	33.3%	5	17.2%	2	33.3%	10	17.5%
4 - < 6	1	14.3%	1	16.7%	0	0.0%	3	10.3%	1	16.7%	6	10.5%
6 and more	3	42.85%	5	83.3%	2	22.2%	13	44.8%	1	16.7%	24	42.1%
Total	7	100%	6	100%	9	100%	29	100%	6	100%	57	100%

Table (11): Demonstrate the type of injury in 57 non-survivors of RTA admitted to Ain Shams University hospitals during two years (2017 and 2018).

	Number of non-survivors	
	No.=57	%
External wound	0	0
Head & neck	42	73.6%
Chest	5	8.8%
Spine	4	7%
Upper limb	0	0
Lower limb	0	0
Abdomen& pelvis	6	10.6%

Table (12): chi-square analysis between the accident type and the patients' outcome of 1282 patients of RTA admitted to Ain Shams University hospitals during two years (2017 and 2018).

Outcome	Driver	Passenger	Falling of a motorcycle	Pedestrian (hit by car)	Pedestrian (hit by motorcycle)	X ²	P-value
	No.=138	No.=181	No. = 256	No. = 529	No. = 178		
Discharge for improvement	59(42.8%)	72 (39.8%)	87 (34.0%)	179(33.8%)	62 (34.8%)	5.48	0.24
Discharge with follow up	57(41.3%)	84 (46.4%)	135 (52.7%)	272(51.4%)	96 (53.9%)	7.37	0.12
Discharge with medical advice	15 (10.9%)	19 (10.5%)	25 (9.8%)	49 (9.3%)	14 (7.9%)	1.12	0.89
Death	7 (5.1%)	6 (3.3%)	9 (3.5%)	29 (5.5%)	6 (3.4%)	3.02	0.56

Discussion

The current study is a retrospective study aimed to determine the pattern and status of RTAs injuries and deaths. Egypt loses about 12,000 persons every year because of road traffic accidents with mortality rate of 42 deaths per 100 000 populations. Little less than half (48%) of them are four-wheelers passengers and the fifth (20%) are pedestrians. Road traffic accidents (RTAs) are incriminated to be responsible for considerable human as well as economic loss (Hammad et al., 2019).

The present study showed that the highest percentage of the injured patient was in the age group of 20 - <30 years and 10- <20 years (about quarter of cases for each). These represent the most active phase of life and the age of adolescence during which risky behavior is expected. This is a serious finding because injuries and deaths in youth have a great negative impact on the community as youth stage of life is the most productive period. children 0-<10 years showed lower incidence (7%) of RTA as they get great care by their parents and

not allowed to drive, while old age 60- <70 & 70 and above had the least incidence (5% and 2% respectively), this seems to be due to low mobility of the individuals in this age range. These results were in agreement with other previous studies. The French epidemiological center announced that the age group 15–24 years showed the highest death rate (Gicquel et al., 2017). Kandeel and Elagamy (2018) study demonstrated that patients in the age range of 15 to 30 were most commonly the victims of RTAs (43.8%). Also, El Bakash et al. (2016) found that the highest percentage of the injured patient was in the age group of 10 – 20 years (30%).

Regarding the gender, the majority of cases in the current study were male, both in each age group and in the total number of cases with percentage (81.1%). Men spend more time outside home, in addition to being more commonly employed as drivers, among others the long-haul vehicles drivers who spends several continuous days and nights in the vehicle. Moreover,

some men have aggressive behavior during driving and tend to enjoy high-speed driving; this is not seen in females usually as they tend to keep a distance between their vehicles and those driven by females. Similar to the present study, male predominance was also observed by other studies conducted in developing countries. Al-Thaifani et al. (2016) reported male predominance percentage of 81.3% in Yemen and Flayyih et al. (2017) reported percentage of 84 % in Iraq. This agrees with a study by El Bakash et al. (2016) conducted in Egypt that described males as being the bread earners for the family and hence they are mainly involved in outdoor activities providing higher chance for exposing to accidents. This finding reflects huge productivity loss. In the current study pedestrians (hit by a car) were the most common victims followed by falling off a motorcycle, passengers, pedestrians (hit by motorcycle), and lastly drivers. A possible explanation is that pedestrian behaviors lack the perception of risk, unaware of laws, have a little understanding about the traffic signs. From another point of view, this may be due to driving under the effect of drug or due to over-speed driving, poor or absence of sidewalks in Egypt (Heinonen and Eck, 2007). This is in accordance with a study of Kandeel and Elagamy (2018) who stated that pedestrians were the most common victims of RTAs (54.2%) followed by passengers, motorcyclists and lastly, drivers. Also, Shalaby et al. (2010) study reported that pedestrians represented more than half of RTA victims (57.9%), followed by vehicle passengers, vehicle drivers and motorcyclists (32.8%, 6.5% and 2.8% respectively). On the contrary, a study done by Chaudhary and Wasti (2020) in Nepal demonstrated that the majority of RTA patients were the rider of motorbike/ scooter followed by the pedestrian. In another study performed in India by Singh et al. (2017), most of the patients were drivers of the vehicle, the next common group was of passengers and lastly pedestrian cases.

The present study found that in the age group of 0 -<10 years, there was no driver victim, as it is not eligible to apply for an Egyptian motor vehicle driver's license in a citizen of at less than 18 years of age, while the most common type of victims in this age group was the pedestrian (car and motorcycle). This could be attributed to the negligence of parents and caretakers. The present study showed that higher number of elderly patients (70 years and above) was pedestrians, no victim from this age group fell off a motorcycle; this is logic in such age group. Only one male victim was a driver. Most of the older driver errors may in part result from age-related decline in visual, cognitive, and mobility function (Gicquel et al., 2017).

As demonstrated in this study, the most common pattern of injuries was lower limb injury (about half of the patients) followed by head & neck injuries, upper limb injuries, external injuries, chest injuries, abdomen, and pelvis injuries and finally the least pattern of injuries were spinal. Most victims encountered in the current study, were in low-speed accidents owing to the location of the hospital inside the city, it is not near enough to the highway and this explain the

susceptibility of extremities to injury in-vehicle occupants. In low-speed motor vehicle accidents, the driver exerts severe stress on his lower limbs trying to press the brakes and the front seat passenger does the same as if he is pressing the brakes. So, both upper and lower limb injuries in this situation could be considered defense injuries (El Bakash et al., 2016). The lower extremity injuries are commonly resulted from direct contact with the front bumper and hood of the vehicles (Eid and Abu-Zidan, 2007). This clarifies why the commonest lower limb injury was in pedestrian pattern. These results were in partial agreement to Shamim (2017) study in India who revealed that the most common RTA injuries were at lower extremities, followed by the head and neck, multiple injuries, upper extremities, abdomen, pelvis, and perineum, and finally chest. Al-Zamanan et al. (2018) in Saudi Arabia revealed that the most common RTA injuries were head injuries, followed by lower limb and spinal injuries.

Regarding brain injury, it is mandatory to perform full medicolegal work up in each trauma case, even in absence of visible external injuries. Due to the differences in tolerances between the skull, which is largely a compact bone, and the brain, which has soft sensitive tissues (King, 2018). Traumatic brain injuries happen if the pedestrian's head strikes a hard surface as windshield, the vehicle hood. Head injuries also occur if there was contact with the ground or any objects in the nearby environment (Chung et al., 2017).

External wounds (skin abrasions and contusions) were encountered in 7.3% of cases which is an important concern of the forensic medicine. Being the most superficial organ, with its characteristic elasticity and deformability, the skin tends to move with blunt trauma. In the contrary, internal organs are not predominantly elastic and are rather fixed by fascia and blood vessels. Therefore, they cannot move out of the intruding blunt object way. The pancreas and the duodenum are specifically vulnerable if they lay between the impacting force and the spine. Significant internal injury with serious hemorrhage, while still intact skin, is most likely encountered in such cases (Byard, 2012).

In the current study, the hospital stay length of 6 days and more was the most common in both years. This mostly due to either combined injuries that need multiple interventions in a multisectoral pattern or due to post-intervention complication as infection. The prolonged hospitalization is associated with an unacceptable burden on resources for health and undermines the productive capacity of the population through time lost during hospitalization and disability (Negesa and Mohammed, 2017).

As regard the outcome, about half of the victims were discharged with follow-up while the death rate was about 4.4%. About third of the patients discharged for improvement, and one tenth discharged against medical advice. El Bakash et al. (2016) reported that complete recovery occurred in 82% of motor vehicle occupants, complicated recovery occurred in 16% of cases and death occurred in 2% of cases.

Age is an important factor influencing outcomes among road traffic accident patients. Outcomes of elderly patients usually worse than those of younger patients, which can be explained by their longer response time, more fragile bodies, and weaker tolerance to injuries, thus leading to more severe injuries and a higher risk of death. In addition, as age increases, even a minor injury could be more likely to lead to complications that have severe negative effects on patient outcomes. Therefore, the emergency rescue should pay special attention to the elderly, and timely and effective treatments should be administered according to their vital signs and injury characteristics (Yu et al., 2017).

Head injuries were the main cause of death in about three quarters of dead cases. This result agreed with another study performed in Minia University Hospital by Younis and Adel (2019). They declared that the most frequent injury presented in dead cases was head injuries 88 (69.8%). Another study conducted in Pakistan by Saleem et al. (2015), stated that head injuries alone is the cause of death in 66.6% of cases whereas head injuries along with injuries for other body parts and other multiple injuries are reported to be responsible for 84.6% of cases. Safety equipment is considerably essential for protection from injury and preventing the physical disability, which would be mirrored in conserving economy and social costs. Hence, it should be encouraged to develop intersectoral projects that enhance- the community participation and the supportive behaviors adoption (Bittar et al., 2020).

Most of the non-survivors were pedestrians. Pedestrians are usually reported to be the vulnerable road users due to their higher death rate than others. It is essentially required to protect pedestrians by the combination of proper vehicle design, adjusted road engineering, application of accident avoidance technology, and more importantly applying legislation and enforcement. However, such approaches do not provide complete accidents prevention, and vehicle/pedestrian collisions seem to be a considerable and frequent problem (Nahum and Melvin, 2012).

Conclusion

RTA is a considerable problem confounding threatening population safety. Males in the productive age period of life were 81.1% of the total number of victims. Pedestrians were the most common victims followed by motorcyclist. The most common pattern of injuries was lower limb fracture (about half of the patients) and was treated mainly surgically with open reduction & internal fixation of the fracture followed by head & neck injuries. More than third of the cases stayed 6 days or more in the hospital. About half of the victims were discharged with follow-up while the death rate was about 4.4%. Head injury was the most frequent cause of death.

Recommendations

It is recommended to implement nationally accepted, well-coordinated pedestrian safety education programs. Creating awareness among motorcyclist

regarding helmet wear and protective clothing and drivers about seat belt use. The processing and recording of medical records must be done correctly. Creating a Trauma Registry may assist with some of the concerns and increase awareness of doctor about the importance of medicolegal information as direct of impact and the time interval between the accident and the arrival to hospital.

The strength points in this study are its setting in one of the largest university hospitals in Egypt, and the large sample size. However, some limitations were encountered, first its retrospective design, second the lack of the basic data on the patients' sheets as time of the accident, the time interval between the accident and the arrival to hospital, the victim seat in the car, the use of safety equipment, the vehicle type, attach the investigation done to the patients sheet. This is a major lacuna. so we need further studies on a larger scale to be done.

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دراسة لحالات الحوادث المرورية على الطرق المحالة الى مستشفيات جامعة عين شمس

خلال العامين (٢٠١٧، ٢٠١٨)

رضوه بدر حسن حسين وعاصم حسن عبد الرحيم بدوى ورائية مصطفى هدهود^١

الملخص العربي

المقدمه:

تخسر مصر حوالي ١٢٠٠ شخص كل عام بسبب حوادث الطرق، يبلغ معدل الوفيات الناتج من حوادث الطرق ٤٢ حالة وفاة لكل ١٠٠٠٠٠٠ نسمة. أقل من نصفهم بقليل (٤٨٪) هم من ركاب سيارات الدفع الرباعي وخمس هذا العدد (٢٠٪) من المشاة. قدرت منظمة الصحة العالمية (WHO) أن ٥٠ مليون شخص يصابون كل عام في حوادث الطرق ويموت ما يصل إلى ١,٢ مليون، وتستمر كمية الوفيات الناجمة عن حوادث المرور في الارتفاع بشكل مطرد، لتصل إلى ١,٣٥ مليون في عام ٢٠١٦.

الهدف من الدراسة:

هدفت هذه الدراسة إلى تحديد نمط وحالة الإصابات والوفيات بهيئة الطرق والمواصلات على عينة مصرية.

طريقه البحث:

هذه دراسة بأثر رجعي، حالات حوادث السيارات والطرق التي تم استقبالها في قسم الطوارئ بمستشفى جامعة عين شمس خلال فترة عامين تبدأ من الأول من يناير ٢٠١٧ وحتى نهاية ديسمبر ٢٠١٨.

نتائج الدراسة:

خلال العامين ٢٠١٧ و ٢٠١٨ ، تم استقبال ١٢٨٢ مريضاً من حوادث الطرق والسيارات في مستشفيات جامعة عين شمس. كانت أعلى نسبة من الحالات تتراوح اعمارهم من ٢٠ - >٣٠ سنة. المشاة هم الأكثر عرضه لحوادث السيارات ، وخضعت جميع الحالات تقريباً للفحص الإشعاعي المناسب وفقاً لطريقة الإصابة ، نصف الحالات تقريباً كانت شكوتهم بإصابات في الأطراف السفلية. تم علاج معظم المرضى جراحياً ، أكثر من ثلث الحالات تم حجزهم ٦ أيام وأكثر في المستشفى. كانت إصابات الرأس السبب الرئيسي للوفاة في معظم حالات الوفيات.

الخلاصة:

حوادث هيئة الطرق والمواصلات هي مشكلة كبيرة تربك وتهدد سلامة السكان. الذكور في سن الإنتاج والمشاة يشكلوا الفئة الأكبر من ضحايا حوادث الطرق. إصابات الرأس هي السبب الأكثر شيوعاً للوفاة.

التوصيات:

إحدى الخطوات الأساسية التي تؤدي إلى الحد من المشكلة التي تكلف الكثير من الوفيات والأمراض والأضرار التي تلحق بالمتلكات هو التركيز علي التنقيف العام علي المستوي الوطني من خلال برامج تعليم السلامة.