Original article

Medicolegal Aspects of Maxilofacial Trauma Associated with Head Injuries and Its Effect on the Patients Outcome in Upper Egypt: A Retrospective Study

Reda M. Elsayed[1], Nesreen A. Mohammed[2], Mohammed S. Shahine[3], Doaa Almaz[4]

[1]Department of Forensic Medicine and Clinical Toxicology, Faculty of Medicine, Sohag University
[2]Department of Public Health and Community, Faculty of Medicine, Sohag University
[3]Trauma Unit, Faculty of Medicine, Assiut University
[4]Department of Forensic Medicine and Clinical Toxicology, Faculty of Medicine, Assiut University

Corresponding author:

Reda Mohammed El sayed

Email:

dr_redamahrous30@yahoo.com

Abstract:

Introduction: Trauma is a critical health problem. Traumatic brain injury(TBI) represents a major health dilemma as it leads to negative long-term or permanent physical and emotional changes. Trauma to the maxillofacial region needs special attention. **Aim of the study**: To study the medico-legal aspects of maxillofacial trauma cases accompanied by head injury over one year. **Methodology**: The current study is a retrospective study was performed in the Trauma Unit of Assiut University Hospitals, it included two groups, group A: maxillofacial trauma patients only. Group B: maxillofacial trauma patients accompanied by head injuries. The collected data included, socio-demographic data, medico-legal aspects of cases: cause, manner and sequel of injuries, types of maxillofacial fractures and types of head injury and outcome of the cases. **Results**: Most of cases were in age group (18-40 years) and male-to-female ratios was (4:1) in both groups. Falling from height was the main cause of injury in group A while in group B it was motor cycle accident. As regards maxillofacial injuries, for both groups the most common injury was soft tissue injury. About 55.5 % of patients with head injuries had skull fractures. Concussion was the most prevalent intracranial injury observed followed by intracranial hemorrhage. Only (34.5%) of group A were required surgical treatment, while in group B it was (60.3%). Concerning the outcome, a significant difference was found between both groups, improvement was the main outcome while death occurred only in 2.3% of group A and 5.3% of group B. **Conclusion**: In the current study, there was a significant combination between head injuries and maxillofacial trauma as number of maxillofacial trauma cases accompanied by head injuries were three times those with maxillofacial trauma only. So, every maxillofacial fracture patient should be cautiously assessed clinically and radiologically to exclude any underlying head injury and to reduce permanent infirmity and mortality rate.

Key words: maxillofacial injuries, head injuries, head trauma, traumatic brain injuries, facial injuries.

Introduction:

Trauma is a critical global health problem. It represents the fifth leading cause of significant disability and is one of the most common causes of mortality in youth and adulthood, as one in 10 deaths worldwide occurred due to trauma *(Elbaih, 2016).* Traumatic brain injury (TBI) is a major health dilemma as it often leads to negative long-term or permanent physical, cognitive, behavioral as well as emotional changes (*Langlois et al., 2000*). Closed head injury (CHI) is the most common cause of traumatic brain injury. A concussion is the main sequel of closed head injuries followed by extradural hemorrhage, subdural hematoma, and intracerebral hemorrhage (*Syed et al., 2007*). Trauma to the maxillofacial region needs a special concern as the face contains many vital sensory structures (e.g. visual, auditory, somatic sensory & olfactory). Additionally, vital structures in the head and neck are intimately related (airway, blood vessels, nerves and gastrointestinal tracts). Finally, this trauma leads to a bad psychological effect on the patient *(Kloss et al., 2008).* Researches which studying the correlation between maxillofacial injury including (all facial fractures as well as soft tissue injury) and TBI are significantly deficient. So, there is a deficiency in the published studies about this subject which could be of major benefit to prevention of TBI if a certain relationship could be detected (*Thoren et al., 2010*). So, the current study aims to study the medico-legal aspects of maxillofacial trauma cases combined with head injury over one year (2020) in the Trauma Unit of Assiut University Hospitals, including (cause of trauma, manners, types of fractures and outcome), determine the sociodemographic features (age, gender, residence, occupation).

Methodology:

The current study is a retrospective comparative hospital-based study performed in the Trauma Unit of Assiut University Hospitals (tertiary care hospital) during the period from 1st January 2020 to 31 December 2020. The Trauma Unit represents the central unit of trauma in Upper Egypt, so, different cases from all Upper Egypt (Minya, Assiut, Sohag, Qena, Luxor, Aswan, New Valley and the Red Sea Governorates) attend it. The present study involved two groups:

Group A: included maxillofacial trauma patients without head injuries.

Group B: included maxillofacial trauma patients accompanied by head injuries. For both groups the following data was collected:

Socio-demographic data of cases: age, gender, residence, and occupation. Medico-legal aspects of cases: cause, manner, and fate of injuries. Fractures of the facial skeleton classified into (frontal, nasal, zygomatic, maxillary, mandibular and mixed fractures). Computerized tomography (CT) scan was used for evaluation of the type of traumatic head injury. Clinical assessment of the patients: according to the Glasgow Coma Scale (GCS)—patients are classified into three grades of head injury: mild (GCS = 13–15), moderate (GCS = 9–12), and severe (GCS = 3–8). Types of treatment (surgical or conservative), treatment modalities for maxillofacial fractures (arch bar or mandibular fixation), type of skull fractures (temporal, parietal, base), type of intracranial injuries (concussion, brain oedema, contusion, epidural heamorrahge, subdural and subarachnoid heamorrahge), and the outcome of the cases at discharge time.

Statistical analysis:

Data was analyzed using IBM SPSS Statistics for Windows version 20. Qualitative data was expressed as number and percentage. Chi-square ($\chi 2$) test was used for comparison of qualitative variables. P-value <0.05 is statistically significant in all statistical tests used in the study.

Ethics considerations:

Ethical approval was obtained from the Medical Research Ethics Committee of Faculty of Medicine - Sohag University, according to the commitment standard operating procedure guidelines on 10/2/2021 under **IRB** Registration number: Soh-Med-21-02-28. Consent to participate from participants is not applicable as this study is a retrospective one and the data was taken from electronic database.

Results:

The present study was carried out on 842 trauma patients. 220 of those patients with maxillofacial fractures without head injuries (group A) and 622 of those patients presented with maxillofacial fractures combined with head injury (group B) referred to the Trauma Unit of Assiut University Hospitals, throughout the period from 1 January 2020 to the end of December 2020.

Table (1), showed the sociodemographic data in the studied patient and revealed, in group A the highest percent was the age group 18–

40 years (41.8%) followed by the age group < 18 years (38.2%) and the age group ≥ 40 years (20%). Belongs to group B, the highest percent was the age group 18–40 years (45%) followed by the age group < 18 years (38.4%) and the age group ≥ 40 years (16.6%).

As regards the gender of cases in group A, males represented 82.7% of cases; while females represented 17.3 % of cases. While in group B , males represented 83.8% of cases.

Concerning residence in group A the highest percent of cases were from Assuit governorate 84.5%, also in group B 76.5% were from Assuit. As regards occupation, the highest percent of cases was students 25.5%, 28.8% in group A and group B respectively.

Table (2) revealed a statistically significant difference between the cause of head injury in group A and group B (p value < 0.001); FFH was the cause of trauma in (31.8%) of group A cases. However, motorcycle accident was the cause in 27.3 % of group B cases**.** Different patterns of maxillofacial fractures were present in group A where soft tissue injury was the most common one (64.5%) followed by mandibular fracture (13%), frontal bone fracture (9.1%), maxillary fracture(5%), fracture zygoma (4.1%) and lastly nasal fracture (3.2%)**.** Regarding group B soft tissue injury was most common type of injury (31.7%) followed by maxillary fracture (26.8%), mandibular fracture (14.1%), frontal bone fracture (8%), followed by fracture zygoma,(5.9%), and lastly nasal fracture (1.6 %) as shown in table (3)**.** Regarding the type of skull fracture in group B, no skull fracture has the highest incidence of occurrence (44.5%) followed the temporal fissure fractures (23.8%) then parietal fissure fracture (15.9%) lastly fracture base (15. 8%) as outlined in table (4).

Concerning the patterns of head injuries, concussion was the most prevalent head injury accounting for (40%) followed by intracranial hemorrhage (30.5%) including [epidural hemorrhage (22.5%), Subarachnoid hemorrhage (5.1%) and subdural hemorrhage (2.9%)] then brain edema (17.8%). Other patterns represented small percent (contusion, pneumocephalus and diffuse axonal injury) were (5.3%, 3.2% and 3.1% respectively) as shown in table (5).

Table (6) demonstrated the degree of head injury based on Glasgow Coma Scale (GCS) scoring. The patients were divided into three degrees: severe head injury: 3–8 score,; moderate head injury: 9–11 score, and mild head

injury: 12–15 score,. Based on these scoring, in group A and B cases was as follows: more than half of the cases (70%, 66.2%) had mild traumatic head injury (THI), (30%, 32.8%) were of moderate THI, and only (0%, 1%) of the cases had severe THI in group A and B respectively.

Treatment of the cases was conservative in the majority of cases of group A (65.5%) while it was surgical in (60.3%) of the cases in group B as shown in table (7**).**

Treatment modalities for maxillofacial fractures demonstrated in table (8) in the form of arch bar which was applied in only 9.1% in group A and in 48.7% in group B; mandibular fixation was applied in 14.1% and 12.7% in group A and B respectively. both types indicated only in 1.1% of group B and no cases in group A.

Table (9) demonstrated the outcome of the studies cases where the final outcome of the majority of cases was improvement in (72.3 %) of group A and (78.3%) of group B. Followed by referral to private department (15.9%) of group A and (8.7%) of group B. Some cases escaped before intervention, it was (8.6% of group A and 6.9% of group B). Fortunately death occurred in small percent of cases in both groups, it was (2.3% of group A and 5.3% of group B). Few number of the cases were discharged on-demand where it was (0.9%) in group A and in group B it was (0.8%) of cases.

Table (1): Demographic data (age, gender, residence and occupation) of the studied groups admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020) by using Chi-Square test

Characteristics	Group				P-value
	Group A (No.=220)		Group B (No.=622)		
	No.	%	No.	%	
Age year					
< 18	84	38.2	239	38.4	
18 - 40	92	41.8	280	45	0.477
>40	44	20	103	16.6	
Gender					
Female	38	17.3	101	16.2	0.722
Male	182	82.7	521	83.8	
Residence					
Alexandria	0	0.0	1	0.2	
Assiut	186	84.5	476	76.5	
Aswan	2	0.9	10	1.6	
Beni-suif	0	0.0	2	0.3	
Cairo	0	0.0	3	0.5	0.699
Gharbia	0	0.0	2	0.3	
Elminiya	16	7.3	57	9.2	
Luxor	1	0.5	4	0.6	
New valley	6	2.7	21	3.4	
Qena	1	0.5	11	1.8	
Red sea	1	0.5	4	0.6	
Sohag	7	3.2	30	4.8	
Suez	0	0.0	1	0.2	
Occupation					
Not working (child)	33	15	94	15.1	
Driver	11	5	19	3.1	
Employee	22	10	46	7.4	
Farmer	14	6.4	39	6.3	0.497
Not working (adults)	39	17.7	135	21.7	
Retirement	8	3.6	14	2.3	
Student	56	25.5	179	28.8	
Worker	37	16.8	96	15.4	

- Total number of cases (842 cases)

Table (2): Causes of trauma in the studied groups admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020) by using Chi-Square test

Causes of trauma	Group				*P-value
	Group A (No.=220)		Group B (No.=622)		
	No.	%	No.	%	
AFO	5	2.3	79	12.7	<0.001
Animal Bite	15	6.8	18	2.9	
FAI	2	0.9	18	2.9	
FFH	70	31.8	114	18.3	
FOG	26	11.8	38	6.1	
Heavy Object	12	5.5	35	5.6	
MCA	38	17.3	145	23.3	
Motorcycle Accident	51	23.2	170	27.3	
Train Accident	1	0.5	4	0.6	
Others	0	0.0	1	0.2	

- AFO: assault from others, FAI: firearm injury, FFH: falls from height, FOG: falls on ground, MCA: motor car accident. *Total number of cases (842 cases)

Table (3): Types of maxillofacial injury in the studied groups admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020) by using Chi-Square test

Type of maxillofacial injury	Group				P-value
	Group A No.=220		Group B No.=622		
	No.	%	No.	%	
Frontal fracture	20	9.1	50	8	<0.001
Frontal & mandibular fracture	0	0.0	2	0.3	
Mandibular fracture	31	14.1	81	13	
Maxillary & mandibular fractur.	0	0.0	1	0.2	
Maxillary fracture	11	5	167	26.8	
Nasal fracture	7	3.2	10	1.6	
Nasal & maxillary fracture	0	0.0	2	0.3	
Orbital margin fracture	0	0.0	29	4.7	
Soft tissue injury	142	64.5	197	31.7	
Zygomatic and mandibular fracture	0	0.0	2	0.3	
Zygomatic and maxillary fracture	0	0.0	44	7.1	
Zygomatic fracture	9	4.1	37	5.9	

- Total number of cases (842 cases)

Table (4): Types of skull fractures in group B cases admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020)

Type of skull fracture	No.	%
No skull fractures	277	44.5
Parietal fissure fracture	99	15.9
Temporal fissure fracture	148	23.8
Fracture base	98	15.8

- Total number of cases (622 cases)

Table (5): Types of intracranial injuries in group B cases admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020)

Type of intracranial injury	No.	%
Brain edema	111	17.8
Concussion	249	40
Pneumocephalus	20	3.2
Diffuse axonal injury	19	3.1
Contusion	33	5.3
Intracranial hemorrhage	**No.**	**%**
Epidural hemorrhage	140	22.5
Subarachnoid hemorrhage	32	5.1
Subdural hemorrhage	18	2.9
Total no. and percent for hemorrhage	190	30.5

- Total number of cases (622 cases)

Table (6): Degree of head injury according to Glasgow Coma Scale for the studied groups admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020) by using Chi-Square test

Degree of head injury	Group				P-value
	Group A No.=220		Group B No.=622		
	No.	%	No.	%	
Mild	154	70	412	66.2	
Moderate	66	30	204	32.8	0.239
Severe	0	0.0	6	1	

- Total number of cases (842 cases)

Table (7): Types of treatment provided to the studied groups admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020) by using Chi-Square test

Type of treatment	Group				P-value
	Group A No.=220		Group B No.=622		
	No.	%	No.	%	
Conservative	144	65.5	247	39.7	<0.001
Surgical	76	34.5	375	60.3	

- Total number of cases (842 cases)

Table (8): Types surgical treatment provided for maxillofacial injuries in the studied groups admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020) by using Chi-Square test

Type	Group				P-value
	Group A No.=220		Group B No.=622		
	No.	%	No.	%	
Arch bar	20	9.1	303	48.7	
Mandibular fixation	31	14.1	79	12.7	
Both **(arch bar & mandibular fixation)**	0	0.0	7	1.1	<0.001
Not needed **(conservative)**	169	76.8	233	37.5	

- Total number of cases (842 cases)

Table (9): The outcome of the studied groups admitted to Trauma Unit-Assiut University Hospitals during the period (from 1st January 2020 to 31th December 2020) by using Chi-Square test

Characteristics	Group				P-value
	Group A No.=220		Group B No.=622		
	No.	%	No.	%	
Death	5	2.3	33	5.3	
Discharge on Demand	2	0.9	5	0.8	
Escaped before Intervention	19	8.6	43	6.9	0.012
Improved	159	72.3	487	78.3	
Referred to Private Department	35	15.9	54	8.7	

- Total number of cases (842 cases)

Discussion:

The present study was conducted on 842 trauma patients. 220 of those patients with maxillofacial fractures only without head injuries (group A) and 622 of those patients presented with maxillofacial fractures accompanied by head injury (group B) referred to the Trauma Unit of Assiut University Hospitals, throughout the period from 1 January 2020 to the end of December 2020.

In respect to demographic results of the studied cases, there was no significant difference between both groups in age, gender residence and occupation. Most of cases were in age group (18-40 years) that seems to be in harmony with the other studies *(Arslan et al., 2014 and Kumar et al., 2015)* as with growing in age, the children acquire adult body built and social features (going outdoors for long times, interpersonal fight, the start of working, and they are allowed to drive cars and motorcycles after 18 years old), so become more liable to facial injuries.

Male-to-female ratios in both groups was (4:1) which is comparable to other previous studies *(Rajandram et al., 2014 and El Shehaby et al., 2020).* In the developed countries, the male/female ratio ranged from 2:1 to 4:1 as reported in many studies, which is due to the activity of women in outdoor life than in developing countries *(Gassner et al. 2003)*. Men in most of studies are more than women in developing countries due to their continuous movement, their participation in many violent activities and transportation injuries so they are more liable to more severe injuries than females (*El Shehaby et al., 2019*).

More than three quarters of the cases in both groups were from Assiut governorate and less than one quarter from outside Assiut. It was expected as the current study performed in Trauma Unit in Assiut University Hospitals. So the majority of traumatized patients in Assiut governorate managed in this unit while for other governorates most of them managed in their governorates except for difficult or risky cases referred to Assiut University Hospitals.

In the current study, students and no-work represented up to half of the patients this may be attributed to continuous movement and traveling of students which subjecting them to different causes of trauma especially road traffic accidents. While for those with no work, they were more exposed to fight and assault from others than workers and employees.

Road traffic accidents have reported to be the most frequently occurring etiology in head injury as well as maxillofacial fractures all over the world, particularly in developing nations *(Rao et al., 2019).* In the present study, falling from height was the main cause in group A (31.8%), followed by motor cycle accident and motor car accidents (23.2% and 17.3% respectively). While in group B the main cause was motor cycle accident (27.3%) followed by motor car accidents and falling from height (23.3% and 18.3% respectively). In group B this can be explained by that the drivers for motor cycles mainly young adults who represented the main age group in this study, they are more energetic and aggressive than others. In addition they are driving in a hurry and rushing manner without wearing of protective helmets which make them more prone to both head injuries and maxillofacial injuries. These results were comparable to other studies *(Lida et al.,2001 and Rao et al., 2019)* who stated that maxillary fractures were most commonly observed with RTA either motor car or motor cycle accidents followed by assaults.

In the study of *Mohamed et al. (2021),* they stated that there has been a significant change in the cause of head and neck injury where falls accounting about 65% of patients in their study. This is in agree with the main cause in group A of this study. This may be due to COVID -19 pandemic and national lockdown in the period of the current study where large number of persons stayed at home to avoid infection which make them more prone to domestic injuries as falling from height.

However, other studies revealed that interpersonal violence was the leading cause of maxillofacial trauma *(Teshome et al., 2017, Pham-Dang et al., 2014 and Leles et al., 2010).* This was explained by authors by that majority of the participants were rural residents and adults.

As regards maxillofacial injuries, for both groups the most common injury was soft tissue injury. So, absence of facial bone fractures does not exclude the occurrence of head injury. In order to have an accurate report about the rate and type of associated head injuries, all cases with facial trauma must be evaluated. By studying types of fractures in this study, in group A the most common type was mandibular fracture followed by frontal fracture and zygomatic fracture while in group B the most common type was maxillary fracture

followed by mandibular fracture and frontal fracture.

Many other previous studies assessed types of fracture in cases with maxillofacial injuries throughout the world. These studies including *Aksoy et al. (2002),* who stated that fractures were occurred mainly in mandibular and zygomatic bones which correlate with group A results. In other study by *Arslan et al. (2014),* who reported that the maxillary bone was the main fractured part as group B findings. Some other studies tried to find the relation between head injuries and maxillofacial injuries. So, the emergency physicians will not take their clinical decisions except after careful assessment of the patients. Cases with maxillary fractures with mandibular and frontal fractures are more liable to head injuries so should be managed carefully. *Keenan et al (1999),* studied the correlation between facial fractures and head injuries in a group of cyclists, and found that facial fractures did not protect from head injuries but were indicators for an increased probability of head injuries.

Glasgow Coma Scale (GCS) is a scale which reflects the prognosis of traumatic patients. This scale is an easy and rapid in the assessment of traumatic patients in emergency departments. GCS ranges from 3 to 15. Decreasing scores indicate poor prognosis. In the present study, there was no significant difference between both groups, as the majority of cases presented with mild head injury (13-15). Severe head injury (3- 8) was found only in 1% of cases of group B and no case reported in group A. This could be explained by that most of studied cases in both groups had soft tissue injuries rather than facial bone fracture or skull fractures or intracranial injuries so the conscious level and neurological functions less affected.

This results is in agreement with *Hasnat et al. (2017),* who found that the most common type of head injuries associated with maxillofacial injuries was mild type.

Joshi et al. (2018), observed that the risk of head injury increased significantly when GCS score decreased. In their study, they found a statistical association between GCS and head injury.

While the brain is naturally protected with a complete cover of thick and strong bone, there are still fragile areas of the face which concerned with vision, taste, smell and mastication *(Lim et al., 1993).* In spite of that, in the present study, of total 622 cases with head injuries and MF trauma, it was observed that 55.5 % of

patients with head injuries have skull fractures. The most common site of skull fractures was fissure fracture in temporal bone followed by parietal bone fracture and fracture base. This high coexisting trauma rate of head injuries in MF trauma patients may be due to high incidence of transportation injuries in this study (either motor car or motor cycle accidents). This results were in harmony with a study from India which found that most of head and orthopedic injuries are seen in MF trauma patients with also high incidence of road traffic accidents *(Gandhi et al., 2011).*

Of the 622 patients with head injuries, (40%) had concussion; which was the most common intracranial injury detected, followed by intracranial hemorrhage (35.8%) of patients. This is in agree with the study conducted by *Joshi (2018),* who stated that concussion accounting for (38.46%) which was the most common head injury associated with maxillofacial trauma. While different rates of intracranial hemorrhage have been mentioned in other previous studies [*Haug et al., 1992; Hohlrieder et al., 2004 and Pappachan et al., 2006]*.

According to *Kloss et al. (2008),* in patients with maxillofacial trauma even they are conscious, they must be examined and evaluated carefully before exclusion of intracranial hemorrhage as it was observed in the present study most of the studied cases has mild GCS.

In respect to treatment modalities only (34.5%) of group A were required surgical treatment, while in group B (60.3%) of them were required surgical treatment, this may be attributed to that head injuries (in group B) tended to be both more prevalent and more severe than facial injuries. This results are comparable with the study of *Vrinceanu and Banica (2014),* who reported that (66.08%) of their cases treated surgically.

Treatment of craniomaxillofacial fractures were according to the clinical guidelines. Non displaced fractures were treated conservatively while, displaced fractures were treated surgically by open reduction, and rigid fixation with mini plates (*Perry, 2010 and Hailemichael et al., 2015*).

Concerning the outcome of the studied cases, in spite of that there was a significant statistical difference between both groups in the outcome, improvement was the main outcome for the cases in both groups while death occurred only in 2.3% of group A and 5.3% of group B. This could be

explained by that most of cases in both groups had only soft tissue injuries without maxillofacial or skull fractures. Also, GCS for most of cases showed mild head injury which provided good prognosis for the studied cases. Mortality rate in group B was more than group A this could be explained by that head injuries were more prevalent and more severe than facial injuries, and this pattern was the same in different age groups.

Conclusion:

In this retrospective study, there was a significant combination between head injuries and maxillofacial trauma as number of maxillofacial trauma cases accompanied by head injuries were three times those with maxillofacial trauma only during the same period of this study. So, every maxillofacial fracture patient should be cautiously assessed clinically and radiologically to exclude any underlying head injury and to reduce permanent infirmity and mortality rate.

Recommendations:

This study provides baseline information from Trauma Unit- Assiut University Hospitals, which could help with possible interventions regarding RTA. As preventive measures are still the main way to decrease incidence, cost and complications of trauma. These measures include, appropriate use of pavements by pedestrians, use of compulsory motorcycle helmets and avoiding risky driving behaviors. Additionally, strict law enforcements and improving vehicle safety is equally important. Early availability of backup services like intensive care unit and interventions from the trauma team could improve outcome of craniomaxillofacial injuries. Conduction of other studies in different governorates all over Egypt could explore the epidemiology of craniomaxillofacial injuries, the risk factors that hinder and/or aggravate the frequency of RTAs in the community. Also, it could help in grading the existing legal regulations and also for framing a more effective treatment protocol.

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الملخص العربي

الجوانب الطبية الشرعية لإصابات الوجه والفكين المصاحبة لإصابات الرأس وتأثيرها على نتائج المصابين في صعيد مصر: دراسة مرجعية

رضا محمد السيد[١]، نسرين علي محمد[٢]، محمد صفوت شاهين[٣]، دعاء المظ[٤]

١. قسم الطب الشرعي والسموم – كلية الطب البشري – جامعة سوهاج
٢. قسم الصحة العامة وطب المجتمع - كلية الطب البشري – جامعة سوهاج
٣. وحدة الاصابات - كلية الطب البشري – جامعة اسيوط
٤. قسم الطب الشرعي والسموم – كلية الطب البشري – جامعة اسيوط

المقدمة: الاصابات تمثل مشكلة صحية عالمية خطيرة. تعتبر إصابات الدماغ (TBI) مشكلة صحية عامة كبيرة لأنها تؤدي إلى تغيرات جسدية وسلوكية سلبية طويلة الأمد أو دائمة. هذا و تتطلب اصابات منطقة الوجه والفكين اهتمامًا خاصًا. **الهدف من الدراسة**: دراسة الجوانب الطبية الشرعية لحالات إصابات الوجه والفكين المصاحبة لإصابات الرأس على مدى عام (٢٠٢٠) في وحدة الإصابات بمستشفيات جامعة أسيوط. **طريقة الدراسة:** الدراسة الحالية هي دراسة بأثر رجعي تم إجراؤها في وحدة الاصابات بمستشفيات جامعة أسيوط ، وتضمنت مجموعتين المجموعة الأولى: تضمنت مرضى إصابات الوجه والفكين بدون إصابات في الرأس. المجموعة الثانية: تضمنت مرضى اصابات الوجه والفكين المرتبطة بإصابات الرأس. تضمنت البيانات التي تم جمعها البيانات الاجتماعية والديموغرافية والجوانب الطبية والقانونية للحالات: سبب ونمط ونتائج الإصابات. أنواع كسور الوجه والفكين ونوع إصابات الرأس. وحالة المصاب وقت الخروج. النتائج: معظم الحالات كانت في الفئة العمرية (١٨-٤٠ سنة) وكانت نسبة الذكور إلى الإناث (٤: ١) في كلتا المجموعتين. بالنسبة للإقامة ، ٤/٣ الحالات من محافظة أسيوط في كلتا المجموعتين. وقد كان السقوط من علو هو السبب الرئيسي للإصابة في المجموعة الأولى بينما كان في المجموعة الثانية حوادث الدراجات النارية. فيما يتعلق بإصابات الوجه والفكين ، كانت الإصابة الأكثر شيوعًا في كلتا المجموعتين هي إصابة الأنسجة الرخوة. هذا وقد كان حوالي ٥٥,٥ ٪ من المرضى الذين يعانون من إصابات في الرأس أصيبوا بكسور في عظام الجمجمة. وقد كان الارتجاج هو أكثر الإصابات داخل الجمجمة شيوعًا التي لوحظت تليها نزيف داخل الجمجمة. بالنسبة للعلاج فقط (٣٤,٥٪) من المجموعة الأولى كانت بحاجة للعلاج الجراحي ، بينما في المجموعة الثانية كانت (٦٠,٣٪). فيما يتعلق بالنتيجة وقت خروج المصابين : فقد وجد فرق احصائي كبير بين المجموعتين، وكان التحسن هو النتيجة الرئيسية بينما حدثت الوفاة فقط في ٢,٣٪ من المجموعة الأولى و ٥,٣٪ من المجموعة الثانية.

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