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Artículos

Epidemiological study of brain injuries in patients admitted to Yasuj Legal Medicine Department

Estudio epidemiológico de lesiones cerebrales en pacientes ingresados en el Departamento de Medicina Legal de Yasuj

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Abstract:

A brain injury is a multiple disorder which takes various forms; the current study aims to Epidemiological Study of Brain Injuries in Patients Admitted to Yasuj Legal Medicine Department. Within 12 months data of the people referred to Yasuj forensic medicine because of head injuries collected and analyzed by SPSS 19 in the descriptive-cross sectional method. We surveyed 60 cases in which 75% were male and 25% were female. In terms of age, most cases (39.6%) under 15 years and in terms of educational level, most of them (41.7 %) are the elementary students. The most common causes of injuries accident (83.3%). 55% of the injured admitted to the Legal Medicine Department 1 to 5 days after the incident. The results indicate that the four most common types of injuries are the basilar skull bone fracture (22.9%), cerebral hemorrhage (18.8%), frontal bone fracture (18.8%), and compound skull fractures (16.7%). The result shows that the most common cause of head injury for elementary school students is an accident. In order to prevent or reduce accident, it is essential to increase the number of safety measures, such as building crosswalks and overhead pedestrian walkways on the way to school and provide appropriate education by the media and schools, especially for children and adolescences.

Keywords: Epidemiology, Brain injuries, Accident, Forensic Medicine.

Resumen:

Una lesión cerebral es un trastorno múltiple que toma varias formas; el presente estudio tiene como objetivo el Estudio epidemiológico de las lesiones cerebrales en pacientes ingresados en el Departamento de Medicina Legal de Yasuj. Dentro de los 12 meses, los datos de las personas remitidas a la medicina forense Yasuj debido a lesiones en la cabeza recopiladas y analizadas por SPSS 19 en el método descriptivo de sección transversal. Encuestamos 60 casos en los cuales el 75% eran hombres y el 25% mujeres. En términos de edad, la mayoría de los casos (39,6%) menores de 15 años y en términos de nivel educativo, la mayoría de ellos (41,7%) son estudiantes de primaria. Las causas más comunes de accidente de lesiones (83,3%). El 55% de los heridos ingresaron al Departamento de Medicina Legal de 1 a 5 días después del incidente. Los resultados indican que los cuatro tipos más comunes de lesiones son la fractura de hueso del cráneo basilar (22.9%), hemorragia cerebral (18.8%), fractura de hueso frontal (18.8%) y fracturas de cráneo compuestas (16.7%). El resultado muestra que la causa más común de lesión en la cabeza para los estudiantes de primaria es un accidente. Para prevenir o reducir accidentes, es esencial aumentar el número de medidas de seguridad, como la construcción de cruces peatonales y pasarelas peatonales en el camino a la escuela y proporcionar una educación adecuada por parte de los medios de comunicación y las escuelas, especialmente para niños y adolescentes.

Palabras clave: Epidemiología, Lesiones cerebrales, Accidentes, Medicina forense.

Introduction:

Today, one of the most serious socio-economic problems is brain injury and related complications. One of the main causes of death in people under 45 years old, who are the most active part of society, is brain injury [1] . In addition, brain injury is an epigenetic risk factor for Alzheimer's and Parkinson's [2,3] . The incidence of traumatic brain injury in the world is estimated to be 200 out of every 100,000 people. Each year, about 1.4 million people in the United States suffer from brain injury due to strike, which about 1.1 million need to emergency checkups, 235,000 are hospitalized, and 50,000 die. In addition, 90,000 of them endure disabilities that resulted from brain injury [1 ,4]. Reasons that can lead to brain injury are different, for example in developing countries traffic accidents and in developed countries fall as the main cause of brain injury, which can be due to the appropriate driving laws and improving driving culture in developed countries.. Considering the importance of brain injury, this study considers the epidemiology of people who suffered from brain injury in 2016 in Yasuj, Iran to survey the main causes of brain injury in these individuals.

Material and Methods:

This is a cross-sectional descriptive study that studies people injured in head area during 12 months in Yasuj city. The data gathering tool was a researcher made questionnaire. The questionnaire included a statistical form which containing required variables such as age, level of education, marital status, place of residence, type of injury, the cause of injury and Damage period which has been extracted from the history of these people in the forensic organization. The referral was extracted from the files of these people and recorded in the form. Finally, information was collected for 60 patients and these data was analyzed with SPSS 19 software by descriptive statistics method.

Results:

Demographic information is presented in Table 1. As the information indicates, among the individuals surveyed, most of them were under the age of 15 (39.6%) and 15 to 20 years old (12.5%). Men (75%) also dominated gender. In terms of education, the people had the elementary education (41.7%) or illiterate (20.8%) is the largest population. Job survey of the subjects also shows that students (31.2%) constitute the majority of subjects.

TABLE 1
Demographic information

Variables	Number	Percentage (%)
Age		
Under 15 years old	21	39.6
20-15 years old	8	12.5
25 to 20 years	4	6.2
30-25 years old	4	6.2
35-30 years old	4	6.2
40-35 years old	5	8.3
45-40 years old	2	2.2
50-45 years	6	9.4
Over 50 years old	6	9.4
Gender		
Male	42	75
Female	18	25
Level of Education		
illiterate	12	20.8
Elementary	22	41.7
Middle school	8	12.5
diploma	10	16.7
Associate Degree	4	4.2
bachelor	4	4.2
profession		
Unemployed	12	20.8
manual worker	8	14.6
Self-employment	12	20.8
Employee	4	4.2
student	16	31.2
University student	4	4.2
housewife	4	4.2

Time pattern of referral to forensics for injured people

Table 2 shows the time interval between injury time and referral to forensic medicine. Most of the injured people (55%) have gone to forensic medicine within 1 to 5 days, and by increasing in the time of injury, the number of referrals to the forensic medicine decreases (20% in 6-10 days, 13.3% in 11 to 15 days and 11.7% in 16 to 20 days) which represents the inverse association between the injury time interval and the number of people referring to forensic medicine.

TABLE 2
Time pattern of referral to forensics

Time period	Number	Percent (%)
1 to 5 days	33	55
6 to 10 days	12	20
11 to 15 days	8	13.3
16 to 20 days	7	11.7

Injury types

Table 3 lists the subjects in this study according to the type of head injuries. The most common type of injury is basilar skull fracture (22.9%); in addition, both frontal bone fracture and cerebral hemorrhage are

the most commonly reported injury (each representing 18.8%) after the base skull fracture. Also, compound skull fracture with a prevalence of 16.7% among these people is one of the most important injuries.

TABLE 3
Types of head injuries

Type of injury	Number	Percent (%)
Occipital bone skull fracture	6	8.3
frontal bone fracture	10	18.8
basilar skull fracture	13	22.9
compound skull fractures	9	16.7
cerebral hemorrhage	10	18.8
parietal bone fracture	5	6.2
Brain tissue injury	3	4.2
neurological injury	2	2.1
Linear skull fracture	2	2.1

Classification based on the cause of injury

Table 4 shows the number and percentage of injury causing reasons. Driving accidents with 83.3% were the most important cause of injury. The quarrel with 12.5 and workplace accidents with 4.2% were also causes of head injury in the subjects.

TABLE 4
Causes of head injuries in the subjects

Causes of injury	Number	Percentage (%)
Driving accidents	44	83.3
Quarrel	10	12.5
Workplace accident	6	4.2

Discussion:

In this study, 60 cases were studied, of which 75% were male and 25% were female. In almost all international and regional studies, the percentage of head injuries in men was higher than in women. This is can due to the more participation of men in outdoor activities. Regarding the level of education in this study, people with elementary education have the highest rate (41.7%). The most Common Occupation among this study subjects are a student (31.2%), which is justified by the fact that most of these people under the age of 15 and people under the age of 15 must be a student and have a low level of education.

This study showed that road accidents (83.3%) are the most important cause of head injury with a remarkable difference compared to other factors. The lack of a crosswalk and overhead pedestrian walkways on the school paths can be a major contributing factor to accidents for students and people under the age of 15. Other factors such as; unsafe roads, motorcycling without a helmet, and non-compliance with speed limits and individual factors such as fatigue and anger while driving can be considered as the cause of these accidents. Undoubtedly, proper education in schools as well as through public media can play a significant role in reducing injuries, especially in children and adolescents.

Conclusion:

The results show that the most common cause of injury in students is road accidents. Undoubtedly, increasing safety issues, including construction of crosswalk and overhead pedestrian walkways on the ways of schools, as well as provide a proper education in schools and Medias, can play a significant role in reducing the rate of head injuries, especially in children and adolescents.

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