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Outcome of Moderate and Severe Head Injury in Tikrit Teaching Hospital

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Abstract: The aim of this study was to describe a large series of adult patients, ranging in age from 25-54 years, with moderate to severe head injuries. A retrospective study was performed, medical records were reviewed, and results were analysed with a bivariate and multivariate statistical study. One hundred forty patients were recruited from Tikrit teaching hospital for the purpose of finding out the outcome of moderate and severe head injury, and the average age ranged from 25-54 years. In this work, all cases of moderate and severe head injuries were studied, in Iraqi patients who were treated at Tikrit teaching hospital between December 2019 and December 2020, without any exclusion criteria. The results which found According to the Glasgow Coma Scale, there is a close association between a low GCS score and poor prognosis, both neurologically and psychologically. The mortality rate for patients with a score of 3–5 is three times higher than that of patients with a score of 6–8 and worsens as the motor response transitions from normal to flaccid. In this study, the coma duration was relied upon as a measure of the severity of the trauma, assuming that, in general, the longer the coma lasts, the worse the patient's prognosis. The patients of this study were divided into two groups, moderate injuries, which included patients with traumatic brain injuries who presented a score between 9 and 12 points on the Glasgow scale. Have impaired consciousness or memory loss lasting more than 5 minutes, progressive headache, post-traumatic seizures, or multiple traumas. The second group was a severe head injury which included patients presenting with a score less than or equal to 8 points on the Glasgow Scale, a decrease in the Glasgow score of 2 points, and we concluded in this study that decreased level of consciousness and metabolic disturbances, and we conclude that age has an effective factor, as the physiological response of the brain to trauma varies with age, so that it seems that the brain of the elderly is more vulnerable to the effects.

Keywords: Moderate, severe, head, injury, trauma, Glasgow Scale.

INTRODUCTION

Head trauma is that the most typical reason for brain harm is a traumatic brain injury. A head injury involves brain harm as a result of trauma to the skull [Collins, C.L. *et al*., 2014; Collins, M.W. *et al*., 2016]. The brain, that in conjunction with the funiculus, forms the central system, is protected by the bone, and consists of the neural structure [Coronado, V.G. *et al*., 2011] and medulla. The brain is that the most advanced structure of the human organism and also the main nerve center; [Corrigan, J.D. *et al*., 2008a; Corrigan, J.D. *et al*., 2007b] Its numerous regions area unit principally accountable for movement, sensations, perception, emotions, and behavior, and in it, the upper mental functions area unit administered. [Dams-O'Connor, K. *et al*., 2014]

Damage to the brain once a head injury is due, on the one hand, to the first injury (contusion) directly associated with the impact on the bone or to the fast deceleration movement, and on the opposite hand, to the secondary injury (edema, hemorrhage, inflated pressure within the bone, etc.) [De Maio, V.J. *et al*., 2014; DeKosky, S.T. *et al*., 1998] that develop as a result of the initial injury throughout the primary days once the accident which will have serious consequences for the purposeful prognosis. [Delaney, J.S. *et al*., 2005; Devoto, C. *et al*., 2017; Diamond, P.M. *et al*., 2007]

These changes tend to seem at completely different frequencies, but they typically impair a patient's ability to amass, store, and retrieve new data. [Dikmen, S. *et al*., 1990; Dismuke, C.E. *et al*., 2015]

The consequence of psychological feature impairment is that the loss of social relationships and also the emergence of hysteria within the family, and to the current is supplementary the problem once a traumatic brain injury to come back to the tutorial or work state of affairs before the accident. [Dollé, J.P. *et al*., 2018]

Recovery once a head injury depends on the extent of the brain injury, and in additional severe cases, it's tough despite advances within the field of neurobiology and analysis into substances that may promote nerve regeneration. [DVBIC, 2006] However, neurorehabilitation has ways that to assist someone with brain harm to improve their operate recovery, enhance their preserved talents and facilitate them fits their limitations so as to realize the utmost potential independence. [DVBIC, 2007]

Surgical treatment is one among the most directions of the scientific activity of the Department of surgery. Over the years, studies and an oversized range of articles in scientific journals

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are dedicated to the issues of finding out the pathologic process of traumatic brain injury, the event of latest strategies of surgical diagnosing and treatment, and the bar and treatment of complications. [DVBIC, 2018; Easter, J.S. *et al*., 2015; Edlow, B.L. *et al*., 2016]

Reducing mortality and rising the purposeful outcomes of treatment cannot be achieved while not continuous improvement and application of recent standards for the treatment and rehabilitation of patients with traumatic brain injury, new diagnostic strategies, and medical specialty observance. [Eisenberg, M.A. *et al*., 2013].

MATERIAL AND METHOD

One hundred forty patients were recruited from Tikrit teaching hospital for the aim of sorting out the end result of moderate and severe head injury, and therefore the average age ranged from 25-54 years.

Traumatic brain injury represents a pathological state of nice importance as a result of an outsized variety of patients with moderate to severe trauma are delineate as grievous complications.

The aim of this study was to explain an outsized series of adult patients travel in age from 25-54 years with moderate to severe head injuries.

A retrospective study was performed, medical records were reviewed, and results were analysed with a quantity and variable applied Sectional study.

In this work, all cases of moderate and severe head injuries were studied in Iraqi patients was treated at Tikrit teaching hospital between Dec 2019 and Dec 2020, with none exclusion criteria.

The different variables analysed in patients with head trauma were age, sex, anamnesis, the reason for admission, trauma admission amount, Glasgow scale score, trauma, amnesia, soft tissue injury, and CT findings. computerised for the top.

Indications for hospital admission for observation in patients are alcohol and, therefore, the presence of a tomography fracture. Previous diseases. Confusion or behaviour changes, persistent symptoms, lack of home care, or different social issues.

The period of hospitalization depends on the clinical development and, therefore, the findings of the CT scan once it had been performed (in the case of fractures, clinical deterioration, or different reasons).

The data were statistically analyzed per IBM SOFT SPSS 22 software package wherever the foremost common parameters, like means, percentages, commonplace deviations, etc., were used, and therefore the final development of the patient with os trauma at the time of hospital discharge was resolute. The Chi-square check was used for the quantity study. The limit of applied mathematics significance was set at a 95% confidence interval.

RESULTS

Table 1: Socio-demographics results of patients

Variable	N, 140	%
Age		
25-29	30	21.4
30-34	35	25
35-39	29	20.7
40-44	20	14.2
45-49	19	13.5
50-54	17	12.14
Sex		
Male	100	71.4
Female	40	28.5
Income		
Low	40	28.5
Moderate	80	57.14
High	20	14.2
Injury cause		
bump	33	23.57

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vehicle accidents	50	35.71
Falls	40	28.57
Concussion	27	19.28
Glasgow coma scale score		
Moderate	9-12 (70)	50
Severe	3-8 (70)	50
CT Head Marshall Score		
diffuse injury II	50	35.7
diffuse injury III	90	64.2
Total acute length of stay	MEAN	SD
LOS	33	17

Table 2: Distribution of patients according to the symptoms of a head injury

Variable	N	%
Loss of consciousness	38	27.14
Severe headache that does not go away	23	16.4
Repeated nausea and vomiting	22	15.7
Slurred speech	30	21.4
Difficulty with walking	20	14.2
Weakness in one side or area of the body	17	21.1

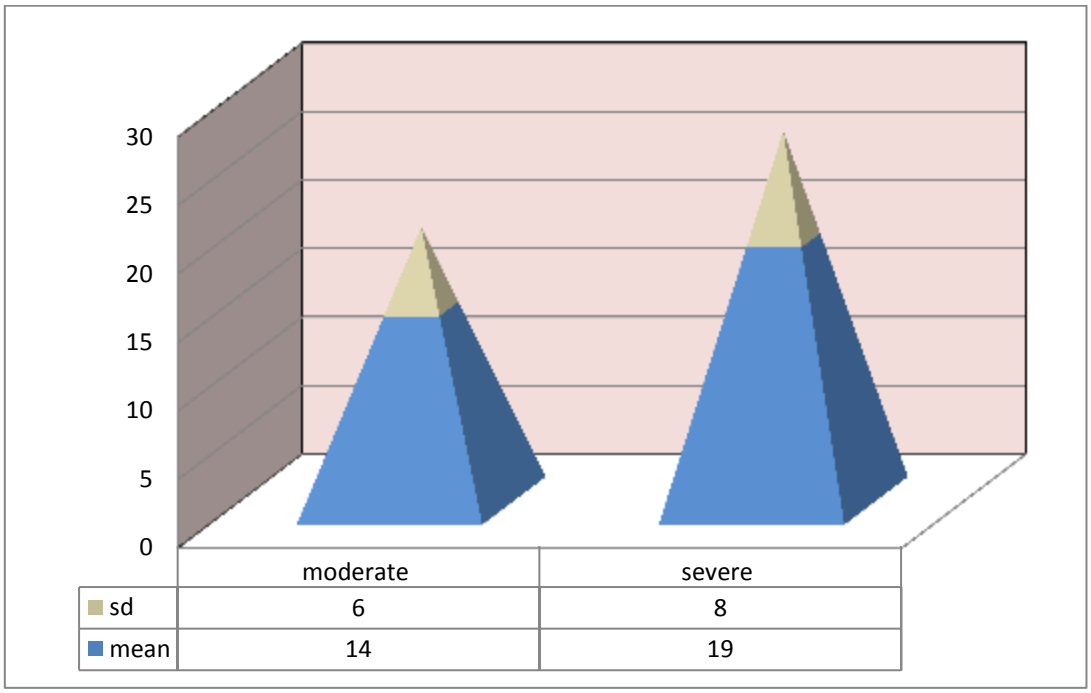

Fig 1: Post-traumatic amnesia duration

Table 2: Results of patients according to (GOSE) categories

Variable	Moderate	Severe	P-value
Vegetative state	20	33	0.001
Lower severe disability	10	11	0.9
Upper severe disability	9	7	0.34
Lower moderate disability	6	6	0.00
Upper moderate disability	6	8	0.22
Lower good recovery	9	4	0.05
Upper good recovery	10	2	0.001

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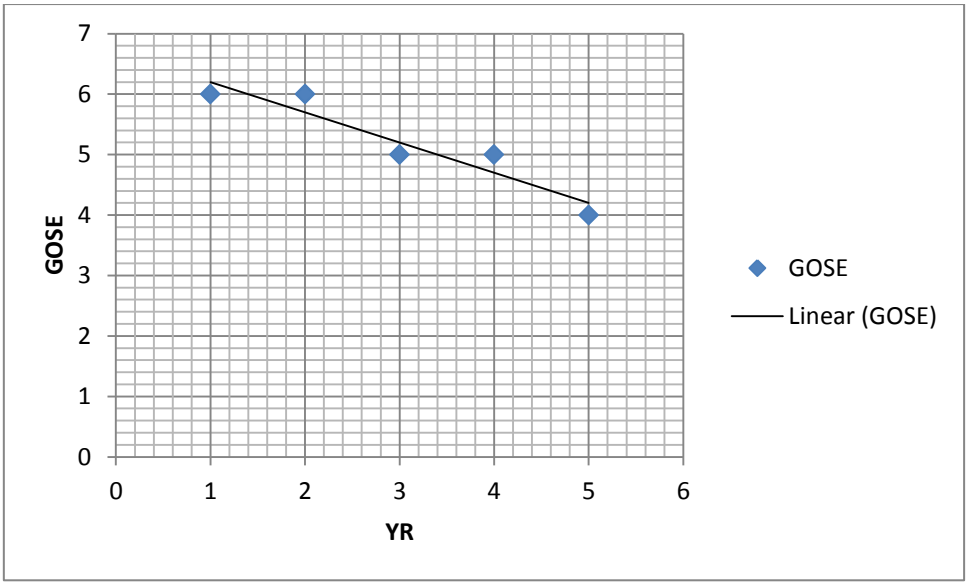

Figure 2: Outcomes of a head injury after follow-up for 5 yr

Table 3: Assessment outcomes of medical complications after injury

Items	N	%
Tracheostomy	38	27.1
Assisted ventilation	22	15.7
infection	28	20
Hydrocephalus	27	19.2
Autonomic instability	20	14.2
Epilepsy	15	10.7

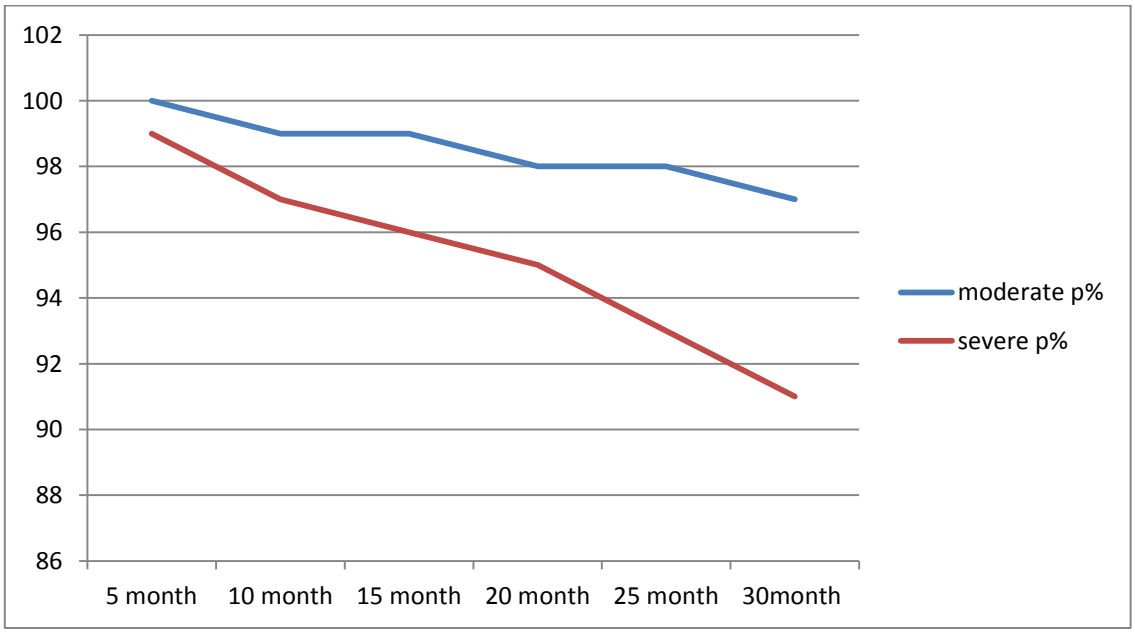

Figure 3: The survival rate for patients with a moderate and severe head injury

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Table 4: logistic regression to analysis the risk of the study

Variable	OR 95% CI	P-VALUE
Age	2.2 (1.3-4.9)	0.001
Sex	1.4 (0.8-1.9)	0.09
Severity		
Moderate	1.8 (1.1-3.3)	0.023
Severe	2.7 (2.2-5.5)	0.0033
Glasgow coma scale score	3.88 (2.44-8.9)	0.0004

DISCUSSION

Head injury is a common injury for people of all ages, especially children. Fortunately, most cases are mild and transient and are cured without problems. However, some injuries may cause damage to the brain or blood vessels surrounding the brain or long-term complications.

In this study, 140 patients with moderate and severe head trauma were collected and, according to a classification scheme dividing patients according to risk factors, which were collected in the search. Diffuse injury II was found for 50 patients with 35.7%, and diffuse injury III for 90 patients with 64.2%. %

In this study, the types of head injuries were such as concussion, which is a strong head injury that damages the brain, after which the patient may feel a loss of balance or dizziness for a short period, in addition to a brain bruise, which is a bruise that occurs to the brain, which results in minor bleeding in the brain, which causes swelling and the last reason is a result Skull fracture, which results from a severe injury that breaks the bones of the skull [Eliacin, J. *et al*., 2018; Farmer, C.M. *et al*., 2017]

The fact that injuries are currently the leading cause of death in people under 45 years of age and that between 50% and 75% of accidental deaths result from head trauma has led to the acceptance of this trauma. Efforts to reduce mortality have clearly focused on severe trauma, where despite advanced diagnostic techniques (CT and MRI) and intracranial pressure monitoring, advances in treatment

And through systematic previous studies from 2013-2020 from the Centers for Disease Control and Prevention indicated that the leading cause of brain injury is falls (47%). They are followed by blows from something or something (15%) and car accidents (14%). Many of these injuries are minor. If you focus only on moderate to severe injuries (injuries that may require admission to a neurological intensive care unit), falls are the most common cause of TBI, followed by motor vehicle accidents and assaults. [Faul, M. *et al*., 2015]

"Severity of injury" refers to the degree or extent of brain tissue damage. The degree of damage is estimated by measuring the duration of unconsciousness, the depth of coma, the level of amnesia (amnesia), and by brain scans. [Fehily, B. *et al*., 2017]

The Glasgow Coma Scale (GCS is used to measure the depth of a coma. The GCS rates three aspects of performance which are eye-opening, movement, and verbal response

The incidence of serious neurological complications in patients who are ultimately not admitted is very low, but their exclusion from studies runs the risk of not being able to determine which complementary tests need to be performed in order to detect patients who may subsequently develop neurological complications. It is estimated that only between 15% and 20% of all patients with head injuries require hospitalization. Currently, there is a tendency to include in the severe head injury category all patients with a Glasgow Coma Scale score of 8 or less [Freeman, L.C. *et al*., 2016; French, L.M, 2010]

Classifying patients with mild trauma exclusively on the basis of the Glasgow Scale ignores other factors that can lead to neurological deterioration and shape final development. For this reason, different authors consider all patients with a score of 15 or 14 to have required hospitalization for more than 48 hours, to have a satisfactory CT scan, and to have experienced moderate trauma.

The distribution by sex is similar to that reported by other authors, with a higher proportion of males than in the moderate or severe trauma groups as in industrialized countries, the most common mechanism causing mild trauma is traffic accidents [French, L. *et al*., 2008; GAO, 2008].

Due to the broad patient inclusion criteria used in our series, the incidence of posttraumatic loss of consciousness and amnesia in patients with a Glasgow Scale score of 15 is lower than reported

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in the literature. Also, for this reason, the incidence of skull fracture among patients with a score of 15 is low and increases as the score worsen on the Glasgow scale. Traffic accidents, as explained by other authors.

CONCLUSION

Computed tomography (CT) is the test of choice in traumatic brain injury (TCE). Its indications depend mainly on the risk of complications presented by the patient and the possibility of the appearance of an intracranial lesion. In this study, we conclude that age has an effective factor, as the physiological response of the brain to trauma varies with age, so that it seems that the brain of the elderly is more vulnerable to the effects since it contains a nervous reserve Less and diminished ability to recover compared to a young brain. Various studies have shown that the death rate in the first 48 hours after exposure is similar at any age. The highest mortality rate is among children under ten years of age and those over 54 years of age.

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