

Hospital Treated Head injury in Basrah: clinical and epidemiological aspects

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Abstract

Background: Head injury still one of the major causes of morbidity and mortality worldwide. From this point every city should have its own study and evaluation for this problem.

Objectives: To study the clinical and epidemiological aspects among a sample of head injury patients admitted to Alsadr teaching hospital in Basrah.

Subjects and methods: All head injury patients were hospitalized in Al-Sadr teaching Hospital between February 2014 and February 2015 under the supervision of the author were enrolled in this study. Demographic, etiologic, injury and its outcome data were collected. A descriptive analysis was performed.

Results: The study included 133 patients. Males comprised 77% of all patients with head

injury. Most of them were with private job. Most of the patients were children (40.6 %). Road traffic accident was the most common cause for head injury (62.4%). An increased trend of injury was noticed during winter. Clinically, mild head injury patients with Glasgow coma scale 14-15 was the biggest group (41.3%). Brain CT was positive in 42% of patients only with a brain contusion as a commonest finding, facial nerve was the commonest cranial nerve affected, (9%) ends with surgery, intensive care unit admission was (34%), In-hospital mortality was (7.5%).

Conclusions: Males and those in their reproductive age (16-45 years) were mostly affected by head injuries. Road traffic accidents were the most common cause of head injuries in Basrah. Thus legislation for the implementation of protective laws and programs is urgently needed.

Key words: Basrah, head injury, epidemiology, clinical aspects.

Introduction

Head injury (HI) is the first human body injury that puts the patient and his family in extreme anxiety and passion. It is the most common cranial condition that neurosurgeon deals with. ⁽¹⁾ It is a major cause of morbidity and mortality in western countries. ⁽²⁾ In developing countries accident rates are increasing as traffic increases, and they greatly exceed those of developed countries. ⁽³⁾

The problem with surveys about head injury is the variation in its definition and severity. Most definitions of head injury depend on evidence of a blow to the head, and exclude facial injuries and foreign bodies in the nose and ears. Scalp, skull, and brain can be injured independently of each other, so that only a proportion of patients with head injuries have initial brain injury. ⁽³⁾

This descriptive hospital based study included 133 patients admitted to Al-Sadr Teaching Hospital during the period from February 2014 to February 2015 under the supervision of the author. Data were collected using a questionnaire covering information about socio-demographic characteristics such as age, sex, and occupation, in addition to clinical

Head injury can be classified by mechanism into two types: closed which is either high velocity (such as car accident) or low velocity (such as falls and assault), or penetrating such as gunshot wounds and other open injuries and by severity it can be classified according to Glasgow coma scale (GCS) into mild (GCS 14-15), moderate (GCS 9-13), and severe (GCS 8 or less, comatose). A third classification is by morphology where it is classified into skull fractures and intracranial lesions. ⁽¹⁾

The importance of head injury as a public health problem and the scarcity of studies on head injury in Basrah justified the conducting of this study which aims to study the clinical and epidemiological aspects of hospital treated head injury in Basrah.

Patients and methods

information such as mechanisms of head injury, time of occurrence of injury, severity, admission to intensive care unit, and in-hospital mortality.

Results

As shown in table 1, children represent the most common age group affected by HI. Males form the majority (77%) of head injury patients.

Table 1 Socio-demographic characteristics of the study population

Character	No.	%
Age (years)		
≤ 15	54	40.6
16 – 25	29	21.8
26 – 35	18	13.5
36 – 45	15	11.2
46 – 55	8	6.0
56- 65	9	6.7
> 65	0	0
Sex		
Male	103	77
Female	30	23
Occupation		
Governmental employed	15	11.27
Private job	44	33
Unemployed (including housewives and children)	69	51.8
Retired	5	3.7
Total	133	100

Table 2 presents the clinical aspects of patients with head injuries. Most of the patients (41.3%) were with mild head injury, and most of the injuries (62%) were due to road traffic accidents (car accident= 76% and motor cycle accidents =24%), 60% had associated facial wounds and 47% had associated scalp wounds, (fracture femur and clavicle were the commonest associated body injuries). Only 9% of the

patients needed surgical intervention. CT examination was positive in 42% of cases and signs of skull base injury were positive in 57 cases (42.9 %). The most common cranial nerve affected was facial nerve (42.8%) from those with cranial nerve injury. About one third of cases needed intensive care unit (ICU) admission

Table 2 Clinical information of the study population

Clinical information	No.	%
Severity of head injury		
Mild (GCS 14-15)	55	41.3
Moderate (GCS 9-13)	34	25.5
Severe (GCS ≤ 8)	44	33
Mechanism		
Road traffic accidents	83	62
Fall from a height	28	21
Hit by a heavy object	8	6
Missiles	6	5
Others	8	6
Associated injuries		
Scalp injury	63	47
Facial wounds	80	60
Other body injuries	44	33
Type of treatment		
Surgical	12	9
Conservative	121	91
CT results		
Positive	56	42
Negative	77	58
Signs of skull base injury		
Positive	57	42.9
Negative	76	57.1
Cranial nerves injury		
Positive	21	16
Negative	112	84
Cranial nerve affected (n=21)		
Facial	9	42.8
Abducent	4	19
Oculomotor	3	14.2
Vestibulocochlear	3	14.2
Olfactory	2	9.5
Patients need ICU admission		
Yes	45	34
No	88	66
Total	133	100

As shown in figure 1, the highest proportion of head injuries presented was during winter time (38 %)

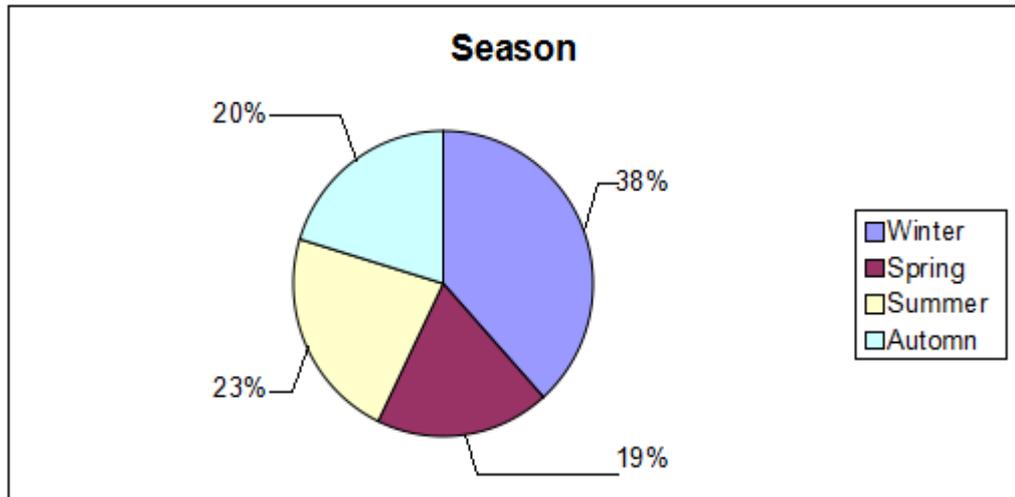


Figure 1 Seasonal distribution of head injuries

The commonest brain lesion on CT examination was brain contusion, followed by extradural haematoma and linear fracture (equally). (Figure 2)

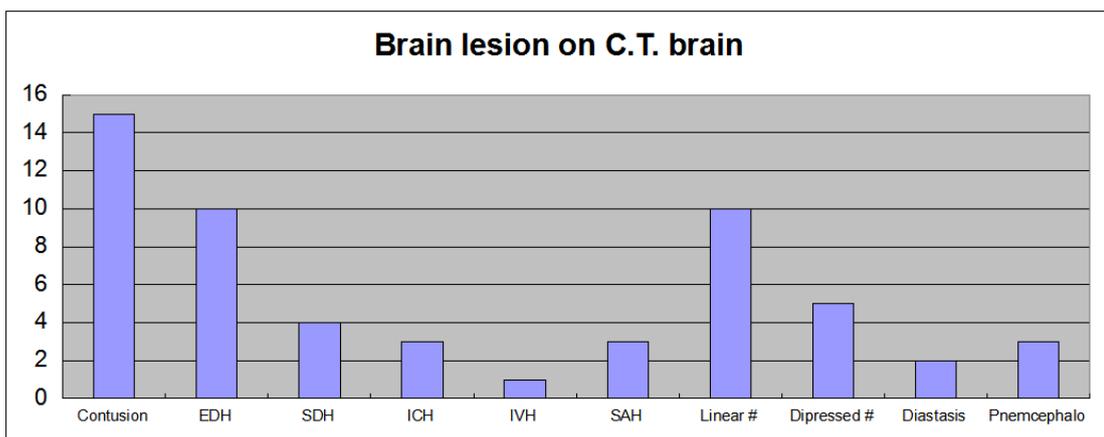


Figure 2 Brain lesions on CT scan

The in-hospital mortality of patients with head injury was 7.5%. (Figure 3)

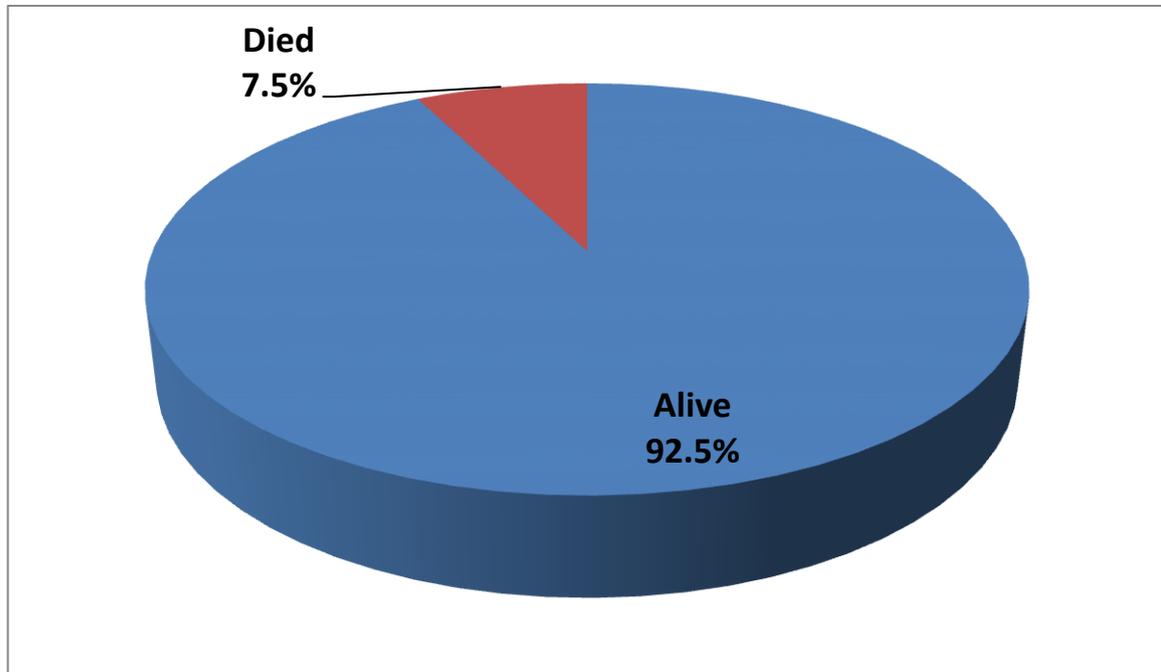


Figure 3 In-hospital mortality

Discussion:

The results of this study showed that children and young people (aged 16-45 years) form the commonest age group affected by head injury (40.6% and 46.5% respectively), a result which had been reported by many other studies. In a study in Alain city (United Arab of Emirates), the majority were males >35y⁽⁴⁾. In Sandi ego / California study the highest proportion of head injury victims was between 10-29 years⁽⁵⁾. In Norway study, head injury was more in young males.⁽⁶⁾ An Indian study found that 32.8% of cases were between 21-30 years⁽⁷⁾. In New Zealand study, children, adolescents and young adults 15-35 years constituted 70% of cases.⁽⁸⁾ Such a high frequency of head injury among such two age groups can be explained by that the increased

activity of children and desire to endeavor things surrounding them exposed them to a high risk of head injury. Younger people who are in their reproductive age are exposed to more hazardous works than other age groups.

Regarding sex distribution of head injuries, this study showed that males were more commonly affected than females (77% vs. 23%). Such result is in line with that reported by other studies.^(2, 4, 9, 10.) This sex difference can be explained by the dominant outdoor male activities especially hard works, and males are usually more audacious for different life activities than females.

If we excluded unemployed patients because such category included children and housewives, patients with private jobs constituted the most common category of

occupations that were affected by head injury. This may attribute to that the private jobs usually concerned with hard works (building, transporting, taxi driving ...) which make those groups of people subjected to high risk of head injury (HI).

Road traffic accidents (RTA) formed the main cause of head injuries (62%), a result which is comparable to that reported in Alain study (66%).⁽¹¹⁾ It is lower than that in India (85.9%),⁽⁷⁾ but it is higher than that reported in Sandeigo/California (53%),⁽⁵⁾ Newzeland (20%),⁽⁸⁾ and Germany (26.3%).⁽⁹⁾ This could be attributed to the bad traffic conditions or due to weak enforcement of traffic laws in our country.

The second most common cause of head injury was fall from a height (FFH) which agrees with that found in Europe where RTA and FFH represent two most common causes for HI.⁽¹²⁾

The commonest HI brain lesion on CT scan examination in this study was brain

Road traffic injuries are the commonest cause of head injuries. Falls category which is amenable to preventative measures was found to be the second cause. Young men were mostly affected. Despite the high proportion of patients admitted to hospital with an apparently mild head injury the in-hospital mortality rate was significant.

contusion, a result which agrees with that reported by others.⁽¹³⁾

Only 42% of the CT examination were positive, in spite of that CT brain examination is still needed in most of the cases with HI and for different reasons, one of them is the presence of brain lesion with normal GCS which could be complicated later on (Some call it lucent period).

The highest proportion of head injuries (38%) admitted to hospital in this study was during winter. This could be attributed to the bad weather and rainfall time⁽¹⁴⁾ in association with weak traffic laws application and bad roads paving in our country which are collectively lead to increase RTA incidence.

The in-hospital mortality of patients with HI in this study was 7.5%. In Turkish (Istanbul) study it was 11%.⁽¹⁵⁾ It is similar to that reported in Sandiego study (7.5%),⁽⁵⁾ but much less than that found in Indian study (22%).⁽¹⁶⁾

Conclusions

Preventive strategies to prevent head injuries should be implemented including activities to provide a system to a road-user safety. Evaluation of in-hospital services are recommended to reduce the squeal of head injuries.

References:

1. Narayan RK, Kempisty S. Closed head injury. In: Rengachary S, Ellenbogen RG (Eds). Principles of neurosurgery, 2nd edition, Elsevier Mosby, 2005, pp: 301-18.
- 2- Solid S, Wentzel- Larsen T, Wester K. Head injury mortality in Nordic countries. J Neurotrauma 2007; 24 (1): 147- 53.
- 3- Jennett B. Epidemiology of head injury. Arch Dis Child 1998; 78: 403-6.
- 4- Bender A, Absood GH, Achan NV, Sankaran – Kutty M. Road traffic injuries in Alain city UAE. JR soc Health 1992; 112(6) :273-6.
- 5- 5. Klauber MR, Barrett – Connor E, Marshall LF, Bowers SA. Epidemiology of head injury. American Journal of Epidemiology 1978; 113(5): 500-9.
- 6- Edna TH, Capplen J. Hospital admitted head injury. J Epidemoil Community Health 1980; 34:96-101.
- 7- Ahmed MD, Karmakar RN. Epidemiological study of acute head injury and it is evaluation by CT scan. Journal of Indian Academy of Forensic Medicine 2014;36(2): PP173-175
- 8- Feigin VL, Theadom A, Barker -Collos S, Starkey NJ, Mc person k, Kahan M, et al. incidence of traumatic brain injury in Newzeland, a population based study. Lancet Neurology 2013; 12(1):53-64.
- 9- 9. Rickels E, Helmut Von wild KR, Wenzlaff P, Head injury in Germany over one year (2000- 2001). Brain injury journal 2010;24(1):1491-504.
- 10- 10. Singh D, Satinder P, Singh SP, Kaumaran M, Goel S. Epidemiology of road traffic accidents death in children in Chandigarh zone of North West India. Egyptian Journal of Forensic Sciences. Available from <http://dx.doi.org/10.1016/j.ejfs.2015.01.008>. {Accessed on April 1, 2016}
- 11- Eid HO, Barss P, Adam SH, Torab FC, Lunsjo K, Grivna M, et al Factors affecting anatomical region of injury, severity, and mortality for road trauma in a high-income developing country: lessons for prevention, International Journal of the care of the injured 2009;40(7):703-7.
- 12- Peeters W, Brande R V. Epidemiology of traumatic brain injury in Europe. Available from: www.center-tbi.eu [Accessed on March 20, 2016]

- 13- Cormick WF. Pathology of closed head injury. In: Wilkins RH, Rengachary SS (Eds). Text book of neurosurgery, 2nd edition, McGRAW- Hill, 1996, pp: 2639-2673.
- 14- Lee WK, Lee HA, Hwang SS, Kim H, Lim YH, Hong YC, et al. A time series study on the effects of cold temperature on road traffic injuries in Seoul, Korea. Environ Res. 2014; 132:290–296.
- 15- Karasu A, Sabanci PA, Cansever T, Heggul KT, Imer M, Taviloglu K. Epidemiological study in head injury patients, Turkish journal of trauma and emergency surgery (TJTES) 2009;15(2):159-63.
- 16- Agrawal D, Ahmed S, Khan S, Gupta D, Sinha S, Satyarthee GD. Outcome in 2068 patients of head injury experience at level of trauma center in India. Asian J Neurosurg 2016; 11(2):143-5.

اصابات الراس المعالجة داخل المستشفى في البصرة ادراسة سريرييه وبائية

الخلاصة

: خلفيه الدراسة:

اصابات الراس كانت وما زالت أحد اهم اسباب المرض والوفاة في الطب حول العالم لذا قد تحتاج كل مدينة في العالم الى دراسة وتقييم تلك المشكلة.

الاهداف:

هذه الدراسة تسلط الضوء على الجوانب ا لسريرييه والوبائية لعينه من مرضى اصابات الراس الداخلين مستشفى الصدر التعليمي في البصرة.

المرضى وطرائق العمل:

كل المرضى الذين عولجوا في مستشفى الصدر التعليمي في البصرة كانوا في الفترة بين شباط ٢٠١٤ - شباط ٢٠١٥ تحت اشراف ومتابعه المؤلف كاتب البحث، وقد بحث الجوانب الديموغرافية وكذلك اسباب الاصابات ونتائجها وذلك من خلال التحليل الوصفي.

النتائج:

الدراسة ضمت ١٣٣ مريض، الذكور مثلوا (٧٧%) من حالات اصابه الراس، معظم المرضى كانوا من اصحاب الاعمال الحرة.

اغلب الحالات كانوا اطفالا (٤٠,٦%)، حوادث الطرق كانت اهم الاسباب شيوعا (٦٢,٤%)، نسبة الاصابات كانت اعلى خلال فصل الشتاء.

اصابات الراس البسيطة حسب معيار كلاسكو (١٤ - ١٥) كانت تمثل النسبة الاعلى (٤١,٣%). فحص مفراس الدماغ كان ايجابيا في (٤٢%) من الحالات وكانت كدمه الدماغ هي أكثر النتائج شيوعا في ذلك الفحص. العصب السابع أكثر الاعصاب الدماغية تأثراً بإصابات الراس. (٩%) فقط كانوا بحاجة الى تداخل جراحي. نسبة الدخول الى العناية المركزة كانت (٣٤%) ونسبه الوفيات (٧,٥%).

الذكور في المرحلة الإنتاجية من العمر ١٦-٤٥ سنة هي المجموعة الأكبر من مرضى إصابات الرأس. حوادث الطريق هي أول الأسباب وهذا يستدعي التأكيد على القوانين التي تحمي من تلك الحوادث وبشكل عاجل.

د. وسام عبد الله جاسم

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