Study of the Pattern and Outcome of head injuries in El-Demerdash hospital in 2010 compared to 2011.

(Retrospective Cross-Sectional Study)

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قُلْ إِنَّ صَلَاتِي
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Tasneem Ragab Sha'aban

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List of Abbreviations

Abbrev.		Meaning
ATLS	:	Advanced Trauma Life Support
CT	:	Computerized Tomography
DAI	:	Diffuse Axonal Injury
DCL	:	Disturbed Conscious Level
DM	:	Diabetes Mellitus
DRS	:	Disability Rating Scale
EEG	:	Electroencephalogram
ER	:	Emergency Room
FB	:	Foreign Body
GCS	:	Glasgow Coma Scale
HI	:	Head Injury
HPA	:	Hypo-thalamo-pituitary-adrenocortical Axis
HTN	:	Hypertension
ICH	:	Intra-cranial Hemorrhage
ICI	:	Intra-cranial Injury
ICP	:	Intra-cranial Pressure
ICU	:	Intensive Care Unit
IQR	:	Inter-quartile Range
IV	:	Intra-venous
LOC	:	Loss Of Consciousness
MRI	:	Magnetic Resonance Imaging
N	:	Number
PTA	:	Post-traumatic Amnesia
PTE	:	Post-traumatic Epilepsy
PTM	:	Post-traumatic Meningitis
PTSD	:	Post -traumatic Stress Disorder
SD	:	Standard Deviation
TBI	:	Traumatic Brain Injury
UK	:	United Kingdom

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Abstract

Trauma, especially head trauma, is an expanding major public health problem and the leading cause of death of the young and productive part of the world's population. The intention of this study was to compare the difference in the pattern and outcome of head injuries between year 2010 versus 2011. A retrospective comparative study carried out based upon data collected from medical records of patient with head injuries admitted to emergency room, El-Demerdash , Ain Shams University Hospitals during the period from January 2010 to December 2011. Socio-demographic, full history, clinical examination and criteria of severity were collected from the sheets for the study. During the study period, the total number of head injured cases received by EL-Demerdash hospital was 1020; 407 in 2010 and 613 in 2011.Due to in-completed sheets 206 of the head injured patients were discarded from the study, 72 in 2010 and 134 in 2011, out of the 134 cases 69 were head gunshots. So the actual numbers of cases subjected to this study were 335 cases in 2010 and 479 in 2011. The male percentage was higher than female one in both years 2010 and 2011(69% and 77.5% respectively). The mean age was 22.22 $\pm$ 18.96 in 2010. In 2011**,** the mean age was 24.63 ± 19.19. In 2010, Post -concussion state was in 82.4% of patients, while poly-trauma were present in only 17.6% and no cases of head gunshot were present. In 2011**,** poly-trauma were 53.03%, while post-concussion were present in 34.86% and head gunshots in 12.11% of cases. In 2010, fall 37.6% followed by motor car accidents (28.4%). In 2011**,** motor car accidents (33.2%), fall 18.6%. In 2010 7.4% died while in 2011, 19.62% died. Prevention of road traffic accidents and improvement of conservative care were identified as major methods to reduce the burden of head injury. Further studies on head injury patients in low-income countries should be done.

Keywords: Head Trauma, Brain Traumatic Injury, Post-Concussion, Head Gunshots, Egypt, Revolution, PolyTrauma, El-Demerdash, Hematoma, Headache, Scalp, Extradural ,Subdural, Intracranial, Accidents, Fall , Adults , Post-Traumatic, Firearm

Introduction

Head injury is the commonest cause of death and disability in people aged 1–40 years in the UK. Most patients recover without specific or specialist intervention, but others experience long-term disability or even die due to complications that could potentially be minimized or avoided with early detection and appropriate treatment (***NICE,2014***).

Patients with minor head injury [Glasgow Coma Score (GCS) 13-15] have a small but important risk of intracranial injury (ICI) that requires early identification and neurosurgical treatment (***Pandor et al,2011***).

The study of pattern of skull fractures is important as the head, being the most exposed and prominent part of the body, becomes more susceptible to injuries, as a result of criminal violence or accident.Skull fractures, especially by blunt force offer varying diagnostic and medico-legal problems to the medical jurists as well as to the clinicians (***Raja et al, 2013***).

Assault injuries especially firearm injuries were more frequent during and shortly after revolution. Guns which are prohibited by law and other sharp and pointed instruments were freely used, a condition that is highly preventable by enforcing stringent laws (***El-Bakary et al, 2013***).

Traumatic craniofacial and skull base injuries require a multidisciplinary team approach. Trauma physicians must

evaluate carefully, triage properly, and maintain a high index of suspicion to improve survival and enhance functional recovery. Un-noticed complex craniofacial and skull base fractures, cerebrospinal fluid fistulae, and cranial nerve injuries can result in blindness, diplopia, deafness, facial paralysis, or meningitis. Early recognition of specific craniofacial and skull base injury patterns can lead to identification of associated injuries and allow more rapid and appropriate management (***Katzen et al,2003***).

Maxillofacial trauma with head injuries demands special attention as airway compromise is invariably present .Preventive measures and legislation regarding traffic rules require a review also as the higher incidence of accidents among young adults has acquired epidemic status (***Kumar et al, 2012***).

Articles that describe head injuries among adults are still insufficient and may focus on one aspect rather than others. Although much is known about the epidemiology of head injuries, there is little information in the literature about head injuries in Egypt , especially during the Egyptian revolution 2011, so there is an increasing need for studying the pattern and outcome of head injuries especially in the period of revolution(***Osama et al,2014***).

Aim of the work

This study aims to:

1- Portray the pattern of head injuries via a cross-sectional hospital-based study on patients presented to emergency room, El-Demerdash , Ain Shams University hospitals during the period from January 2010 to December 2011.

2- To Evaluate and compare the difference in the pattern and outcome of head injuries between year 2010 versus 2011.

Chapter (1):
Types of Head Injuries

Head injury (HI) can be defined as any alteration in mental or physical functioning related to a blow to the head **(Olson and Graffagnino, 2005).**

Traumatic head injuries could be classified on anatomical bases into scalp injuries, skull fractures and injuries of the intra-cranial contents (brain, blood vessels and meninges) **(Emery et al., 2016).**

The most common types of scalp injuries are contused wounds and contusions with the great risk of hemorrhage due to the high vascularity and poor elasticity and recoil. The second danger is sepsis whether intra or extra-cranial **(Emery et al., 2016).**

Skull fractures could be either fracture vault or fracture base. There are different types of vault fractures (fissure, localized depressed, comminuted, chip, or cut fractures) depending on the type of the causative instrument (sharp or blunt), the striking surface (localized or wide) and the used momentum (low or high) **(Murphy et al., 2015).**

Regarding fracture base, it is more common than vault fractures mostly fissure fracture (ring or hinge) and could result due to direct or in-direct trauma.it could affect the anterior, middle or posterior cranial fosse, with resultant cranial nerve

injuries and escape of cerebro-spinal fluid and blood **(Murphy et al., 2015).**

Injuries of the intra-cranial contents involves brain injuries (whether concussion or compression) and injuries of the blood vessels and meninges resulting in different types of intra-cranial hemorrhage (extra-dural, sub-dural, sub-arachnoid and intra-cerebral). These intra-cranial hemorrhages could be either coup or contre-coup and must be differentiated from those due to pathological causes **(Hrapko et al., 2006).**

There are four common types of traumatic head injury .**Closed injury** which does not open the skull or penetrate brain tissue. However, it can still cause bruising or swelling of the brain. **Open injury** is any damage that penetrates the skull. The damage may cause bleeding within the brain's tissues. It may also produce skull fractures or cause the skull bones to press into the brain tissue **(Cheung et al., 2013).**

The term head injury is often used synonymously with traumatic brain injury (TBI) which is a non-degenerative, non-congenital insult to the brain from an external mechanical force **(Ebrahim et al., 2005).**