

The Aetiology of Head Injury in Admitted Patients in Jamaica

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ABSTRACT

This cross-sectional, descriptive study identified 857 head-injured patients who were admitted to the University Hospital of the West Indies (UHWI) over a four-year period. Their median age (IQR) was 28 (16, 45) years and 629 (73.5%) were males. Median length of hospital stay (IQR) was 2 (1, 6) days. Median ICU stay in the intensive care unit (IQR) was 6 (2, 12) days for the 59 (6.9%) patients admitted there. Most patients (73.3%) were admitted with unintentional injuries resulting from road traffic accidents (48.9%), of which passengers were the most commonly affected, and from falls which occurred in 24.4%. Intentional injuries accounted for 26.7% of those admitted, consisting mainly of assaults with blunt objects in 18.0% (154/857). Penetrating injuries were less common, accounting for 67 (7.8%) injuries. Among these, there were 23 gunshot wounds of the head (2.7%). Head injury in admitted patients is mainly due to road traffic accidents, falls and interpersonal violence. Prevention and interventional strategies including education, law enforcement, physical and social engineering must focus on these aetiologies. Current measures are clearly insufficient and more effective strategies are urgently warranted.

Aspectos Etiológicos de la Lesión Cefálica en Pacientes Ingresados en Jamaica

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RESUMEN

Este estudio transversal descriptivo identificó 857 pacientes con lesiones cefálicas, ingresados en el Hospital Universitario de West Indies (UHWI) por un periodo de cuatro años. Su edad mediana (IQR) fue 28 (16, 45) años y 629 (73.5%) eran varones. La longitud mediana de estancia hospitalaria (IQR) fue de 2 (1, 6) días. La estancia mediana en la unidad de cuidados intensivos fue de (IQR) 6 (2, 12) días para los 59 (6.9%) pacientes ingresados allí. La mayoría de los pacientes (73.3%) fueron ingresados con lesiones involuntarias a consecuencia de accidentes de tráfico (48.9%) – de los cuales los pasajeros fueron comúnmente los más afectados – y de caídas ocurridas en 24.4%. Las lesiones intencionales constituyeron el 26.7% de los casos ingresados, siendo el 18.0% (154/857) producidas principalmente por ataques con objetos contundentes. Las lesiones penetrantes fueron menos comunes, representadas por 67 (7.8%) de las lesiones. De estas, 23 fueron heridas de bala en la cabeza (2.7%). Las lesiones en la cabeza en los pacientes ingresados se debieron principalmente a accidentes de tráfico, caídas y violencia interpersonal. Las estrategias de prevención e intervención – incluyendo la educación, la imposición del cumplimiento de la ley, la ingeniería física y social – deben centrar su atención en estas etiologías. Las medidas actuales son a las claras insuficientes y se requiere con urgencia estrategias más efectivas.

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INTRODUCTION

Head injury varies widely in severity and has many causes. It is usually the most important determining factor in prognosis of injured patients, particularly for victims of road traffic accidents and gunshot wounds (1).

It has been established that Jamaica has an increasing injury epidemic, with substantial human and economic cost

(2–9). Education, law enforcement, physical and social engineering aimed at injury prevention and control are the principal means by which the epidemic may be controlled. Preventive management strategies must be guided by accurate information about the aetiology of injury if they are to be efficiently directed and ultimately effective.

Previous studies (2–9) have suggested that a third to a half of injuries in Jamaica are the result of interpersonal violence and therefore are potentially preventable. However, none has addressed head injury exclusively.

The purpose of this study was to determine the profile of admitted head-injured patients at the University Hospital of the West Indies, (UHWI) Kingston, Jamaica, (UHWI) and the aetiology of injury with a view to guiding preventive and intervention strategies in Jamaica and the wider Caribbean.

SUBJECTS AND METHODS

All patients admitted to the UHWI with a diagnosis of head injury from January 2000 to December 2003 were identified from data prospectively collected by specially trained personnel in the trauma registry of the Department of Surgery of the UHWI. Data were then transferred to the @Trauma! Software program (Cales & Associates). A head-injured patient was defined as one with a history or examination indicating trauma to the head or its contents. This was a cross-sectional, descriptive study of 857 patients so identified, all those admitted with a diagnosis of head injury during the study period.

Descriptive statistics were obtained for age, gender, aetiology of injury, intensive care unit (ICU) admission, length of hospital and ICU stay.

Data were analyzed with the Statistical Package for the Social Sciences (SPSS) version 10.0 for Windows software programme and were expressed as frequencies or means with standard deviations as appropriate.

RESULTS

Of the 857 patients admitted over the study period, 629 (73.5%) were males. Median (IQR) age for the entire group was 28 (16, 45) years with a range of less than one year to 98 years. Patients spent a median (IQR) of 2 (1, 6) days in hospital and 6 (2, 12) days in the ICU for the 59 (6.9%) patients admitted there (Table 1).

Table 1: Characteristics of admitted head-injured patients (n = 857)

Characteristic	Median (IQR#)	Range
Age (yrs)	28 (16,45)	0 – 98
Hospital LOS* (Days)	2 (1,6)	1 – 732
ICU LOS* (Days) [†]	6 (2,12)	1 – 87

#IQR = Interquartile range; *LOS = length of stay; [†](n = 59)

Most patients (73.3%) were admitted with unintentional injuries. These were primarily due to road traffic accidents (RTAs 48.9%) of which passengers were the most commonly affected, followed by pedestrians (Figure). Twenty-four

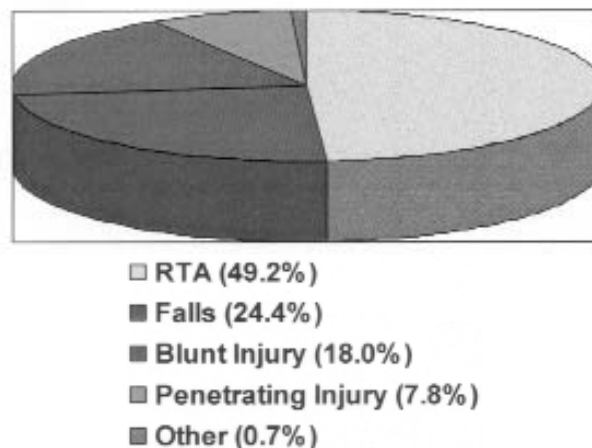


Figure: Aetiology of head injuries in admitted patients.

per cent of admitted head-injured patients had injuries due to falls, accidents accounting for the majority (Table 2).

Table 2: Aetiology of head injuries of admitted patients

Aetiology of injury	No	%
Unintentional (n = 628)		73.3
MVA	345	40.3
Passenger	(127)	
Pedestrian	(99)	
Driver	(71)	
Unspecified	(48)	
Cyclist	74	8.6
Motor	(53)	
Pedal	(21)	
Falls	209	24.4
Accidents	(168)	
Sports	(41)	
Intentional (n = 228)		26.7
Blunt	154	18.0
Penetrating	67	7.8
Knife	(44)	
GSW	(23)	
Self-inflicted	1	0.1
Other	6	0.7
Unknown (n = 1)	1	
Total	857	100

Intentional injuries accounted for 26.7% of those admitted, consisting mainly of assault with blunt objects in 154 patients (18%). Penetrating injuries were less common, accounting for 67 (7.8%) injuries. Among these, there were 23 gunshot wounds of the head in admitted patients. The cause was unrecorded in six patients (Table 2).

DISCUSSION

Head injury is a worldwide public health problem and is the principal cause of death in persons below the age of 40 years in most reporting countries regardless of their state of economic development (10–17). It is the most important cause of trauma mortality and the most influential factor in trauma prognosis (1).

Road traffic accidents (RTAs) accounted for the largest proportion of head-injured patients admitted, similar to other studies (2, 5, 6, 11, 14, 18). The most common group in this category was passengers (14.8%), followed by pedestrians (11.6%). This was similar to the finding of another study in Jamaica (6) but differed from other international studies (14, 19) in which pedestrians had been the most commonly affected by RTAs. One reason may be the significantly lower usage of seatbelts in Jamaican passengers when compared to others *eg* their UK counterparts (20, 21). Road traffic accidents are not only responsible for most admitted head-injured patients but also cause the most severe injuries and the highest mortality among injured patients (12, 13). While legislation to protect drivers and passengers in motor cars as well as motorcycle riders has been passed, pedestrians are a large proportion of the injured and are not protected by such legislation.

The proportion of our patients admitted following road traffic accidents is comparable to the 47% reported from one UK series where the number of accidents had not changed over a twelve-year period (19).

In addition, only 7.0% of the total cohort in the present study was admitted to the ICU, much less than the 35% in the UK (19). The chronic shortage of ICU beds and staff has been documented in Jamaica (22). The effect that such a shortage has on patient outcome is unknown but it is not likely to be beneficial.

Previous studies have suggested that interpersonal injuries are at least as common as unintentional injuries in admitted trauma victims in Jamaica (3, 5–7, 9). However, specific data on the aetiology of head injury in Jamaica have not been published previously. Intentional injuries, most commonly assaults with blunt objects, were responsible for 26.7% of all head injury admissions in this series. This is half that due to road traffic accidents. Both represent an enormous burden on the human and economic resources of already overburdened health facilities and the national economy. The cost of this public health problem is not only confined to the care of the injured but also includes lost productivity from those, the young and productive, who are frequently the most common victims (18).

Injury prevention strategies in Jamaica must focus on the control and reduction of road traffic accidents and inter-

personal violence. These must include education and law enforcement. Where applicable, physical engineering such as pedestrian barriers and behavioural modification also have a role to play.

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