

A seven-year study on head injury in infants, Iran — the changing pattern

Esmaeil Fakharian, Mahdi Mohammadzadeh*, Samin Behdad, Atoosa Babamohammadi, Azadeh Sadat Mirzadeh, Javad Mohammadzadeh

【Abstract】 Objective: Head injury (HI) is the leading cause of mortality and life-long disability in infants. Infants have different anatomical and pathophysiological brain structures from other age groups. The aim of this study was to survey infant HI patients admitted to Shahid Beheshti Hospital in Kashan, Iran from 2004 to 2010, and to identify the causes of HIs in this age group.

Methods: In this retrospective study, all HI patients under the age of two who were hospitalized for more than 24 hours between January 2004 and January 2010 were enrolled in the study. Demographic, etiologic, and injury data were collected and a descriptive analysis was performed.

Results: Infants comprised 20.8% of all children (under 15 years old) with HIs and 65.1% of the injuries

occurred in the home. Falls were the most common cause of injury (63.4%). In hospital mortality was 6.6 per 100 000 infants. A decreasing trend was seen in home events, but HIs caused by traffic accidents were increasing during the study period. The amount of HI infants resulting from car accidents has tripled from the years 2004 to 2010.

Conclusion: Although home events and falling are the main causes of infant HIs and need attention, our study showed an increase of HIs caused by road traffic accidents, especially by car accidents, thus legislation for the implementation of protective equipment such as child safety seats and programs is urgently needed.

Key words: *Infant; Brain injuries; Epidemiology*

Chin J Traumatol 2014;17(3):153-156

Head injury (HI) is the leading cause of mortality and life-long disability in infants (under 2 years old).^{1,2} The incidence rate for this age group is 124 per 1 000 children, which is the highest among all paediatric traumatic HIs.^{3,4} Nearly half of the children admitted to the hospital with HIs were of this age: Australia 49.0% and US 48.7%.^{5,6} Infants have completely different neuro-anatomical pathology, implying the specific anatomical and pathophysical features of the skull, subarachnoid space, cerebrospinal fluid flow and the brain. Thus, compared with adults, traumatic brain pathology during infancy is completely different. Adequate knowledge of their epidemiology is necessary to develop preventive measures and to

estimate requirements for care facilities. Until now, almost every epidemiologic study about HIs includes children of all ages^{1,3,7,8} and thus age-specific information is limited. Few studies investigated epidemiological patterns of HIs in children under 3 years.^{9,10} There was no age-specific study done in Iran. The aim of this study was to present detailed information on HIs in infants, more specifically to describe the incidence rate and demographic details as well as characteristics of HI including severity, causes, and outcome.

METHODS

In this descriptive study, all children aged under 24 months, who were admitted to Shahid Beheshti Hospital, Kashan University of Medical Sciences, Kashan, Iran, after sustaining a HI and hospitalized for more than 24 hours from 1st January 2004 to 1st January 2010 were enrolled. Infants with birth trauma were excluded. Data were collected from the questionnaire prepared by the Trauma Research

DOI: 10.3760/cma.j.issn.1008-1275.2014.03.006

Trauma Research Center, Kashan University of Medical Sciences, Ghotb-e-Ravandi Blvd, Kashan, IR (Fakharian E, Mohammadzadeh M, Behdad S, Babamohammadi A, Mirzadeh AS, Mohammadzadeh J).

*Corresponding author: Tel: 98-(361)5620634, Email: dmmzn58@gmail.com

Center of the university, which is completed by every patient admitted to the hospital. The information collected included demographic data, severity of trauma, mechanism of injury, duration of hospital stay, outcome and the cost of hospitalization.

Descriptive information including means, frequencies, and percentages were calculated. The overall presentation rate of HI in children younger than 2 years presenting to the emergency department was also calculated. Analysis of the epidemiologic characteristics was done by using SPSS version 17.

RESULTS

During the seven year study, 604 infants were admitted to the hospital after HIs and made up 20.8% of all children (under 15 years old) with HIs (604/2 896). Overall male to female ratio was 1.3:1 and 56.8% of cases were male. Home events were the most common cause of injuries (65.1%), followed by road traffic accidents (32.3%). Only 23.7% of HI infants were transported to hospitals by specialized device (emergency medical service). Altogether 597 (98.8%) had a Glasgow coma score (GCS) between 14-15 and the others (1.2%) had GCS≤13. The mean hospital stay was 1.7 days with

injuries in the home 1.6 days and injuries caused by traffic accidents 2 days. There were five deaths (0.8%): one patient with a history of fall, 3 from car accidents and 1 from motorcycle crashes. In hospital mortality was 6.6 infants per 100 000. Table 1 shows characteristics of infant with HIs.

The most common cause of HI in infants was falls, which occurred in 383 cases (63.4%) including falls from the same level in 36 cases (6.0%) and from other levels in 347 cases (57.4%). Road traffic accidents were the second leading cause of HIs in infants, comprising 196 cases (32.4%). Motorcycle passengers (93 cases, 15.4%) were the most frequent group involved in road traffic accidents. Other cases included accidental strike to the head in 22 cases (3.6%) and assaults/child abuse in 3 cases (0.5%, Table 2).

Generally, the incidence of HIs has decreased during this study (2004-2010). Although this decreasing trend was seen in home events, there was an increase in the number of HIs caused by traffic accidents. Table 3 shows incidence of HIs in infants per 1 000 children during 2004-2010. The number of infants who were hospitalized due to HIs resulting from car accidents has approximately tripled during this time period (Figure 1).

Table 1. Characteristics of infant with HI based on house and traffic events

Variable	Total n (%)	House n (%)	Traffic n (%)	P value
Age				0.01
0-12 months	189 (31.3)	111 (28.2)	75 (38.5)	
13-24 months	415 (68.7)	282 (71.8)	120 (61.5)	
Gender				0.96
Male	343 (56.8)	223 (56.7)	111 (56.9)	
Female	261 (43.2)	170 (43.3)	84 (43.3)	
Season				0.02
Spring	158 (26.2)	109 (27.7)	42 (21.5)	
Summer	206 (34.1)	117 (29.8)	83 (42.3)	
Autumn	142 (23.5)	100 (25.4)	40 (20.5)	
Winter	98 (16.2)	67 (17.0)	30 (15.4)	
Emergency medical service	143 (23.7)	37 (9.4)	105 (53.8)	≤0.001
GCS	14.93±0.8	14.93±0.6	14.91±0.8	0.29
Death	5 (0.8)	1 (0.3)	4 (2.1)	0.02
Cost (\$)	2454±186	351±397	2454±282	0.01
Hospital stay (d)	1.7±2.0	1.6±1.6	2±2.3	0.04

Download English Version:

<https://daneshyari.com/en/article/3107570>

Download Persian Version:

<https://daneshyari.com/article/3107570>

[Daneshyari.com](https://daneshyari.com)