
Brief Reports

A Retrospective Descriptive Study of Pediatric Trauma in a Desert Country

A. Bener
N.K. Al-Suweidi
R.N.H. Pugh
A.S. Hussein*

Accidents have potentially serious consequences in terms of morbidity(1). Trauma is the leading cause of death among children aged 0-14 years in the United States(2-6). From the age of one year up to adulthood, accidents are the leading cause of death in all industrialized countries, in the oil-producing developing countries, and in a growing number of developing countries(7). A study made in the neighboring oil-producing country of Saudi Arabia reported that falling was the most common cause of trauma, and analysis of the mechanisms of trauma showed that these were preventable(8). Childhood hospital admission rates are increasing(9-14) but lengths of stay are diminishing(9-11).

*From the Departments of Community Medicine Faculty of Medicine and Health Sciences, U.A.E. University, P.O. Box 17666, Al-Ain, United Arab Emirates and *Department of Pediatric Surgery, Al-Ain Hospital, Ministry of Health, United Arab Emirates.*

Reprint requests: Dr. Abdulbari Bener, Associate Professor, Department of Community Medicine, Faculty of Medicine and Health Sciences, U.A.E. University, P.O. Box 17666, Al-Ain, United Arab Emirates

*Manuscript received: September 24,1996;
Initial review completed: October 20,1996;
Revision accepted: June 6,1997*

The present study determines the common types of trauma among children (0-14 years) in Al-Ain, United Arab Emirates (UAE) which would help in planning health strategies for prevention and cure.

Subjects and Methods

The study was designed as a descriptive retrospective study and included all case of pediatric trauma (0-14 years) treated at the Emergency Room [ER] at Al-Ain Hospital for the 12-month period of 1 January-31 December 1994. Data collected from ER file records comprised two parts: (i) General factors: age, sex, nationality, date, arrival time ER and disposition; and (ii) Specific: type of trauma, cause of trauma and location of trauma. The ages of patients were categorized into three groups: under 5 years; between 5-9 years; and between 10-14 years. Timing was also classified into three groups: morning [0600-1159 hours), afternoon/evening [1200-1959 hours], and night [2000-0559 hours]. The modes of trauma were categorized into contusion; cuts, lacerations and nail pricks; fractures; sprains; burns and scalds; accidental poisoning; bites; and others including gun shot wounds, drowning and foreign bodies. Computerized analysis was performed by SPSS software(15).

Results

The pediatric trauma cases totaled 16,518 and represent 58.1% of all pediatric patients attending ER. The Pediatric group comprised 1/3 of all patients attending ER. *Table I* shows the various characteristics of the pediatric trauma admissions to the hospital. Seventy per cent of accidental injuries were among males. The distribution of nationality by age groups showed that 44%

TABLE I—Characteristics of the Pediatric Trauma Subjects Admitted to Hospital

Characteristic	< 5 years		5-9 years		10-14 years	
	No.	%	No.	%	No.	%
<i>Sex</i>						
1. Male	3744	61.9	3764	69.4	3989	79.0
2. Female	2298	38.1	1661	30.6	1062	21.0
<i>Nationality</i>						
1. UAE	2384	39.5	2338	43.0	2542	50.3
2. Non-UAE	3658	60.5	3087	57.0	2509	49.7
<i>Timing</i>						
1. Morning	1068	17.7	918	16.9	976	19.3
2. Afternoon	3296	54.5	3171	58.5	2778	55.0
3. Night	1678	27.8	1336	24.6	1297	25.7
<i>Causes</i>						
1. Falling	982	16.2	825	15.2	584	11.5
2. RTAs	43	0.8	72	1.3	62	1.2
3. Sharp object	180	3.0	242	4.5	270	5.3
4. Blunt object	107	1.8	91	1.7	83	1.6
5. Burns	437	7.2	139	2.6	114	2.3
6. Fights/Sport	8	0.1	44	0.8	109	2.2
7. Unspecified	4285	70.9	4012	74.0	3829	75.8
8. Total	6042	100.0	5425	100.0	5051	100.0

RTA – Road traffic accident.

were among UAE nationals. Also, the most UAE nationals were between 10-14 years, while most non-UAE children were <5 years. There was no significant association between timing of trauma and age group, but there was a significant tendency toward afternoon timing in all the age groups. In the age group <5 years, the common causes of trauma were falling (16.2%), sharp object (3%) and burns (7.2%); while in 5-9 year olds, the common cause of trauma were falling (15.2%), sharp object (4.5%) and burns (2.6%). Finally, in 10-14 year olds, the most frequent were falling (11.6%), sharp object (5.3%) and burns (2.3%). Fights and sporting injuries (2.2%) were predominant in 10-14 year olds. Most burns in children were due to scalds and occurred at home, mostly in the kitchen or bathroom. The most frequent, poisoning

type was pesticide and medicine. *Table II* shows the different types of trauma in various age groups. There were significant differences between types of trauma and age groups.

Discussion

Childhood trauma from various causes is frequent, often causing high morbidity and significant mortality. This merits attention and the promotion of epidemiologic research on pediatric trauma. The majority of trauma occurred in males aged 10-14 years. Similar accident trauma results were obtained in the neighboring country of Saudi Arabia(8). Among female cases of trauma who presented to ER, the maximum (45.8%) were aged less than 5 years. The present study confirmed earlier reported (2,8) male predominance among pedi-

TABLE II—Type of Trauma According to the Age Groups

Types of trauma	5 years		5-9 years		10-14 years	
	No.	%	No.	%	No.	%
1. Superficial	360	6.0	366	6.7	247	4.9
2. Contusion	2407	39.8	2110	38.9	2425	48.0
3. Cuts, lacerations	1991	32.9	1952	36.0	1256	24.9
4. Fractures	252	4.2	389	7.2	426	8.5
5. Sprains	78	1.3	114	2.1	326	6.5
6. Burns, scalds	457	7.6	146	2.7	120	2.4
7. Poisoning	131	2.2	27	0.5	24	0.5
8. Bites	153	2.5	165	3.0	109	2.2
9. Others*	213	3.5	156	2.9	118	2.3
10. Total	6042	100.0	5425	100.0	5051	100.0

* Others: including foreign bodies, gunshot.

ric trauma cases. This may be due to the fact that boys are usually more vigorous and adventurous than girls, who tend to be more confined to the home.

The current study showed that falling, sharp object, burns and road traffic accident (RTA) were the most frequent causes of trauma in all children age groups. This is in accordance with the findings from the neighboring Gulf State, Saudi Arabia(8).

Most burns in children are due to scalds and occur at home, usually in the kitchen or bathroom. The scalds are usually due to hot liquids such as boiling oil, which can cause severe injury. Mostly the toddlers are in kitchen while a parent is preparing food or drinking a hot beverage. Also, the most common poisoning type was pesticide and medicine. Fractures and sprains were found more frequently in children above 10 years. This age group plays more football, cycle, *etc.* or indulges in vigorous physical activities, especially boys. Many prefer to go barefoot while playing, exposing themselves to nail prick injuries. Children below 5 years, are at greater risk of some hazards; for example, oral exploration of the envi-

ronment may lead to accidental swallowing of a variety of objects or liquids. Older siblings may feed a newborn baby inappropriate foods. At any age, a bone hidden in food (*e.g.*, fish bone) may be swallowed.

Most previous reports have shown the high cost of treating accident victims(12,16-19). The treatment of trauma requires a well organized clinical service- Accidents are important first of all in terms of morbidity. For various reasons such as inexperience and immature behavior, accidents take a heavy toll on young people. Each year, 1 child in 10 suffers an accident for which it is necessary to call upon the health services at some level(1,16).

Accidental injuries among children, besides being a major public health problem, are a major health hazard leading to high rates of disability and mortality(1). Also, they have a great socio-economic impact on the child and family(19). The problem is amenable to prevention and the toll could be greatly reduced if appropriate measures are taken. The present study suggests that injuries among children (0-14 years) are probably the most frequent single cause of

morbidity. Official UAE data also show accidents as the leading cause of mortality in children(14).

REFERENCES

1. Manciaux M, Romer CJ. Accidents in Childhood and Adolescence: A Priority Problem Worldwide. Geneva, World Health Organization, 1991; pp 1-7.
2. Sola JE, Scherer LR. Criteria for safe cost effective pediatric trauma triage: Prehospital evaluation and distribution of injured children. / *Pediatr Surg* 1994; 29: 738-741.
3. Stylianos S. Pediatric trauma prevention strategies. *Pediatr Clin North Amer* 1993; 6: 1339-1369.
4. Graneto JW, Soglin DF. Transport and stabilization of pediatric trauma patients. *Pediatr Clin North Amer* 1993; 40:365-380.
5. Moront, M, Eichelberger MR. Pediatric trauma. *Pediatr Ann* 1994; 23:186-191.
6. Christopher NC. Childhood injuries and the importance of documentation in the emergency department. *Pediatr Emer Care* 1995;11: 52-27.
7. Christophersen ER. Automobile accidents; potential years of life lost. *Pediatrics* 1983; 71: 855-856.
8. Evbuomwan I. Paediatric trauma admissions in the Sakaka Central Hospital, Al-Jouf Province, Saudi Arabia. *Saudi Med J* 1994; 15: 435-437.
9. Hill A. Trends in paediatric medical admission. *Br Med J* 1989; 298:1479-1482.
10. Hill A. Trends in paediatric medical admission. *Br Med J* 1989; 1479-1482.
11. Wadsworth MEJ. Follow-up of the first national birth cohort: Findings from the Medical Research Council National Survey of Health and Development. *Pediatr Perinatal Epid* 1987; 1: 95-117.
12. Spencer NJ, Lewis MA. Multiple admissions under two years of age. *Arch Dis Child* 1991; 66: 938-940.
13. Spencer NJ, Lewis MA, Logan S. Diagnostic and socio-demographic changes in multiple hospital admission in children under two years: a five-year period. *J Public Health* 1993; 15: 322-326.
14. Sankaran-Kutty M, Bener M, Muralikuttan M, Adel A. Accidentally embedded foreign bodies in the extremities. *Saudi Med J* 1996; 16: 389-392.
15. Norusis MJ. SPSS Inc. SPSS/PC+ for Windows, Base System and Advanced Statistics User's Guide, Release Version 6.0 Chicago, Illinois, SPSS, Inc. 1992.
16. Bener A, Jadaan KS. A perspective on road fatalities in Jeddah, Saudi Arabia. *Accid Annal Prev* 1992; 24: 143-148.
17. Harris BH, Barlow BA, Ballantine TV. American Pediatric Surgical Association: Principles of pediatric trauma care. *J Pediatr Surg* 1992; 27: 423-426.
18. Merdad A, Rawas M, Al-Garni M. Airgun injuries: A national health hazard. *Ann Saudi Med* 1992; 12: 43-46.
19. Bener A, Breger A, Al-Falasi AS. Risk-taking behavior in road traffic accidents. *J Traffic Med* 1994; 22: 67-70.