



Journal of Medical Sciences

ISSN 1682-4474

science
alert

ANSI*net*
an open access publisher
<http://ansinet.com>

JMS (ISSN 1682-4474) is an International, peer-reviewed scientific journal that publishes original article in experimental & clinical medicine and related disciplines such as molecular biology, biochemistry, genetics, biophysics, bio-and medical technology. JMS is issued eight times per year on paper and in electronic format.

For further information about this article or if you need reprints, please contact:

Dr. Shahnam Arshi
Ardabil University of
Medical Sciences,
Qiyam Square,
Ardabil, Iran

Tel/Fax: 009891 44027218

Burns Comprising 3/4th of Home Injuries in Pre-school Children of the Rural Areas of Ardabil Province, Iran

¹S. Arshi, ²H. Sadeghi-bazargani, ²R. Mohammadi,
¹M. Soltan Mohammad Zadeh, ¹A. Rouhi and ¹M. Barak

Home injuries are preventable dangers to child health and most occur in places considered safe by parents. The aim of this study was to identify the causes and types of accidents and their consequences in pre-school aged children in the villages of Ardabil province northwestern Iran, during the years 2000- 2002. In this descriptive study, questionnaires were completed for 6875 home injuries of preschool children, reported by the primary and secondary health centers and general hospitals. Data were entered in to a computer and analyzed by EPI 2000 software. Among the 6875 home injuries of pre-school children reported, 43.6% were girls and 56.4% were boys with a mean age of 2.93 years. Eighty five percent of these accidents occurred in the hall, rooms and kitchen and 12.9% occurred in the yard. The main organs involved were the hands, feet, fingers and toes in 75.6% of cases. Death and disability occurred in 34 and 15 cases, respectively. Burns occurred in 75% of cases, which had a much higher prevalence than previous studies. Most accidents reported in our study were preventable, which calls for the need to increase the knowledge of parents in this regard.

Key words: Injuries, burns, scalds, home safety, child injuries

INTRODUCTION

Recent reports indicate that accidental injuries are one of the most frequent causes of death and disability in the world; accidents comprise 16% of the burden of diseases worldwide. The traditional view of injuries as accidents or random events, has resulted in the historical neglect of this area of public health (Krug *et al.*, 2000).

Even in developed countries, accidental injuries comprise 40% of deaths in children aged between 1 and 14 years, with an annual estimate of 20,000 deaths in children in these countries, many of which are preventable (Roach and O'Neale, 2001).

Home-type injuries in children are of importance regarding the home environment and the role of parents. In the study performed by Kopjar in children less than 3 years, the chance of accidents was less in nurseries than homes. However, a difference did not exist regarding children aged between 3 and 6 years of age. In a study performed by Kashaninia on injured children aged between 3 and 5 years of age, most children lived in homes considered to be at moderate to high risk areas. Most home injuries, however, occurred in places considered safe by parents (Kashani-nia, 1992; Hu *et al.*, 1993; Wortel *et al.*, 1993).

Among the most challenging problems in the next century will be to decrease the burden of accidents and injuries (Krug *et al.*, 2000). In Iran, although during the previous decade, respiratory infectious diseases and diarrhea have been the most common causes of death in the under-fives, but in the recent years accidents still remain to be the most common cause of death in children.

However, till today, there has been a lack of attention toward research and scientific studies about home injuries in children, such that in the First National Health Congress of Iran, there were not enough well published articles in this regard in Iran. In this study, our aim was to assess the status of home injuries in pre-school aged children and its distribution according to variables including, age, sex, site, type of accident and damaged organ.

MATERIALS AND METHODS

Injury data were taken from a national community based injury registry for injuries caused by home injuries in rural areas of Iran. All children aged below 7 years who resided in the villages of Ardabil and who had been reported to be involved in Home injuries during the years 2000-2002, were included in this study. This included 6875 home injuries in preschool children reported by the Health Centers and general hospitals in Ardabil. Data of damaged

organs, type of accidents, type of injuries and other background data were recorded in a pre-defined questionnaire for injury registry and analyzed by EPI info 2000. Frequency and relative frequency tables were used.

RESULTS

Among the total 22911 home injuries in all age groups reported during the years 2000-2002, 6875 aged less than 7 years were involved in home injuries. Of these, 2294 (43.6%) were girls and 3876 (56.4%) were boys. Mean age was 2.93±1.75 years, with median age of 3 years. A significant difference did not exist in mean age of the two sex groups. On the whole, 61% of the accidents occurred in the living room or bedroom, 23.9% in the kitchen, 12.9% in the yard and yard-garden and the remainder occurred in other parts of the house including the bathroom, roof, stable, stairs and stock room. The hands and fingers were injured in 2784 cases (40.6%); the legs and feet along with toes in 2396 cases (35%); multiple traumas in 234 cases (3.4%) and the other organs in the remaining cases (Table 1).

Table 1: Main injured parts during home injuries to preschool children

Injured part	Frequency	(%)
Trunk	377	5.5
Ear	10	0.1
Eye	26	0.4
Face	347	5.0
Feet, Legs, Toes	2396	35.0
Genitalia	2	0.0
Hands	2488	36.0
Hand fingers	296	4.3
Head	531	7.7
Internal organs	90	1.3
Mouth	12	0.2
Multiple trau	234	3.4
Neck	28	0.4
Nose	23	0.3
Total	6860	100.0

Table 2: Type of accidents causing injury to preschool children

Kind of accidents	Frequency	(%)
Attack and sting of	46	0.60
Chemical material	16	0.20
Collision to sharp objects	544	7.90
Collision to substance	235	3.40
Contact to hot objects	550	3.40
Debris down flow	5	0.10
Drown	2	0.00
Electrical shock	5	0.10
Fall	383	5.60
Fire	147	2.10
Foreign body	22	0.30
Hot liquids	4439	64.06
Overthrown	366	5.30
Others	22	0.30
Resting in smoke	36	0.30
Using drug	67	1.00
Total	6874	100.00

Table 3: Types of home injuries to preschool children

Kind injury	Frequency	(%)
Amputation	2	0.03
Bleeding	4	0.05
Brain trauma	46	0.70
Bumping	33	0.50
Burn	5157	75.00
Contusion	66	1.00
Cut lacerati	778	11.30
Eye injury	7	0.10
Fracture	147	2.10
Others	19	0.30
Poisoning	75	1.10
Shock	5	0.07
Suffocation	11	0.16
Wound crush	522	7.60

According to type of accident, 64.6% of cases were caused by hot liquids and 8% by hot objects. The remaining were caused by other objects (Table 2). The majority (75%) of accidents were due to burns (Table 3). Of the 6875 accidents, 5277 (76.8%), 993 (14.4%) and 605 (8.8%) were reported by the Primary Health Centers, Secondary Health Centers and general hospitals, respectively. Of these cases, 34 died, 15 became disabled and the remaining improved or was undergoing therapy.

DISCUSSION

In this study, children comprised 30% of all registered Home injuries, while only 10% of the total population of Ardabil involved children less than 7 years of age. In a study by Kopjar on home injuries, it was shown that per-population incidence was highest among children aged 6 years or younger (Kopjar and Wickizer, 1996). Cermaria and Simeoni (1998), reported that the 1 to 5 years age group and the over 10 year age group were most susceptible to home injury. In a study by Laflamme and Eilert (1998) on home injuries in preschool children, injury incidence was higher for children aged 1 and 2 years old and for boys at all preschool ages. Accidents were more frequent (56.4%) in boys than girls, which is in concordance with the results of a study performed by Kashaninia (1992) in which most home injuries also occurred in 3 to 5 year old children attending a educational Hospital in Tehran. In another study performed on under 5 year old children attending the hospitals of Ardabil, the relative frequency of accidents were 61.7% in boys and 38.3% in girls (Mazheri and Fuladi, 2000). The prevalence of home-injuries in boys is higher than that reported for girls. This is also true for accidents which take place outside the home. Most accidents (84.9%) occurred in the rooms and kitchen. In Kashaninia's study most accidents had taken place in the garden or rooms of their home. In the current study, the majority of children lived on the first floor in homes with

only 1 or 2 rooms. However, this study included children from both urban and rural areas, most of whom were city dwellers (Kashaninia, 1992).

In the present study, more than 5157 (75%) of home injuries in children were caused by burns, 4439 of which were caused by hot fluids, however only 1640 (23.9%) of the accidents took place in the kitchen where we may assume to be the main place for such kind of burn accidents. This could be explained by the custom to serve tea and hot food and sometimes even use cooking utensils including kettles, not only in the kitchen, but also in other rooms as well. The difference in type of injury between nationalities has been notified in Hjerm's *et al.* (2001) study in Sweden in which children of mothers born in a nonwestern country were more likely to have been admitted to hospital because of scald injuries. In a study performed by Mazaheri, burns comprised 33.4% of all accidents and 38.7% of the accidents resulted in fractures, whereas in our study, 75% of accidents were due to burns and only 2.1% resulted in fractures. Pelech *et al.* (1998) reported that most (52.2%) accidents resulted in fractures. Falls and burns predominated as the cause of injury in a study by Jordan *et al.* (1993) on injuries of children in Baltimore.

Fall from altitude occurred in 5.6% of accidents in our study, while it was 4% in Kashaninia's study. Of course, fall from altitude is not much unexpected inside the home. Hu and his colleagues reported that 51% of home injuries in children are falls from heights. The high frequency of falls and low frequency of burns in Canada reported by Hu *et al.* (1993), compared to the villages of Ardabil can be expected by the difference in living habits and facilities. A study performed in a rural population in the northern areas of Pakistan showed that burns, fall from heights and road accidents together constituted 82% of accidents (Mushtaq and Ali, 1999). In this study, death and disability occurred in 49 (less than 1%) of cases. Of course, home injuries rarely lead to disability or death.

CONCLUSIONS

On the whole, 75% of home injuries in children were caused by burns alone and 86% of these were caused by hot fluids, that is considered to be preventable type of accident and suggests health sector policy makers to act seriously on increasing peoples knowledge about the prevention of accidental injuries.

Limitations of the study

- Little cooperation of private clinics.
- Lack of data about some important variables such as total number of children in each house hold and total floor area of each home.

We hope future researchers will consider these factors in their studies.

ACKNOWLEDGMENTS

This work could not have been completed without help of Dr. Derakhshan, Dr. Shami, Dr. Sepehran and Mrs. Amini. We thank also to professor Lucie laflamme for her kind recommendations.

REFERENCES

- Cermaria, F. and G. Simeoni, 1998. An Epidemiological Study of Childhood Accidents. *Minereva-Pediatr.*, Vol. 50, No. 3, Medline.
- Hjern, A., G. Ringback-Weitof and R. Andersson, 2001. Socio-demographic risk factors for home-type injuries in Swedish infants and toddlers. *Acta Paediatr.*, 90: 61-68.
- Hu, X., D. Wesson and B. Kenney, 1993. Home injuries to children. *Can. J. Public Health*, 84: 155-158.
- Jordan, E.A., A.K. Duggan and J.B. Hardy, 1993. Injuries in children of adolescent mothers: Home safety education associated with decreased injury risk. *Pediatrics*, 91: 481-487.
- Kashani-nia, Z., 1992. The study of personal characteristics and environment of children under 5 years affected by home injuries. Thesis in Tehran Hospitals.
- Kopjar, B. and T.M. Wickizer, 1996. Population-based study of unintentional injuries in the home. *Am. J. Epidemiol.*, 144: 456-462.
- Krug, E.G., Sharma, K. Gyanendra and Lozano Rafael, 2000. The global burden of injuries. *Am. J. Public Health*, 90: 523-526.
- Laflamme, L. and P.E. Eilert, 1998. Injuries to pre-school children in a home. *Acta Paediatr.*, 87: 206-211.
- Mazaheri, E. and N. Fuladi, 2000. Epidemiologic Study of accidents among Children under 5 years in Ardabil. *Scientific J. Ardabil Faculty of Nursing and Midwifery*, 3: 1-7.
- Mushtaq, A. and S.M. Ali, 1999. Survey of surgical emergencies in a rural population in the Northern Areas of Pakistan. *Trop. Med. Intl. Health*, 4: 846-857.
- Pelech, L., Z. Roth and Z. Zvadova, 1998. Accidents and children. *Cas-Lek-cesk.* Vol. 137, No. 15 Abstract.
- Roach, J. O'Neale, 2001. Injuries Kill over 20,000 children a year in developed countries. *Br. Med. J.* 322: 317.
- Wortel, E. and G.H. de Geus, 1993. Prevention of home related injuries of pre-school children. *Health Educ. Res.*, 8: 217-231.