

PROFILE OF ACCIDENTS IN CHILDREN

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ABSTRACT

Out of 5031 children admitted to S.N. Hospital, Agra during one year, there were 716 cases (14.2%) of accidents. Most cases were in the age group of 4-9 years; boys were affected more commonly than girls. The maximum cases occurred due to fall (44.4%), followed by road traffic accidents (26.4%) and burns (11.5%). The consequences in terms of morbidity and mortality was also high. Kerosene oil ingestion was the most common encountered form of poisoning. Incriminating environmental factors could be identified in 51.8% cases and included poorly protected roofs (23.7%), poor state of roads (10.0%), defective vehicles (7.5%), and houses opening directly on the streets (7.3%). More than half of the accidents took place at home (58.7%), followed by those on streets (30.3%) or at farmhouses (57%). Injuries caused by sharp and blunt objects were more common in villages. Only 21.4% children had received first aid, often by the family, before reaching the hospital.

The overall mortality rate was 53.1/1000, but in cases of burns the mortality was (146.3/1000). This study suggests that falls and traffic accidents have the highest incidence and mortality in childhood accidents and modification of the home environment can be an effective measure to prevent such incidents.

Key words: *Accidental injury, poisoning, Kerosene oil inhalation, Burns.*

It is not justifiable to accept that accidents are unfortunate and unavoidable occurrences. It is usually relatively easy to reconstitute their natural history afterwards with its different phases and factors. In the absence of nationwide monitoring and surveillance services, it is difficult to assess the exact magnitude of the problem of accidents in children. In order to identify the nature of accidental injuries and the environmental factors responsible for their occurrence, we prospectively studied 716 children with accidental injuries admitted to this hospital.

Material and Methods

We studied children aged 0-12 years, admitted with accidental injuries through the Emergency Services and Outpatient Departments of Pediatrics, Surgery and Orthopedics during January to December, 1988. Detailed information regarding accidents was obtained in respect of circumstances (time* and place), activity of the child at the time of accident, nature of accident and its immediate consequences.

Chi square test was used to assess statistical significance.

Results

Of 5031 children admitted during 1988, there were 716 cases of accidents, giving an overall incidence of 14.2%. The maximum cases of accidents occurred in January, February and March (19.5, 9.8 and 11.7%

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respectively) and in May (12.3%). In rest of the months the incidence of accidents varied between 5.2 and 9.1%.

Of the 716 cases, 465 (69.1%) were boys and 221 (30.9%) girls; the difference amongst boys and girls was statistically significant ($p < 0.05$). The highest incidence of accidents was noticed in the age group of 4-9 years (40.6%) and lowest amongst infants (4.1%); this difference was also statistically significant ($p < 0.01$). Four hundred and fifty four (63.4%) children came from urban areas and 262 (36.6%) were from the neighboring villages. The highest incidence of accidents was from 12 noon to 6 pm (48.9%) followed by 6 pm to midnight (31.4%).

Table I shows that the maximum cases occurred following falls (44.4%), followed by those due to road-traffic accidents (26.2%) and burns (11.5%). Kerosene oil poisoning (26.7%) and food poisoning (13.3%) were the commonly encountered

form of poisoning (Table I). While the incidence of injuries due to falls, traffic accidents and burns were the same in urban and rural areas, poisoning was comparatively more common in urban areas (71.1%). Injuries caused by a sharp or blunt object and by animals were more common in villages (55.9 and 71.4%, respectively).

Most of the accidents occurred during play (43.6%). Children were also injured while doing household work (15.3%), or while on streets (30.3%). In traffic accidents the major consequences were fractures and wounds (34.7 and 34.0%, respectively). Head injury was the major consequence of falls (62.7%), while fights resulted in abdominal injuries in 80%.

Burns claimed the maximum number of lives (31.5% of total deaths). These were followed by falls (28.9%) and traffic accidents (26.3%). The overall mortality rate was 53.1/1000. The rate was the highest in

TABLE I—Profile of Accidental Injuries and Poisonings

Injury	At home (n=149)	Outside home (n=297)	Total	
			No. (n=716)	% (100)
Fall from height	258	60	318	44.4
Traffic accidents	-	188	188	26.2
Burns	79	3	82	11.5
Poisoning*	45	-	45	6.3
Sharp or blunt objects/machines	17	17	34	4.7
Drowning	-	7	7	1.0
Foreign body getting impacted	7	3	10	1.4
Fight among peers	1	4	5	0.7
Injuries by animals	-	7	7	1.0
Injuries due to blasts	1	5	6	0.8
Others	11	3	14	2.0

* Poisoning = kerosene oil 26.7%, food 13.3%, medical 11.1% ingestion of corrosives, household chemicals and dhatura 6.7% each, opium and pesticides 4.4% each, alcohol 2.2%, unknown substances 6.7%, others 11.1%.

cases of burns (146.3/1000) followed by those due to drowning (142.9/1000).

Incriminating environmental factors could be detected in 371 (51.8%) cases (Table II). Poorly protected roofs (23.7%) was the commonest, followed by poor state of roads (10%), and defective vehicles (7.5%).

Discussion

The observed incidence (14.2%) of accidents among 0-12 year old children, admitted to this hospital, is comparable to

the findings of Ghosh and Bansal(1) who found an incidence of 14.0% among 0-14 year age group in a study from Himachal Pradesh. However, the incidence is high in comparison to the observations made by Sitaraman *et al.*(2), who reported an incidence of 7.7% accidents among all hospital admissions.

In the present study the maximum number of accidents occurred in the age-group of 4-9 years and minimum in age-group of 0-1 year; boys were more frequently affected. These findings are in

TABLE II—Factors Directly Responsible for Accidents Amongst Children

Incriminating environmental factors	No. (n=371)	%
Poorly protected roofs	88	23.7
Poor state of roads (pot-holes, slippery roads, construction work with no indicators)	37	10.0
Brake failure of speeding vehicles	28	7.5
Houses opening directly onto the street	27	7.3
Crowded living conditions	23	6.2
Flames within the reach of children (open kerosene lamp, ground level cooking)	22	5.9
Use of firecrackers	22	5.9
Use of nonstandardized containers for keeping chemicals/poisons/drugs	19	5.1
Children unattended during play	16	4.3
Kuchcha houses	14	3.8
Poorly constructed wells	13	3.5
Stray animals on the road or tract	13	3.5
Poor lighting	10	2.7
Machinery installed without safeguards	10	2.7
Unprotected agricultural instruments	7	1.9
Explosions and blasts	7	1.9
Faulty designing of toys	6	1.6
Firearms	5	1.3
Impact of mass media	2	0.5
Substandard electrical fixtures	2	0.5

agreement with the results of other workers(3-5). A possible explanation is the exploratory nature of behavior in children between 4-9 years with no sense of fear.

Several workers(2,6,7) reported that falls were the most of frequent childhood injuries. The present study also showed that maximum cases of accidents were due to falls. The factors contributing to fall from heights include kite-flying from roofs, sleeping on unguarded roof terraces and architectural defects in buildings.

In the present study, cases of poisoning consisted only 6.3% of all cases of accidents which is quite low in comparison to the findings of Sitaraman *et al.*(2) who reported an incidence of 20.4%. In most Indian studies(8,9) kerosene oil ingestion is frequently seen as the chief cause of accidental poisoning in children. Kerosene oil, which is readily available in most Indian houses, is more likely to be mistaken with water by the young children. However, in the developed countries, most cases of poisoning are due to accidental ingestion of medicine and pesticides(10). Play is an integral part of a child's life, and 43.3% of accidental injuries in this study occurred while playing, which is quite similar to findings in other studies(11-13).

The majority of accidents in the present series, took place during 12 noon to 6 pm; similar observations have been reported previously(3,4). These hours are the time of maximum physical activity, and also the mothers are probably taking some rest leaving the children unobserved and therefore are more prone to accidents.

In the present study it was possible to identify incriminating environmental factors in 51.8% cases. In this study, defective architecture and town planning were responsible for a number of accidents. The fact that poorly protected roofs, houses

opening directly on the street, poor state of roads and defective brakes constituted the four major incriminating environmental factors, brings us to conclude that, if some basic precautions are taken, many of the accidents could be prevented. Modification of the environment presents a positive approach to reduction in incidence of accidental injury.

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NOTES AND NEWS

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