

INCIDENCE AND PATTERN OF ACCIDENTAL POISONING IN CHILDREN

Daljit Singh, Harmesh Singh Bains and Vinneet Arora

Department of Pediatrics, Dayanand Medical College & Hospital, Ludhiana, Punjab, India

Abstract : Accidental poisoning is a common problem in children due to their natural exploratory behaviour. The magnitude of this problem is associated with regional peculiarities. With this background, all children admitted in pediatric ward were studied over a period of 6 years to find out the incidence and type of accidental poisoning. Overall incidence was found to be 0.6%. Commonly observed poisons were kerosene oil (25.7%), organophosphorus compounds (21%) and drugs (20%). The mortality rate was 7.6%.

INTRODUCTION

Accidental poisoning in young children is often encountered by pediatricians and general physicians. The advent of various social and environmental changes has brought about a noticeable alteration in the pattern of poisoning now a day. Fresh hazards are constantly appearing with increasing use of various chemical substances in households and easy availability of drugs.

The pattern of poisoning varies from place to place because of difference in the social and epidemiological factors such as education, socio-economic status, local beliefs and customs and urban or rural distribution of population. Cumulative data about various categories of accidental poisoning from different parts of country are necessary to assess the magnitude of this childhood problem. The present study was conducted to determine the pattern of accidental poisoning in children admitted in this tertiary care hospital in Punjab.

MATERIAL AND METHODS

This prospective study was carried out in the department of pediatrics, Dayanand Medical College & Hospital, Ludhiana, Punjab. All children admitted to hospital with accidental poisoning during 6 years viz June 1996 to May 2002 were included. The detailed data recording included age, sex, urban/rural distribution, type of family, nature and mode of poisoning, occupation and education of parents. The time interval between the ingestion of the offending agent and admission to Children with food poisoning and patients with toxic and idiosyncratic reactions to prescribed drugs were not included in this study.

RESULTS

During the period of this study, 17838 children were admitted in pediatric ward. 105 children were diagnosed to be having accidental poisoning constituting 0.6% of the total admissions. Of the 105 children 10.5% were below 1 year, 41.9%, 28.6% and 19% were in the age group of 1-3, 3-5 and more than 5 years respectively (Table I). Males constituted 68.6% cases with male to female ratio of 2.2:1. Seventy five (71.4%) patients belonged to urban areas while thirty (28.6%) belonged to rural areas. The child belonged to nuclear family in 46 (43.8%) and joint family in 59 (56.2%). In majority of cases (84.8%) the mothers were housewives. (Table 2) the poison was accidentally consumed at home in 94% cases. Remaining six children consumed poison in the neighborhood. 36.2% patients were admitted within 6 hours of ingestion of the offending agent, 56.2% between 6-12 hours and 7.6% after 12 hours. A wide variety of

Table 1: Age distribution of various poisoning

Type of poison	Age group (yrs)				Total (%)
	0-1	1-3	3-5	>5	
Kerosene	1	18	5	3	27 (25.7)
Organophosphorus	1	7	5	9	22 (21.0)
Aluminium phosphide	0	1	1	3	5 (4.8)
Other pesticides	0	1	1	2	4 (3.8)
Drugs	2	10	8	1	21 (20.0)
Acids	1	4	2	1	8 (7.6)
Miscellaneous	6	3	8	1	18 (17.1)
Total (%)	11 (10.5)	44 (41.9)	30 (28.6)	20 (19)	105

agents were involved. Commonly observed poisons were kerosene oil (25.7%), organophosphorus (OP) compounds (21%), drugs (20%), aluminium phosphide (4.8%), corrosives (7.6%) and miscellaneous agents (17.1%). (Table I).

Table 2: Socio-demographic profile (N= 105)

Parameter	N	%	
Residence:	Urban	75	71.4
	Rural	30	28.6
Sex	Male	72	68.6
	Female	33	31.4
Mothers occupation	Housewife	89	84.8
	Service	16	15.2
Mother's education	Illiterate	23	21.9
	Primary	10	9.5
	Secondary	28	26.7
	Graduate	32	30.5
Type of family :	Postgraduate	12	11.4
	Nuclear	46	43.8
	Joint	59	56.2

Out of 27 cases of kerosene poisoning, majority (66.7%) were in the Poisoning due to drugs constituted 20% of total cases. The agents implicated included antiepileptics (28.6%), antipsychotics (28.6%), antihistaminics (9.5%), cough syrups (9.5%), iron tablets, antihypertensives and oral contraceptive pills.

Corrosive poisoning was due to ingestion of benzene oil, sulphuric acid and cleansing agents. Two patients developed dysphagia due to stricture formation.

Correspondence : Dr. Harmesh Singh Bains

E-mail : harmeshsinghi@sifyl.com

Miscellaneous agents included fire cracker powder, mosquito mats, detergents, thermometer mercury and naphthalene balls.

Seven patients expired. The mortality rate was 7.6%. These included 3 patients each due to aluminium phosphide and organophosphorus compounds and two due to kerosene oil poisoning.

DISCUSSION

Accidental poisoning is one of the important emergencies encountered in children. Hospital statistics reported periodically from different parts of the country indicate an incidence varying from 0.3% to 7.6% of total admissions. (j. 'J5. We found an incidence of 0.6%.

In the present study, 71% of poisoning occurred in children under 5 years with maximum incidence in 1-3 year age group. A similar age distribution has been reported from other studies. Usually, this pattern of occurrence is related to the development stage of the child.

The overall female ratio of 2.2: 1 is comparable to other reports 71.4% of the children in the present study come from urban areas. This could be due to difficulty of transport, as a result of which the rural patients may get treatment from nearby hospital or general practitioners.

Higher incidence was found in joint families (56.2%) as compared to nuclear families (43.8%) where the mother is overburdened by household chores and is more likely to be careless in storing potentially poisonous substances out of reach of children.

No seasonal variation of poisoning among different categories has been found in this study though some authors found higher incidence in summer months.

The commonest type of accidental poisoning in our study was *kerosene oil* (25.7%). This is in agreement with other reported poisonings from

this country which have found the incidence to be 30% to 44% (2-9). Most cases of accidental poisoning due to pesticides involved *organophosphorus compounds*. Majority of these children came from rural areas (94%). This is attributed to wide use of these pesticides in this region as farming is common occupation in Punjab.

Accidental poisoning due to drugs accounted for 20% of cases in our 2-q study. This is in conformity with observations of other authors (2-9).

The wide variety of agents implicated show that any substance available at home if accessible to a child can be accidentally consumed any time, to keep all medicines out of sight and reach, under lock, to place household chemicals out of reach of children, including detergents and antiseptics in bathrooms. All prescribed medicines for the children should be given under direct supervision. Do not permit the child to take the medicine on his own.

REFERENCES

1. Bhandari E. Accidental poisoning in children. *Indian Pediatric* 1981, 18: 153-155.
2. Buhariwala RJ, Sanjanwalla. Poisoning in children: A study of 303 cases. *Indian Pediatric* 1969,6: 141-145.
3. Satpathy R, Dass BB. Accidental poisoning in childhood. *Indian Pediatric* 1979, 13: 190-192.
4. Chatterjee E, Eanerjee DPo Accidental poisoning in children. *Indian Pediatric* 1981,18: 157-162.
5. Singh S, Narang A, Walia ENS, Mehta S, Kumar Lo Accidental poisoning in children. *Indian Pediatric* 1981,18: 163-166.
6. Sitaraman S, Sharma U, Saxena S. Accidental poisoning in children. *Indian Pediatric* 1985,22:757- 760.
7. Kumar V. Accidental poisoning in South West Maharashtra. *Indian Pediatric* 1991,28: 731-735.
8. KissonN, Vidyasagar D. Poisoning *Indian J Pediatric* 1991,58: 431-438.
9. Khadgwat R, Garg P, Eansal P, Arya A, Choudhary E. Accidental poisoning *Indian Pediatric* 1994, 31: 1555-1557.

ONCE-A-DAY
Olmezeest ¹⁰/₂₀
Olmesartan Medoxomil 10/20 mg Tabs.

**2 Digit BP reduction for
3 Dimensional benefit**

- **Efficacy**¹
 - The only ARB providing double digit BP reduction
 - Responder rates > 80%
- **Safety**²
 - Placebo like side effect profile
- **Protection**³
 - Additional impact on vascular inflammation
 - Targets two CV risk factors simultaneously

For Improved BP Control

AZURA
Life Sciences
A DIVISION OF SUN PHARMACEUTICAL INDUSTRIES LTD.

1. Supplement of Practising Medicine Aug 2005 p-16
2. Thomas Linger et al. *Drugs* 2004; 64(24): 2731-39
3. Danilo Fliser et al. *Circulation* 2004; 110: 1103-7

For the use of a Registered Medical Practitioner or a Hospital or a Laboratory only.